



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

Canadian Supplement A440S1-09

TEST REPORT SUMMARY

Test Report Issued To:

FLEETWOOD WINDOWS AND DOORS

1 Fleetwood Way

Corona, CA 92879

KONA 3800 Impact Resistant Aluminum Casement Windows

Title	Summary of Results		
	Specimen 1 (4 hinges)	Specimen 1E (5 hinges)	Specimen 2
Primary Product Designator	Class LC- PG65 1067 x 2135 (42 x 84) Type C	Class LC- PG65 1067 x 2135 (42 x 84) Type C	Class LC- PG65 1067 x 2135 (42 x 84) Type C
Design Pressure	+3112/-3112 Pa (+65.0/- 65.0 psf)	+3112/-4070 Pa (+65.0/- 85.0 psf)	+3112/-4070 Pa (+65.0/- 85.0 psf)
Operating Force	Pass	Pass	Pass
Air Infiltration	0.325 L/s/m ² (0.065 scfm/ft ²)	See Specimen 1 for Results	See Specimen 1 for Results
Air Infiltration/Exfiltration (A440S1-09)	Level A3: < 0.50 L/s•m ²	See Specimen 1 for Results	See Specimen 1 for Results
Water Resistance	467 Pa (9.75 psf)	See Specimen 1 for Results	See Specimen 1 for Results
Structural Test Pressure	+4668/-4668 Pa (+97.5/- 97.5 psf)	+4668/-6105 Pa (+97.5/- 127.5 psf)	+4668/-6105 Pa (+97.5/- 127.5 psf)
Forced Entry	No Entry	No Entry	No Entry

Title	Summary of Results		
	Specimen 3	Specimen 4	Specimen 5
Primary Product Designator	Class LC- PG65 1067 x 1651 (42 x 65) Type C	Class LC- PG65 3175 x 2135 (125 x 84) Type C	Class LC- PG65 1067 x 2135 (42 x 84) Type C
Design Pressure	+3112/-4070 Pa (+65.0/- 85.0 psf)	+3112/-4070 Pa (+65.0/- 85.0 psf)	+3112/-3112 Pa (+65.0/- 65.0 psf)
Operating Force	Pass	Pass	Pass
Air Infiltration	See Specimen 1 for Results	0.090 L/s/m ² (0.018 scfm/ft ²)	See Specimen 1 for Results
Air Infiltration/Exfiltration (A440S1-09)	See Specimen 1 for Results	Level A3: < 0.50 L/s•m ²	See Specimen 1 for Results
Water Resistance	See Specimen 1 for Results	467 Pa (9.75 psf)	See Specimen 1 for Results
Structural Test Pressure	+4668/-6105 Pa (+97.5/- 127.5 psf)	+4668/-6105 Pa (+97.5/- 127.5 psf)	+4668/-4668 Pa (+97.5/- 97.5 psf)
Forced Entry	No Entry	No Entry	No Entry

Title	Summary of Results		
	Specimen 6	Specimen 7	Specimen 8
Primary Product Designator	Class LC- PG65 1067 x 2135 (42 x 84) Type C	Class LC- PG65 1067 x 4572 (42 x 180) Type AP	Class LC- PG65 1067 x 4572 (42 x 180) Type AP
Design Pressure	+3112/-3112 Pa (+65.0/- 65.0 psf)	+3112/-3112 Pa (+65.0/- 65.0 psf)	+3112/-3112 Pa (+65.0/- 65.0 psf)
Operating Force	Pass	Pass	Pass
Air Infiltration	See Specimen 1 for Results	0.070 L/s/m ² (0.014 scfm/ft ²)	0.105 L/s/m ² (0.021 scfm/ft ²)
Air Infiltration/Exfiltration (A440S1-09)	See Specimen 1 for Results	Level A3: < 0.50 L/s•m ²	Level A3: < 0.50 L/s•m ²
Water Resistance	See Specimen 1 for Results	467 Pa (9.75 psf)	467 Pa (9.75 psf)
Structural Test Pressure	+4668/-4668 Pa (+97.5/- 97.5 psf)	+4668/-4668 Pa (+97.5/- 97.5 psf)	+4668/-4668 Pa (+97.5/- 97.5 psf)
Forced Entry	No Entry	No Entry	No Entry

Title	Summary of Results
	Specimen 12
Primary Product Designator	Class LC- PG75 1067 x 1829 (42 x 72) Type C
Design Pressure	+3112/-3112 Pa (+65.0/- 65.0 psf)
Operating Force	Pass
Air Infiltration	See Specimen 1 for Results
Air Infiltration/Exfiltration (A440S1-09)	See Specimen 1 for Results
Water Resistance	See Specimen 1 for Results
Structural Test Pressure	+4668/-4668 Pa (+97.5/- 97.5 psf)
Forced Entry	No Entry

Reference should be made to Report No. TEL 01990817 for complete test specimen description and data. For corresponding data regarding ASTM E1886 and ASTM E1996 reference should be made to Report No. TEL 01990818.

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

AAMA/WDMA/CSA 101/I.S.2/A440-08

Canadian Supplement A440S1-09

Issued to:

FLEETWOOD WINDOWS AND DOORS

1 Fleetwood Way

Corona, CA 92879

Report No: TEL 01990817

Test Dates: October 3-5, 2013

Report Date: October 31, 2013

IAS Lab Certification Number: TL-299

Project Summary: Testing Evaluation Laboratories, Inc. (TEL) was contracted by Fleetwood Windows and Doors to perform tests on the Kona 3800 Casement and Awning Windows at TEL's Plant City, FL test facility.

Please see individual specimen results for information regarding the Performance Grade successfully achieved by each specimen.

Test specimen descriptions and results are reported herein.

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

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

Standard Specification for Windows, Doors and Unit Skylights

Test Specimen Description:

Series / Model: Kona 3800 Casement and Awning Windows

Type: Aluminum Casement and Awning Windows

Overall Size: 1067 mm x 2135 mm (42.00" x 84.00") – Specimens 1, 1e, 2, 5 and 6 – (X)
1067 mm x 1651 mm (42.00" x 65.00") – Specimen 3 – (X)
3175 mm x 2135 mm (125.00" x 84.00") - Specimen 4 – (XXX)
1067 mm x 4572 mm (42.00" x 180.00") – Specimen 7 - (X/O/X)
1067 mm x 4572 mm (42.00" x 180.00") – Specimen 8 - (O/X/O)
1067 mm x 1829 mm (42.00" x 72.00") – Specimen 12 – (X)

Daylight Opening: 840 mm x 1908 mm (33.063" x 75.13") – Specimens 1, 1e, 2, 5 and 6 – (X)
854 mm x 1435 mm (33.625" x 56.500") – Specimen 3 – (X)
835 mm x 1907 mm (32.88" x 75.06") - Specimen 4 – (XXX) – All panels
842 mm x 962 mm (33.13" x 37.875") – Specimen 7 - Top Active Panel (X)
992 mm x 2073 mm (39.062" x 81.625") – Specimen 7 - Center Fixed Panel (O)
842 mm x 1051 mm (33.13" x 41.375") – Specimen 7 - Bottom Active Panel (X)

Test Specimen Description: Continued

Daylight Opening: 992 mm x 237 mm (39.062" x 9.312") – Specimen 8 - Top Fixed Panel (O)
842 mm x 1932 mm (33.13" x 76.062") – Specimen 8 - Center Active Panel (X)
992 mm x 2073 mm (39.062" x 81.625") – Specimen 8 - Bottom Fixed Panel (O)
835 mm x 1424 mm (32.88" x 56.06") – Specimen 12 – (X)

Glazing Detail: See attached drawing numbers L-7031, L-7032, L-7032A and L-7033
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-7031, L-7032, L-7032A and L-7033.

Test Results: Specimen 1 – Class LC-PG65 1067 x 2134 (42 x 84) Type C - Aluminum Casement Window (X)
(Tested with four hinges)

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00		
	Initiate Motion	18 N (4.1 lbf)	Report Only
	Maintain Motion	13 N (3.0 lbf)	45 N (10.00 lbf)
	Latches	53 N (12.0 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Infiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.325 L/s/m ² (0.065 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Infiltration per ASTM E283 @ 299 Pa (6.24 psf)	0.790 L/s/m ² (0.158 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.100 L/s/m ² (0.020 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 299 Pa (6.24 psf)	0.820 L/s/m ² (0.164 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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 per ASTM F588 Type B Grade 10		
	Disassembly Test	No Entry	No Entry
	Test B1 – B3	No Entry	No Entry
	Sash/Panel Manipulation Test	No Entry	No Entry
	Lock Manipulation Test	No Entry	No Entry
5.3.6.4.3	Sash Vertical Deflection Test 270N (60 lbf)	(10.693 mm (0.421"))	20.3 mm (0.80") Max
5.3.6.6.2	Distributed Load Test 300 Pa (6.2 psf)	No Damage	No Damage
Optional Performance			
4.3.2.1	Water Resistance per ASTM E547 (without insect screen) 467 Pa (9.75 psf)	No Leakage	No Leakage

Specimen 1: Optional Performance – Continued

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	30	1556 (32.50)	1	0.584 (0.023)	See Note #3
Test Positive	30	3112 (65.00)			
Half Test Negative	30	1556 (32.50)	1	0.711 (0.028)	See Note #3
Test Negative	30	3112 (65.00)			

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm(in.)	Set mm(in.)	Allowable mm(in.)
Half Proof Positive	10	2334 (48.75)	1	0.813 (0.032)	0.254 (0.010)	3.810 (0.150)
Proof Positive	30	4668 (97.50)				
Half Proof Negative	10	2334 (48.75)	1	0.838 (0.033)	0.102 (0.004)	3.810 (0.150)
Proof Negative	30	4668 (97.50)				

Note #4: *Deflection/Set for Location 1 measured at center of top rail.*

**Test Results: Specimen 1E – Class LC-PG65 1067 x 2134 (42 x 84) Type C - Aluminum Casement Window
(Tested with Five Hinges)**

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00	**	
5.3.2.1	Air Infiltration per ASTM E283	**	
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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 per ASTM F588	**	
5.3.6.4.3	Sash Vertical Deflection Test	**	
5.3.6.6.2	Distributed Load Test	**	

Optional Performance

4.3.2.1	Water Resistance per ASTM E547	**
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**** Please see Specimen 1 of this report for these test results.**

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	10	1556 (32.50)			
Test Positive	10	3112 (65.00)	1	0.660 (0.026)	See Note #3
Half Test Negative	10	2035 (42.50)			
Test Negative	10	4070 (85.00)	1	1.041 (0.041)	See Note #3

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Specimen 1E: Optional Performance – Continued

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Set mm (in.)	Allowable mm (in.)
Half Proof Positive	10	2334 (48.75)	1	0.914 (0.036)	0.179 (0.011)	3.810 (0.150)
Proof Positive	10	4668 (97.50)				
Half Proof Negative	10	3052 (63.75)	1	2.413 (0.095)	0.051 (0.002)	3.810 (0.150)
Proof Negative	10	6105 (127.50)				

Note #4: Deflection/Set for Location 1 measured at center of top rail.

**Test Results: Specimen 2 – Class LC-PG65 1067 x 2134 (42 x 84) Type C - Aluminum Casement Window
(Tested with Five Hinges)**

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00	**	
5.3.2.1	Air Infiltration per ASTM E283	**	
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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 per ASTM F588	**	
5.3.6.4.3	Sash Vertical Deflection Test	**	
5.3.6.6.2	Distributed Load Test	**	

Optional Performance

4.3.2.1	Water Resistance per ASTM E547	**
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**** Please see Specimen 1 of this report for these test results.**

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	10	1556 (32.50)			
Test Positive	10	3112 (65.00)	1	0.940 (0.037)	See Note #3
Half Test Negative	10	2035 (42.50)			
Test Negative	10	4070 (85.00)	1	1.524 (0.060)	See Note #3

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Specimen 2: Optional Performance – Continued

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Set mm (in.)	Allowable mm (in.)
Half Proof Positive	10	2334 (48.75)	1	0.940 (0.037)	0.051 (0.002)	3.810 (0.150)
Proof Positive	10	4668 (97.50)				
Half Proof Negative	10	3052 (63.75)	1	1.600 (0.063)	0.229 (0.009)	3.810 (0.150)
Proof Negative	10	6105 (127.50)				

Note #4: Deflection/Set for Location 1 measured at center of top rail.

Test Results: Specimen 3 – Class LC-PG65 1067 x 1651 (42 x 65) Type C - Aluminum Casement Window

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00	**	
5.3.2.1	Air Infiltration per ASTM E283	**	
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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 per ASTM F588	**	
5.3.6.4.3	Sash Vertical Deflection Test	**	
5.3.6.6.2	Distributed Load Test	**	

Optional Performance

4.3.2.1	Water Resistance per ASTM E547	**
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**** Please see Specimen 1 of this report for these test results.**

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	10	1556 (32.50)			
Test Positive	10	3112 (65.00)	1	0.127 (0.005)	See Note #3
Half Test Negative	10	2035 (42.50)			
Test Negative	10	4070 (85.00)	1	0.381 (0.015)	See Note #3

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Specimen 3: Optional Performance – Continued

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Set mm (in.)	Allowable mm (in.)
Half Proof Positive	10	2334 (48.75)	1	0.483 (0.019)	0.127 (0.005)	3.810 (0.150)
Proof Positive	10	4668 (97.50)				
Half Proof Negative	10	3052 (63.75)	1	0.686 (0.027)	0.203 (0.008)	3.810 (0.150)
Proof Negative	10	6105 (127.50)				

Note #4: Deflection/Set for Location 1 measured at center of top rail.

Test Results: Specimen 4 – Class LC-PG65 3175 x 2134 (125 x 84) Type C – Muller Aluminum Casement Window (XXX)

The test results are tabulated as follows:

Paragraph	Title of Test – Test Method	Results	Allowed
5.3.1	Operating Force per ASTM E2068-00	**	
5.3.2.1	Air Infiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.090 L/s/m ² (0.018 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Infiltration per ASTM E283 @ 299 Pa (6.24 psf)	0.175 L/s/m ² (0.035 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.065 L/s/m ² (0.013 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 299 Pa (6.24 psf)	0.100 L/s/m ² (0.020 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
Note #1:	The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural per ASTM E330		See Note #2
Note #2:	The client opted to start at a pressure higher than the minimum required. Those results are listed under “Optional Performance”.		
Optional Performance			
4.3.2.1	Water Resistance per ASTM E547 (without insect screen) 467 Pa (9.75 psf)	No Leakage	No Leakage
5.3.5	Forced Entry resistance per ASTM F588	**	
5.3.6.4.3	Sash Vertical Deflection Test	**	
5.3.6.6.2	Distributed Load Test	**	

**** Please see Specimen 1 of this report for these test results.**

Specimen 4: Optional Performance – Continued

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	30	1556 (32.50)			
Test Positive	30	3112 (65.00)	1	4.445 (0.175)	See Note #3
Half Test Negative	30	2035 (42.50)			
Test Negative	30	4070 (85.00)	1	5.232 (0.206)	See Note #3

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

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	30	4668 (97.50)	1	6.172 (0.243)	0.127 (0.005)	8.230 (0.324)
Half Proof Negative	10	3053 (63.75)				
Proof Negative	30	6105 (127.50)	1	7.061 (0.278)	0.406 (0.016)	8.230 (0.324)

Note #4: *Deflection/Set for Location 1 measured at center of top rail.*

Test Results: Specimen 5 – Class LC-PG65 1067 x 2134 (42 x 84) Type C – Aluminum Casement Window (X)

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00	**	
5.3.2.1	Air Infiltration per ASTM E283 @ 75 Pa (1.57 psf)	**	
	Air Infiltration per ASTM E283 @ 299 Pa (6.24 psf)	**	
	Air Exfiltration per ASTM E283 @ 75 Pa (1.57 psf)	**	
	Air Exfiltration per ASTM E283 @ 299 Pa (6.24 psf)	**	
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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>		

Optional Performance

4.3.2.1	Water Resistance per ASTM E547	**
5.3.5	Forced Entry resistance per ASTM F588	**
5.3.6.4.3	Sash Vertical Deflection Test	**
5.3.6.6.2	Distributed Load Test	**

**** Please see Specimen 1 of this report for these test results.**

Specimen 5: Optional Performance – Continued

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	30	1556 (32.50)	1	0.102 (0.004)	See Note #3
Test Positive	30	3112 (65.00)			
Half Test Negative	30	1556 (32.50)	1	0.279 (0.011)	See Note #3
Test Negative	30	3112 (65.00)			

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm(in.)	Set mm(in.)	Allowable mm(in.)
Half Proof Positive	10	2334 (48.75)	1	0.305 (0.012)	0.102 (0.004)	3.810 (0.150)
Proof Positive	30	4668 (97.50)				
Half Proof Negative	10	2334 (48.75)	1	0.457 (0.018)	0.025 (0.001)	3.810 (0.150)
Proof Negative	30	4668 (97.50)				

Note #4: *Deflection/Set for Location 1 measured at center of top rail.*

Test Results: Specimen 6 – Class LC-PG65 1067 x 2134 (42 x 84) Type C – Aluminum Casement Window (X)

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00	**	
5.3.2.1	Air Infiltration per ASTM E283 @ 75 Pa (1.57 psf)	**	
	Air Infiltration per ASTM E283 @ 299 Pa (6.24 psf)	**	
	Air Exfiltration per ASTM E283 @ 75 Pa (1.57 psf)	**	
	Air Exfiltration per ASTM E283 @ 299 Pa (6.24 psf)	**	
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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>		
Optional Performance			
4.3.2.1	Water Resistance per ASTM E547	**	
5.3.5	Forced Entry resistance per ASTM F588	**	
5.3.6.4.3	Sash Vertical Deflection Test	**	
5.3.6.6.2	Distributed Load Test	**	

**** Please see Specimen 1 of this report for these test results.**

Specimen 6: Optional Performance – Continued

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	30	1556 (32.50)	1	0.762 (0.030)	See Note #3
Test Positive	30	3112 (65.00)			
Half Test Negative	30	1556 (32.50)	1	0.914 (0.036)	See Note #3
Test Negative	30	3112 (65.00)			

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm(in.)	Set mm(in.)	Allowable mm(in.)
Half Proof Positive	10	2334 (48.75)	1	0.813 (0.032)	0.025 (0.001)	3.810 (0.150)
Proof Positive	30	4668 (97.50)				
Half Proof Negative	10	2334 (48.75)	1	1.676 (0.066)	0.305 (0.012)	3.810 (0.150)
Proof Negative	30	4668 (97.50)				

Note #4: *Deflection/Set for Location 1 measured at center of top rail.*

**Test Results: Specimen 7 – Class LC-PG65 1067 x 4572 (42 x 180) Type AP- Mulled Aluminum
Awning/Fixed/Casement Windows (X/O/X))**

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00		
	Initiate Motion	9 N (2.0 lbf)	Report Only
	Maintain Motion	7 N (1.5 lbf)	45 N (10.00 lbf)
	Latches	22 N (5.0 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Infiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.070 L/s/m ² (0.014 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Infiltration per ASTM E283 @ 299 Pa (6.24 psf)	0.420 L/s/m ² (0.084 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.245 L/s/m ² (0.049 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 299 Pa (6.24 psf)	0.740 L/s/m ² (0.149 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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 per ASTM F588 Type B Grade 10		
	Disassembly Test	No Entry	No Entry
	Test B1 – B3	No Entry	No Entry
	Sash/Panel Manipulation Test	No Entry	No Entry
	Lock Manipulation Test	No Entry	No Entry
5.3.6.6.6	Awning, Hopper, Projected Hardware Load Test 70N (15 lbf)	46.61 mm (1.835")	No Damage
	Optional Performance		
4.3.2.1	Water Resistance per ASTM E547 (without insect screen) 467 Pa (9.75 psf)	No Leakage	No Leakage

Specimen 7: Optional Performance – Continued

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	30	1556 (32.50)	1	0.305 (0.012)	See Note #3
Test Positive	30	3112 (65.00)			
Half Test Negative	30	1556 (32.50)	1	0.356 (0.014)	See Note #3
Test Negative	30	3112 (65.00)			

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm(in.)	Set mm(in.)	Allowable mm(in.)
Half Proof Positive	10	2334 (48.75)	1	0.533 (0.021)	0.102 (0.004)	3.810 (0.168)
Proof Positive	30	4668 (97.50)				
Half Proof Negative	10	2334 (48.75)	1	0.864 (0.034)	0.381 (0.015)	3.810 (0.168)
Proof Negative	30	4668 (97.50)				

Note #4: *Deflection/Set for Location 1 measured at center of top rail.*

**Test Results: Specimen 8 – Class LC-PG65 1067 x 4572 (42 x 180) Type AP- Mulled Aluminum
Fixed/Awning/Fixed Windows (O/X/O))**

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00		
	Initiate Motion	9 N (2.1 lbf)	Report Only
	Maintain Motion	9 N (2.0 lbf)	45 N (10.00 lbf)
	Latches	22 N (5.0 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Infiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.110 L/s/m ² (0.021 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Infiltration per ASTM E283 @ 299 Pa (6.24 psf)	0.095 L/s/m ² (0.019 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 75 Pa (1.57 psf)	0.530 L/s/m ² (0.106 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
	Air Exfiltration per ASTM E283 @ 299 Pa (6.24 psf)	1.660 L/s/m ² (0.322 SCFM/FT ²)	1.5 L/s/m ² (0.30 SCFM/FT ²)
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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 per ASTM F588 Type B Grade 10		
	Disassembly Test	No Entry	No Entry
	Test B1 – B3	No Entry	No Entry
	Sash/Panel Manipulation Test	No Entry	No Entry
	Lock Manipulation Test	No Entry	No Entry
5.3.6.6.6	Awning, Hopper, Projected Hardware Load Test 70N (15 lbf)	48.57 mm (1.912")	No Damage
	Optional Performance		
4.3.2.1	Water Resistance per ASTM E547 (without insect screen) 467 Pa (9.75 psf)	No Leakage	No Leakage

Specimen 8: Optional Performance – Continued

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	30	1556 (32.50)			
Test Positive	30	3112 (65.00)	1	0.127 (0.005)	See Note #3
Half Test Negative	30	1556 (32.50)			
Test Negative	30	3112 (65.00)	1	0.178 (0.007)	See Note #3

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

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	30	4668 (97.50)	1	0.559 (0.022)	0.051 (0.002)	3.810 (0.168)
Half Proof Negative	10	2334 (48.75)				
Proof Negative	30	4668 (97.50)	1	1.118 (0.044)	0.102 (0.004)	3.810 (0.168)

Note #4: *Deflection/Set for Location 1 measured at center of top rail.*

Test Results: Specimen 12 – Class LC-PG65 1067 x 1829 (42 x 72) Type C – Aluminum Casement Window (X)

The test results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test – Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.1	Operating Force per ASTM E2068-00	**	
5.3.2.1	Air Infiltration per ASTM E283 @ 75 Pa (1.57 psf)	**	
	Air Infiltration per ASTM E283 @ 299 Pa (6.24 psf)	**	
	Air Exfiltration per ASTM E283 @ 75 Pa (1.57 psf)	**	
	Air Exfiltration per ASTM E283 @ 299 Pa (6.24 psf)	**	
Note #1:	<i>The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for air infiltration/exfiltration.</i>		
5.3.3.2	Water Resistance per ASTM E547		See Note #2
5.3.4.2	Uniform Load Structural 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>		
Optional Performance			
4.3.2.1	Water Resistance per ASTM E547	**	
5.3.5	Forced Entry resistance per ASTM F588	**	
5.3.6.4.3	Sash Vertical Deflection Test	**	
5.3.6.6.2	Distributed Load Test	**	

**** Please see Specimen 1 of this report for these test results.**

Specimen 12: Optional Performance – Continued

4.4.2.6 Optional Performance

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm (in.)	Allowable mm (in.)
Half Test Positive	30	1556 (32.50)	1	1.753 (0.069)	See Note #3
Test Positive	30	3112 (65.00)			
Half Test Negative	30	1556 (32.50)	1	2.159 (0.085)	See Note #3
Test Negative	30	3112 (65.00)			

Note #3: *The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440-08 (A440S1-09) for this product designation. The deflection data is recorded in this report for special code compliance and information only. See Note #4 for deflection locations.*

Range	Time (seconds)	Load Pa (psf)	Location	Deflection mm(in.)	Set mm(in.)	Allowable mm(in.)
Half Proof Positive	10	2334 (48.75)	1	2.007 (0.079)	1.245 (0.049)	3.810 (0.150)
Proof Positive	30	4668 (97.50)				
Half Proof Negative	10	2334 (48.75)	1	2.845 (0.112)	1.600 (0.063)	3.810 (0.150)
Proof Negative	30	4668 (97.50)				

Note #4: *Deflection/Set for Location 1 measured at center of top rail.*

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 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

Rev No.	Date	Page(s)	Revision(s)
0	10/21/2013	NA	Original Report Issue

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6	Horizontal cross sections
7	Horizontal and vertical cross sections
8	Frame anchoring
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10	Frame anchoring
11	Components
12	Glazing details
13	Bill of materials

NO.	DATE	BY
REVISIONS		



DATE: 9/25/13

SCALE: N.T.S.

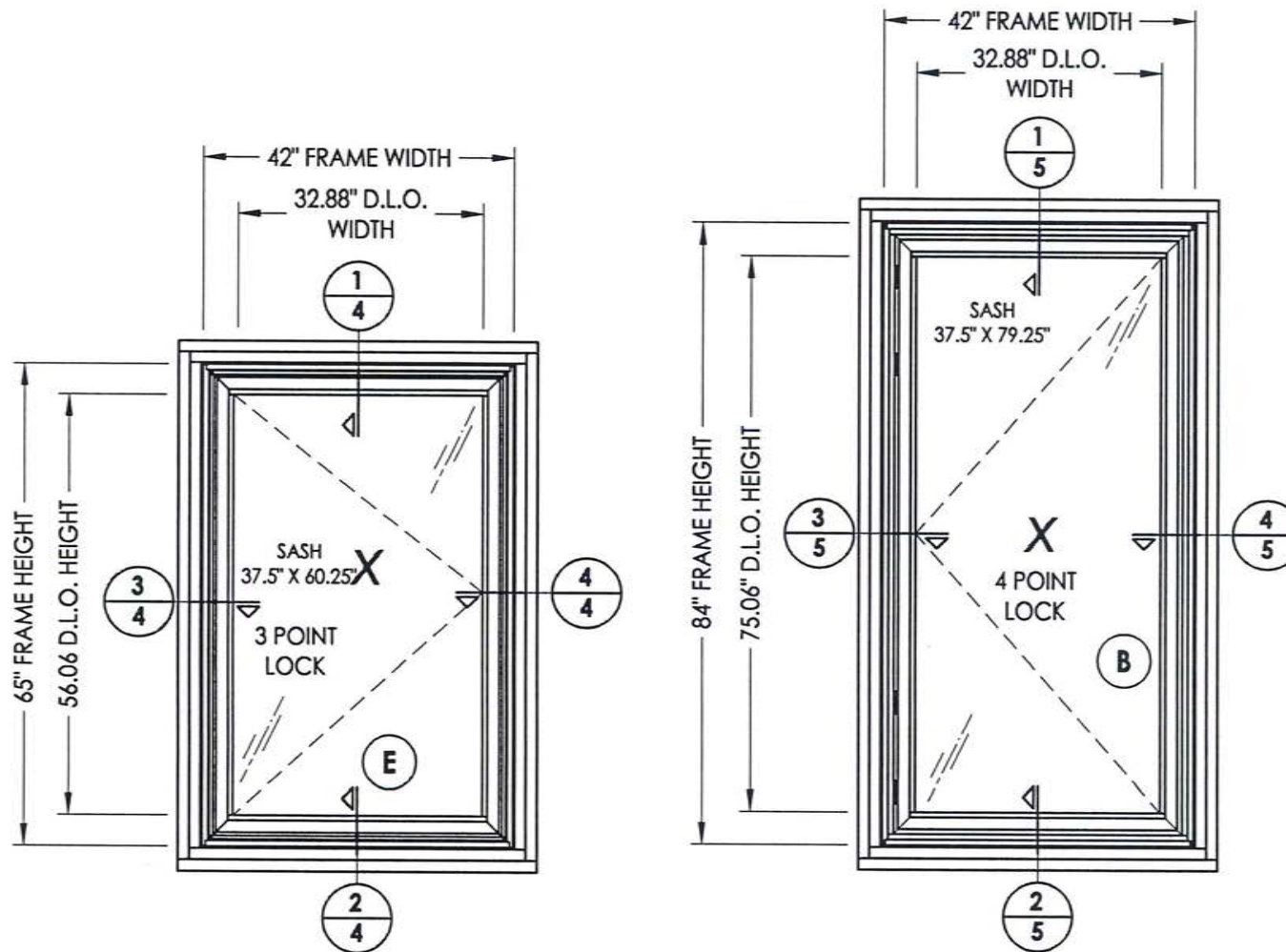
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CHK. BY: LFS

DRAWING NO.:

L-7031

SHEET 1 OF 13

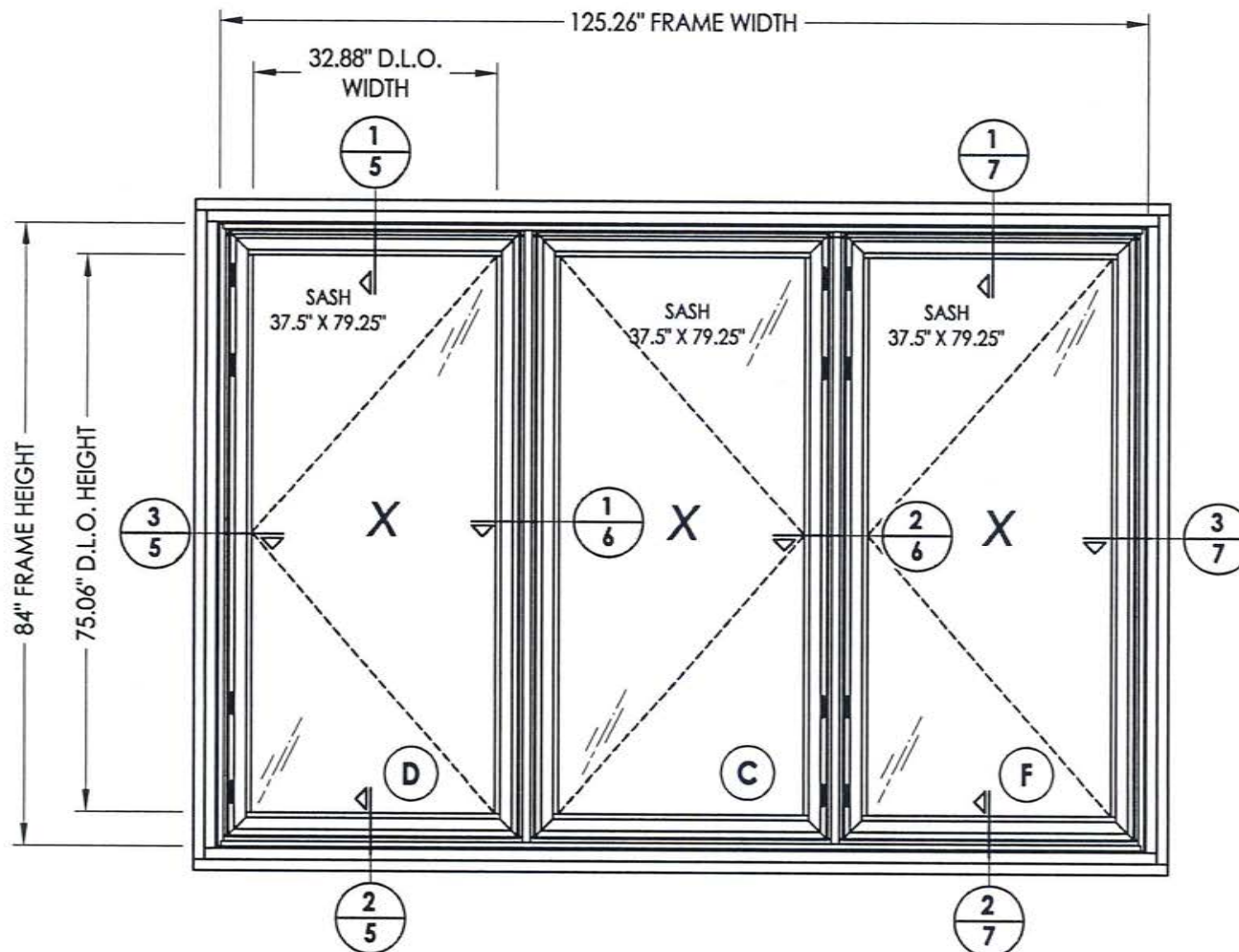


SPEC. #3, 3A

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

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 Date 10-31-13 Verified by gn

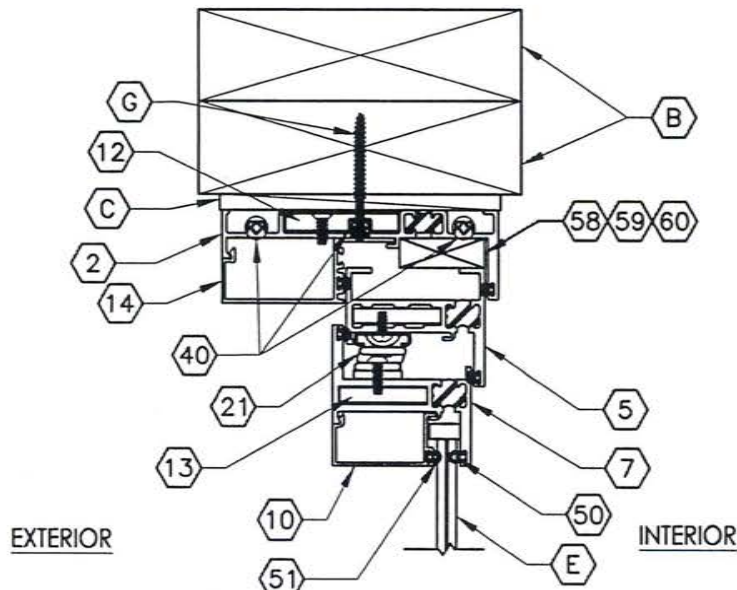
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PART OR ASSEMBLY:		TEST ELEVATION	



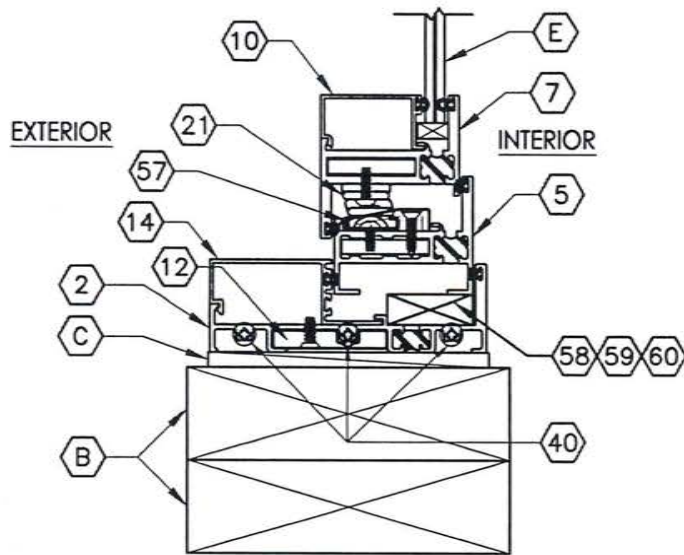
SPEC. #4, 4A

Testing Evaluation Laboratories Inc
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Date 10-31-13 Verified by gw

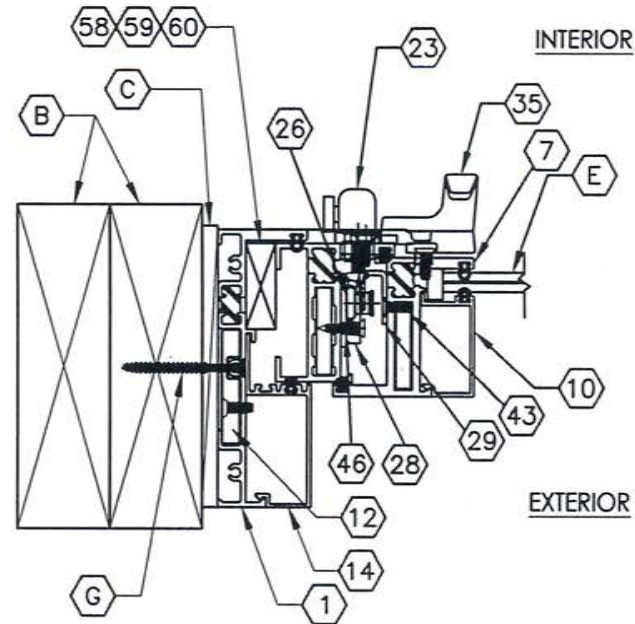
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PART OR ASSEMBLY:		TEST ELEVATION	
NO.	DATE	REVISIONS	BY
RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7031			
SHEET 3 OF 13			



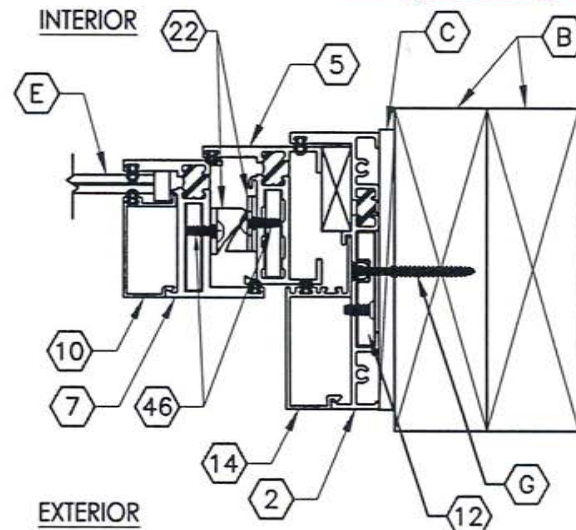
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4 **VERTICAL CROSS SECTION**



2
4 **VERTICAL CROSS SECTION**

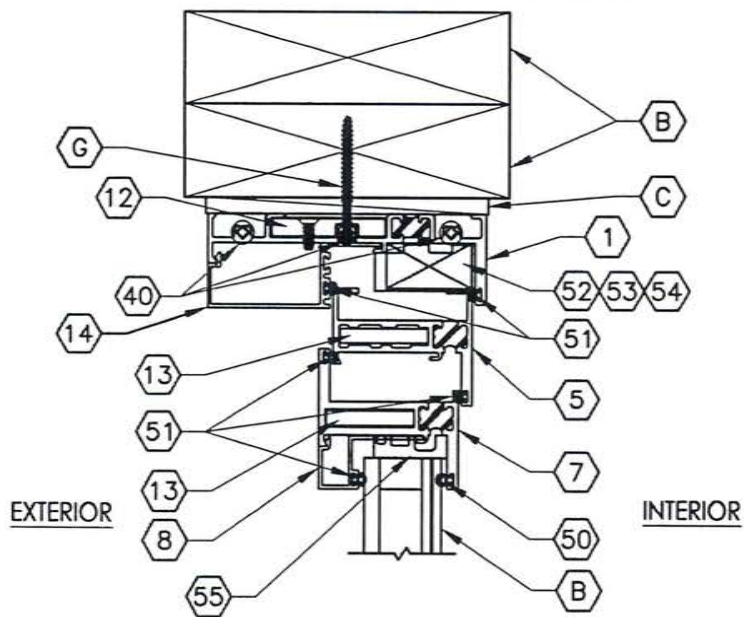


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4 **HORIZONTAL CROSS SECTION**
Testing Facilities Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by gw

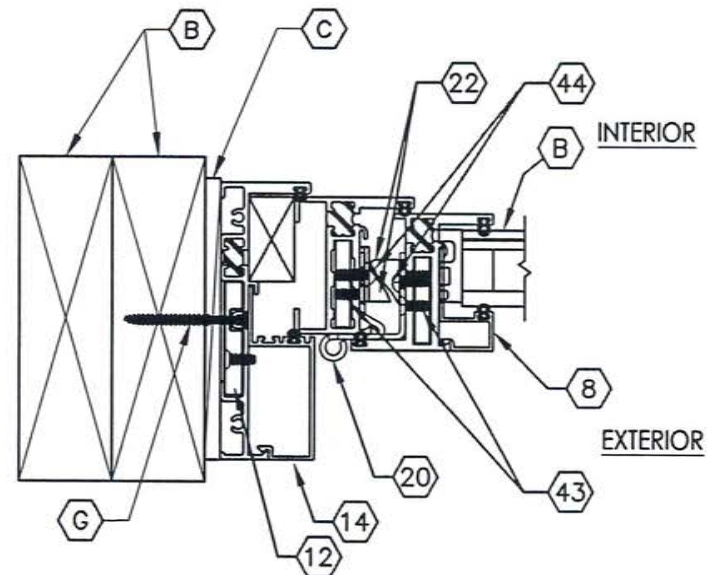


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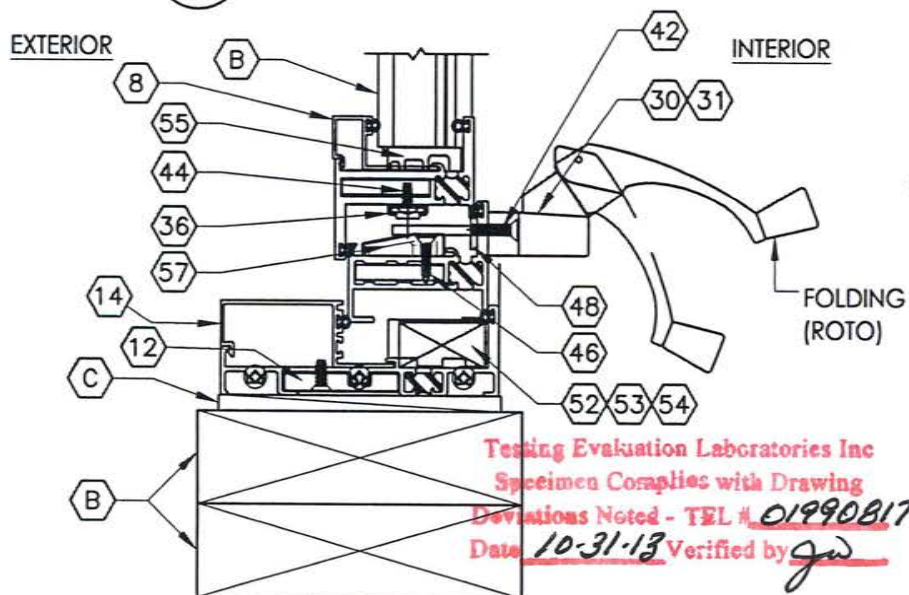
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NO.	DATE	BY	REVISIONS
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DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7031			
SHEET 4 OF 13			



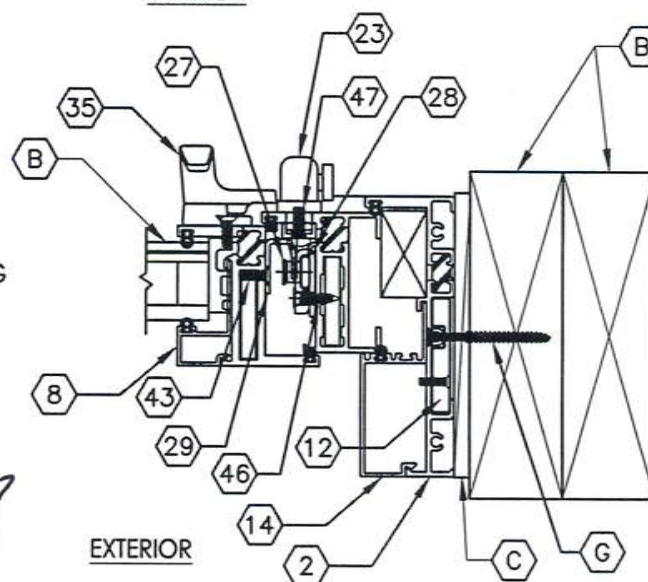
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5 **VERTICAL CROSS SECTION**



3
5 **HORIZONTAL CROSS SECTION**



2
5 **VERTICAL CROSS SECTION**



4
5 **HORIZONTAL CROSS SECTION**

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by *gw*

PRODUCT:

FLEETWOOD
KONA 3800
CASEMENT WINDOW

PART OR ASSEMBLY:

HORIZONTAL AND VERTICAL
CROSS SECTIONS

NO.	DATE	REVISIONS	BY

RW BUILDING
CONSULTANTS, INC.
813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

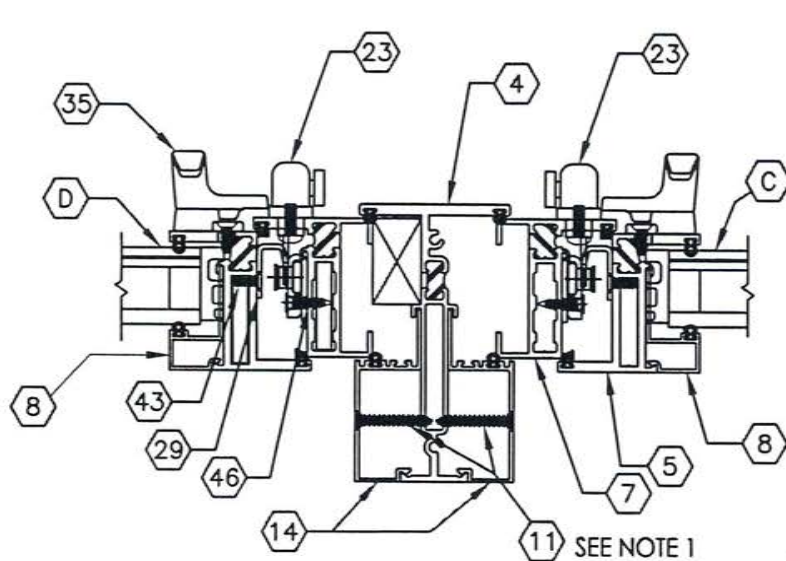
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CHK. BY: LFS

DRAWING NO.:

L-7031

SHEET 5 OF 13

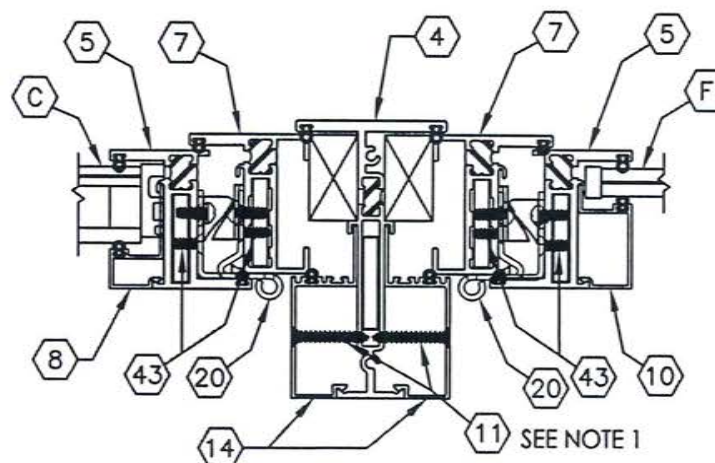


1 HORIZONTAL CROSS SECTION
6

NOTE:

1. Item #11 located 4" from each end then 12" on center for (8) total.

INTERIOR



2 **HORIZONTAL CROSS SECTION**

EXTERIOR

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10.31.13 Verified by gw

PRODUCT:

FLEETWOOD
KONA 3800
CASEMENT WINDOW

PART OR ASSEMBLY:

HORIZONTAL
CROSS SECTIONS

BY

REVISIONS

DATE _____

ON

**RW BUILDING
CONSULTANTS, INC.**
813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

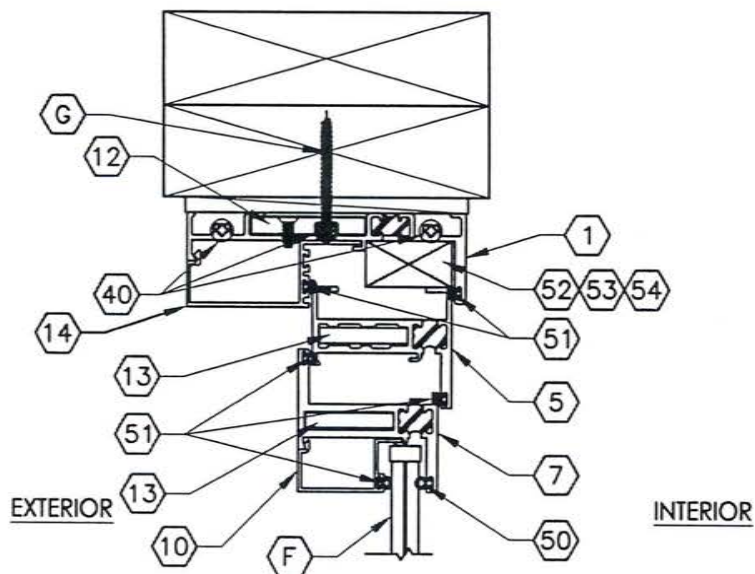
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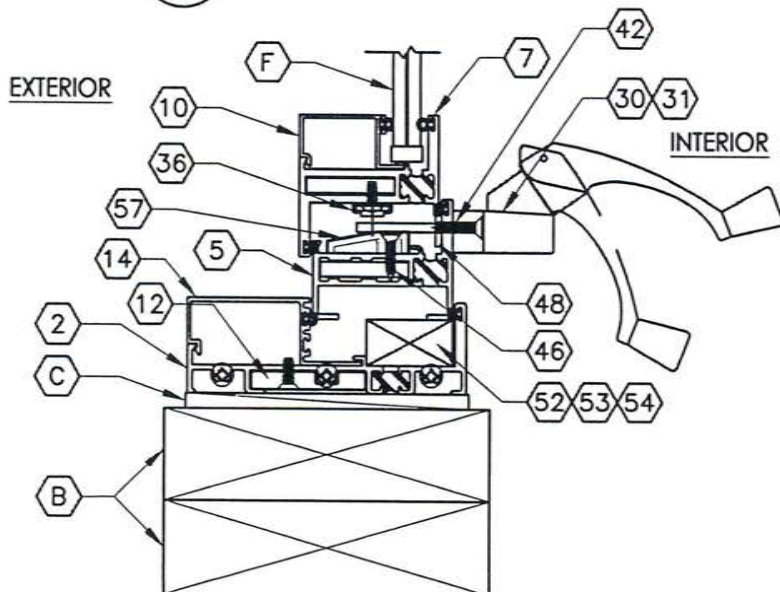
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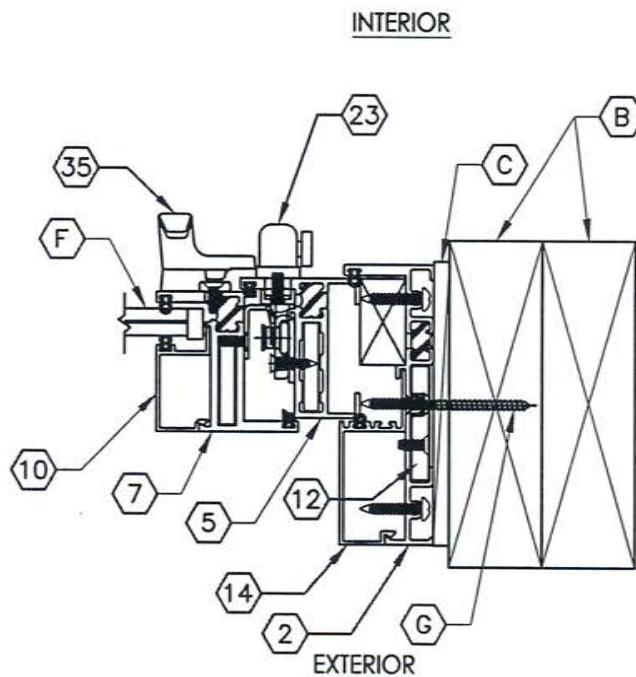
SHEET 6 OF 13



1
7 **VERTICAL CROSS SECTION**



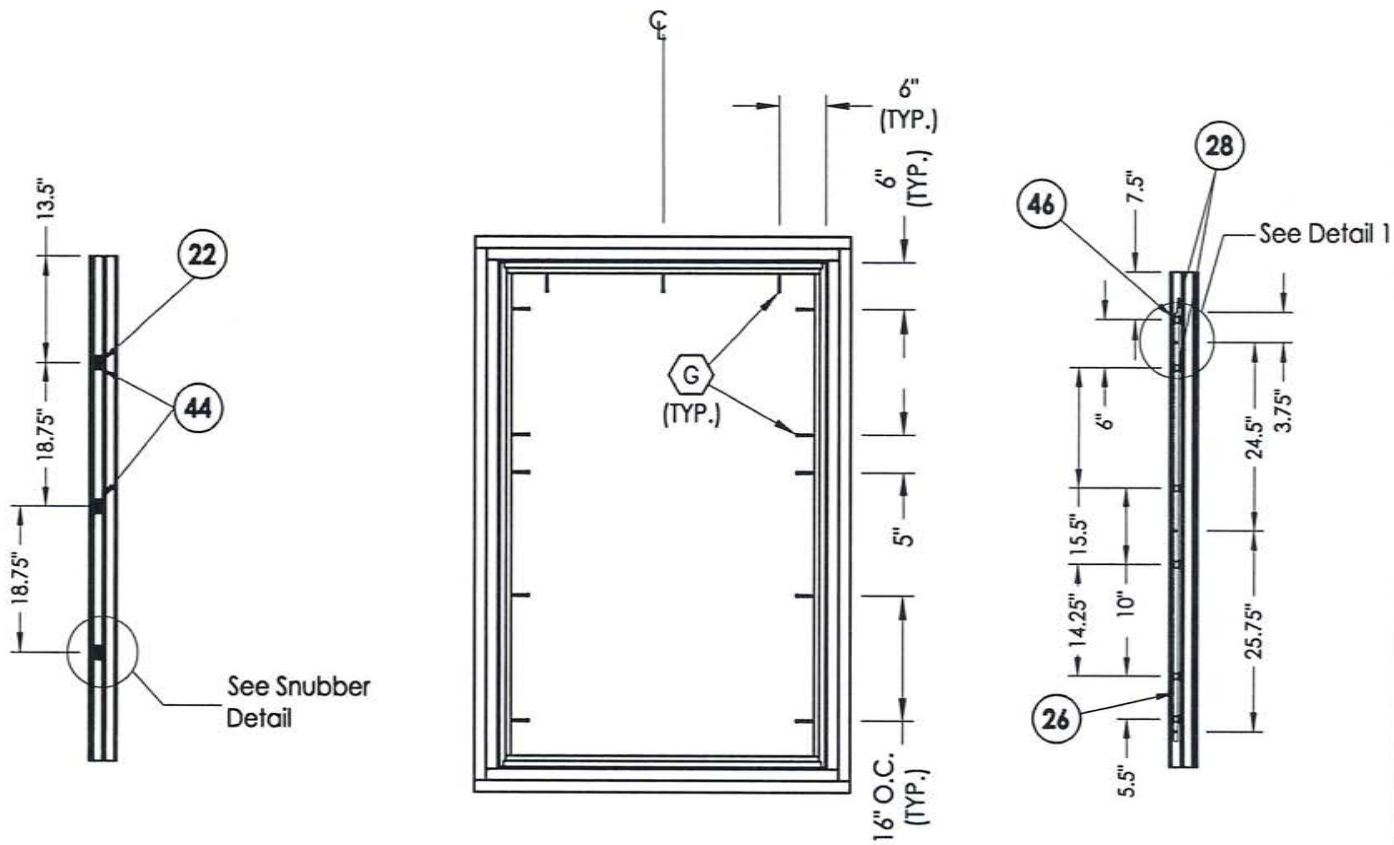
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7 **VERTICAL CROSS SECTION**



3
7 **HORIZONTAL CROSS SECTION**

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10.31.13 Verified by *gw*

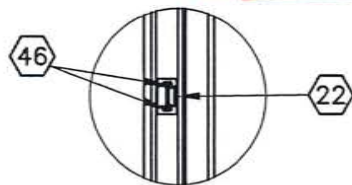
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NO.	DATE	REVISIONS	BY
			
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CHK. BY: LFS			
DRAWING NO.: L-7031			
SHEET 7 OF 13			



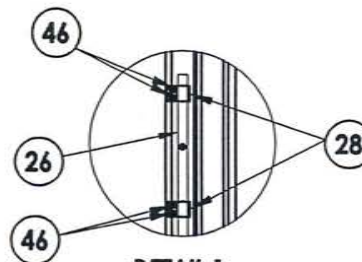
SNUBBERS JAMB

FRAME ANCHORING
2X buck construction

LOCK JAMB
Locking Points (3)



SNUBBER DETAIL



DETAIL 1

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by gww

PRODUCT:

FLEETWOOD
KONA 3800
CASEMENT WINDOW

PART OR ASSEMBLY:

FRAME ANCHORING

NO.	DATE	REVISIONS	BY

RW BUILDING
CONSULTANTS, INC.
813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

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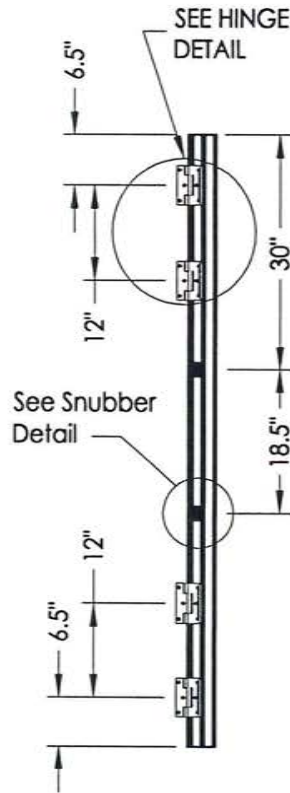
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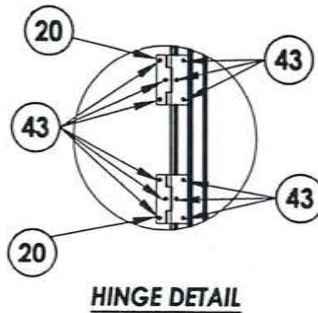
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SHEET 8 OF 13

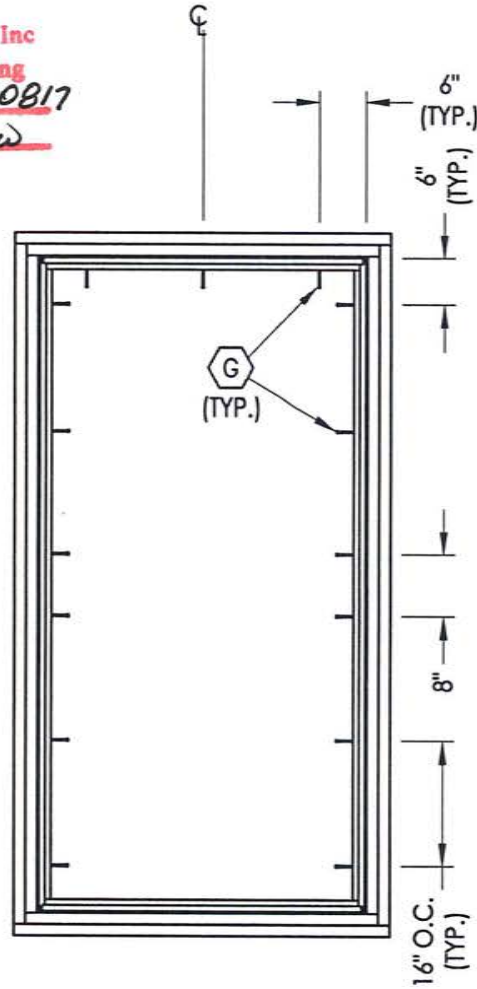
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 Deviations Noted - TEL # 01990817
 Date 10-31-13 Verified by gw



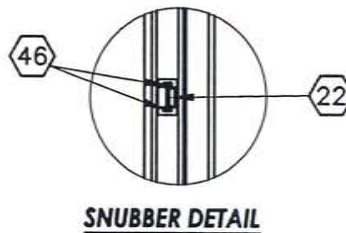
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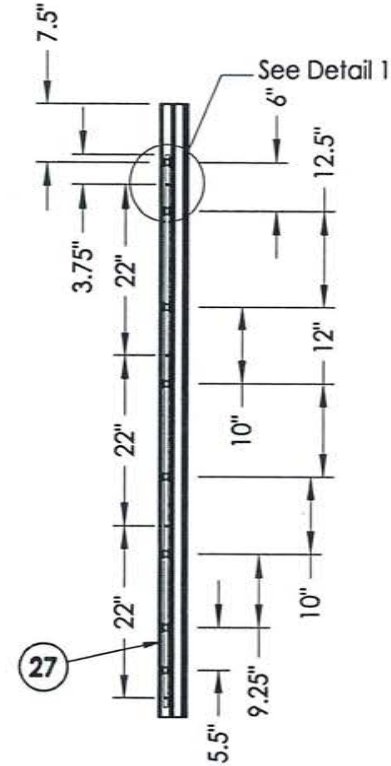
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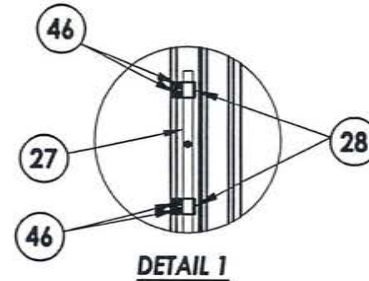
FRAME ANCHORING
 2X buck construction



SNUBBER DETAIL



LOCK JAMB
 Locking Points (4)



DETAIL 1

PRODUCT:

FLEETWOOD
 KONA 3800
 CASEMENT WINDOW

PART OR ASSEMBLY:

FRAME ANCHORING

RW BUILDING
 CONSULTANTS, INC.
 813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

DWG. BY: JK

CHK. BY: LFS

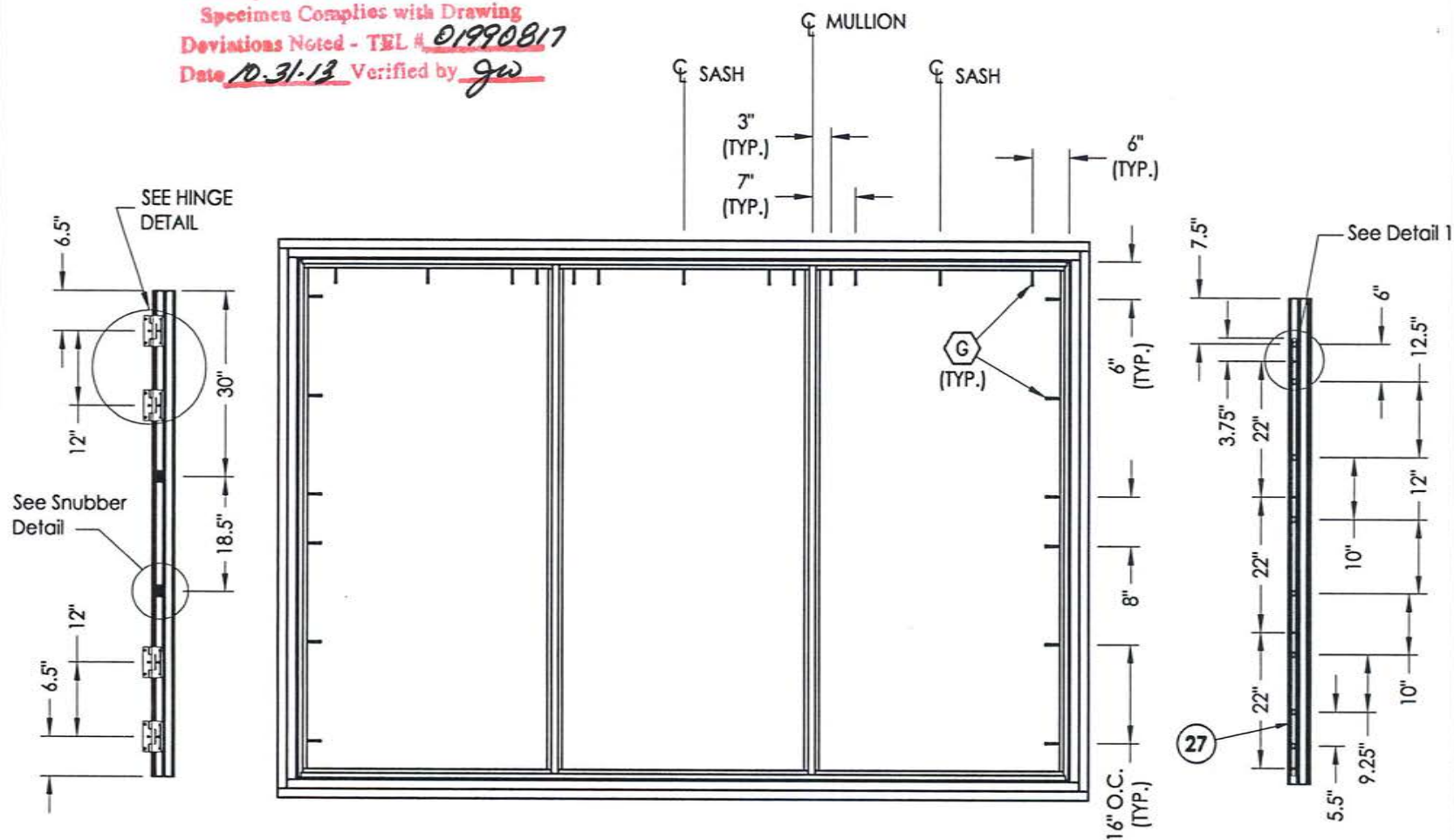
DRAWING NO.:

L-7031

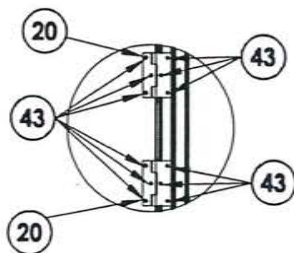
SHEET 9 OF 13

NO. DATE REVISIONS BY

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10.31.13 Verified by gw

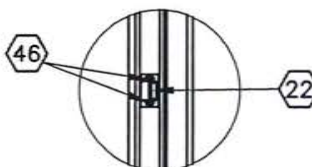


HINGE JAMB



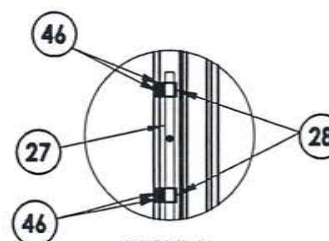
HINGE DETAIL

FRAME ANCHORING
2X buck construction



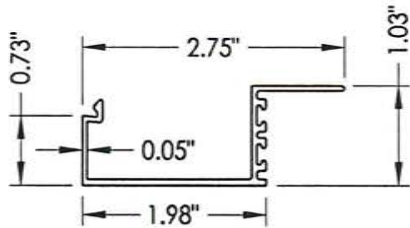
SNUBBER DETAIL

LOCK JAMB

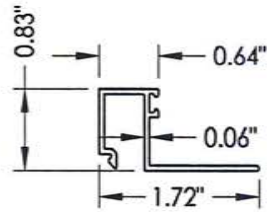


DETAIL 1

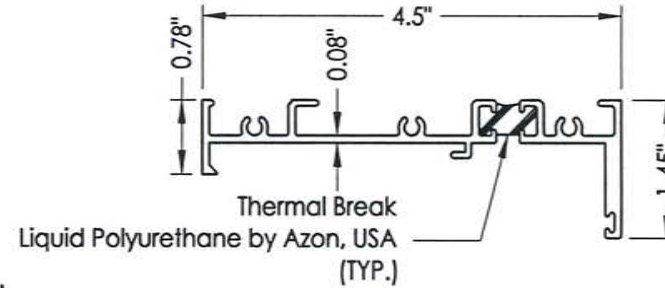
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14 INSERT STOP
011448

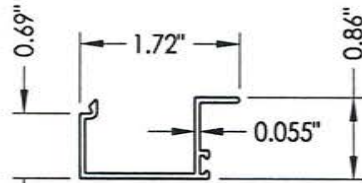


8 GLASS STOP 1-1/4"
901487

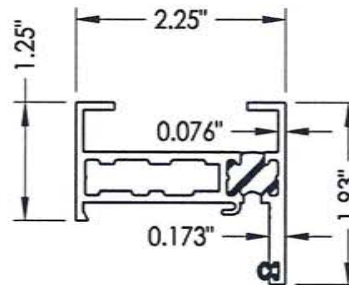


2 KONA BLOCK FRAME
011239

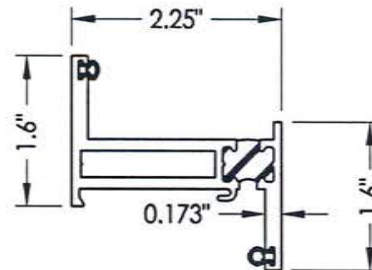
Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by gwd



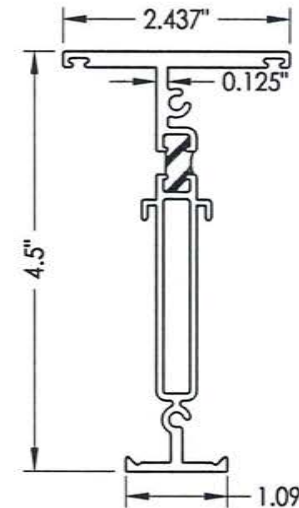
10 GLASS STOP 5/16\", 7/16"
007930



5 BLOCK FRAME
5278C1



7 ZEE BAR (PANEL)
H006733



4 MULLION
H011241

PRODUCT:

FLEETWOOD
KONA 3800
CASEMENT WINDOW

PART OR ASSEMBLY:

COMPONENTS

BY

REVISIONS

DATE

NO.

RW BUILDING
CONSULTANTS, INC.
813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

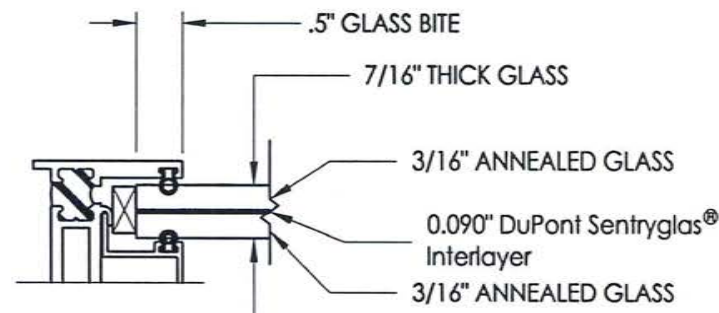
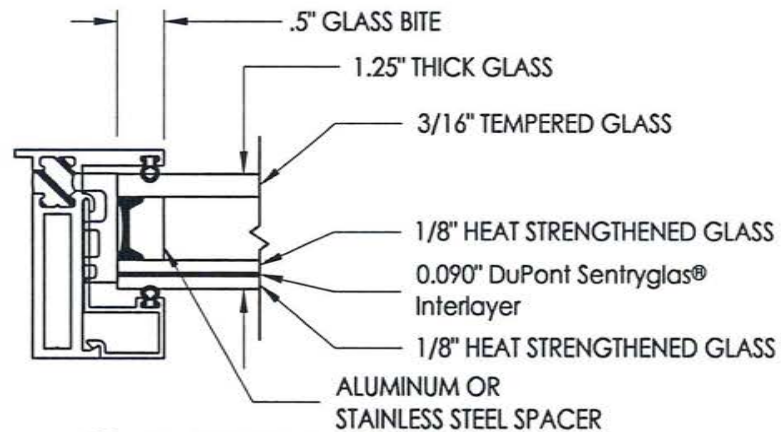
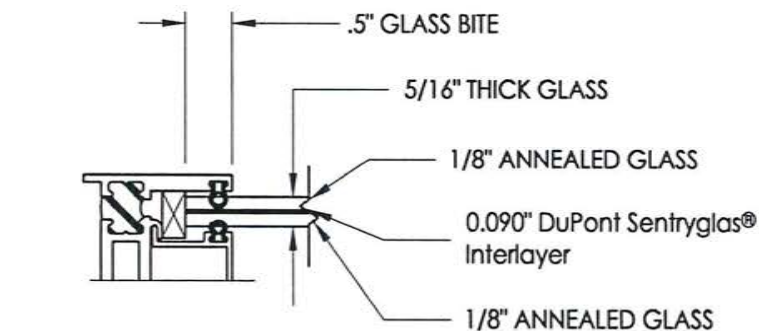
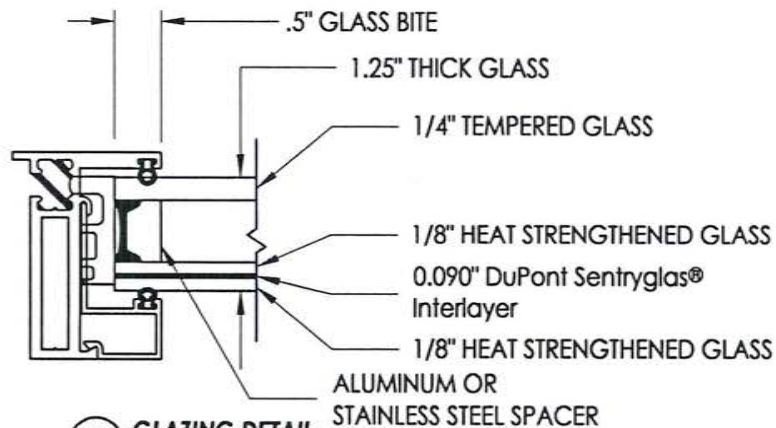
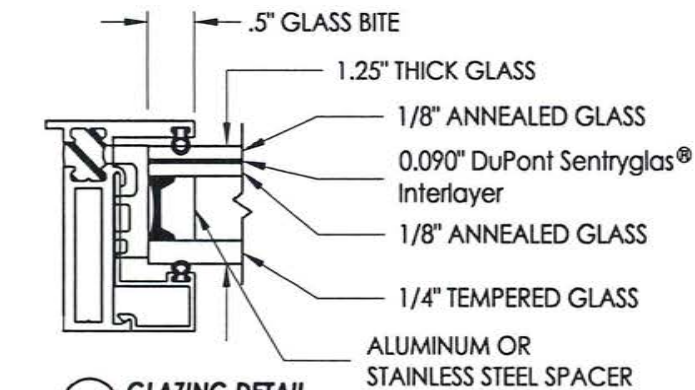
DWG. BY: JK

CHK. BY: LFS

DRAWING NO.:

L-7031

SHEET 11 OF 13



Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 01990817
 Date 10-31-13 Verified by *gzw*

PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		GLAZING DETAILS	
NO.	DATE	REVISIONS	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-7031			
SHEET 12 OF 13			

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
4	MULLION	6063-T6 ALUM
5	WESTWOOD BLOCK FRAME	6063-T6 ALUM
7	WESTWOOD ZEE BAR (PANEL)	6063-T6 ALUM
8	GLASS STOP (1-1/4")	6063-T6 ALUM
9	GLASS STOP (1/4")	6063-T6 ALUM
10	GLASS STOP (5/16", 7/16")	6063-T6 ALUM
11	#8 x 1-1/2" PFH SMS	STEEL
12	SHEAR BLOCK	ALUM
13	CORNER KEY	ALUM
14	INSERT STOP	6063-T6 ALUM
20	SS. BUTT HINGE	SS
21	4 BAR HINGE	SS
22	SNUBBER-COMMERCIAL PULL-IN BLOCK	SS
23	MULTIPOINT LOCK HANDLE	SS
26	3 POINTS LOCKING BAR	SS
27	4 POINTS LOCKING BAR	SS
28	TIE BAR GUIDE	-
29	KEEPER	SS
30	CASEMENT ROTOR GEAR 13.5"	SS
35	CAM HANDLE / STRIKE PLATE	SS

36	CASEMENT SS. TRACK	SS
40	#10 X 1" PPH SMS	STEEL
42	MACHINE SCREW NO 10-32, FHP .75"	STEEL
43	SCREW NO 10 , UFHP .5"	STEEL
44	SCREW NO 8, PHP, .50"	STEEL
46	SCREW NO 8, FHP, .750"	STEEL
47	MACHINE SCREW NO 10-32, PHP .5"	STEEL
48	BACK UP NUTS	STEEL
50	BULB VINYL (EPDM 70 DUROMETER)-TREMCO	-
51	MINI BULB VINYL(EPDM 70 DUROMETER)-TREMCO	-
52	WOOD BLOCK .750" X 1.250"	-
53	ALUMINUM BLOCK .750" X 1.250"	-
54	PVC BLOCK .750" X 1.250"	-
55	SETTING BLOCK	-
56	SETTING BLOCK 4" x 1/4" x 1"	-
57	PIVOT SHIM	-
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 # 01990817

Date 10-31-13 Verified by JW

PRODUCT:

FLEETWOOD
KONA 3800
CASEMENT WINDOW

PART OR ASSEMBLY:

BILL OF MATERIALS

REVISIONS

BY

DATE

NO.


 BUILDING
CONSULTANTS, INC.
813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

DWG. BY: JK

CHK. BY: LFS

DRAWING NO.:

L-7031

SHEET 13 OF 13

TABLE OF CONTENTS	
SHEET #	DESCRIPTION
1	Table of contents
2	Test elevation
3	Vertical cross sections
4	Horizontal cross sections
5	Horizontal cross sections
6	Horizontal cross sections
7	Vertical cross sections
8	Frame anchoring
9	Frame anchoring
10	Components
11	Glazing details
12	Bill of materials

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990187
Date 10.31.13 Verified by JW

**RW BUILDING
CONSULTANTS, INC.**
813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

DWG. BY: JK

CHK. BY: LFS

DRAWING NO.:

L-7032

SHEET 1 OF 12

PRODUCT:

001: FLEETWOOD
KONA 3800 CASEMENT WINDOW

PART OR ASSEMBLY:

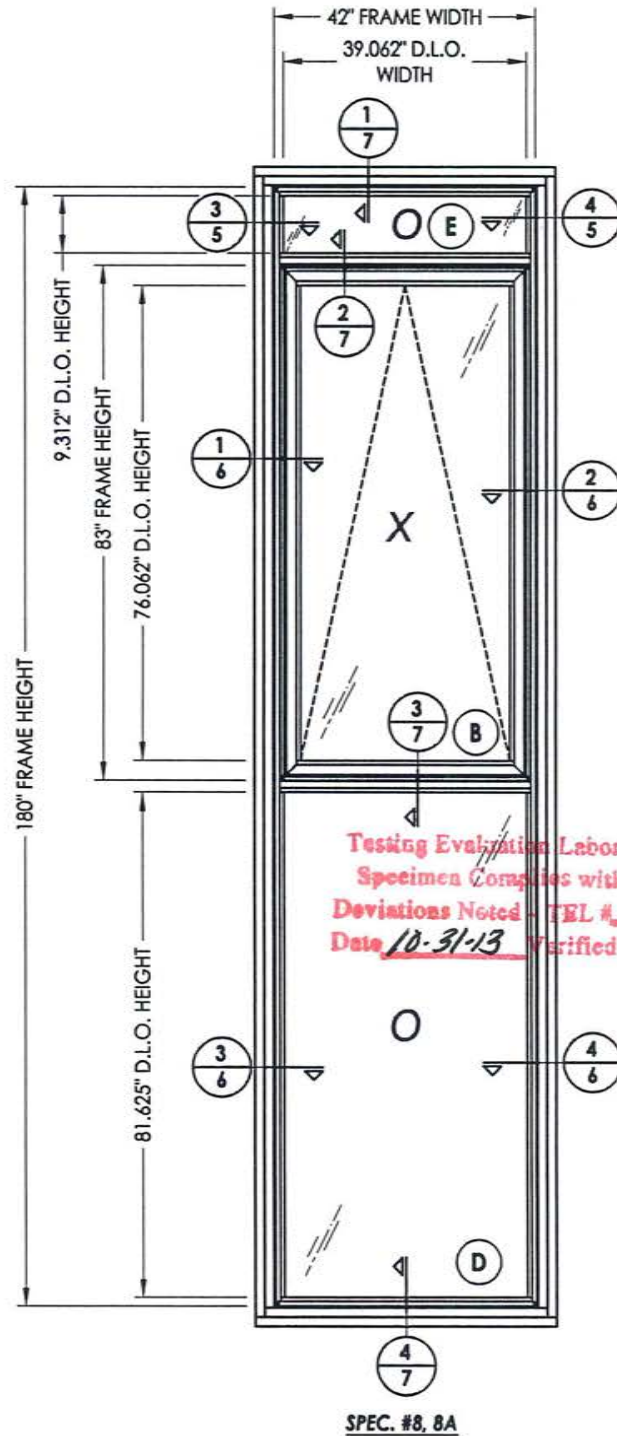
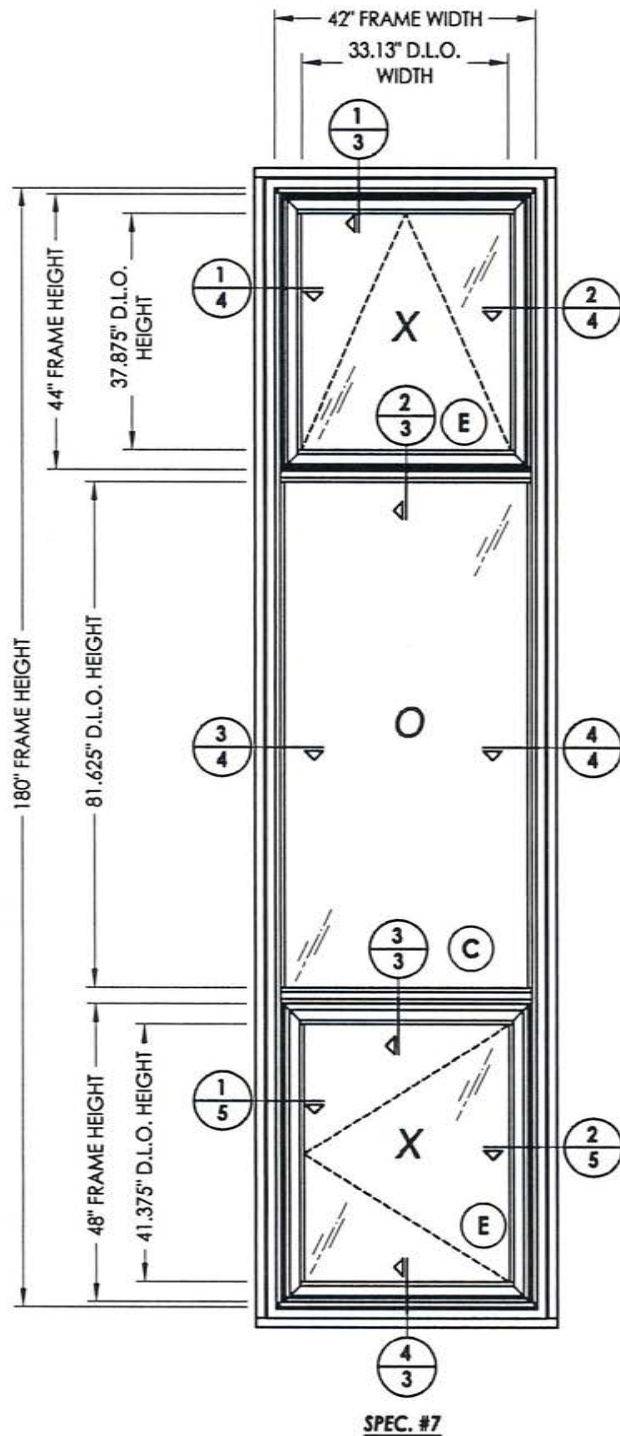
TABLE OF CONTENTS

BY

DATE _____

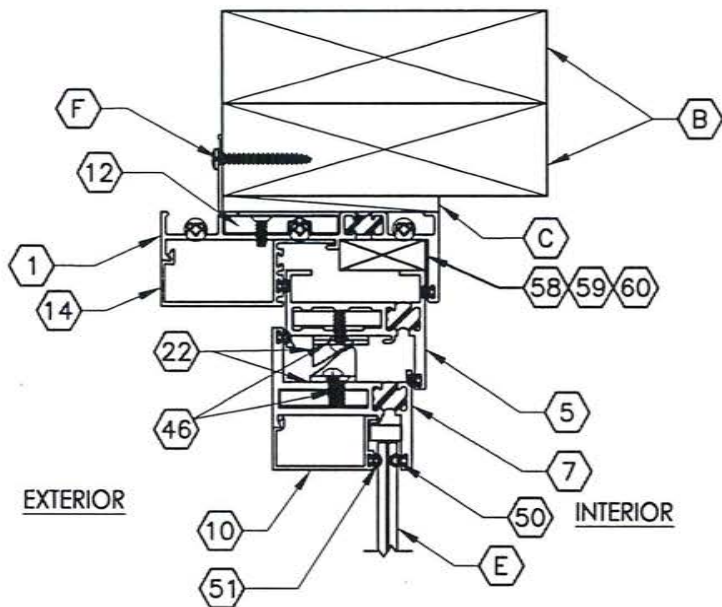
NO	
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REVISIONS

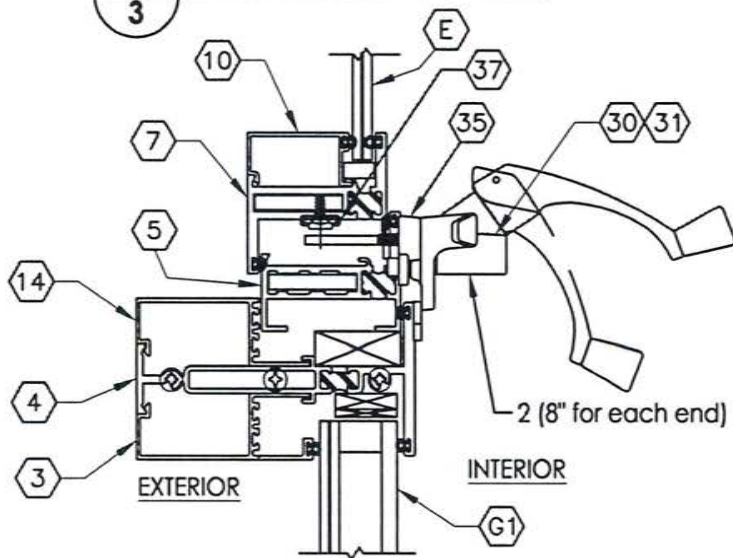


Testing Evaluation Laboratories Inc
Specimen Correlates with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by Jm

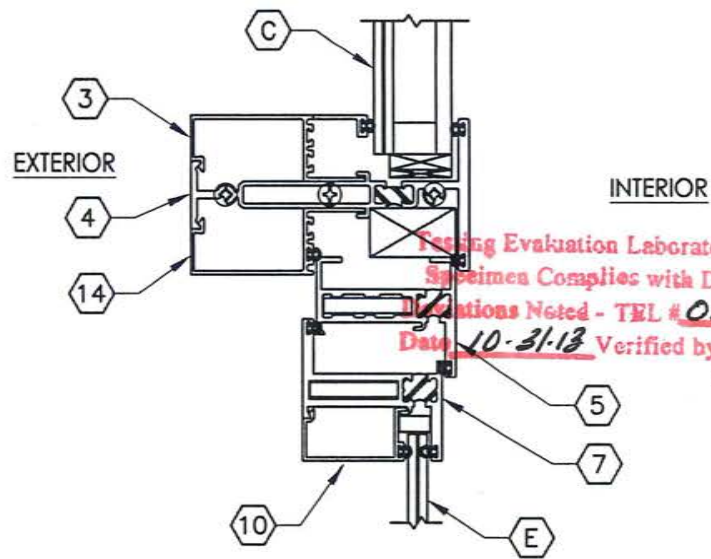
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		TEST ELEVATION	



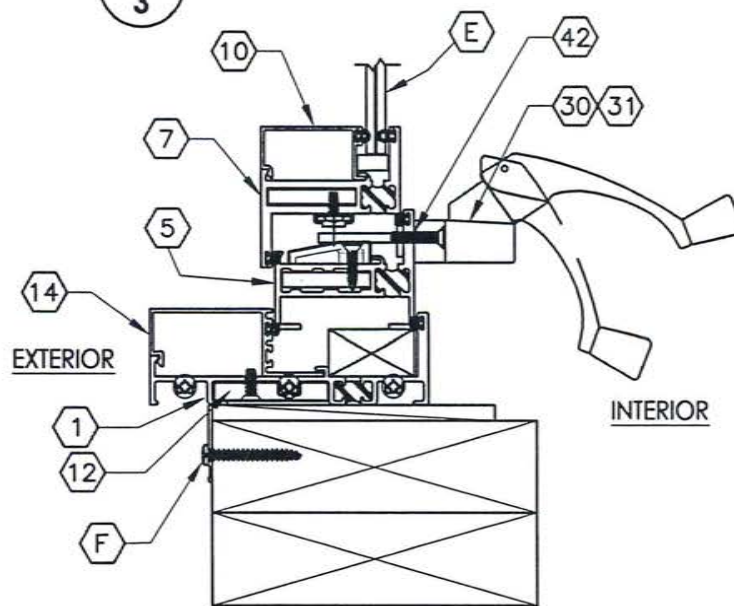
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3 **VERTICAL CROSS SECTION**



2
3 **VERTICAL CROSS SECTION**



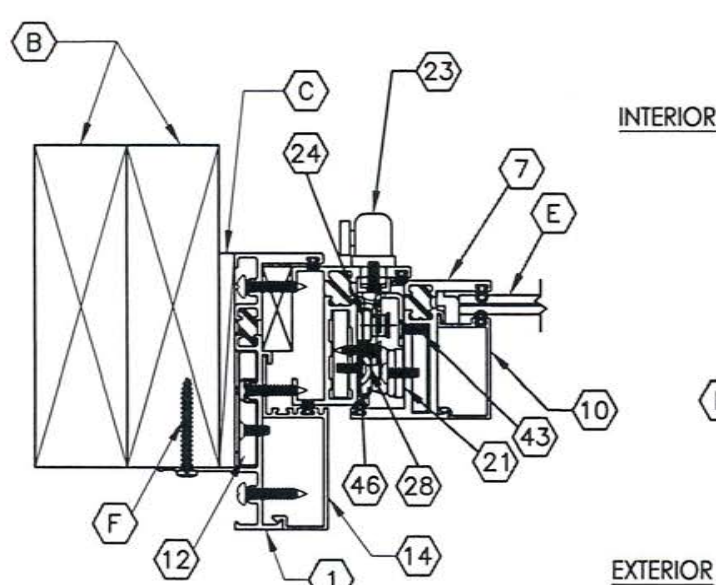
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3 **VERTICAL CROSS SECTION**



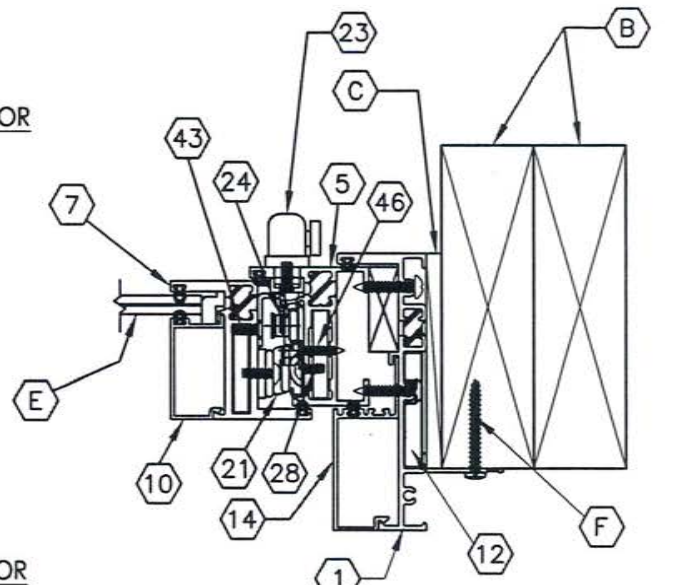
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3 **VERTICAL CROSS SECTION**

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Observations Noted - TEL # 01990817
Date 10-31-13 Verified by *ju*

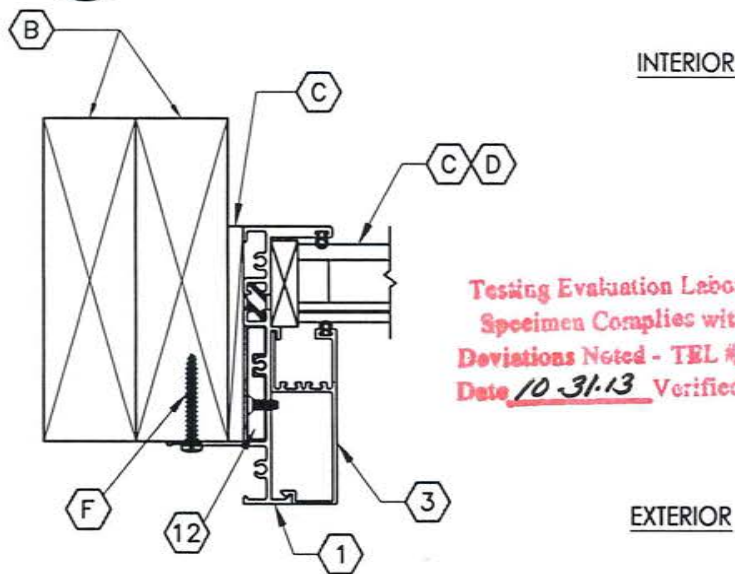
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		VERTICAL CROSS SECTIONS	
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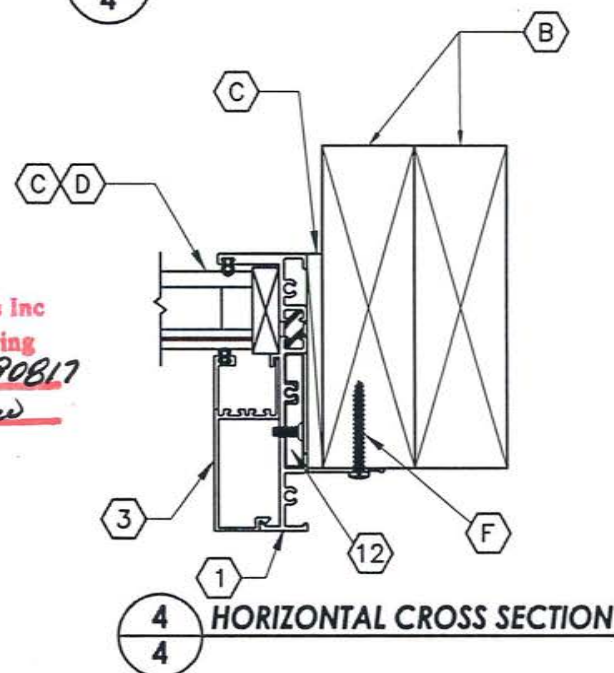
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4 **HORIZONTAL CROSS SECTION**



2
4 **HORIZONTAL CROSS SECTION**



3
4 **HORIZONTAL CROSS SECTION**

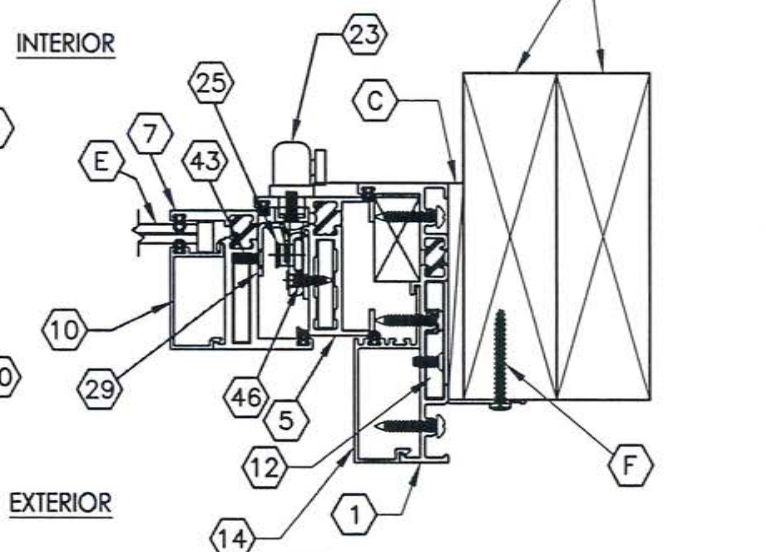


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4 **HORIZONTAL CROSS SECTION**

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by *JW*

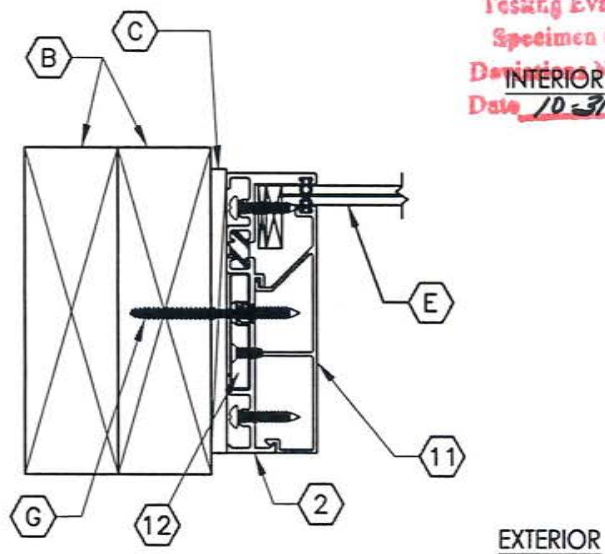
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PART OR ASSEMBLY:		HORIZONTAL CROSS SECTIONS	
NO.	DATE	BY	REVISIONS
RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7032			
SHEET 4 OF 12			

1 **HORIZONTAL CROSS SECTION**
5

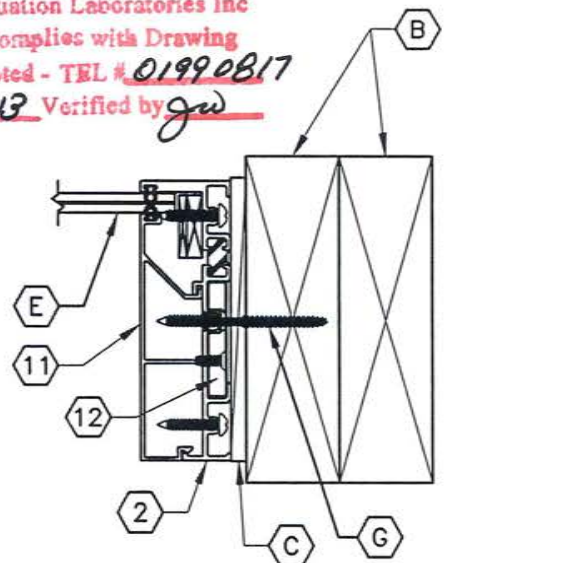


2 **HORIZONTAL CROSS SECTION**

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviation Noted - TEL # 01990817
Date 10-31-13 Verified by gw



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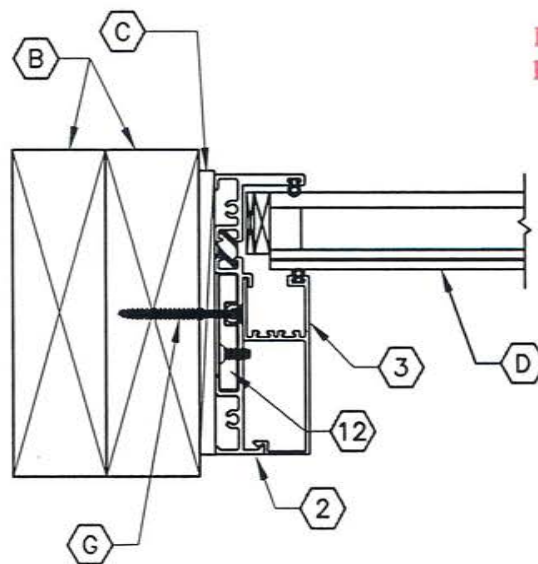


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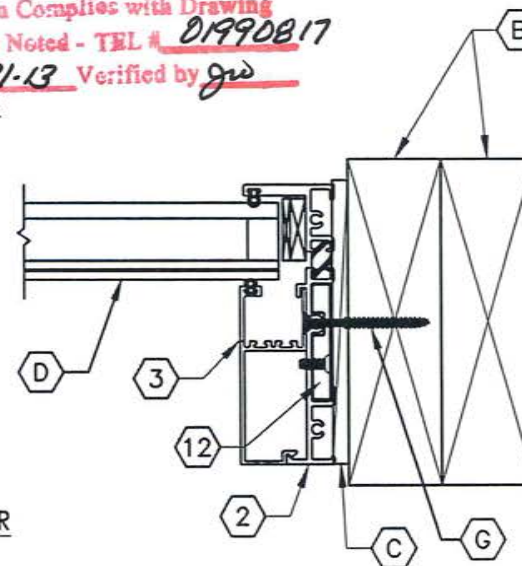
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2 HORIZONTAL CROSS SECTION
6

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by gzw
INTERIOR

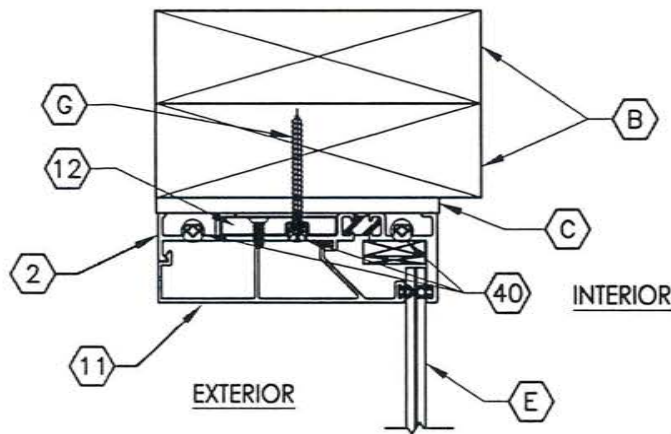


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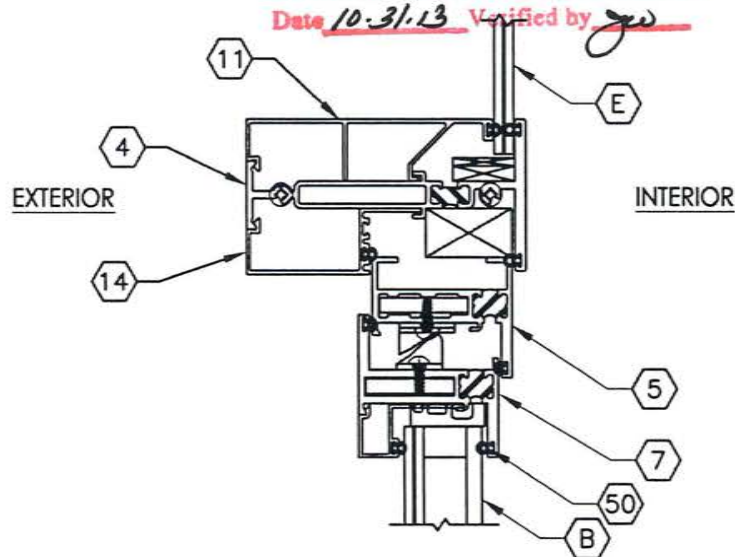
4 6 HORIZONTAL CROSS SECTION

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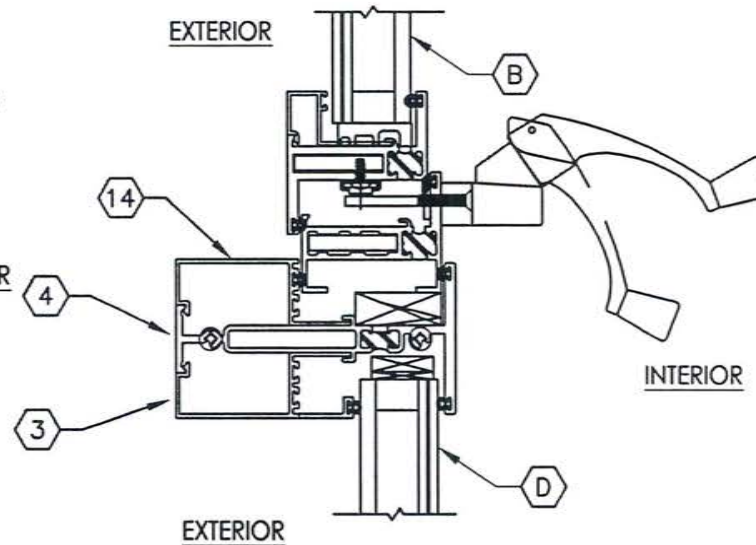


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7 **VERTICAL CROSS SECTION**

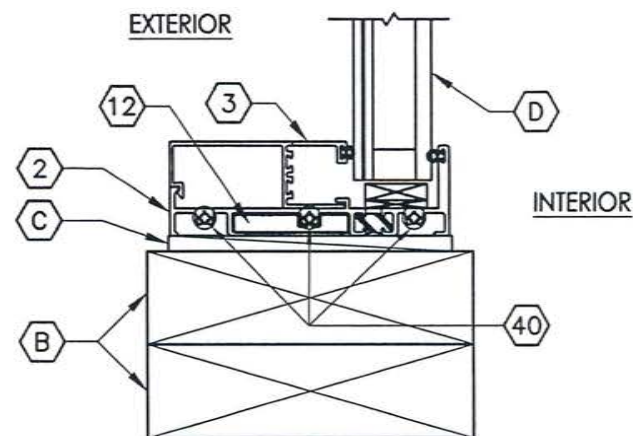
Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by JWW



2
7 **VERTICAL CROSS SECTION**

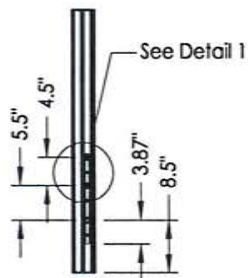
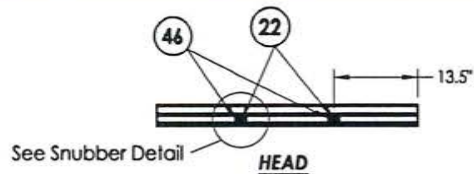


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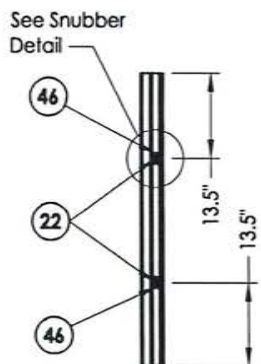
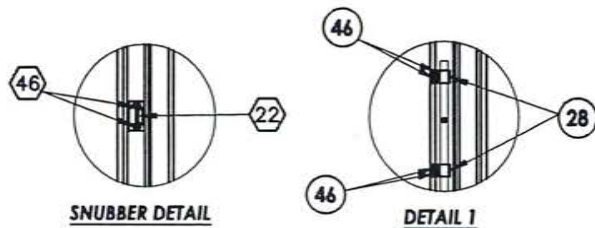


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7 **VERTICAL CROSS SECTION**

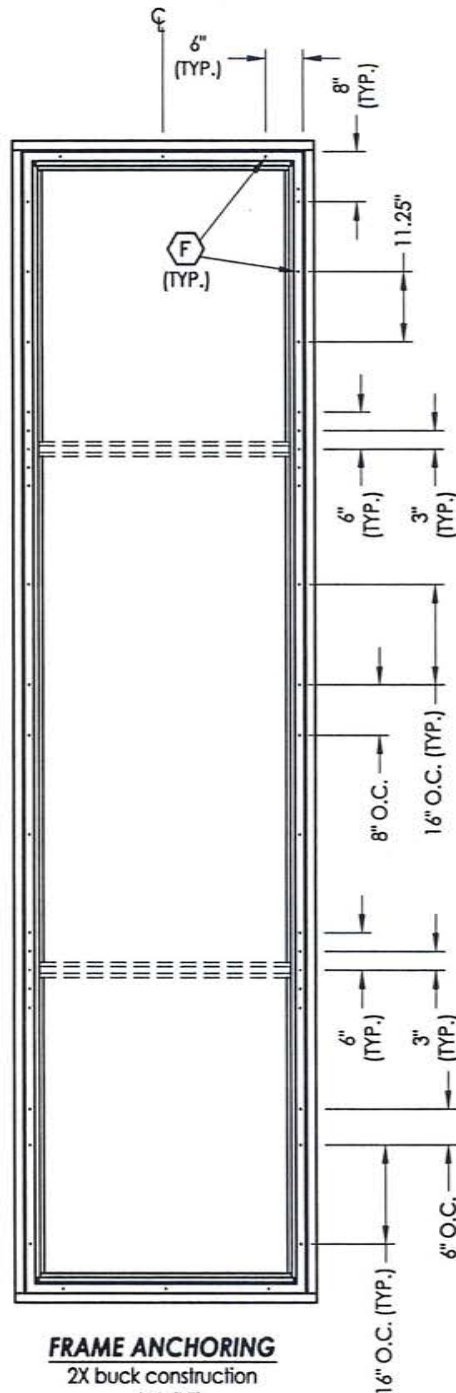
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		VERTICAL CROSS SECTIONS	
NO.	DATE	BY	REVISIONS
RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7032			
SHEET 7 OF 12			



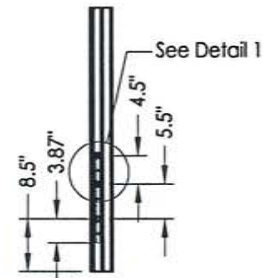
LOCK JAMB
Single Point Lock
(Jamb Sides Horizontal Awning)



SNUBBER JAMB
(Casement)

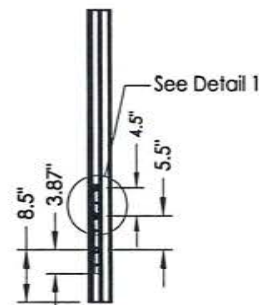


FRAME ANCHORING
2X buck construction
w / Nail Fin



LOCK JAMB
Single Point Lock
(Jamb Sides Horizontal Awning)

Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by gw



LOCK JAMB
Two Point Lock
(Casement)

PRODUCT:

FLEETWOOD
KONA 3800 CASEMENT WINDOW

PART OR ASSEMBLY:

FRAME ANCHORING

NO.	DATE	REVISIONS	BY

RW BUILDING
CONSULTANTS, INC.
813.659.9197

DATE: 9/25/13

SCALE: N.T.S.

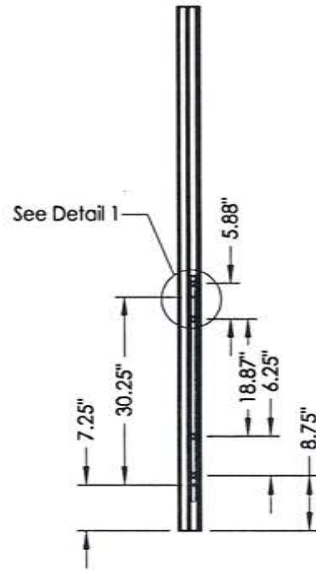
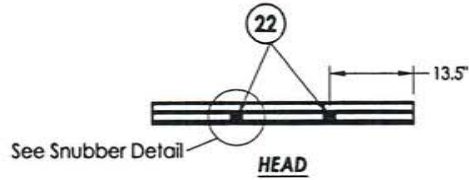
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CHK. BY: LFS

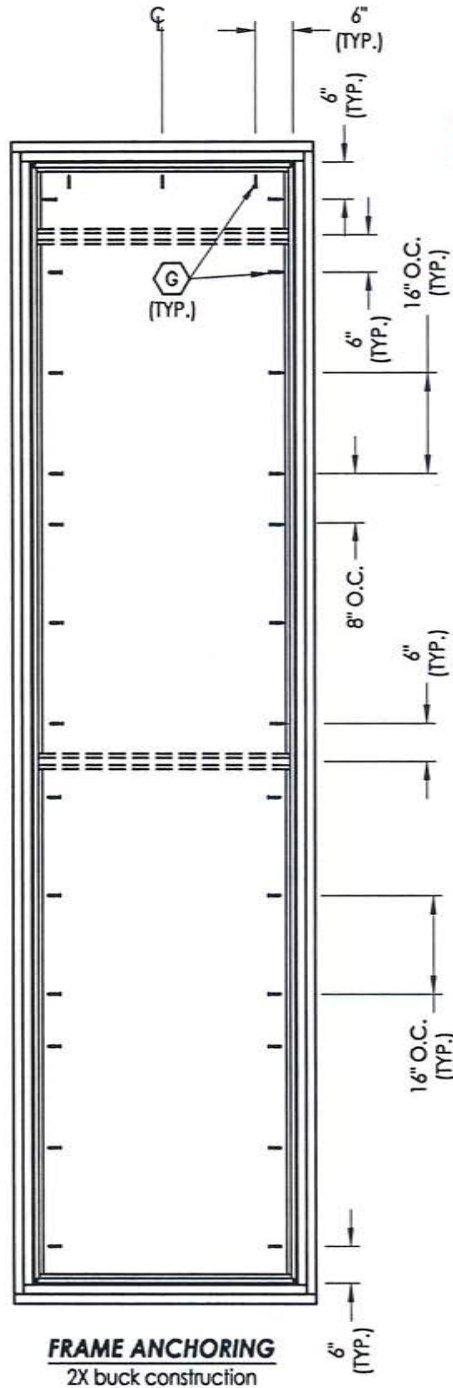
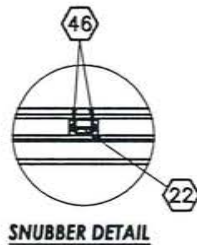
DRAWING NO.:

L-7032

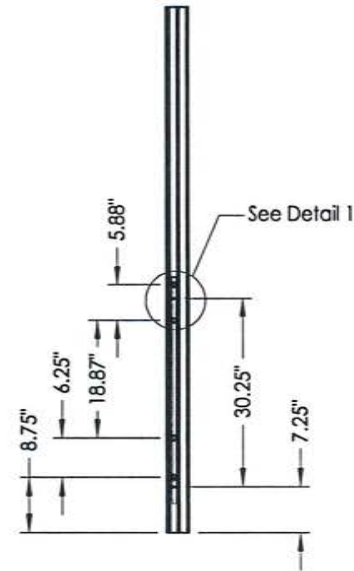
SHEET 8 OF 12



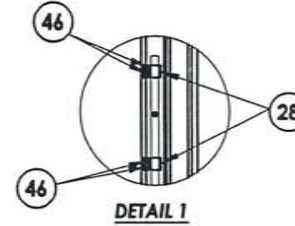
LOCK JAMB
Two Point Lock
(Casement)



Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10.31.13 Verified by JW

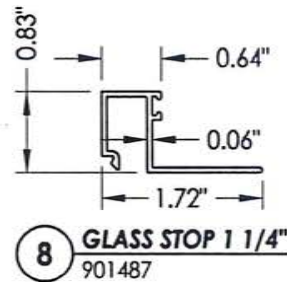
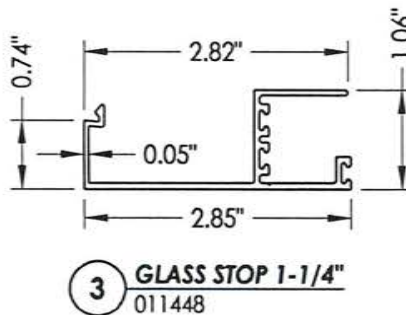
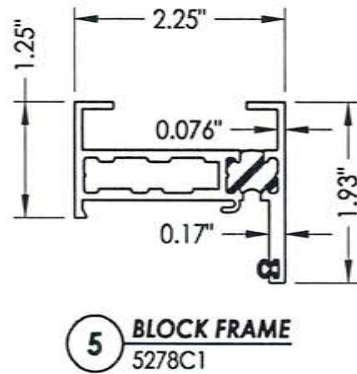
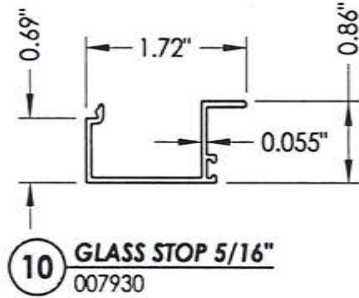
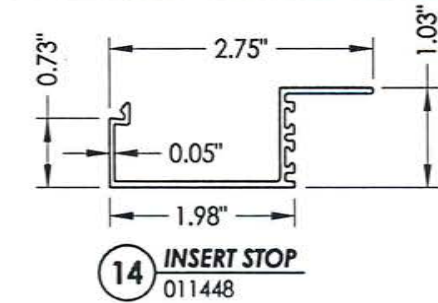


LOCK JAMB
Two Point Lock
(Casement)

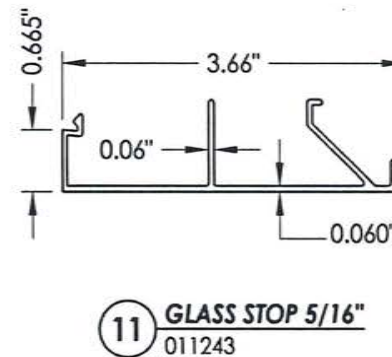
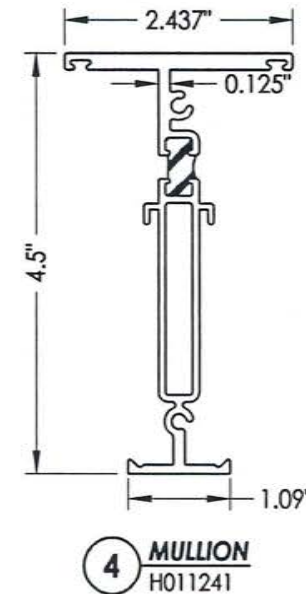
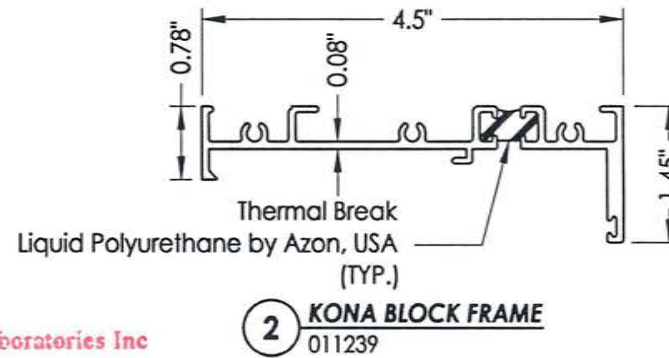
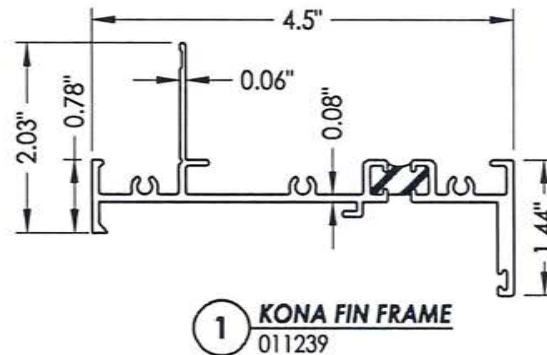
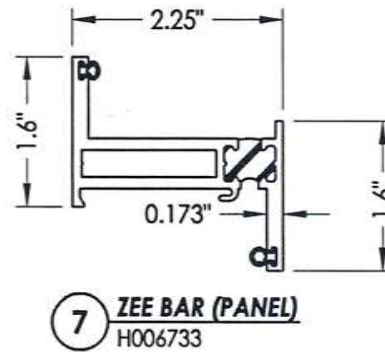


PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		FRAME ANCHORING	
NO.		DATE	
BY		REVISIONS	
DATE: 9/25/13		SCALE: N.T.S.	
DWG. BY: JK		CHK. BY: LFS	
DRAWING NO.: L-7032		SHEET 9 OF 12	

RW BUILDING
CONSULTANTS, INC.
813.659.9197



Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10.31.13 Verified by *[Signature]*



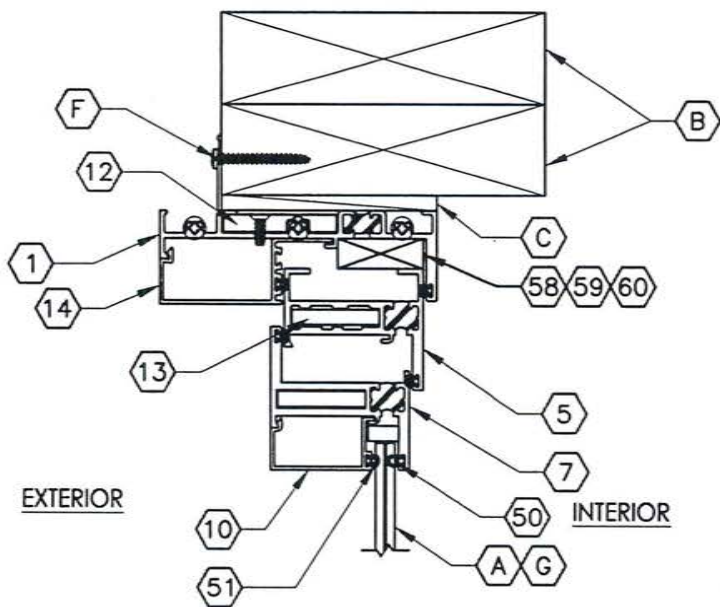
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		COMPONENTS	
NO.	DATE	REVISIONS	BY
			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7032			
SHEET 10 OF 12			

BILL OF MATERIALS		
ITEM #	DESCRIPTION	MATERIAL
B	2X BUCK SG >= 0.55	WOOD
C	1/4" MAX. SHIM SPACE	-
F	#10 x 1-1/2" PFH WOOD SCREW	STEEL
G	#10 x 2" PFH WOOD SCREW	STEEL
1	KONA FIN FRAME	6063-T6 ALUM
2	KONA BLOCK FRAME	6063-T6 ALUM
3	GLASS STOP 1 1/4"	6063-T6 ALUM
4	MULLION	6063-T6 ALUM
5	WESTWOOD BLOCK FRAME	6063-T6 ALUM
7	WESTWOOD ZEE BAR (PANEL)	6063-T6 ALUM
8	GLASS STOP 1 1/4"	6063-T6 ALUM
10	GLASS STOP 1/2"	6063-T6 ALUM
11	GLASS STOP 5/8"	6063-T6 ALUM
12	SHEAR BLOCK	ALUM
13	CORNER KEY	ALUM
14	INSERT STOP	ALUM
20	SS. BUTT HINGE	SS
21	4 BAR HINGE	SS
22	SNUBBER-COMMERCIAL PULL-IN BLOCK	ZINC ALLOY
23	MULTIPOINT LOCK HANDLE	SS
24	SINGLE POINT LOCKING BAR	SS
25	2 POINTS LOCKING BAR	SS
28	TIE BAR GUIDE	PLASTIC
29	KEEPER	SS
30	CASEMENT ROTOR GEAR 13.5"	SS
35	CAM HANDLE / STRIKE PLATE	SS
36	CASEMENT SS. TRACK	SS
37	AWNING SS. TRACK	SS
40	#10 X 1" PPH SMS	STEEL
42	MACHINE SCREW NO 10-32, FHP .75"	STEEL
43	SCREW NO 10 , UFHP .5"	STEEL
44	SCREW NO 8, PHP, .50"	STEEL

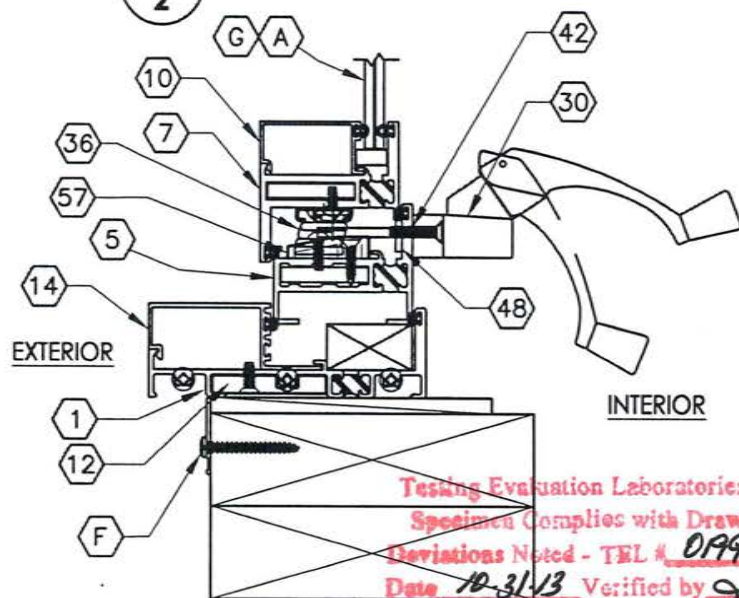
46	SCREW NO 8, FHP, .750"	STEEL
47	MACHINE SCREW NO 10-32, PHP .5"	STEEL
48	BACK UP NUTS	STEEL
50	BULB VINYL (EPDM 70 DUROMETER)-TREMCO	-
51	MINI BULB VINYL(EPDM 70 DUROMETER)-TREMCO	-
52	WOOD BLOCK .750" X 1.250"	-
53	ALUMINUM BLOCK .750" X 1.250"	-
54	PVC BLOCK .750" X 1.250"	-
55	SETTING BLOCK	-
56	SETTING BLOCK 4" x 1/4" x 1"	-
57	PIVOT SHIM	-
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 # 01990817
 Date 10.31.13 Verified by *gn*

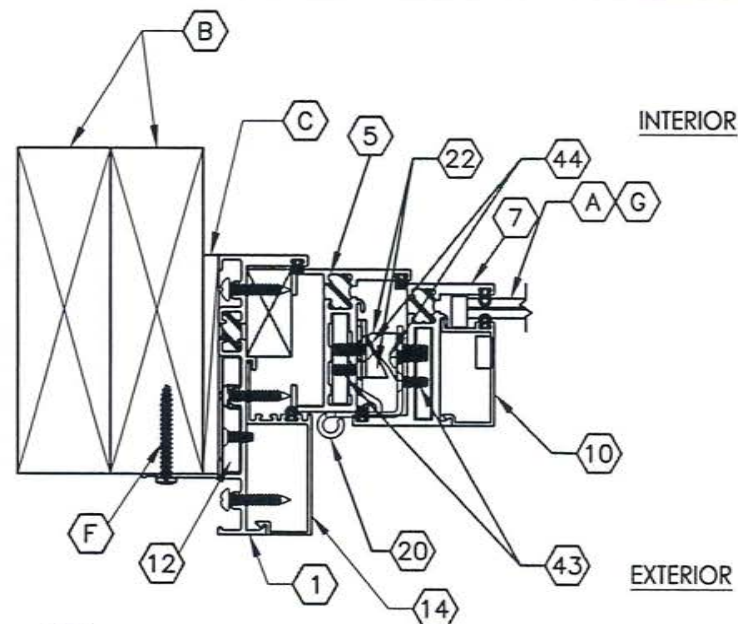
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		BILL OF MATERIALS	
NO.	DATE	BY	REVISIONS
			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7032			
SHEET 12 OF 12			



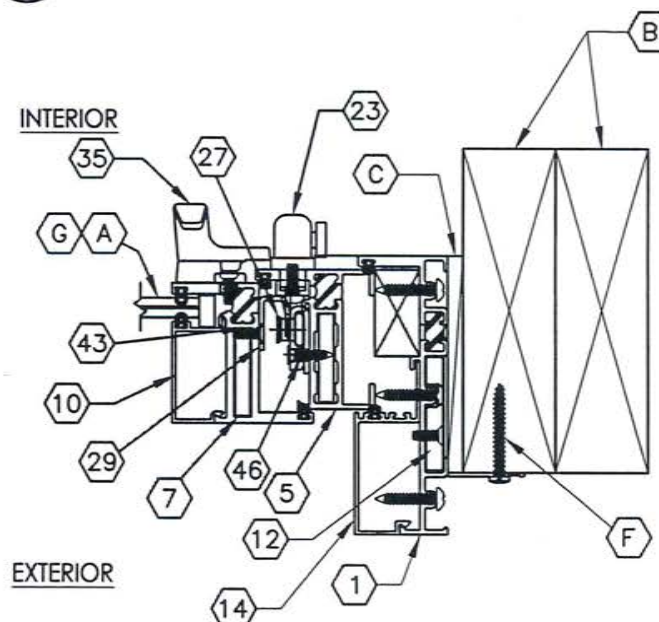
1 VERTICAL CROSS SECTION
2



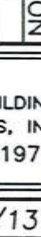
2 VERTICAL CROSS SECTION
2



3 **HORIZONTAL CROSS SECTION**
2



4 **HORIZONTAL CROSS SECTION**

 BUILDING CONSULTANTS, INC. 813.659.9197	DATE: 9/25/13		
	SCALE: N.T.S.		
	DWG. BY:	JK	
	CHK. BY:	LFS	
	DRAWING NO.: L-7032A		
	SHEET	2	OF 5

BILL OF MATERIALS

ITEM #	DESCRIPTION	MATERIAL
B	2X BUCK SG >= 0.55	WOOD
C	1/4" MAX. SHIM SPACE	-
F	#10 x 1-1/2" PPH WOOD SCREW	STEEL
G	#10 x 2" PFH WOOD SCREW	STEEL
1	KONA FIN FRAME	6063-T6 ALUM
5	WESTWOOD BLOCK FRAME	6063-T6 ALUM
7	WESTWOOD ZEE BAR (PANEL)	6063-T6 ALUM
8	GLASS STOP 1 1/4"	6063-T6 ALUM
10	GLASS STOP 1/2"	6063-T6 ALUM
12	SHEAR BLOCK	ALUM
13	CORNER KEY	ALUM
14	INSERT STOP	ALUM
20	SS. BUTT HINGE	SS
22	SNUBBER-COMMERCIAL PULL-IN BLOCK	SS
23	MULTIPOINT LOCK HANDLE	SS
27	4 POINTS LOCKING BAR	SS
28	TIE BAR GUIDE	PLASTIC
29	KEEPER	SS
30	CASEMENT ROTOR GEAR 13.5"	SS
35	CAM HANDLE / STRIKE PLATE	SS
36	CASEMENT SS. TRACK	SS
42	MACHINE SCREW NO 10-32, FHP .75"	STEEL
43	SCREW NO 10, UFHP .5"	STEEL
44	SCREW NO 8, PHP, .50"	STEEL
46	SCREW NO 8, FHP, .750"	STEEL
48	BACK UP NUTS	STEEL
50	BULB VINYL (EPDM 70 DUROMETER)-TREMCO	-
51	MINI BULB VINYL(EPDM 70 DUROMETER)-TREMCO	-
55	SETTING BLOCK	-

56	SETTING BLOCK 4" x 1/2" x 1"	-
57	PIVOT SHIM	-
58	WOOD BLOCK .50" X 1.250"	-
59	ALUMINUM BLOCK .50" X 1.250"	-
60	PVC BLOCK .50" X 1.250"	-

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 01990817
 Date 10-31-13 Verified by *gjd*

PRODUCT:

FLEETWOOD
KONA 3800 CASEMENT WINDOW

PART OR ASSEMBLY:

BILL OF MATERIALS

BY

DATE

NO.

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-7032A

SHEET 5 OF 5

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

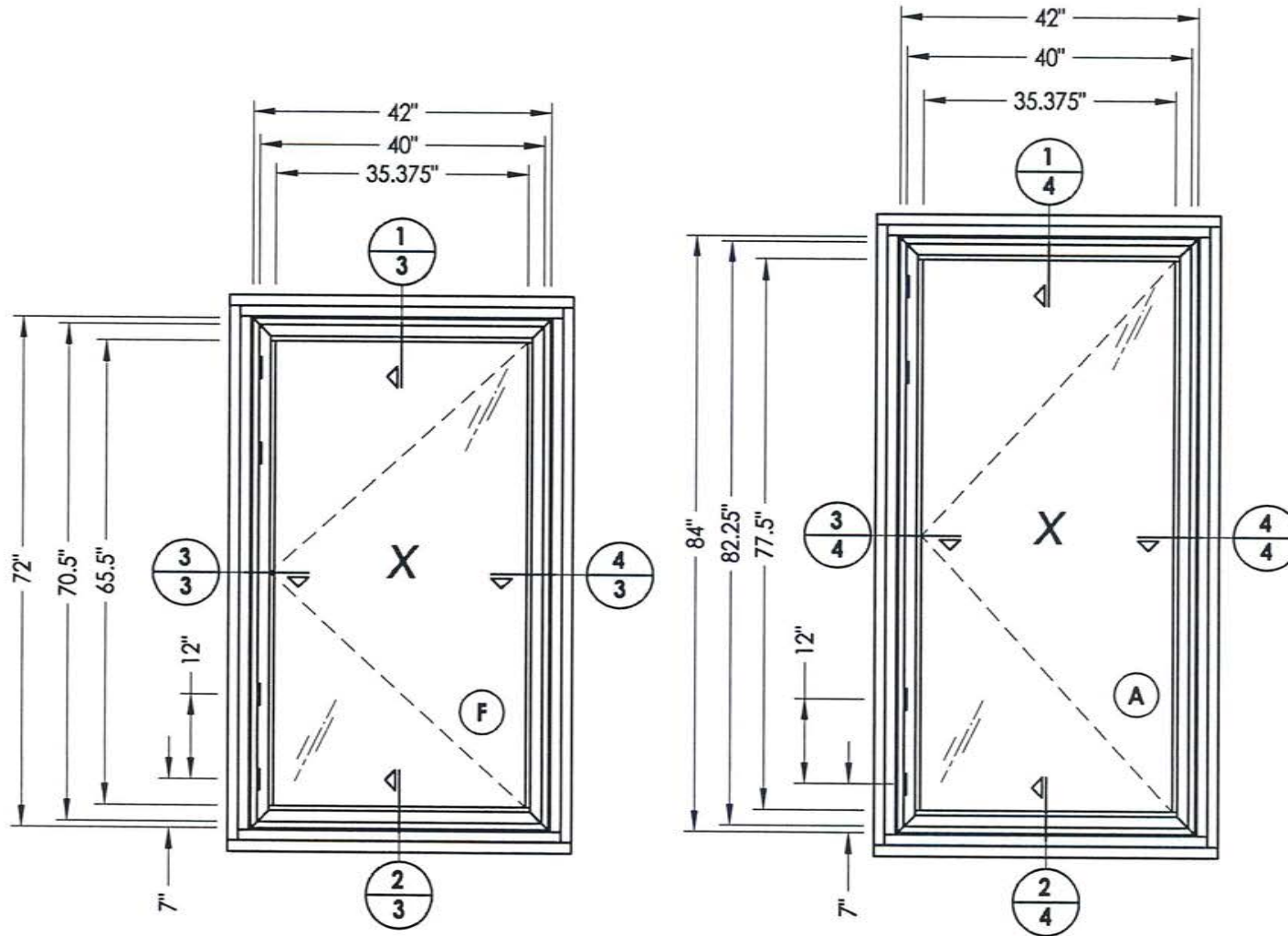
Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 01990817
 Date 10-13-13 Verified by JW
10-31-13

PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		TABLE OF CONTENTS	
NO.	DATE	BY	REVISIONS



RW BUILDING
CONSULTANTS, INC.
 813.659.9197

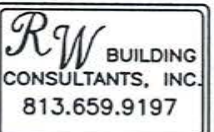
DATE:	9/25/13
SCALE:	N.T.S.
DWG. BY:	JK
CHK. BY:	LFS
DRAWING NO.:	L-7033
SHEET	1 OF 9

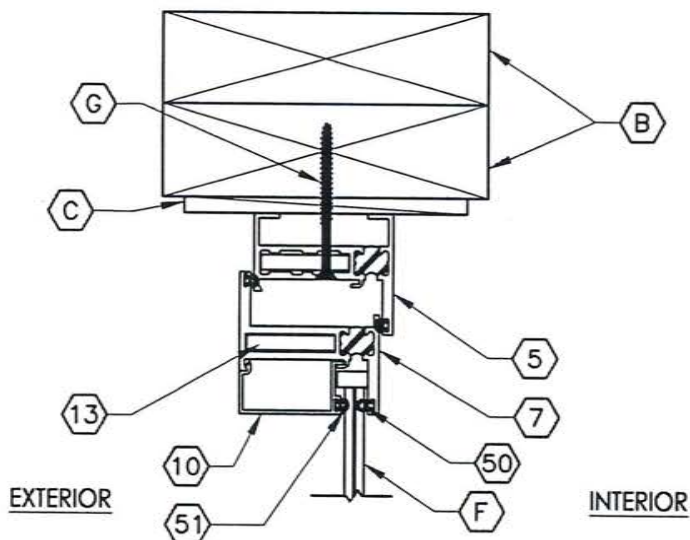


SPEC# 12, 12A

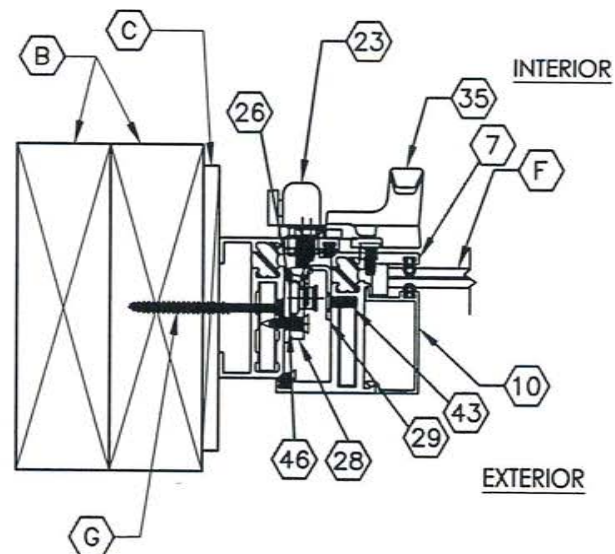
SPEC# 6, 6A

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 01990817
 Date 10-31-13 Verified by *gw*

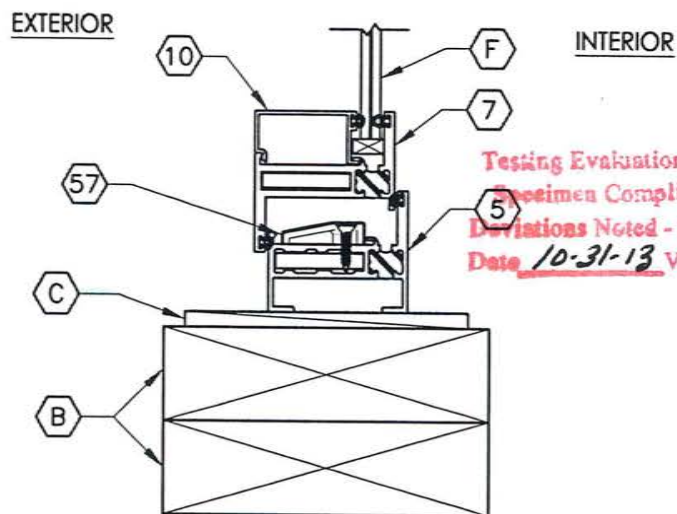
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		TEST ELEVATION	
NO.	DATE	REVISIONS	BY
			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7033			
SHEET 2 OF 9			



1 VERTICAL CROSS SECTION
3

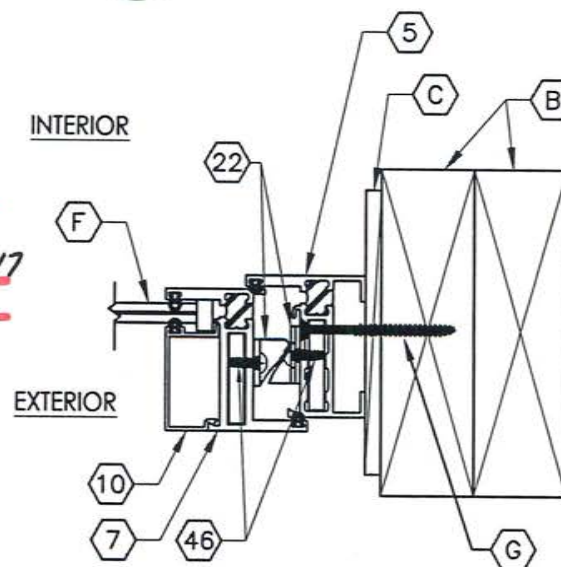


3 **HORIZONTAL CROSS SECTION**
3



2 VERTICAL CROSS SECTION

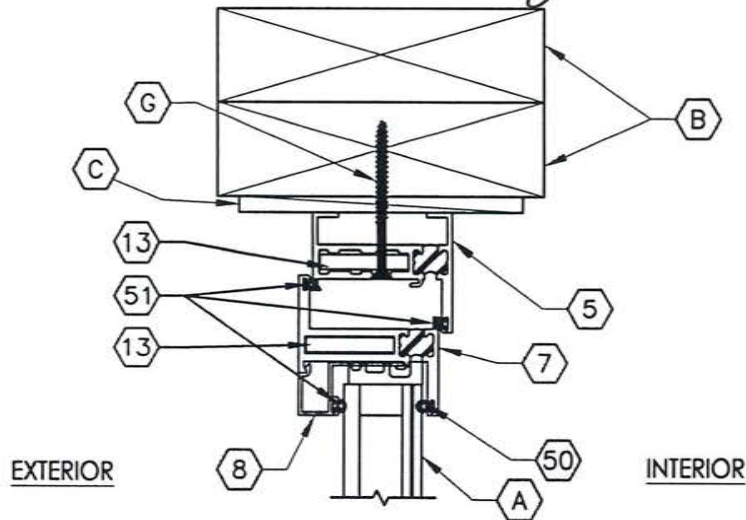
Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by gw



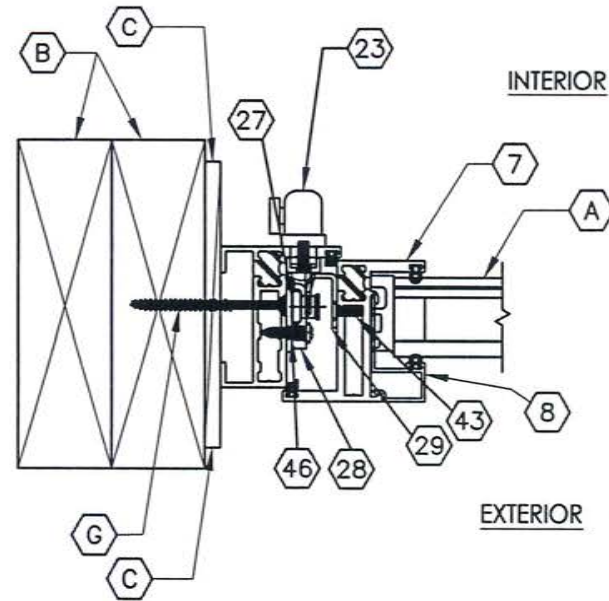
4 HORIZONTAL CROSS SECTION
3

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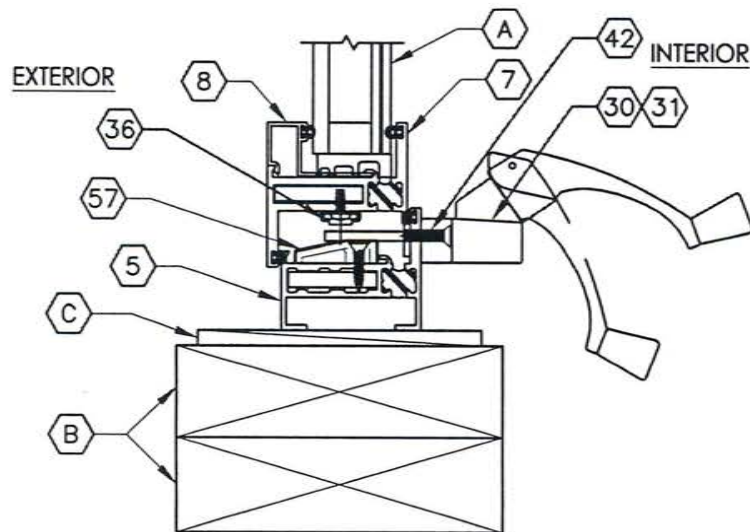
Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 01990817
 Date 10-31-13 Verified by gw



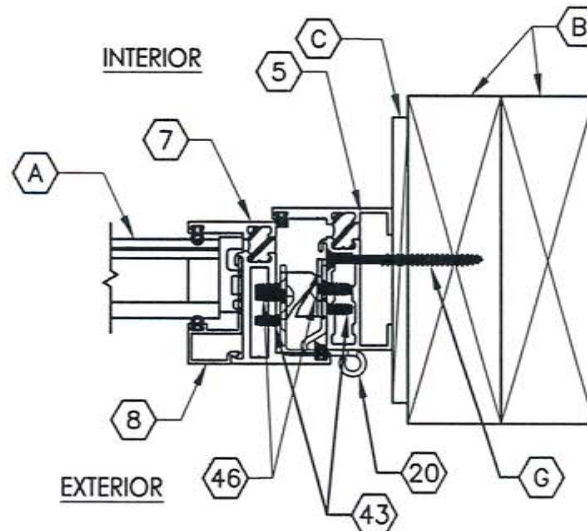
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4 **VERTICAL CROSS SECTION**



3
4 **HORIZONTAL CROSS SECTION**

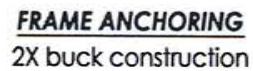


2
4 **VERTICAL CROSS SECTION**

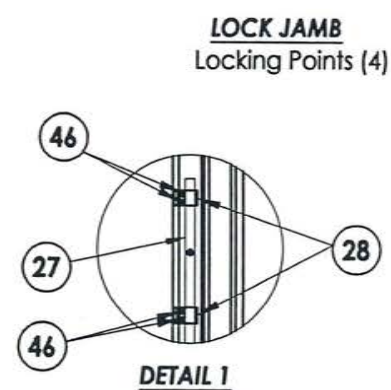
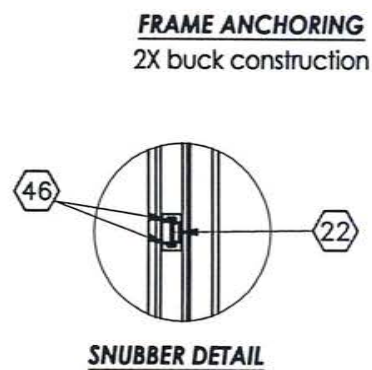
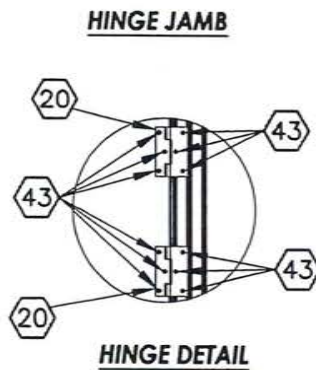
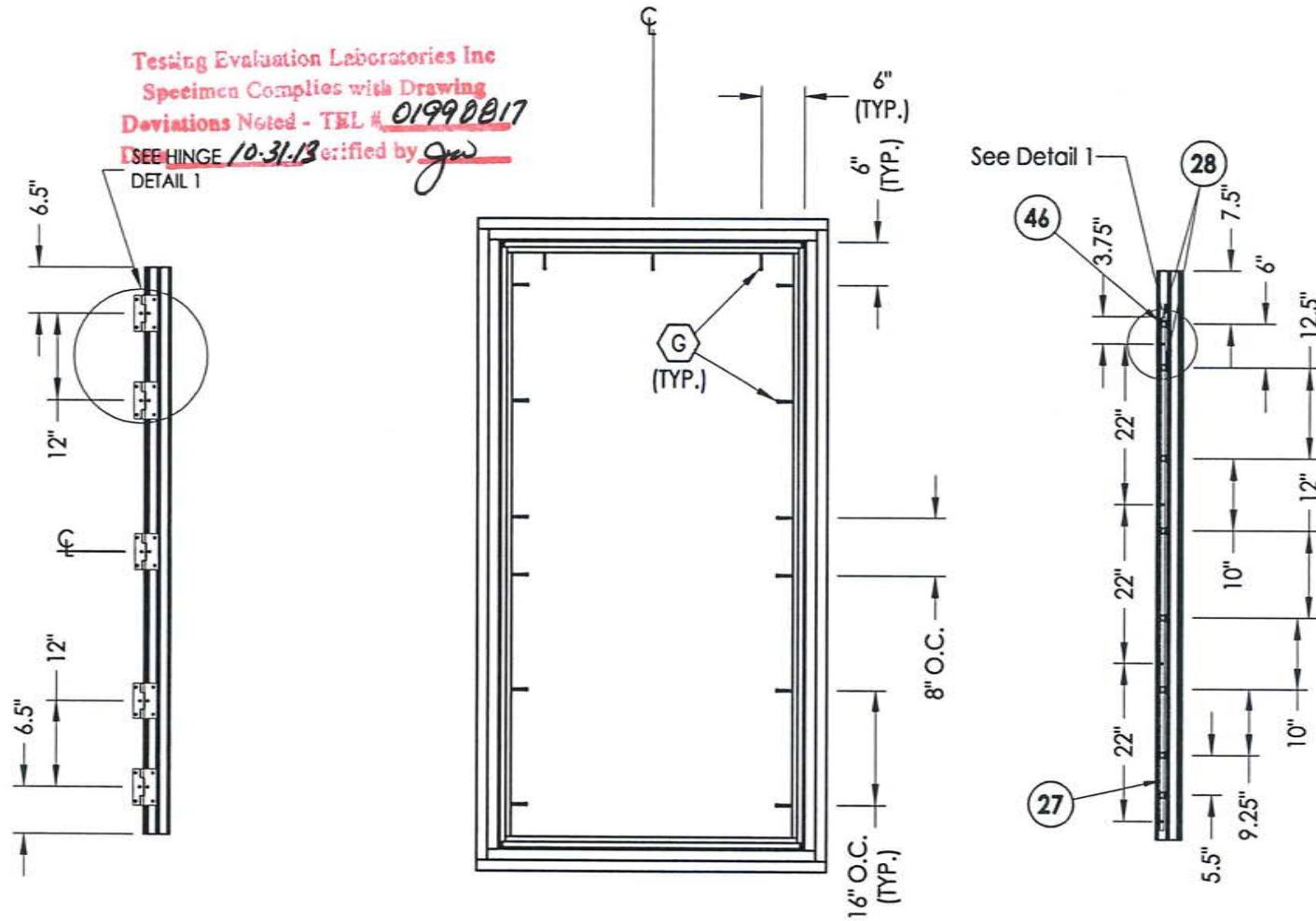


4
4 **HORIZONTAL CROSS SECTION**

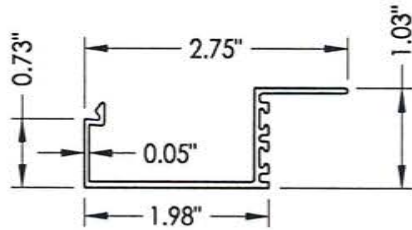
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		HORIZONTAL AND VERTICAL CROSS SECTIONS	
NO.	DATE	REVISIONS	BY
RW BUILDING CONSULTANTS, INC. 813.659.9197			
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7033			
SHEET 4 OF 9			



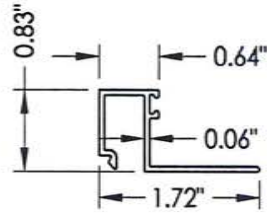
© 2013 R.W. BUILDING CONSULTANTS INC.



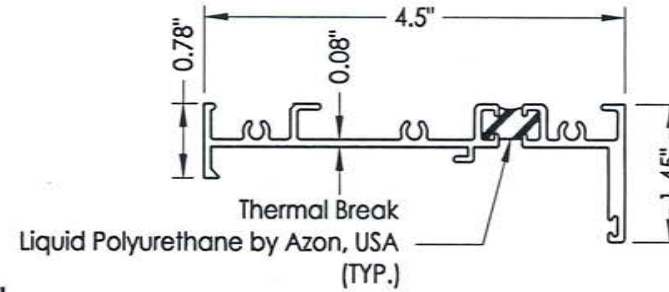
PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		FRAME ANCHORING	
NO.	DATE	REVISIONS	BY
DATE: 9/25/13			
SCALE: N.T.S.			
DWG. BY: JK			
CHK. BY: LFS			
DRAWING NO.: L-7033			
SHEET 6 OF 9			



14 INSERT STOP
011448

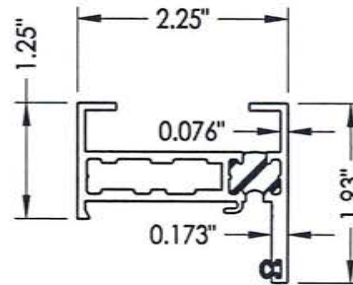


8 GLASS STOP 1-1/4"
901487

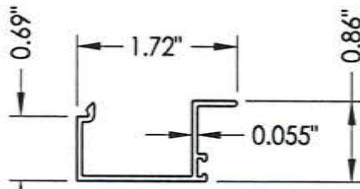


2 KONA BLOCK FRAME
011239

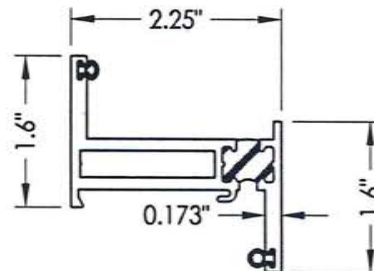
Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by *JD*



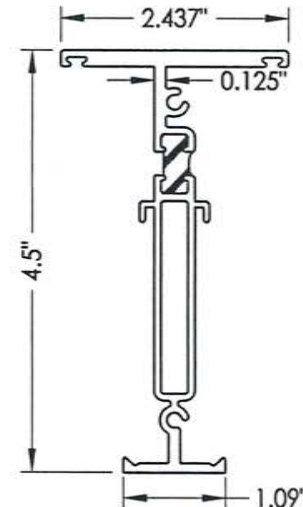
5 BLOCK FRAME
5278C1



10 GLASS STOP 5/16", 7/16"
007930

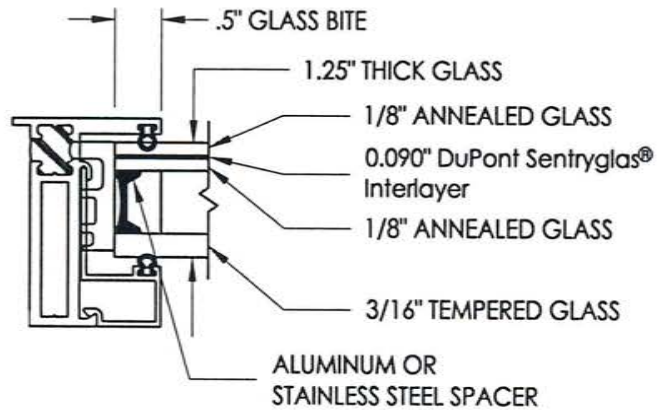


7 ZEE BAR (PANEL)
H006733

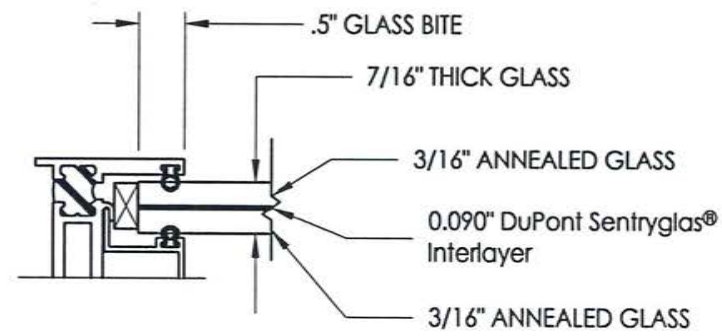


4 MULLION
H011241

PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		COMPONENTS	
NO.	DATE	REVISIONS	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-7033			
SHEET 7 OF 9			



A GLAZING DETAIL



F GLAZING DETAIL

Testing Evaluation Laboratories Inc
 Specimen Complies with Drawing
 Deviations Noted - TEL # 01990817
 Date 10-31-13 Verified by ju

PRODUCT:		FLEETWOOD KONA 3800 CASEMENT WINDOW	
PART OR ASSEMBLY:		COMPONENTS AND GLAZING DETAILS	
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-7033			
SHEET <u>8</u> OF <u>9</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
2	KONA BLOCK FRAME	6063-T6 ALUM
4	MULLION	6063-T6 ALUM
5	WESTWOOD BLOCK FRAME	6063-T6 ALUM
7	WESTWOOD ZEE BAR (PANEL)	6063-T6 ALUM
8	GLASS STOP (1-1/4")	6063-T6 ALUM
10	GLASS STOP (7/16")	6063-T6 ALUM
13	CORNER KEY	ALUM
14	INSERT STOP	ALUM
20	SS. BUTT HINGE	SS
21	4 BAR HINGE	SS
22	SNUBBER	ZINC ALLOY
23	MULTIPOINT LOCK HANDLE	SS
26	3 POINTS LOCKING BAR	SS
27	4 POINTS LOCKING BAR	SS
28	TIE BAR GUIDE	PLASTIC
29	KEEPER	SS
30	CASEMENT ROTOR GEAR 13.5"	SS
35	CAM HANDLE / STRIKE PLATE	SS
36	CASEMENT SS. TRACK	SS
40	#10 X 1" PPH SMS	STEEL
42	MACHINE SCREW NO 10-32, FHP .75"	STEEL
43	SCREW NO 10, UFHP .5"	STEEL
44	SCREW NO 8, PHP, .50"	STEEL
46	SCREW NO 8, FHP, .750"	STEEL
47	MACHINE SCREW NO 10-32, PHP .5"	STEEL
48	BACK UP NUTS	STEEL
50	BULB VINYL (EPDM 70 DUROMETER)-TREMCO	-

51	MINI BULB VINYL(EPDM 70 DUROMETER)-TREMCO	-
52	WOOD BLOCK .750" X 1.250"	-
53	ALUMINUM BLOCK .750" X 1.250"	-
54	PVC BLOCK .750" X 1.250"	-
55	SETTING BLOCK	-
56	SETTING BLOCK 4" x 1/4" x 1"	-
57	PIVOT SHIM	-
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 # 01990817
 Date 10-31-13 Verified by JW

PRODUCT:

FLEETWOOD
KONA 3800 CASEMENT WINDOW

PART OR ASSEMBLY:

BILL OF MATERIALS

BY

DATE

NO.

REVISIONS

RW BUILDING
 CONSULTANTS, INC.
 813.659.9197

DATE: 9/25/13

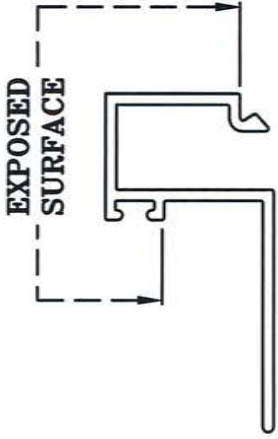
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DWG. BY: JK

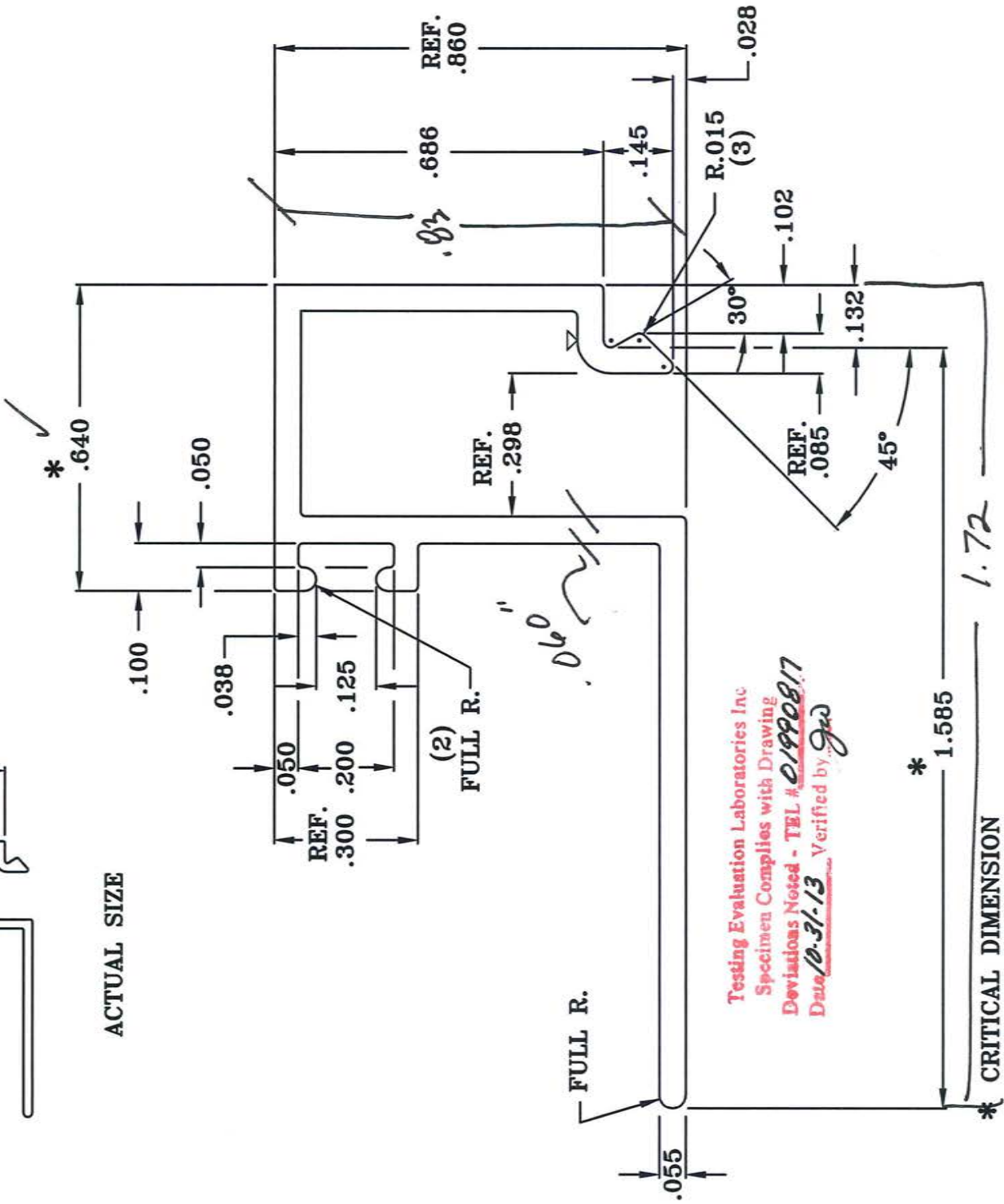
CHK. BY: LFS

DRAWING NO.:
L-7033

SHEET 9 OF 9



ACTUAL SIZE



Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by JED

>.010 R. X .010DEEPI.D. MARK

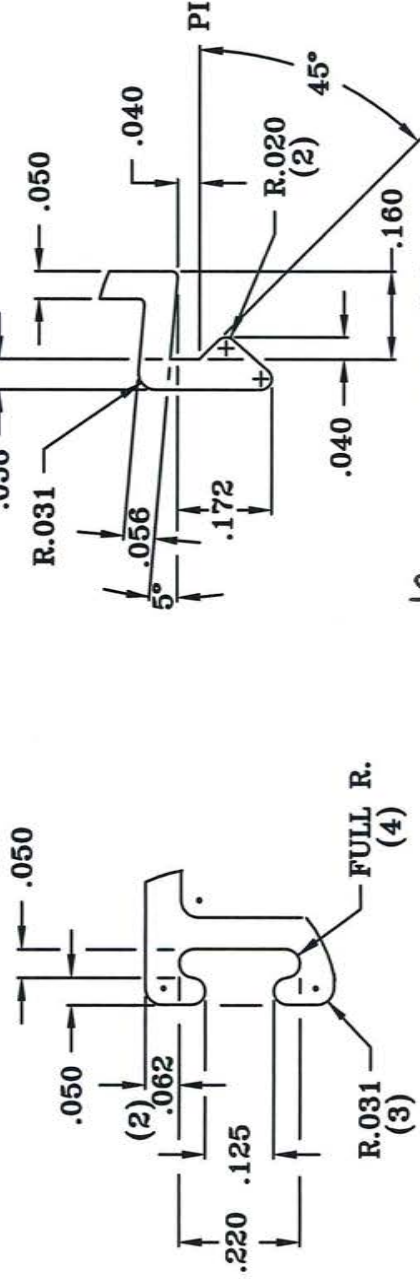
NOTE: .055 TYP. WALL EXCEPT AS NOTED UNMARKED CORNERS .010 R.

CONTAINER	7	DIE RING	5	SPACER RING	2				
AREA	.202	PORTS	4	BKR	901487				
WT/FT	.242	W/P	POCKET	BOLSTER	STD-4				
PERL	7.360	FLE33161		DIE SIZE	9X2				
DWN. BY	KEN	DATE	3/12/04	MAT'L	6063-T6				
CHKD. BY		DATE		STANDARD TOLERANCES UNLESS OTHERWISE NOTED					
				CUSTOMER		REVISION	BY	DATE	
				FLEETWOOD WINDOWS & DOORS		SCALE	PART NO.		
				PART NAME		2:1	05P12		
				GLASS STOP, 1-1/4"		N/C	DIE NO.		
									901487



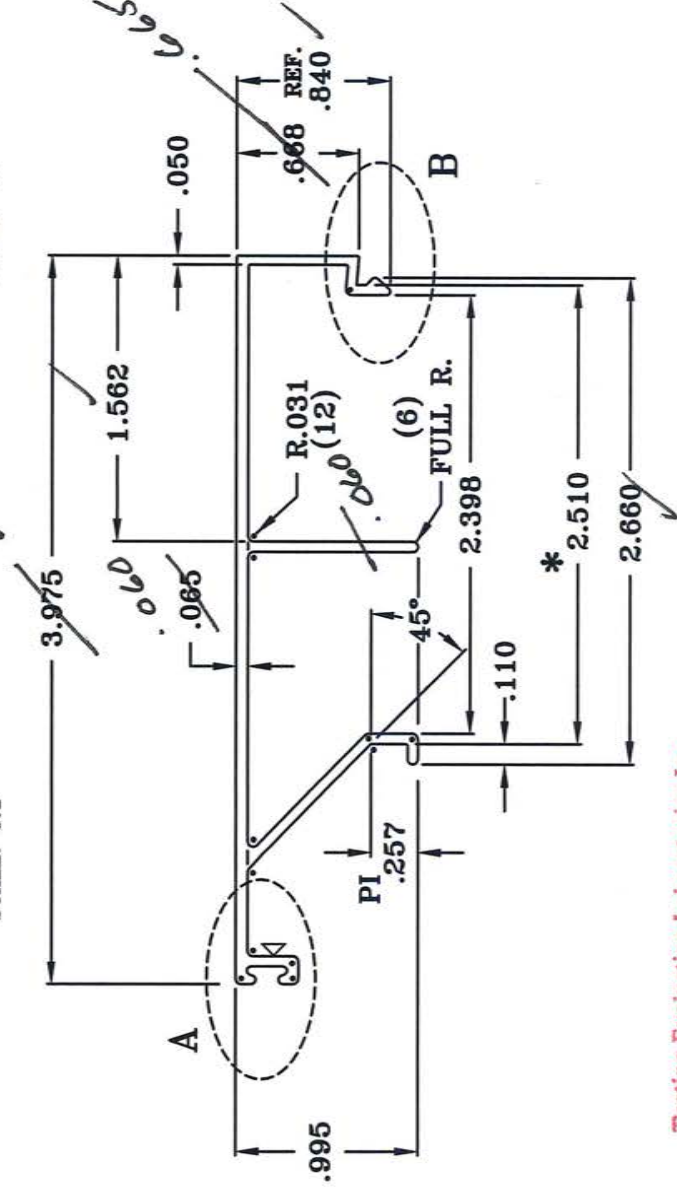
SIERRA ALUMINUM COMPANY
2345 Fleetwood Drive
Riverside, California 92509
(909)781-7800 FAX (909)781-7864

FITS WITH PART#
FLE 27176 & FLE 27178



DETAIL "A"
SCALE: 3:1

DETAIL "B"
SCALE: 3:1

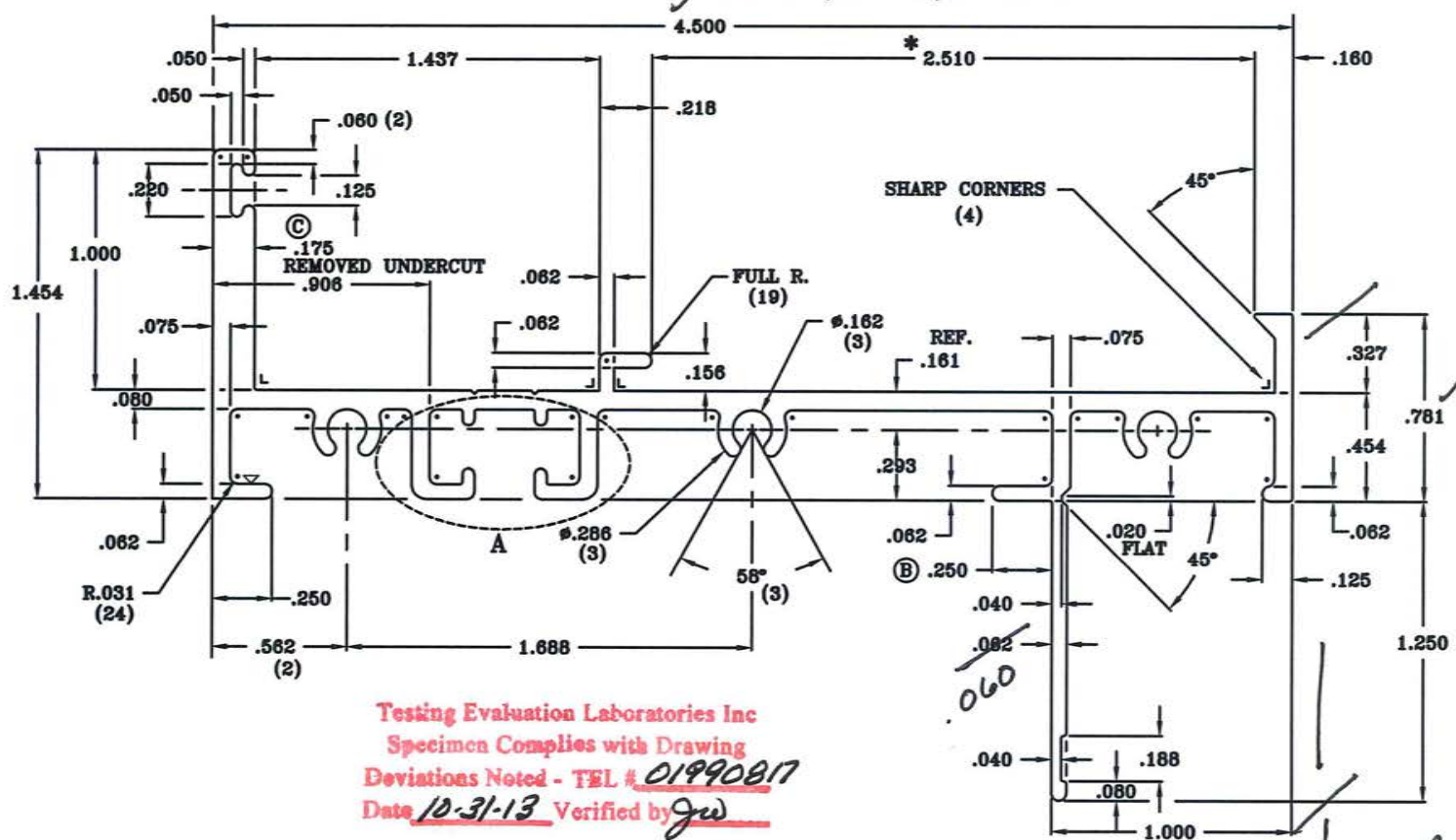


Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by JAW

>.010 R. X .010DEEPI.D. MARK NOTE: .056 TYP. WALL EXCEPT AS NOTED UNMARKED CORNERS .010 R.

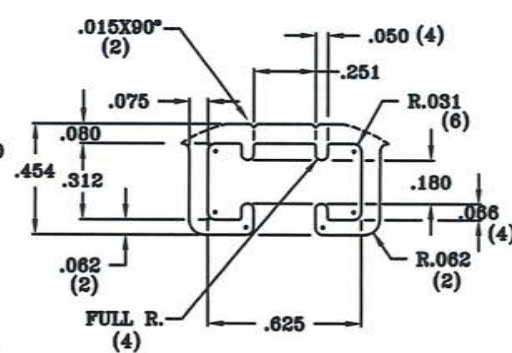
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AREA	.462	PORTS	2	BKR	11242				
WT/FT	.554	W/P	POCKET	BOLSTER	2-8				
PERL.	15.063	FLE	27180	DIE SIZE	9X2				
DWN. BY	KEN	DATE	7/11/01	MAT'L	6063-T6				
CHKD. BY		DATE		STANDARD TOLERANCES UNLESS OTHERWISE NOTED					
				CUSTOMER	FLEETWOOD ALUMINUM				
				PART NAME	GLAZING BEAD (1/4" GLASS)				
				PART NO.	011243				
				SCALE	1:1				
				REVISION					
				BY					
				DATE					

FILE 27177, FILE 27179, & FILE 27180

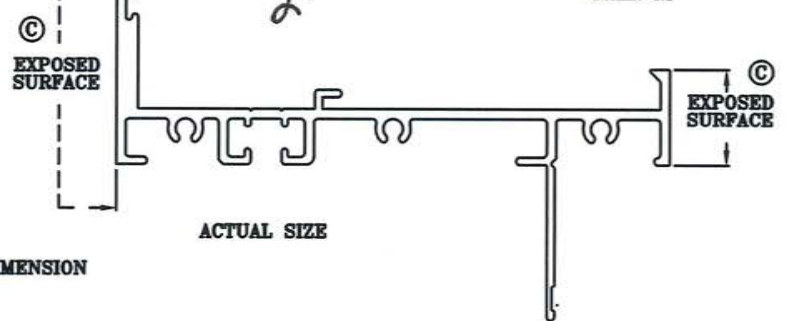


Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by JW

THERMAL FILL AREA = .193 SQ. IN.



DETAIL "A"
SCALE: 4:1

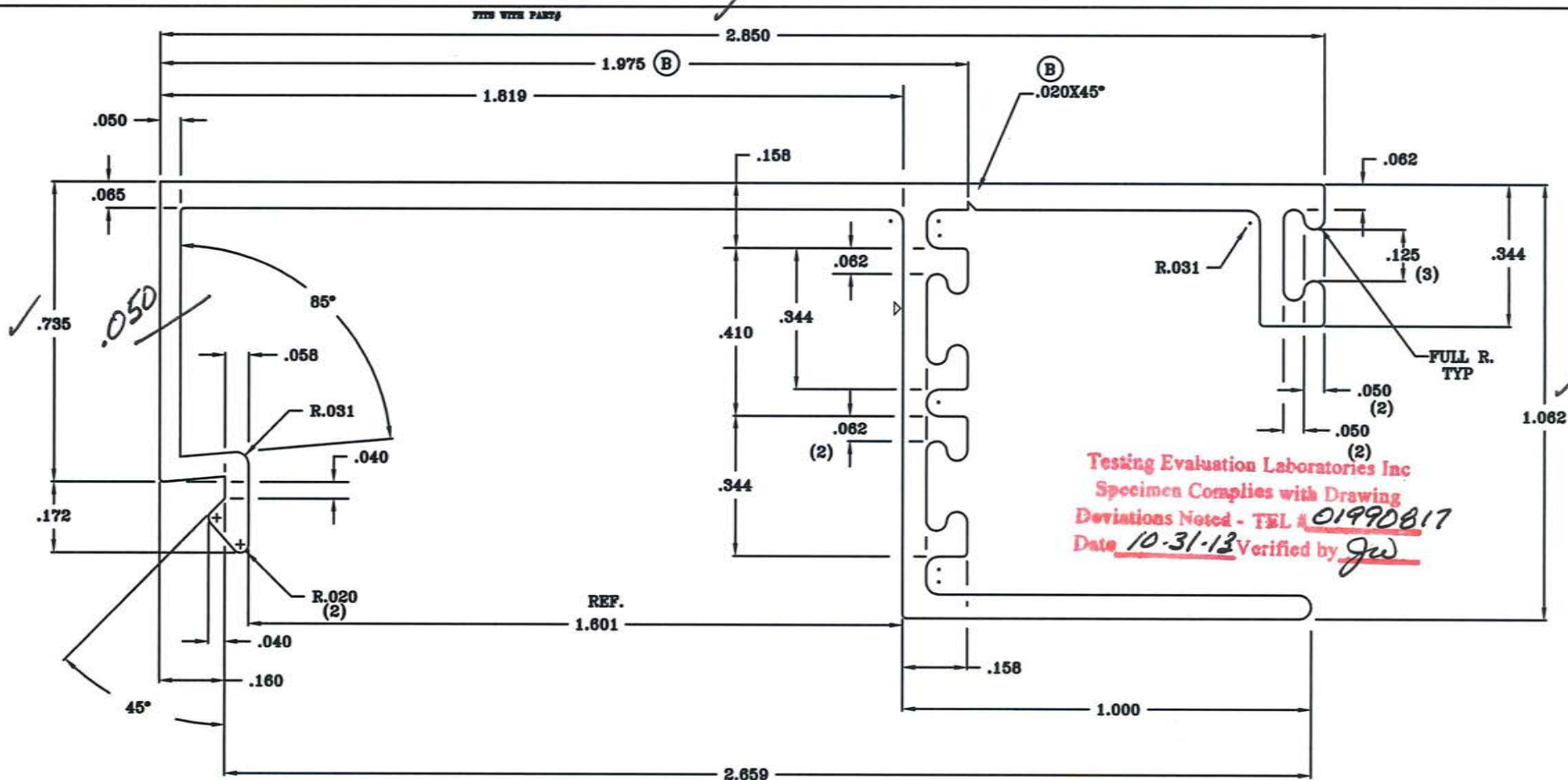


* CRITICAL DIMENSION

∅.010 R. X .010 DEEP I.D. MARK

NOTE: .075 TYP. WALL EXCEPT AS NOTED
UNMARKED CORNERS .010 R.

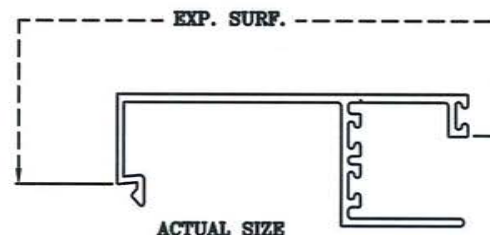
CONTAINER	7/8	DES. ENG.	5	SPACER	2				
AREA	.921	PORTS	1	DES.	11238				
WT./VT.	1.105	W/P	POCKET	BOLSTER	11238	C	ADDED P/N	ED	11/12/08
PNL.	22.854	FILE	27176	DES. SIZE	9X2	C	REMOVED UNDERCUT	ED	11/12/08
CHKD. BY	KEN	DATE	11/12/03	MAT'L.	6063-T6	B	ADDED MISSING DIM.	ED	7/28/01
CHG. BY		DATE		STANDARD TOLERANCES		UNTIL	REVISION	BY	DATE
				UNLESS OTHERWISE NOTED					
SIERRA ALUMINUM COMPANY				FLEETWOOD ALUMINUM		SCALE	PART NO.		
2345 Fleetwood Drive						2:1	3805		
Riverside, California 92509				PART NAME		930	DES. NO.		
(909)781-7800 FAX (909)781-7864				4.500 FRAME BLOCK		N/C	011239		



D.010 R. X .010DEEPL.D. MARK

NOTE: .058 TYP. WALL HEIGHT AS NOTED
UNMARKED CORNERS .010 R.

CONTAINER	8	DES KING	5	SPACER KING	2				
ANNA	.415	PORTS	3	DES	011448				
WT/PT	.498	W/P	POCKET	BOLSTER	3-6				
FEEL	13.469	FLE	28807	DES SIZE	9X2				
DWR. BY	KEN	DATE	4/24/02	MAT'L	6063-T6	B	RELOCATE .080X45°	ED	9/29/08
CHEK. BY		DATE		STANDARD TOLERANCES UNLESS OTHERWISE NOTED	INT.	REVISION	BY	DATE	
 SIERRA ALUMINUM COMPANY 2345 Fleetwood Drive Riverside, California 92509 (909)781-7800 FAX (909)781-7884		CUSTOMER				SCALE	PART NO.		
		FLEETWOOD ALUMINUM				4:1	3811		
		PART NAME				N/C	DES NO.		
		GLASS STOP					011448		

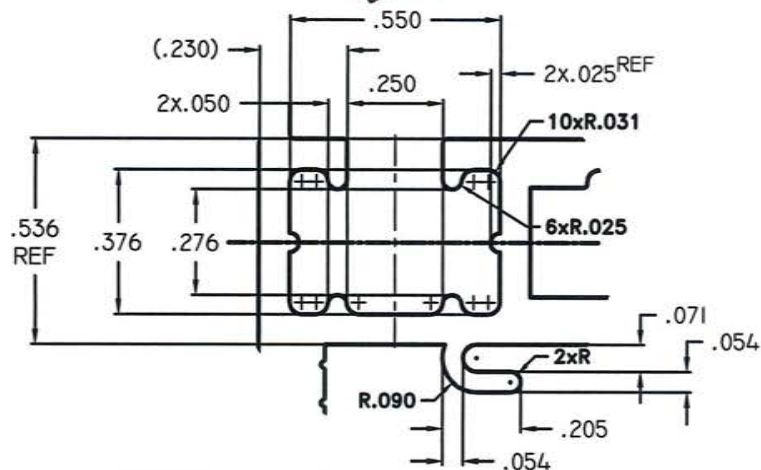
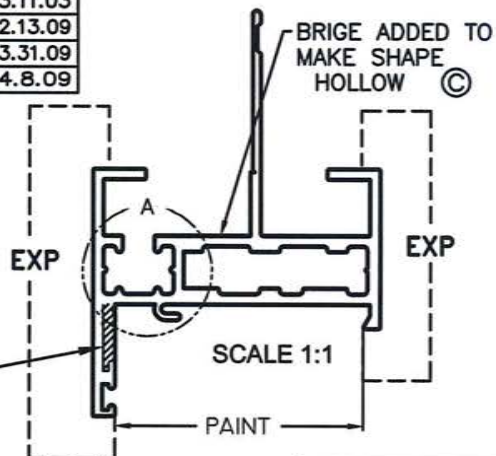


REV	REVISIONS	BY	DATE
	MATERIAL ADDED--SEE ACTUAL SIZE	CD	3.11.03
	SEE BELOW	CD	2.13.09
	NOW A HOLLOW DIE .413 WAS .625/R.031(12) WAS R.031(10)	CD	3.31.09
1	REDRAWN	CD	4.8.09



TB CAVITY TYPE	CC
AREA SQ"	.210
VOLUME CUBIC"/FT.	2.520

REVISION "A"
MATERIAL ADDED
Testing Evaluation Lab
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10.31.13 Verified by gw



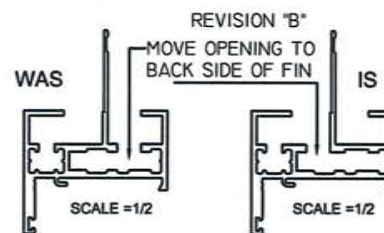
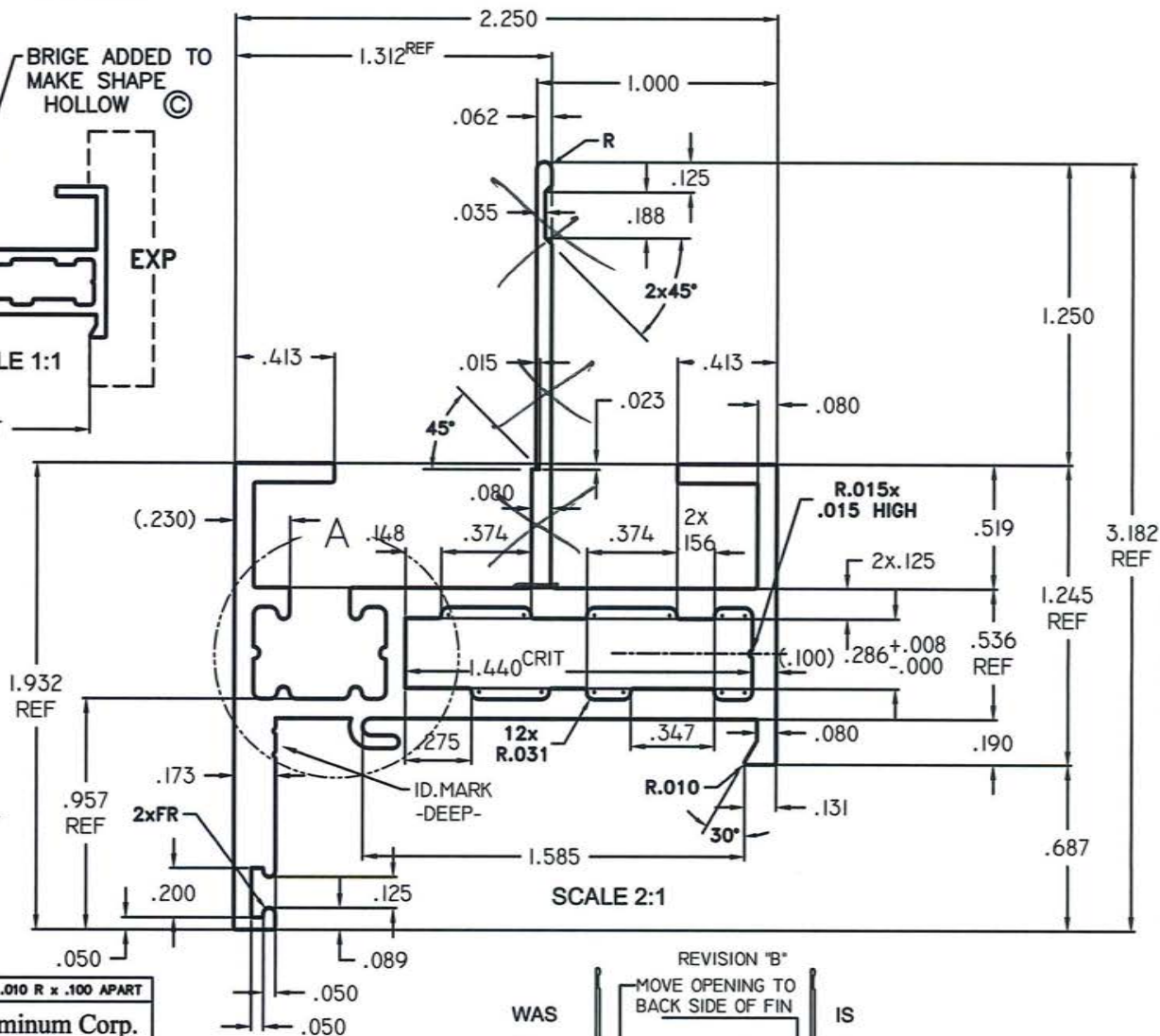
IMARKED WALLS: .080

UNMARKED CORNERS: R.010

UNMARKED
FILLETS: R.010

LESS OTHERWISE SPECIFIED, STANDARD ALUMINUM ASSOCIATION TOLERANCES APPLY • FRONTIER ID. MARK: TWO .010 R x .100 APART

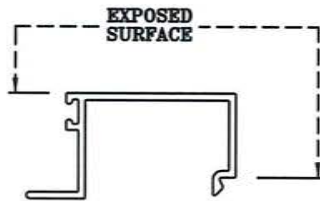
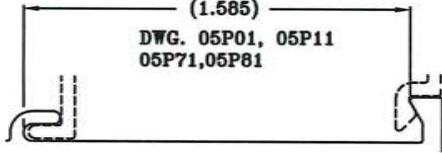
HEA .927	PRESS 4		DWN CD	Frontier Aluminum Corp		
W/FT 1.113	PORTS 11x7-2H		DATE 4.17.2014	2480 Railroad St. Corona, Ca		
RI. 21.012	W/P HOLLOW		D 5278	Ph: [951] 735-1770 Fax 735-1895		
CTOR 19	BKR. HOLLOW		CLASS HOLLOW	http://www.frontier-aluminum.com		
C.D. 3.57	BOL STD-2		17.205	ALLOY & TEMPER 6063-T6	DIE NO. 5278	REV. C1
AW:0201/92	RATIO: PRESS 1:	PRESS 2:	PRESS 3:			



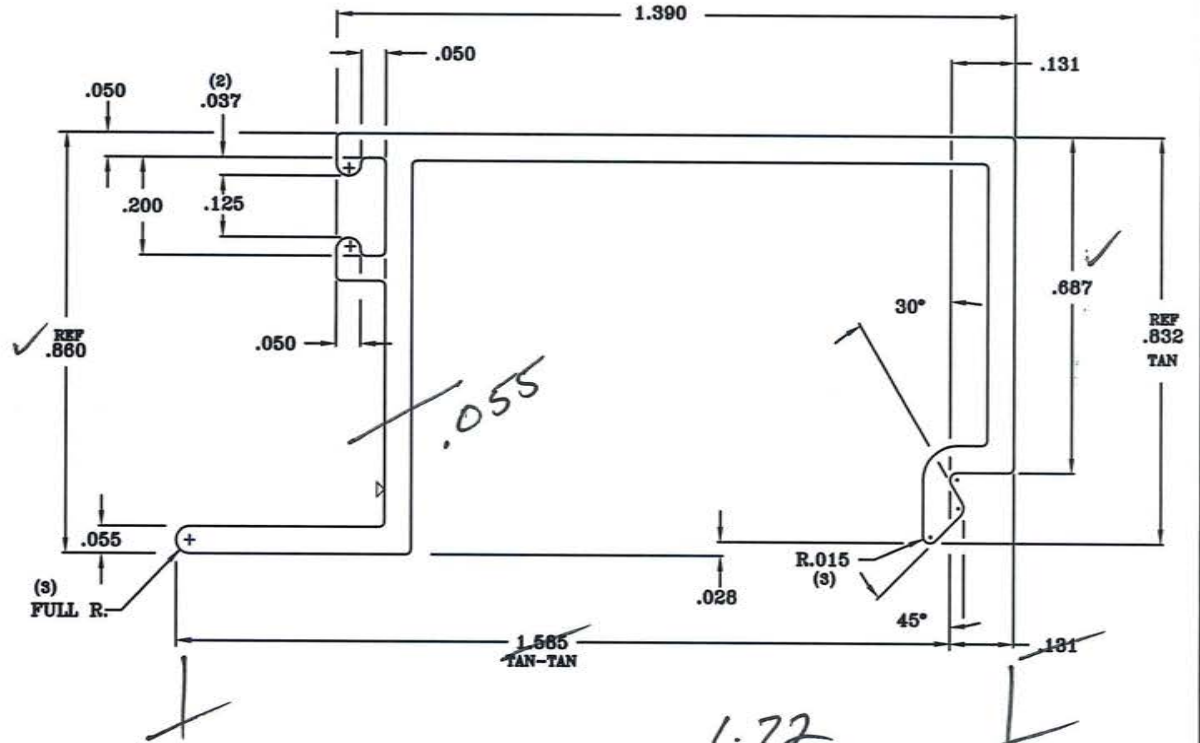
FITS WITH PART#

DIE # _____
DIE # _____

(1.585)
DWG. 05P01, 05P11
05P71, 05P81



ACTUAL SIZE

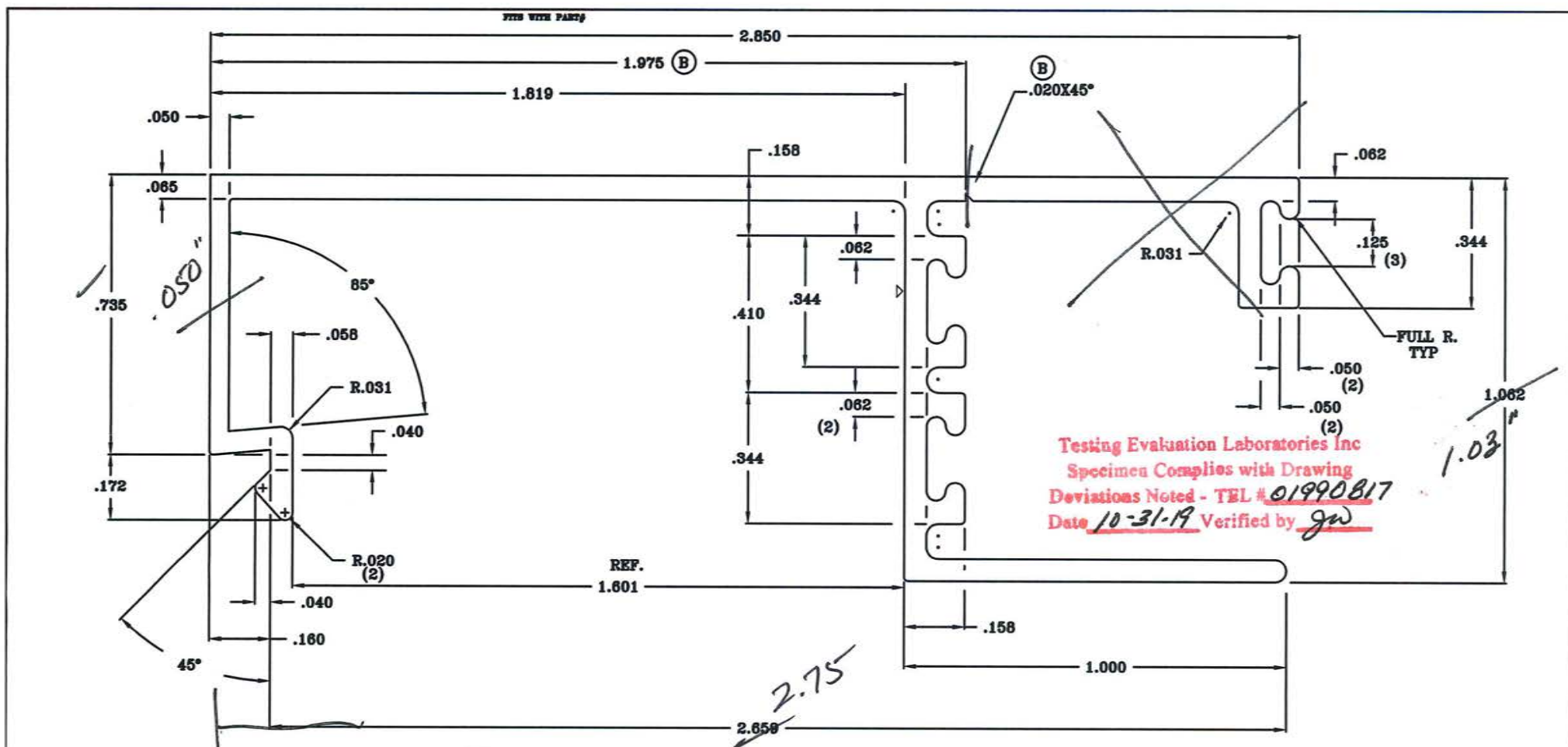


0.010 R. X .010 HIGH I.D. MARK

NOTE: .055 TYP. WALL THICKNESS AS NOTED
UNMARKED CORNERS .010 R.

CONTAINER	7	DIE RING	4	SPACER RING	3				
AREA	.202	PORTS	4	DER	2372				
WT/YT	.242	W/P	-	BOLSTER	4-9				
FEEL	7.337	FILE	9686	DIE SIZE	9x1				
DWN. BY	HILDA	DATE	6/03/94	MAT'L	6063-T6				
CHEK. BY		DATE		STANDARD TOLERANCES UNLESS OTHERWISE NOTED	INT.	REVISION	BY	DATE	
 SIERRA ALUMINUM COMPANY 2345 Fleetwood Drive Riverside, California 92509 (909)781-7800 FAX (909)781-7864				CUSTOMER	FLEETWOOD ALUMINUM PRODUCTS	SCALE	4:1	PART NO.	05P08
				PART NAME	GLASS STOP 1/2" ...5000		-	DIE NO.	007930

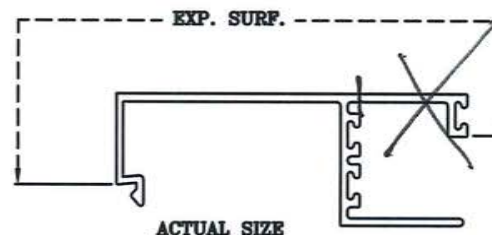
Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by gew



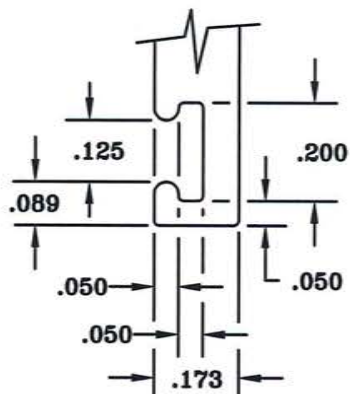
D.010 R. X .010DEEPI.D. MARK

NOTE: .058 TYP. WALL HEIGHT AS NOTED UNMARKED CORNERS .010 R.

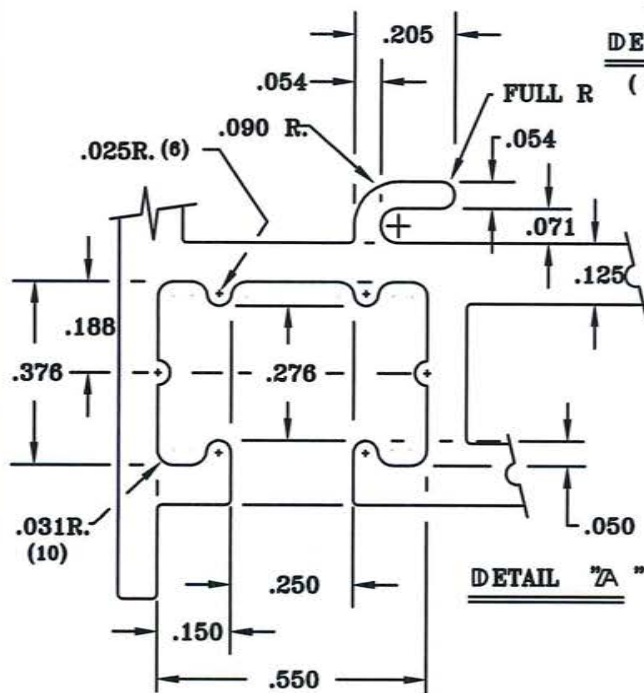
CONTAINER	8	DIE KING	5	SPACER KING	2				
AREA	.415	PORTS	3	DIE	011448				
WT/PT	.498	V/P	POCKET	BOLSTER	3-6				
PHIL	13.469	FILE	28807	DIE SIZE	9X2				
DWN. BY	KEN	DATE	4/24/02	MAT'L	6063-T6	B	RELOCATE .00025"	ED	9/20/08
CHEO. BY		DATE		STANDARD TOLERANCES UNLESS OTHERWISE NOTED	LEV.		REVISION	BY	DATE
 SIERRA ALUMINUM COMPANY 2345 Fleetwood Drive Riverside, California 92509 (909)781-7800 FAX (909)781-7864				CUSTOMER		SCALE	PART NO.		
				FLEETWOOD ALUMINUM		4:1	3811		
				PART NAME		N/C	DIE NO.		
				GLASS STOP			011448		



①
THERMAL BREAK AREA .211

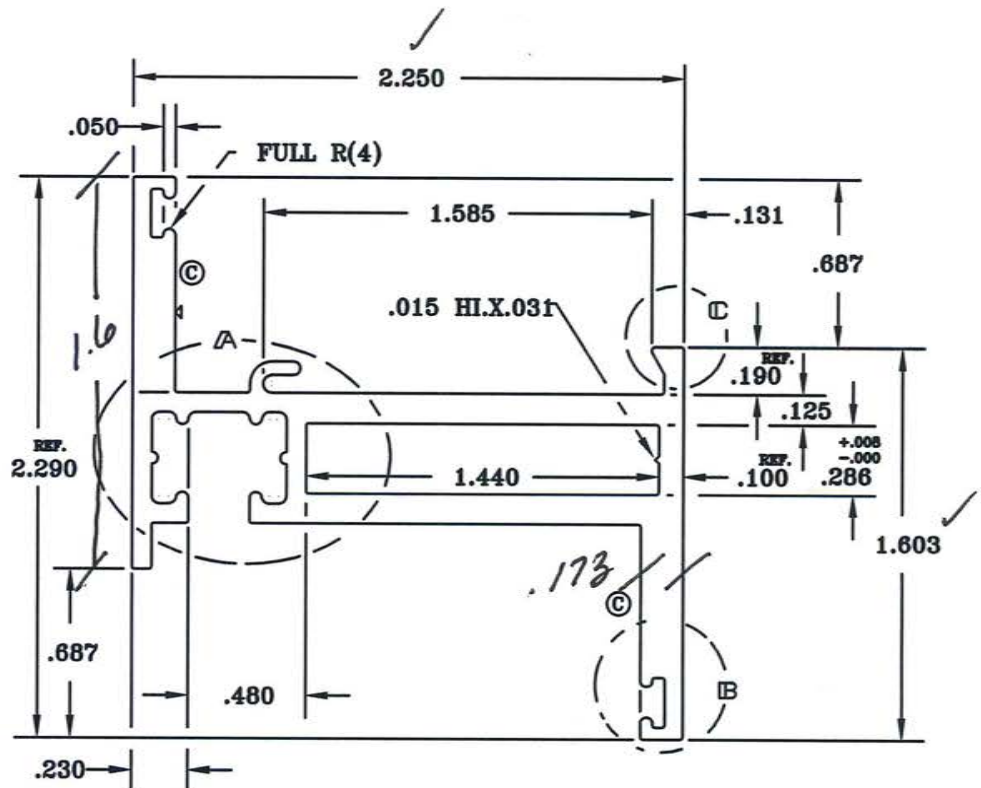


DETAIL "B"
(2 PLCS.)



DETAIL "A"

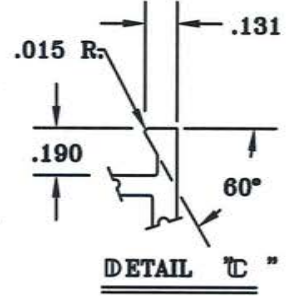
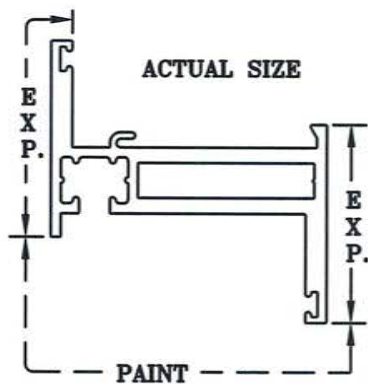
Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-19 Verified by gw



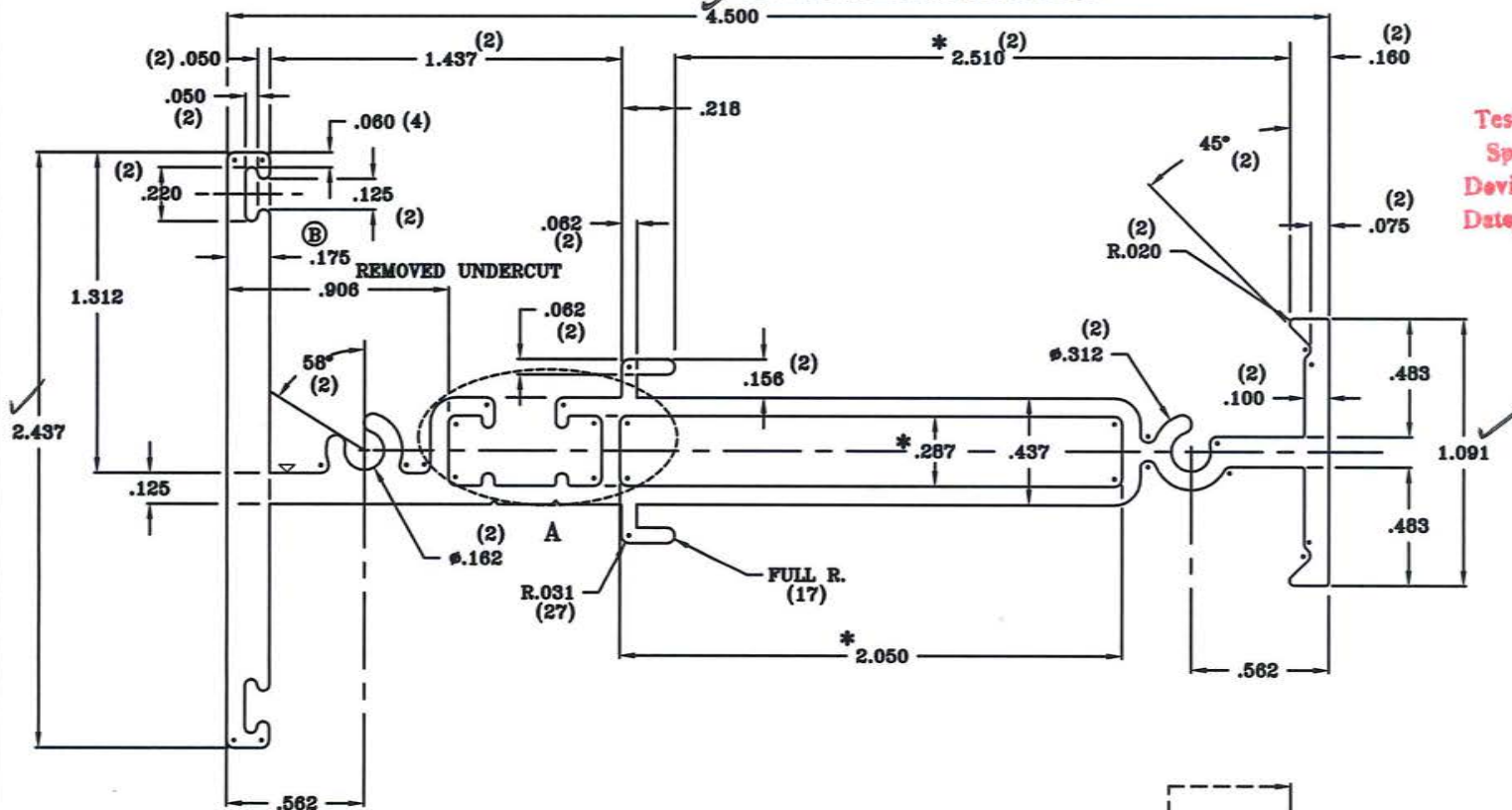
▷.010 R. X .010DEEP I.D. MARK

NOTE: .080 TYP. WALL THICKNESS AS NOTED
UNMARKED CORNERS .010 R.

CONTAINER	DES. ENG.	SPACER ENG.							
AREA .897	PORTS 1	DES. -							
WT/FT 1.076	W/P -	DOLSTER 1-2	D	ADD THERMAL BREAK AREA	TAS	2/21/06			
PERL 16.078	FL6042	DES. SIZE 9X5	C	REMOVED UNDERCUTS WT/FT. WAS .976, P16.433	ED	3/14/08			
DRN. BY Wldg	DATE 3/14/03	MAT'L 6063-T6	B	REMOVED .126 STEP WT/FT. WAS 1.006, P16.416	ED	7/19/08			
CHECK BY	DATE	STANDARD TOLERANCES UNLESS OTHERWISE NOTED	LET.	REVISION	BY	DATE			
SIERRA ALUMINUM COMPANY 2345 Fleetwood Drive Riverside, California 92509 (909)781-7800 FAX (909)781-7864		CUSTOMER FLEETWOOD ALUMINUM PRODUCTS, INC. PART NAME ZEE BAR		SCALE 3:1	PART NO. 05P11	DES. NO. H-006733			



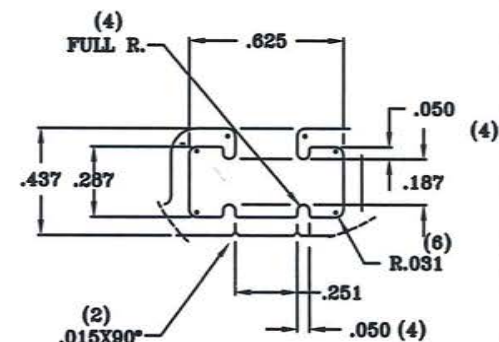
FITS WITH PARTS FILE 27177, FILE 27179, & FILE 27180



Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by *gw*



THERMAL FILL AREA = .181 SQ. IN.



* CRITICAL DIMENSION

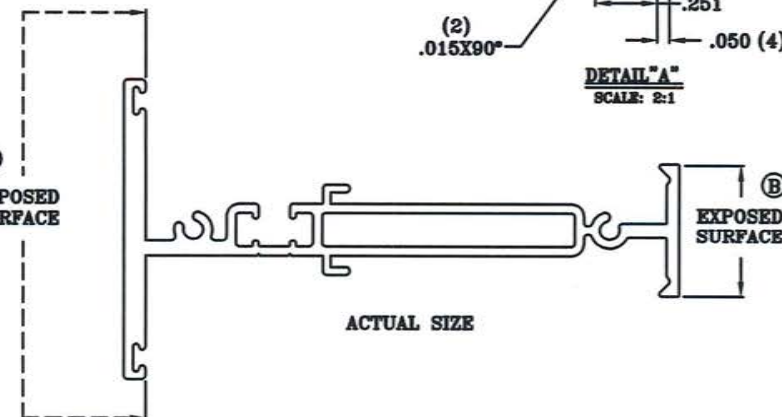
∅.010 R. X .010 DEEP I.D. MARK

NOTE: .075 TYP. WALL THICKNESS AS NOTED
UNMARKED CORNERS .010 R.

CONTAINER	8	DRS KING	5	SPACER KING	2				
AREA	1.232	PORTS	1	DRS	-				
WT/FT	1.478	W/P	-	BOLSTER	11238				
PNL	25.766	FILE	27178	DRS SIZE	9X5	B	ARMED EXPOSED SURFACE	ED	11/12/08
DTH BY	KEN	DATE	11/12/03	MAT'L	6063-T6	B	REMOVED UNDERCUT	ED	11/12/08
CHECK BY		DATE		STANDARD TOLERANCES UNLESS OTHERWISE NOTED	INT.	REVISION	BY	DATE	
				CUSTOMER	FLEETWOOD ALUMINUM		SCALE	PART NO.	3806
				PART NAME	MULLION		1900	DRS NO.	H-011241
								N/C	

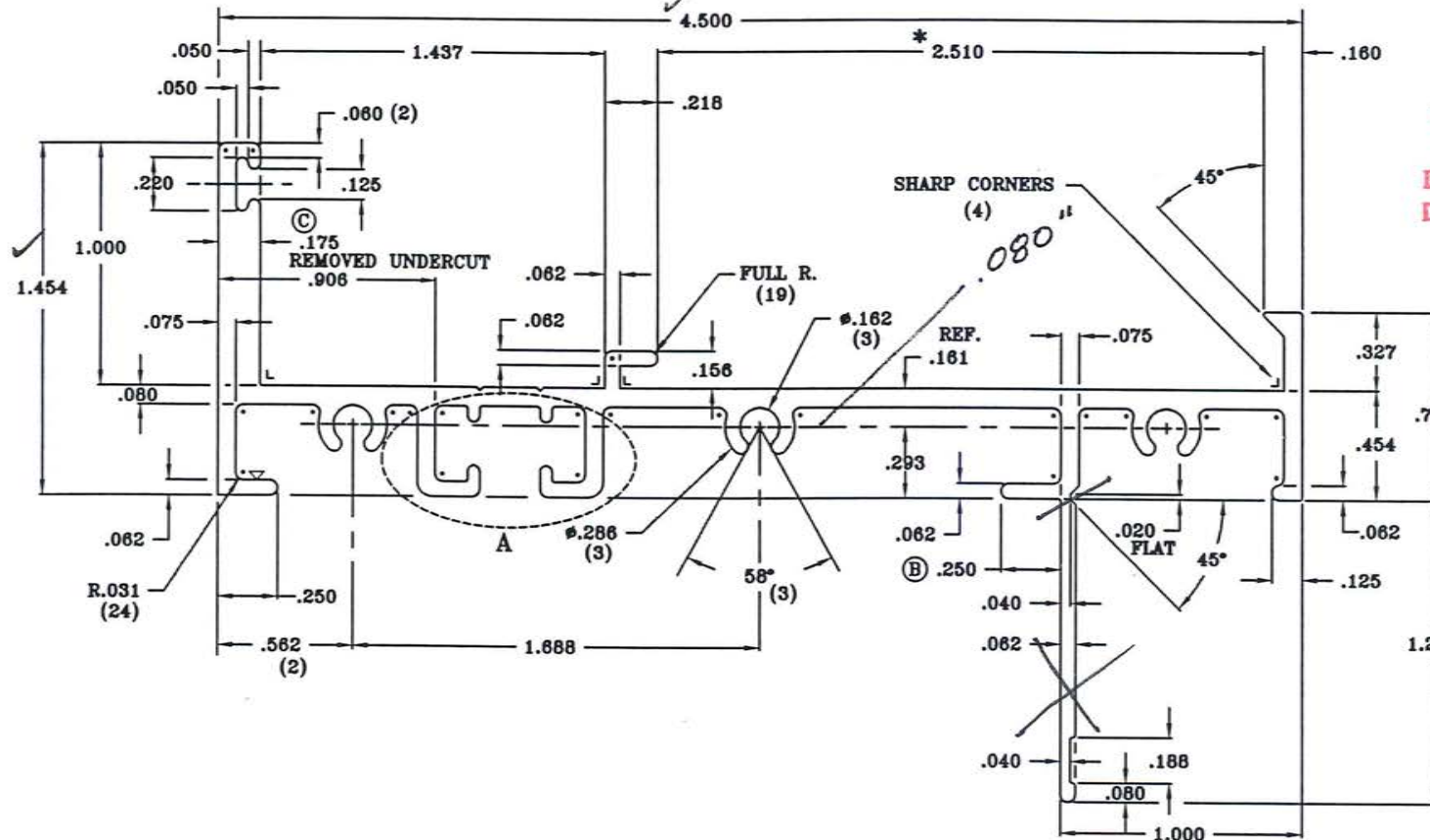
SIERRA ALUMINUM COMPANY
2345 Fleetwood Drive
Riverside, California 92509
(909)781-7800 FAX (909)781-7864

(B) EXPOSED SURFACE



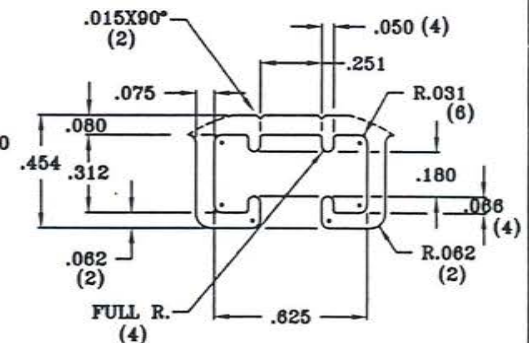
FILE WITH PARTS

FILE 27177, FILE 27179, & FILE 27180

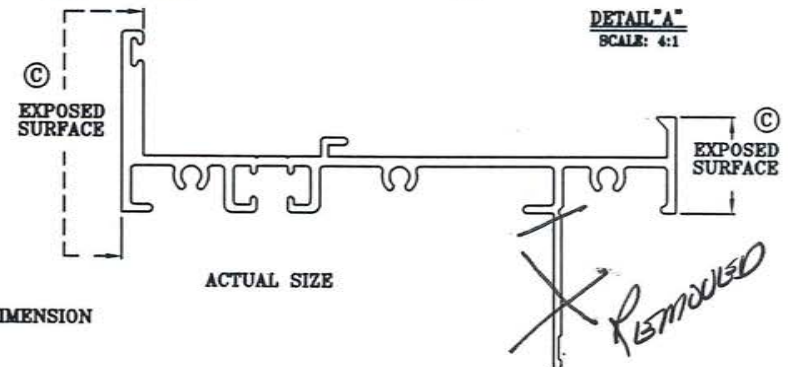


Testing Evaluation Laboratories Inc
Specimen Complies with Drawing
Deviations Noted - TEL # 01990817
Date 10-31-13 Verified by *JD*

THMAL FILL AREA = .193 SQ. IN.



DETAIL "A"
SCALE: 4:1



D.010 R. X .010 DEEP I.D. MARK

NOTE: .075

TYP. WALL EXCEPT AS NOTED
UNMARKED CORNERS .010 R.

CONTAINER	7/8	DES. ENG.	5	SPACER	2				
AREA	.921	PORTS	1	DES.	11238				
WT./VT.	1.105	W/P	POCKET	BOLSTER	11238	C	ADDED P/N	ED	11/12/08
FEEL	22.854	FLE	27178	DES. SIZE	9X2	C	REMOVED UNDERCUT	ED	11/12/08
PT. BY	KEN	DATE	11/12/03	MAT'L	6063-T6	B	ADDED MISSING DIM.	ED	7/28/01
CHEK. BY		DATE		STANDARD TOLERANCES	UNLESS OTHERWISE NOTED	LET.	REVISION	BY	DATE
SIERRA ALUMINUM COMPANY				FLEETWOOD ALUMINUM		SCALE	PART NO.		
2345 Fleetwood Drive				PART NAME		2:1	3805		
Riverside, California 92509				4.500 FRAME BLOCK		930	DES. NO.		
(909)781-7800 FAX (909)781-7864						N/C	011239		