



Architectural Testing

**MIAMI-DADE COUNTY
PERFORMANCE TEST REPORT**

Rendered to:

EFCO CORPORATION

SERIES/MODEL: 6621

PRODUCT TYPE: Thermally Broken Aluminum Fixed Window

This report contains in its entirety:

Cover Page: 1 page
Report Body: 6 pages
Sketch: 1 page
Drawings: 5 pages

Report No.: 83658.01-801-18

Revision 1: 12/01/08

Test Dates: 08/11/08

Through: 08/13/08

Report Date: 11/20/08

Expiration Date: 08/13/18

Miami-Dade County Notification No.: ATITX 08004

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Southlake, Texas 76092
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www.archtest.com

for a record
12/2/08



MIAMI-DADE COUNTY PERFORMANCE TEST REPORT

Rendered to:

EFCO CORPORATION
1000 County Road
Monett, Missouri 65708

Report No.: 83658.01-801-18

Revision 1: 12/01/08

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Project Summary: Architectural Testing, Inc. was contracted by EFCO Corporation to perform testing per Florida Building Code, Test Protocols for High Velocity Hurricane Zone, Protocols TAS 201-94 and TAS 203-94 on one Series/Model 6621, thermally broken aluminum fixed window. The sample was tested in accordance with the performance requirements set forth in the referenced test procedures for a design pressure of +/-115.0 psf. The sample was provided by the client.

Test Procedures: The test specimens were evaluated in accordance with the following, except as noted:

TAS 201-94, *Impact Test Procedures.*

TAS 203-94, *Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.*

Drawing Reference: The test specimen drawings have been reviewed and verified by Architectural Testing, Inc. and are representative of the samples tested.

Test Specimen Description:

Series/Model: 6621

Product Type: Thermally Broken Aluminum Fixed Window

Overall Size: 48" wide by 72" high

Rough Opening Size: 48-1/2" wide by 72-1/2" high

Daylight Opening Size: 43-1/2" wide by 67-1/2" high

Test Specimen Description: (Continued)

Overall Area: 24.00 ft²

Finish: White painted aluminum

Frame Construction: All frame and retaining members were extruded aluminum members. The frame was thermally broken. Frame corners were square cut, butted and fastened with two #8 x 1" pan head Phillips screws per corner. Sealant was applied to screw heads, bosses and thermal break corners on the frame. Aluminum F-clips were secured to the frame with one #8 x 3/4" Phillips head self-tapping screw through the interior frame leg.

Glazing Details: The unit was glazed with insulating glass with 1-1/4" overall thickness and a steel reinforced spacer. The outside lite was one piece of 1/4" thick heat strengthened glass and the inner lite was laminated glass. The laminated glass consisted of 0.090" thick Viracon™ PVB® (polyvinyl butyral) interlayer with one piece of 1/4" thick heat strengthened glass on each side. Each insulating glass unit was interior glazed against Bondaflex 295 structural glazing compound and retained with a glass stop at the interior that was secured with #8 x 3/4" Phillips pan head screws located 3" from the corners and 12" on center thereafter. An aluminum trim was then snapped in over the interior glass stop. Glass bite was 1".

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>	<u>Joinery</u>	<u>Method</u>
0.187" x 0.250" polypropylene bulb	4 Rows	Top of glazing bead against fixed lite	Kerf	Staked

Drainage: No weeps were present.

Hardware: No hardware was utilized.

Installation: The unit was installed into a Spruce-Pine-Fir test buck using 2" by 4" aluminum anchor clips 6" on center from the ends and 10" on center spacing thereafter at jambs and 12" spacing on center at head and sill. Each anchor clip was secured to the test buck with (2) 1/4" x 1-1/4" screws.

Test Results: The following results have been recorded:

Protocol TAS 201-94, *Impact Test Procedures*

Missile Weight: 9.25 lbs

Muzzle Distance from Test Specimen: 16' 0"

Impact #1: Missile Velocity: 50.2 fps

Impact Area: Center of lite

Observations: No rupture, no penetration

Results: Pass

Impact #2: Missile Velocity: 50.3 fps

Impact Area: Top right corner of lite

Observations: No rupture, no penetration

Results: Pass

Protocol TAS 203-94, *Cyclic Wind Pressure Loading*

Design Pressure: +/-115.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
23.0 to 57.5	3500	1.67	0.08	0.06	0.07
0 to 69.0	300	2.51	0.06	0.05	0.04
57.5 to 92.0	600	1.36	0.06	0.06	0.05
34.5 to 115.0	100	2.53	0.06	0.08	0.06
			Permanent Set (inch)		
			0.02	0.02	0.01

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
34.5 to 115.0	50	2.21	0.09	0.10	0.10
57.5 to 92.0	1050	1.50	0.07	0.10	0.07
0 to 69.0	50	2.22	0.06	0.05	0.06
23.0 to 57.5	3350	1.54	0.06	0.02	0.06
			Permanent Set (inch)		
			0.02	0.09	0.02

Result: Pass

Note: Refer to Architectural Testing, Inc. Sketch #1 for impact and indicator locations.

Test Equipment:

Cannon: Steel pipe barrel utilizing compressed air to propel the missile

Missile: 2x4 Southern Pine

Timing Device: Electronic Beam Type

Cycling Mechanism: Computer controlled centrifugal blower with electronic pressure measuring device

Deflection Measuring Device: Linear transducers

Laboratory Compliance Statements: The following are provided as required by the protocols for the testing reported herein.

Upon completion of testing, the specimen tested for TAS 201-94 met the requirements of Section 1626 of the Florida Building Code, Building, except 1626.2.1 requiring three specimen tests.

Upon completion of testing, the specimen tested for TAS 203-94 met the requirements of Section 1626 of the Florida Building Code, Building, except 1626.2.1 requiring three specimen tests.

Testing only one specimen does not satisfy the building code requirement for three test specimens, but the results of one specimen test may be used for supplemental information as deemed necessary by the authority having jurisdiction.

Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Testing was conducted at the Architectural Testing, Inc. laboratory located in Southlake, Texas.

List of Official Observers:

<u>Name</u>	<u>Company</u>
Andy Cost	Architectural Testing, Inc.
Joseph A. Reed, P.E.	Architectural Testing, Inc.
John Mayfield	Architectural Testing, Inc.
Tom Klein	Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of ten years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

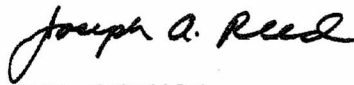
Results obtained are tested values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.



Digitally Signed by: Tom Klein

Tom Klein
Test Technician



Digitally Signed by: Joseph A. Reed

Joseph A. Reed, P.E.
Director – Engineering and Product Testing

TK:ac/cmd

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Sketch (1)

Appendix-B: Drawings (5)

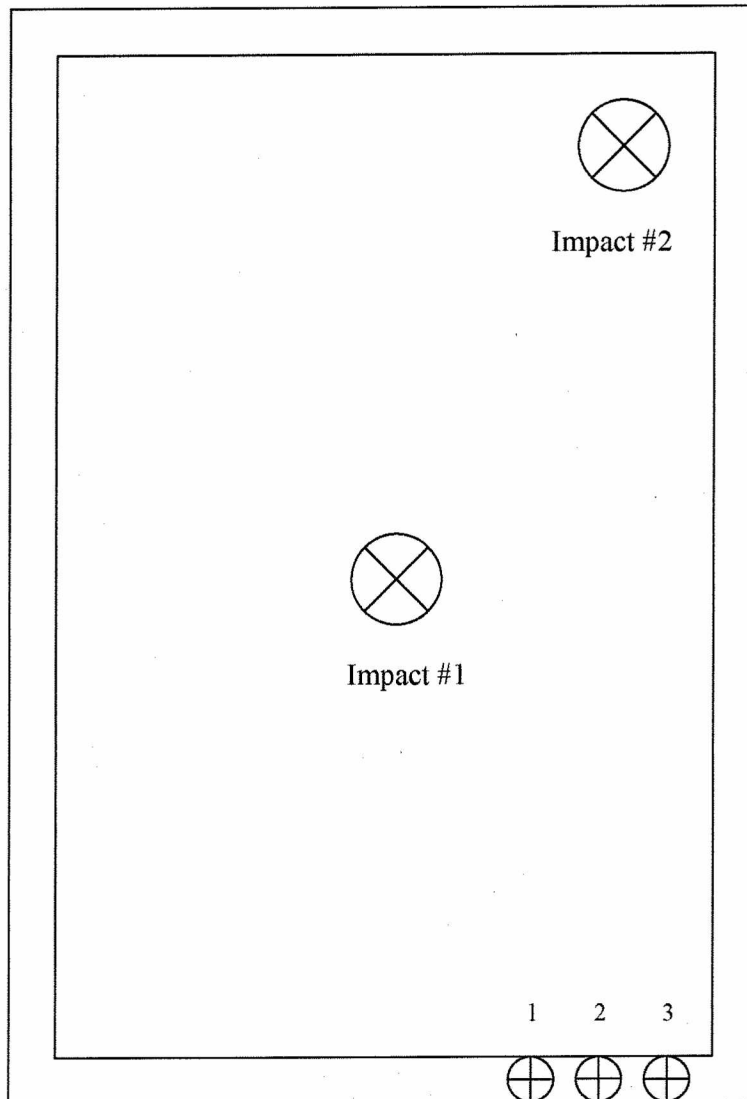
Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	11/20/08	N/A	Original Report Issue
1	12/01/08	2	Under "Glazing Details," revised glass bite from 9/16" to 1"

Appendix A

Sketch

Architectural Testing Sketch #1



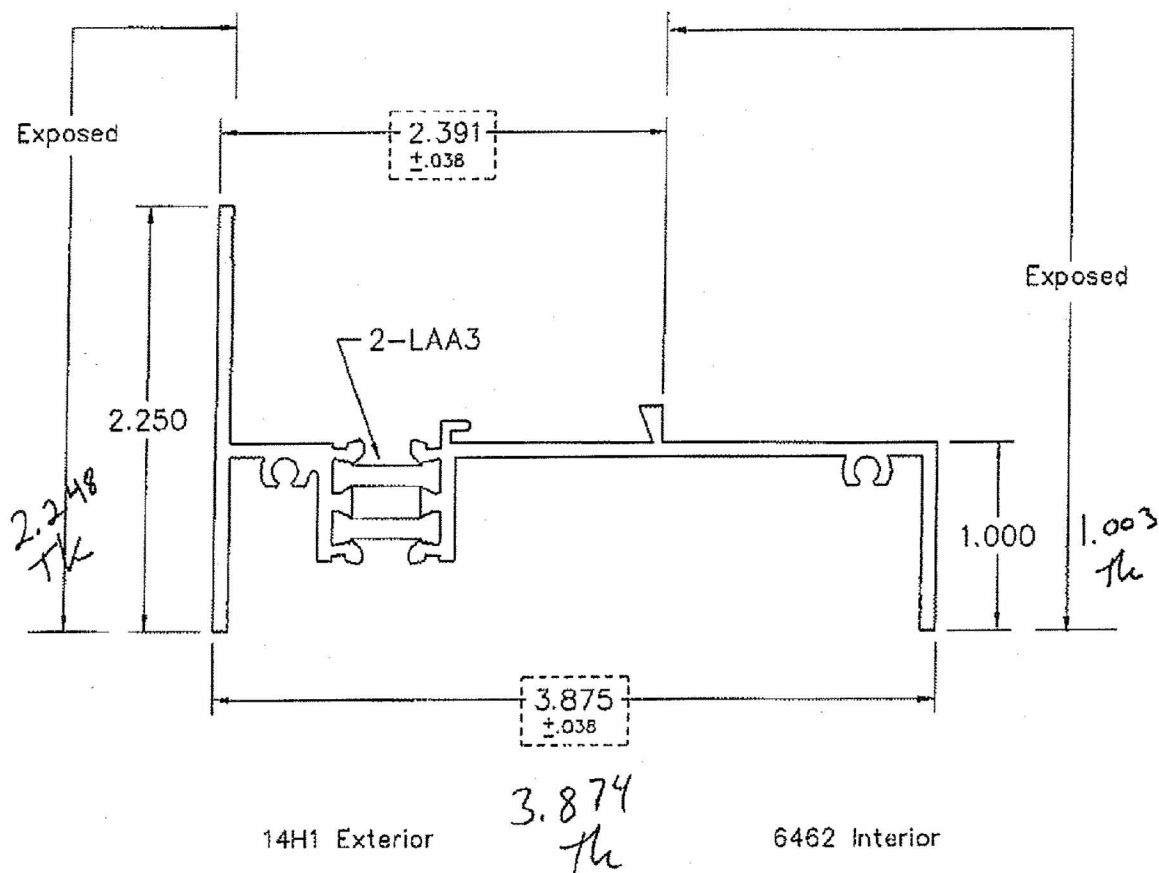
 = linear transducers

Note: Indicator #1 and #3 are at anchorage locations.

Appendix B

Drawings

STD. EXTRUSION TOLERANCES AS DEFINED BY
THE ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 83658.01-801-18
Date 9/19/08 Tech Th

1F75

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EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

REVISIONS W/DATES:

DRAWN: Tim H.	Approved: Tim H.	SCALE: Full	TITLE: Fixed Frame	NO. 1F75
DATE: 3-9-06	DATE: 3-9-06			

ACTUAL SIZE



Test sample complies with these details.
Deviations are noted.

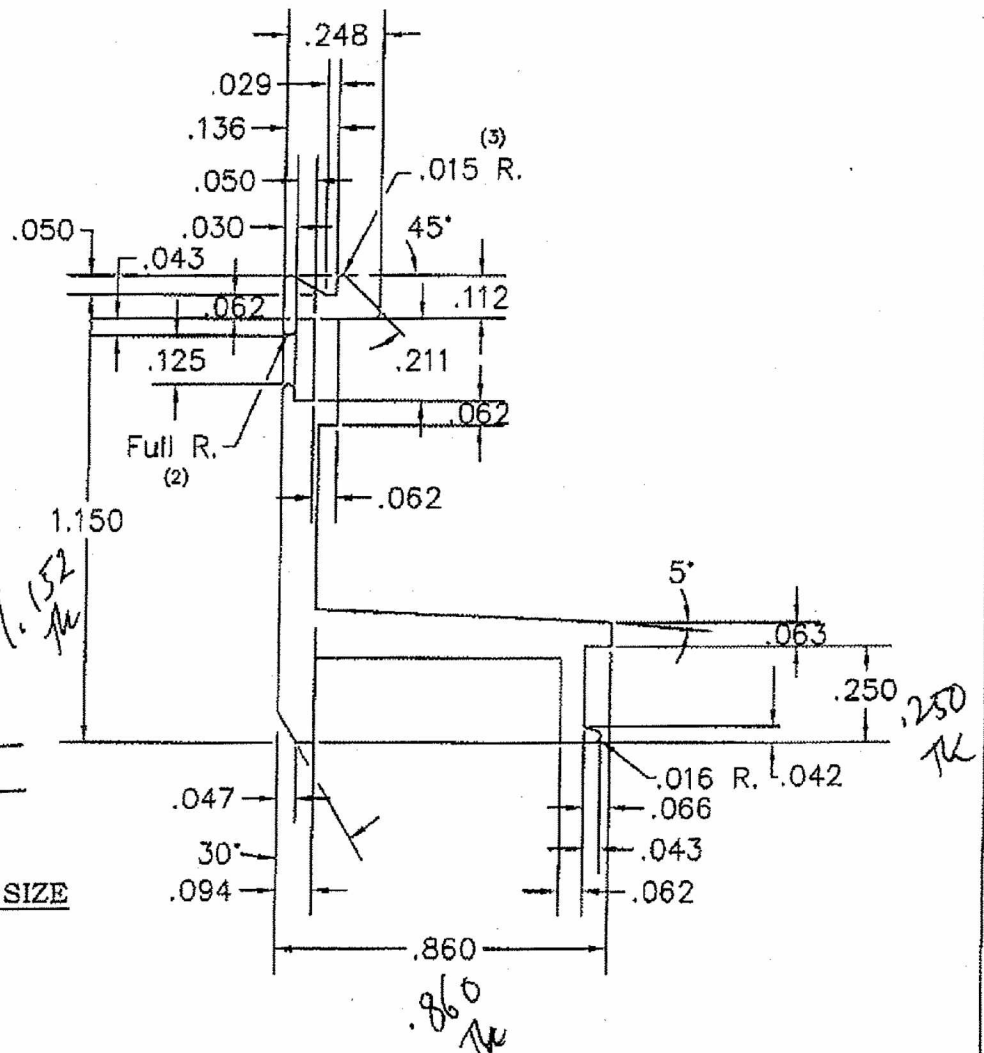
83658.51¹⁰²/801-18

9/19/68

Tech

the

2 x SIZE



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EFCO CORPORATION
1000 County Road
Monett, Missouri 65708
1-800-221-4169
Fax: 417-235-7313

TRH

10-6-06

TRH

10-6-06

6621

Glazing Stop

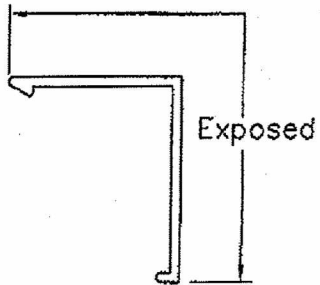
A Redesign Shape T.H. 10-5-06

AS NOTED

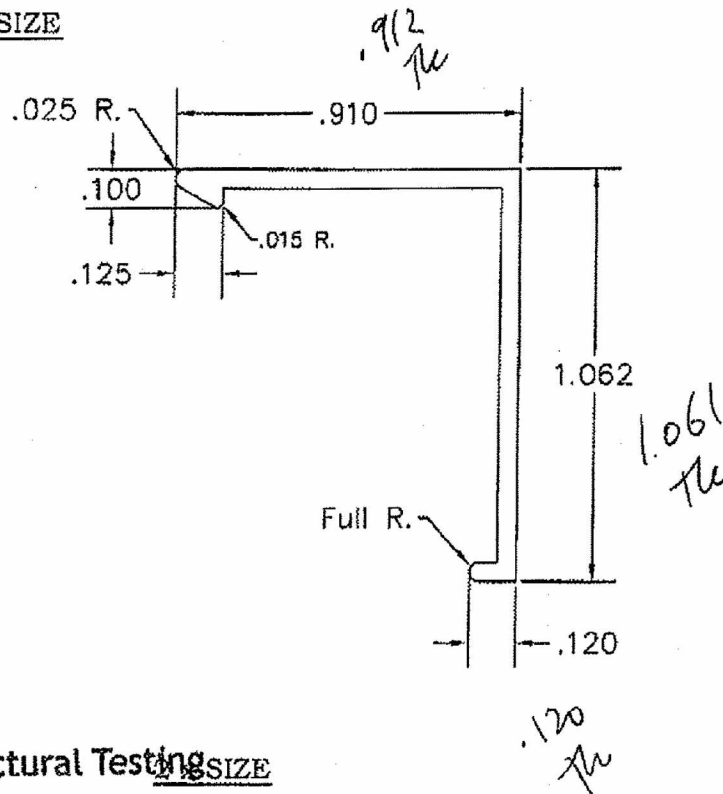
2"

14R9

STD. EXTRUSION TOLERANCES AS DEFINED BY
THE ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



ACTUAL SIZE



Architectural Testing

Test sample complies with these details.
Deviations are noted.

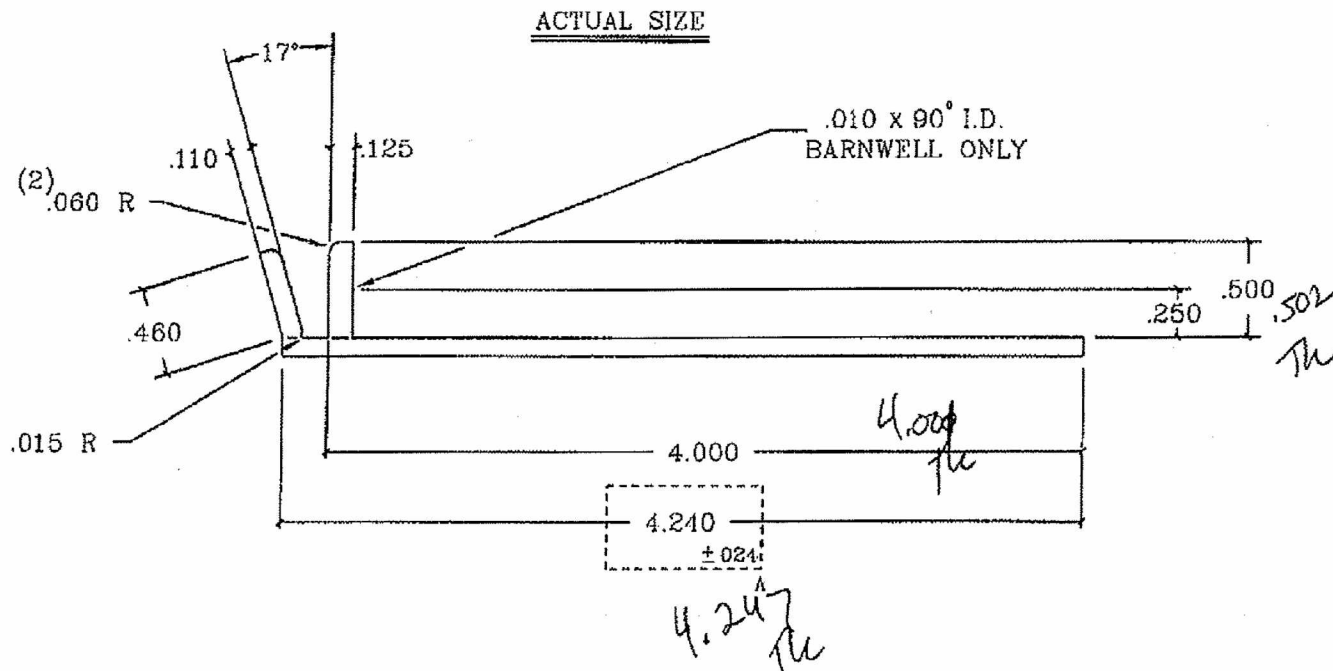
Report# 83658-01-801-18
Date 9/19/08 Tech TH

DO NOT SCALE PRINT

© 2006 EFCO CORPORATION ALL RIGHTS RESERVED

MATERIAL: 6063-T6 ALUM.	 EFCO CORPORATION 1000 County Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313	DRAWN BY: TRH	REVISIONS W/ DATES:		
WALL THICKNESS: .050 & AS NOTED		DATE: 10-6-06			
TOTAL PERIMETER: 4.098		APPROVED: TRH			
Painted PERIMETER: 1.972		DATE: 10-6-06	SCALE: AS NOTED		DIE CIRCLE: 2"
AREA: .102		SERIES: 6621			
WT/FT: .122		Glazing Stop Cover	14S0		
FACTOR: .34					

STD. EXTRUSION TOLERANCES AS DEFINED BY A
THE ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



NO EXPOSED SURFACES



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 83658-01-201-18

Date 9/19/08 Tech TL

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.010 x 90° I.D. MARK TO BE INCORPORATED
INTO DIE © EFCO BARNWELL ONLY. EFCO
MONETT IS NOT TO HAVE I.D. MARK.

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MATERIAL: 6063-T1 ALUM.

WALL THICKNESS: .096 & AS NOTED

PERIMETER: 10.586

③

AREA: .520

A

WT/FT: .624

A

FACTOR: 17

K.BAKER

DATE: 7-29-00

APPROVED:

DATE:

REVISIONS W/DATES:
A ADDED BARNWELL I.D. NOTES & TOLERANCES,
REDRAWN K.BAKER 7-29-00

ORIGINAL DWN BY JDX 8-3-92

SCALE: AS NOTED

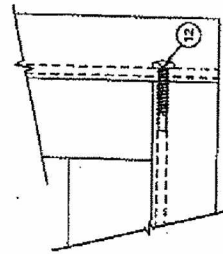
DIE CIRCLE: 5"

TITLE

WINDOW CLIP

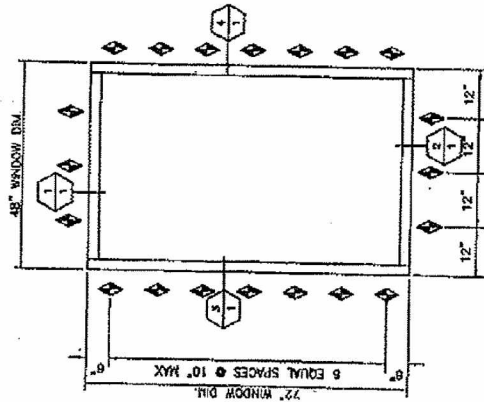
NO.

1880

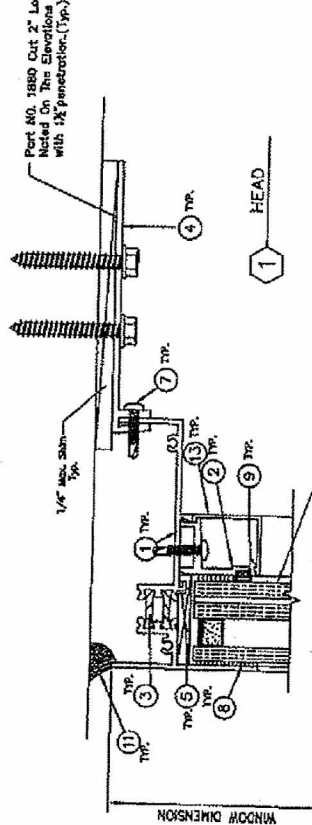


FRAME CORNER ASSEMBLY
MILLED AND MECHANICALLY ASSEMBLED

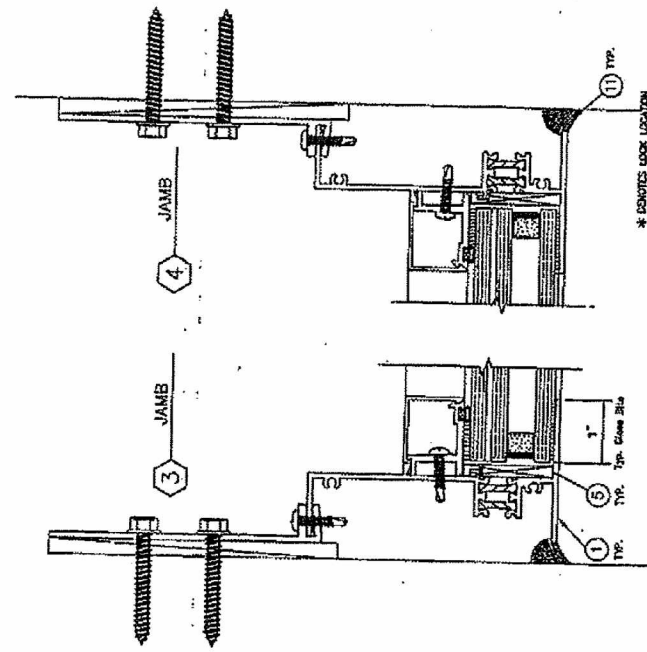
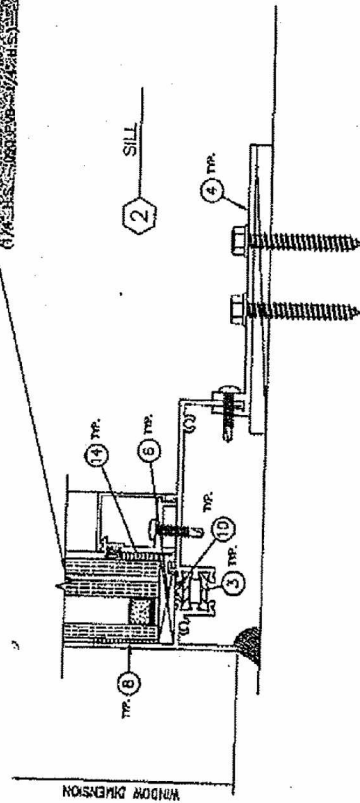
Frame Size = 40 1/2 x 63 1/2"
Sight Opening = 43 1/2 x 61 1/2"



ELEVATION



1 1/2" NOMINAL GLASS THICKNESS
CLEARANCE 1/2" MIN. (TYP.)



* INDICATES LOCK LOCATION

* INDICATES ANCHOR LOCATION

Architectural Testing
Test sample complies with these details.
Deviations are noted.
Report# 83658-01-801-18
Date 9/19/08 Tech JL

ITEM #	RECD	PART #	DESCRIPTION	MFG.
1	4	1F75	FRAME	EFCD
2	4	14R9	Glazing Bead	EFCD
3	AS RECD	1880	F-ANCHOR 2" LONG	EFCD
4	AS RECD	1880	F-ANCHOR 2" LONG	EFCD
5	4	HN41	1/4" Setting Block	REED
6	4	HN41	1/4" Setting Block	REED
7	AS RECD	STKO	#8X3/4" TEK SCREW	REED
8	AS RECD	JUB6	Back Bedding (295MB)	REED
9	AS RECD	WAO9	BEAD VINYL	REED
10	AS RECD	JU44	JOINT SEALER	REED
11	AS RECD	JU51	SILICONE SEALANT	REED
12	8	SQ2	18-18 X 1 PLPHSMS 18-8-LP	REED
13	4	14SD	Glazing Bead	EFCD
14	AS RECD	JU51	Silicone (295M)	REED
15				
16				