



SUBMITTAL REVIEW

H&A JN: 1614.03
Project: MSBA Accelerated Repair Program
Halifax Elementary School – Windows, Doors & Siding Replacement
464 Plymouth Street
Halifax, MA 02338

ITEMS:

1. 08 4113-3 EFCO STOREFRONT PRODUCT DATA
2. 08 4113-3 SAMPLE WARRANTY
3. 08 4113-3 DOOR D502 THERMAL TESTING REPORT
4. 08 4113-3 DOOR D502 STRUCTURAL TESTING
5. 08 4113-3 STOREFRONT TESTING


HABEEB & ASSOCIATES ARCHITECTS INC. 150 LONGWATER DRIVE NORWELL, MA 02061	
NO EXCEPTIONS TAKEN	
NOTE MARKINGS RESUBMITTAL NOT REQ'D	X
NOTE MARKINGS RESUBMITTAL REQ'D	
REJECTED	
This review is given for design concept only and does not relieve the contractor from meeting the provisions of the contract, drawings and specifications. The Contractor is responsible for verifying all dimensions, schedules, quantities and field conditions.	
DATE 03-08-18	BY SB

COMMENTS:

1. The Storefront Frame Warranty should be for 10 years per Specification Section 084113, 1.05, C.

To: Habeeb & Associates Architects
 150 Longwater Drive
 Norwell, MA 02061

Contractor: Lambrian Construction Corporation
 384 Washington Street
 Westwood, MA 02090
 Tel: (781) 461-1100 Fax: (781) 461-9885

Submittal No:	3
Date Submitted:	3/06/2018
Manufacturer:	EFCO
Product Name:	EFCO 403 & D502
Specification Section:	08 4113 - Aluminum-Framed Storefronts - Par. 1.03C & PART 2
Approved By:	
Description:	Product Data

COMMENTS:

PROJECT: Halifax Elementary School
 LAMBRIAN CONSTRUCTION CORP.

Approved by: 

**WINDOWS, DOORS & SIDING REPLACEMENT
HALIFAX ELEMENTARY SCHOOL
464 PLYMOUTH STREET
HALIFAX, MASSACHUSETTS 02338**



EFCO CORPORATION LIMITED WARRANTY

EFCO CORPORATION warrants to the first retail purchaser only, that all articles, materials and work will be free from material defects in manufacture. EFCO Corporation's liability extends only to its buyer and is limited by the Terms and Conditions stated on the reverse side of this form.

EFCO CORPORATION'S warranty on the product(s) shall extend from the issue date as follows:

Glass	10 years
Window	10 years
Storefront	5 years
Curtainwall	Not Applicable
Door	5 years
Finish	20 years
Anodize	Not Applicable

TEN YEARS PER SPECIFICATION
SECTION 084113, 1.05, C

EFCO CORPORATION excludes any implied warranties of merchantability and fitness for a particular purpose.

EFCO's liability will not extend beyond repair or replacement of the defective material. EFCO will not be responsible for any consequential damages caused by its products. There are no warranties which extend beyond the description on the face hereof.

Job Name:	HALIFAX ELEMENTARY SCHOOL
EFCO Job No.:	H553801
Customer Name:	LAMBRIAN CONSTRUCTION CORP.
Issue Date:	3/5/2018

Architectural Window, Curtain Wall
& Storefront Systems
See attached for additional terms and conditions.

WARRANTY TERMS AND CONDITIONS

PRODUCTS LIMITED WARRANTY

The limited warranty for INSULATED GLASS UNITS warrants the glass units will be free from obstruction of vision as a result of dust or film formation on the internal glass surfaces caused by failure of the hermetic seal due to defects in material or workmanship.

The limited warranty for BAKED-ON FLUROPOLYMER PAINT COATINGS warrants that paint finishes will not chip, crack, blister, or peel. EFCO CORPORATION does not warrant any paint finishes for filiform corrosion in Coastal environment.

Corrosion of any product or component caused by exposure to salt atmosphere, acid rain, alkaline, or other extreme conditions is not covered. EFCO disclaims all liability for and with respect to any material which has been subject to abuse, alteration, modification, neglect, misuse, abnormal use, accident, fire, war, flood, earthquakes, or acts of God.

This warranty covers factory-applied finishes on exposed aluminum surfaces against peeling, checking, cracking, chalking, and change of color, per applicable AAMA standards 2603, 2604, 2605, or 611 in force at the time of bidding. This limited warranty applies only when the finish types recommended for the atmospheric environment of the project site are used. EFCO reserves the right to refinish defective components in the field or replace at its sole discretion.

WHAT EFCO CORPORATION WILL DO

If any material shall be found to be defective by EFCO in material or workmanship, such material shall be replaced or repaired at EFCO's discretion without charge, after inspection by a representative of EFCO. This is a materials only warranty, labor will only be provided in cases of repair. Any warranty for labor must be separately negotiated by purchaser.

If after inspection by EFCO, it is determined the organic coating became defective under the conditions of this warranty, EFCO agrees to refinish the defective material on the site, with a conventional refinishing material as specified by EFCO.

EXCLUSIONS TO THE LIMITED WARRANTY

EFCO CORPORATION will not be responsible for defects caused by accidents, modifications to products, abuse, (including failure to perform reasonable and necessary maintenance), failure to follow instructions, exposure to salt spray, corrosive chemicals, lightning, fire, and other acts of nature. All outside manufactured parts will be limited to the specific manufacturer's warranty and are expressly excluded from the EFCO limited warranty.

EFCO shall not be liable for material damaged in handling or installation; or not installed in accordance with the EFCO Installation Manual Guidelines.

EFCO assumes no responsibility for failure of insulated glass units due to faulty installation, building construction, or building design; or failure of units installed in high moisture environments such as swimming pool enclosures and greenhouses. EFCO does not assume responsibility for glass breakage caused by stresses resulting from temperature differentials over the glass surfaces or edges.

The EFCO limited warranty excludes any damage caused to the material or finish due to posting.

The EFCO limited warranty excludes any liability for environmental hazards including but not limited to mold.

The EFCO limited warranty extends to EFCO manufactured product only, as outlined in AAMA 502-90, test method A. Perimeter conditions, caulking, sealants, etc. are explicitly excluded from the EFCO limited warranty. The EFCO limited warranty is based upon the system itself, it does not warrant the installation of the system.

EFCO CORPORATION excludes any implied warranties of merchantability and fitness for a particular purpose. EFCO will not be responsible for incidental or consequential damages.

WHAT EFCO WILL NOT DO

EFCO CORPORATION will not be responsible or liable for any incidental, consequential, or collateral damages or for any expense incurred by anyone as a result of the use, or sale of defective or unsatisfactory material.

Any implied warranty arising from course of performance, course of dealing, or usage of trade is hereby excluded or disclaimed.

EFCO shall not be liable for back charges nor any work performed or materials placed by anyone other than EFCO in connection with the installed products covered by this warranty, except when authorized by the signature of an officer of EFCO CORPORATION.

Materials will not be repaired or replaced until paid for in full.

The warranty sets forth all the responsibilities of EFCO CORPORATION regarding the products. EFCO will not be responsible for any costs or damages resulting from removal, installation or reinstallation of any products or components. Replacement of defective parts at the EFCO factory is the exclusive remedy. There are no other express or implied warranties from EFCO CORPORATION.

LIMITED LIFETIME WARRANTY FOR EFCO ENTRANCE DOOR CORNER CONSTRUCTION

Limited Lifetime Warranty and Remedy for EFCO Doors with a welded corner. This warranty is in addition to EFCO's current five (5) year warranty and applies solely and exclusively to EFCO doors with a welded corner.

This is to certify that EFCO Corporation (EFCO) warrants to its customers and all subsequent purchasers and users that: The corner construction of the doors shall be free from material defects in workmanship and material for the normal, useful life of the door.

The warranty set forth above commences at the date of shipment from EFCO's factory and applies only if EFCO's doors are installed and maintained according to EFCO's recommended practices and installation instructions, and only if EFCO is notified in writing within sixty (60) days after such defects appear. This warranty is non-transferable.

What EFCO Will Do:

If any material shall be found to be defective by EFCO in material or workmanship, such material shall be replaced or repaired at the option of EFCO, after inspection by EFCO, and with the consent of EFCO, without charge.

Exclusions To The Limited Warranty:

EFCO will not be responsible for defects caused by accidents, modifications to products, abuse, (including failure to perform reasonable and necessary maintenance), failure to follow instructions, exposure to salt spray, corrosive chemicals, lightning, fire, and other acts of nature.

All outside manufactured parts will be limited to the specific manufacturer's warranty and are expressly excluded from the EFCO limited warranty.

EFCO shall not be liable for the material damaged in handling or installation; or not installed in accordance with the EFCO Installation Manual Guidelines.



REV-5-2015-EFCO



**NFRC U-FACTOR, SHGC, VT, &
CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

**Rendered to:
EFCO CORPORATION**

**SERIES/MODEL:
D-502 / F-403 Single Door**

<i>Baseline Product for Validation Testing</i>	
Simulated Thermal Transmittance (U-Factor)	0.570
Unit Size:	43.50 inches wide by 82.125 inches high
Glazing Layer 1:	1/4" PPG Solarban 60 Lowe (e=0.035,#2)
Gap 1:	0.500 inch Tin-Plate Intercept Spacer (CU-D) - Air Fill
Glazing Layer 2:	1/4" Clear
Notes:	Non-standard test size

Report Number: 97467.02-116-45
Report Date: 05/04/10
Expiration Date: 05/04/14



**NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT**

Rendered to:
EFCO CORPORATION
1000 County Road
Monett, MO 65708

Report Number: 97467.02-116-45
Simulation Date: 05/04/10
Report Date: 05/04/10
Expiration Date: 05/04/14

Project Summary:

Architectural Testing, Inc. was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed below.

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

NFRC 100-2010: Procedure for Determining Fenestration Product U-Factors
NFRC 200-2010: Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
NFRC 500-2010: Procedure for Determining Fenestration Product Condensation Resistance Values

Software:

Frame and Edge Modeling: THERM 5.2.14
Center-of-Glass Modeling: WINDOW 5.2.17
Total Product Calculations: WINDOW 5.2.17
Spectral Data Library: 17.3

Simulations Specimen Description:

Series/Model: D-502 / F-403 Single Door
Type: Swinging Door , Single Leaf Entrance Door
Frame Material: AU Thermally Improved
Sash Material: AT Aluminum w/ Thermal Breaks - All Members
Standard Size: 1000mm x 2000mm

Technical Interpretations:

None

Modeling Assumptions:

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.

Specialty Products Table:

The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 5.2. The method gives overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.033829	0.036287	0.038532
SHGC1	0.501060	0.427924	0.374234
VT0	0.000000	0.000000	0.000000
VT1	0.467232	0.391637	0.322575

$$\text{SHGC} = \text{SHGC0} + \text{SHGCc} (\text{SHGC1} - \text{SHGC0})$$

$$\text{VT} = \text{VT0} + \text{VTc} (\text{VT1} - \text{VT0})$$

Spacer Option Description

<i>Spacer Type</i>	<i>Sealant</i>		
	<i>Primary</i>	<i>Secondary</i>	<i>Desiccant</i>
Aluminum Spacer	Butyl Rubber	Butyl Rubber	Yes
PPG Intercept Spacer	Butyl Rubber	Butyl Rubber	Yes

Grid Option Description

<i>Grid Size</i>	<i>Grid Type</i>	<i>Grid Pattern</i>
None		

Reinforcement Option Description

<i>Location</i>	<i>Material</i>
None	

Gas Filling Technique Description

<i>Fill Type</i>	<i>Method</i>
None	

Edge-of-Glass Construction

<i>Interior Condition</i>	EPDM gasket against glass
<i>Exterior Condition</i>	EPDM gasket against glass

Weatherstripping

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
Vinyl bulb gasket	1 row	Head, jambs

Frame/Sash Materials Finish

<i>Interior</i>	Painted aluminum
<i>Exterior</i>	Painted aluminum

NFRC 100/200/500 Summary Sheet
D-502 / F-403 Single Door

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type	
	U-Factor		Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)						Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance		
1	COG=0.4400												
	0.222	0.500	0.225					XEN84.5		CL	A1-D	N	
	U-Factor		0.66	SHGC (N)				0.35	VT (N)		0.34	CR	33
2	COG=0.4200												
	0.222	0.500	0.225					ARG76	0.652(#2)		GY	A1-D	N
	U-Factor		0.65	SHGC (N)				0.15	VT (N)		0.11	CR	33
3	COG=0.4000												
	0.220	0.500	0.225					ARG85.7	0.566(#2)		GY	A1-D	N
	U-Factor		0.64	SHGC (N)				0.15	VT (N)		0.09	CR	33
4	COG=0.3800												
	0.226	0.500	0.225					ARG83	0.471(#2)		AZ	A1-D	N
	U-Factor		0.63	SHGC (N)				0.12	VT (N)		0.07	CR	33
5	COG=0.3600												
	0.220	0.500	0.225					ARG88.6	0.395(#2)		GY	A1-D	N
	U-Factor		0.63	SHGC (N)				0.10	VT (N)		0.03	CR	33
6	COG=0.3400												
	0.230	0.500	0.225					ARG73.8	0.298(#2)		LE	A1-D	N
	U-Factor		0.62	SHGC (N)				0.27	VT (N)		0.28	CR	33
7	COG=0.3200												
	0.223	0.500	0.225					ARG65	0.215(#2)		LE	A1-D	N
	U-Factor		0.61	SHGC (N)				0.32	VT (N)		0.34	CR	33
8	COG=0.3000												
	0.233	0.500	0.225					ARG74.6	0.166(#2)		LE	A1-D	N
	U-Factor		0.60	SHGC (N)				0.24	VT (N)		0.25	CR	33
9	COG=0.2600												
	0.223	0.500	0.225					ARG62.5	0.035(#2)		LE	A1-D	N
	U-Factor		0.58	SHGC (N)				0.21	VT (N)		0.33	CR	33
10	COG=0.2400												
	0.223	0.500	0.223					ARG86	0.035(#2) / 0.035(#3)		LE	A1-D	N
	U-Factor		0.57	SHGC (N)				0.20	VT (N)		0.29	CR	33

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Architectural Testing is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The NFRC procedure requires that the computational results be verified through actual test results.

Detailed drawings, simulation data files, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four 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 simulated 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 product simulated. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

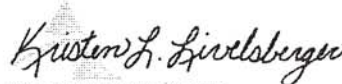
SIMULATED BY:



Digitally Signed by: Eric S. Leitner

Eric S. Leitner
Simulation Technician

REVIEWED BY:



Digitally Signed by: Kristen L. Livelsberger

Kristen L. Livelsberger
Senior Simulation Technician
Simulator-In-Responsible-Charge

ESL:esl

97467.02-116-45

Attachments (pages):

This report is complete only when all attachments listed are included.

Appendix A: Drawings and Bills of Material (17)

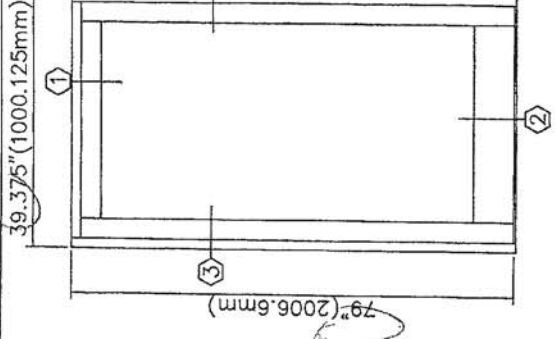
Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.01R0	5/4/2010	All	- Original report issue



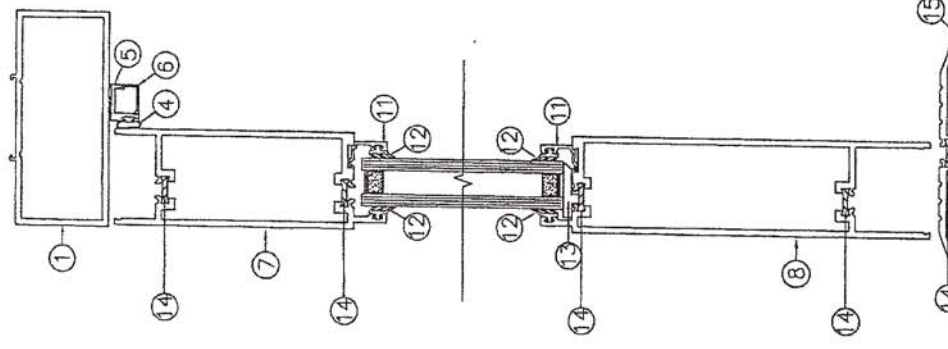
All drawings and Bills of Material used to simulate this product are enclosed in this Appendix

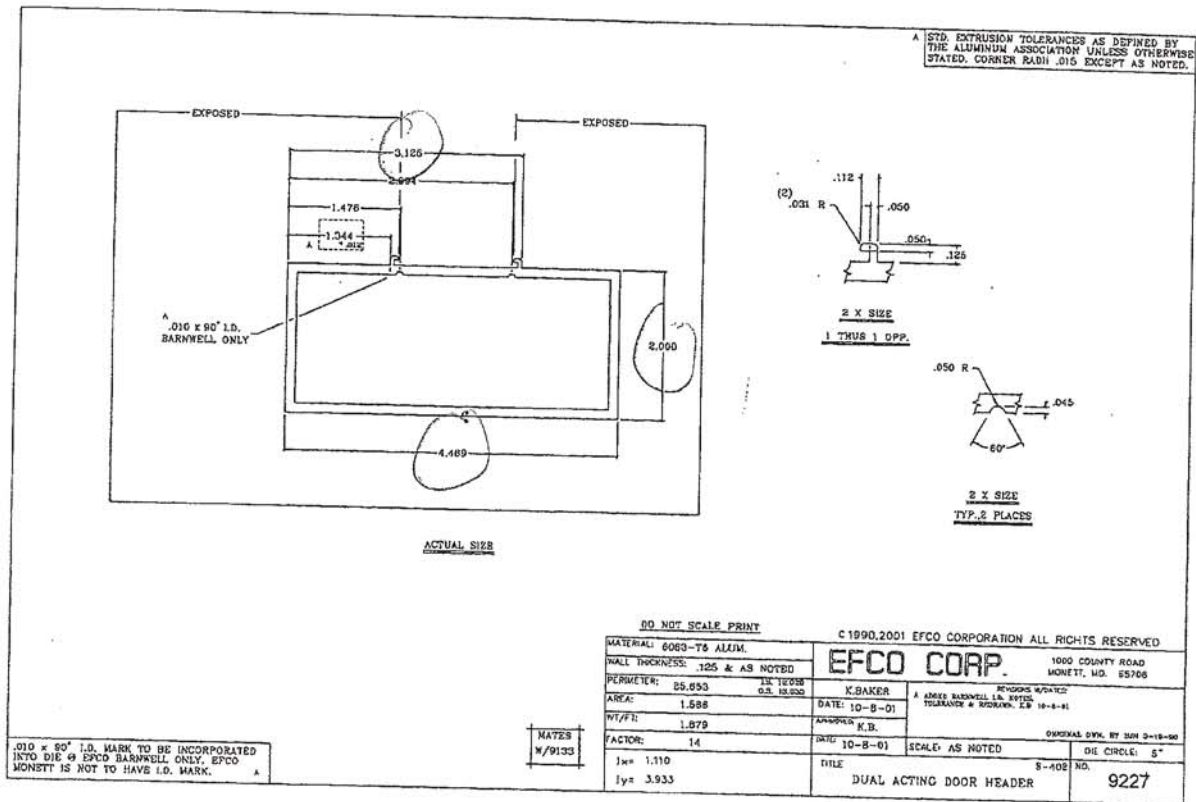
Appendix A
97467.02-116-45



ITEM #	QTY	PART #	DESCRIPTION	MFG.
1	1	9227	DOOR FRAME	EFCO
2	2	9322	JAMBS	EFCO
3	2	9355	SNAP-IN DOOR STOP	EFCO
4	AS REQD	W138	BULB GASKET	EPG
5	1	4437	APPLIED DOOR STOP	EFCO
6	1	9155	BULB GASKET	EFCO
7	1	1H17	DOOR TOP RAIL	EFCO
8	1	1H21	DOOR BOTTOM RAIL	EFCO
9	1	1H51	DOOR HINGE JAMB	EFCO
10	1	1H09	DOOR LOCK JAMB	EFCO
11	4	9781	GLAZING BEAD	EFCO
12	AS REQD	W132	GLAZING GASKET	EPG
13	4	H372	SETTING BLOCKS	EPG
14	AS REQD	LAA3	1 STRUT	DOOR STOP
15	1	1G11	THRESHOLD	EFCO
16	2	F454	TOP RAIL CORNER PLATE	NS EFCO
17	2	F451	BOTTOM RAIL CORNER PLATE	NS EFCO
18	2	F459	TOP RAIL CORNER CLIP	NS EFCO
19	2	F456	BOTTOM RAIL CORNER CLIP	NS EFCO
20	8	HP9	1/4-20X1/8 18-8 18-8	NS PROFAS

Architectural Testing
 Report # 9747
 Date 5/2/2010
 Simulator *Arch. Test*
 Test sample cor. with other details.
 Details are noted.
 Report# 97473.0
 Date 03/18/10 Tech *BWG*





Architectural Testing, Inc.

Report # 97473.01

Date 5/4/2010

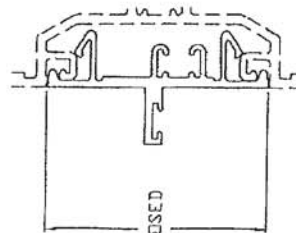
Test sample compl' for details.

Simulation deviation for details.

Report # 97473.01

Date 03/18/10 Tech BWG

FULL R (10)

4x SIZEACTUAL SIZE

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report#	9473:01
Date	03/25/0

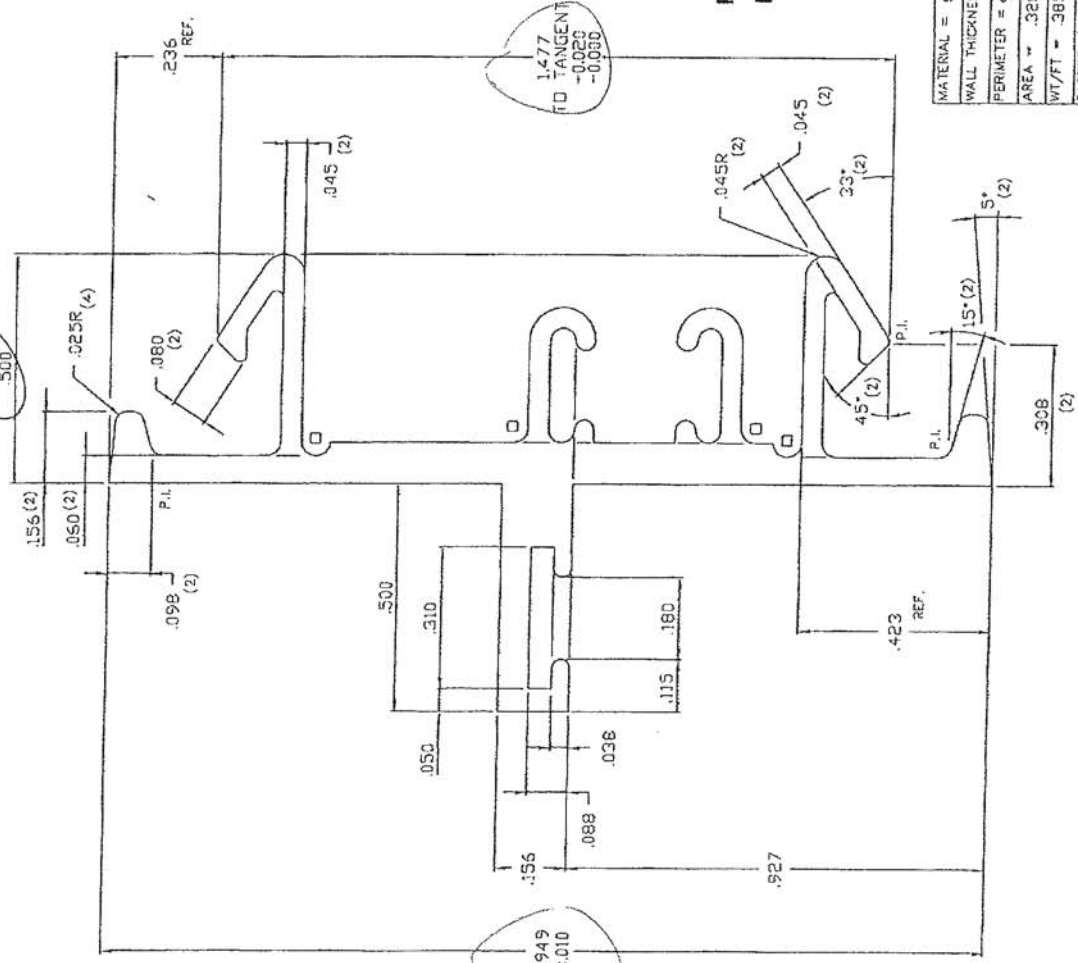
UNMARKED RADII = .015
O = .031 RADII

Architectural Testing,

Report # 97467

Date 5/4/2010

Simulator Eric Lutz



FOR USE WITH CLEAR
POCKET VERTICALS ONLY.

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THE COO CORP.

REVISIONS W/DATES:

DRAWN: J.D.A.

DATE: 11/1/95

102NOC96V

DATE: _____

DIE CIRCLE u 2*

DIE CIRCLE
NO. 9355

THERMAL CAV. = 1.152 (IN³/FT)

(THERMASTILE 2" THICK DOOR)

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

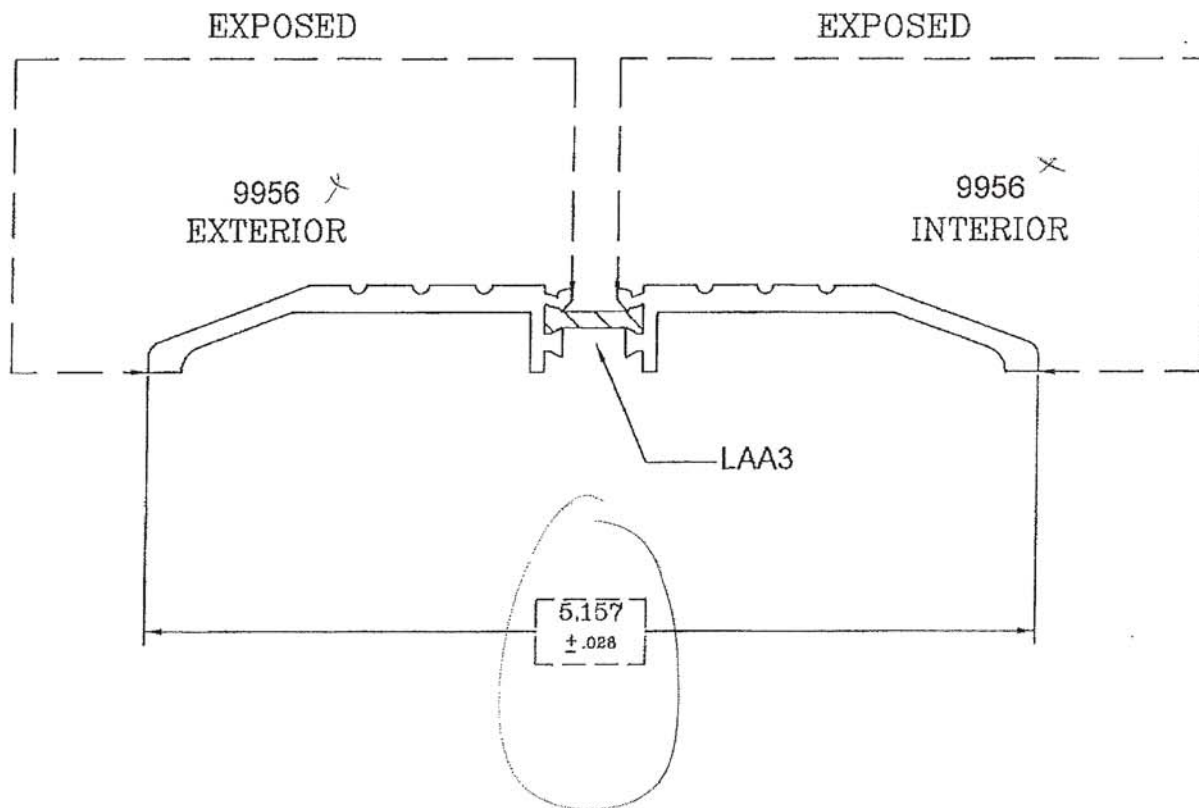
Architectural Testing, Inc.

Architectural Testing

Report # 97467 Test sample complies with these details.

Date 5/4/2010 Deviations are noted.

Simulator File Date 5/10 Tech BWG



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EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

REVISIONS W/DATES:

RAM		SCALE:	TITLE	403-I	NO.
DATE: 8-27-01		FULL	DOOR THRESHOLD		1G11

0.10 x 90° I.D. MARK TO BE INCORPORATED INTO DIE @ EFCO BARNWELL ONLY. EFCO MONNETT IS NOT TO HAVE I.D. MARK.

(A)

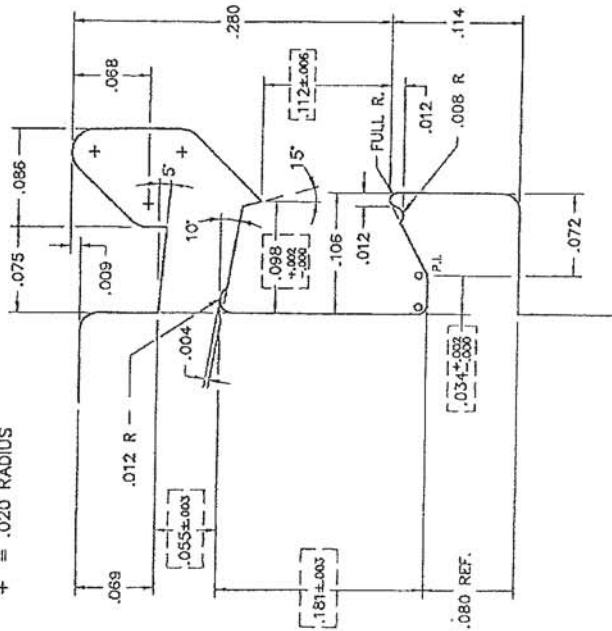


Architectural Testing

Test sample complies with these details.
Deviations are noted.

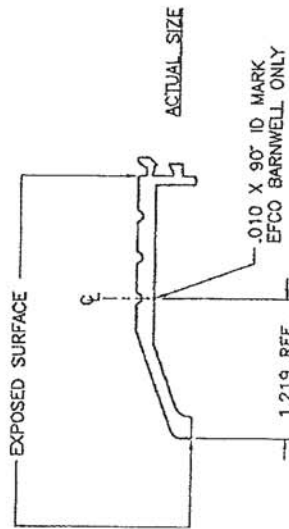
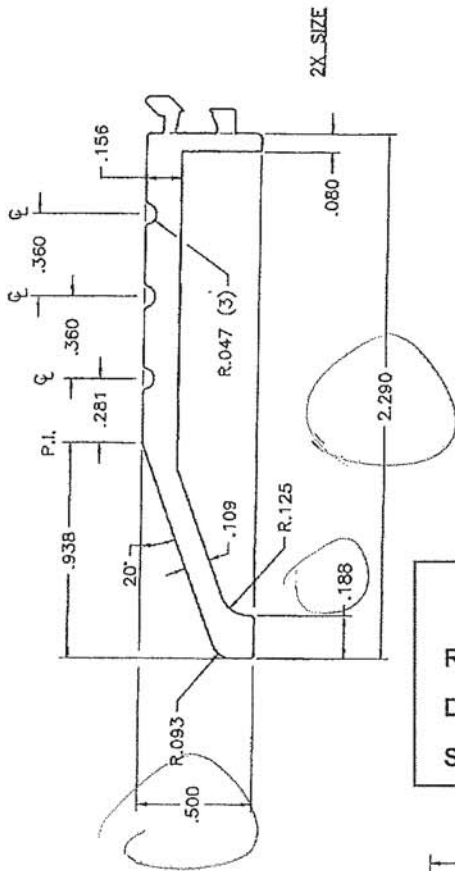
Report# 97473.81 Tech BUG
Date 02/25/10 10x SIZE (A)

o = .008 RADIUS
+ = .020 RADIUS



(A)

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



Architectural Testing, Inc.

Report # 97467

Date 5/4/2010

Simulator Eric Suter

DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.

WALL THICKNESS: AS NOTED

TOTAL PERIMETER: 6.551

PAINTED PERIMETER: 2.642

AREA: .378

WT./FT.: .454 (A)

FACTOR: 14



EFCO CORPORATION

1000 County Road

Monett, Missouri 65708

1-800-221-4169

Fax: 417-285-7213

DRAWN BY: DPS

DATE: 1/27/05

APPROVED: DPS

DATE: 1/27/05

SERIES: DOORS

SCALE: AS NOTED

REV. 3"

DWG NO.

9956

REV. (A)

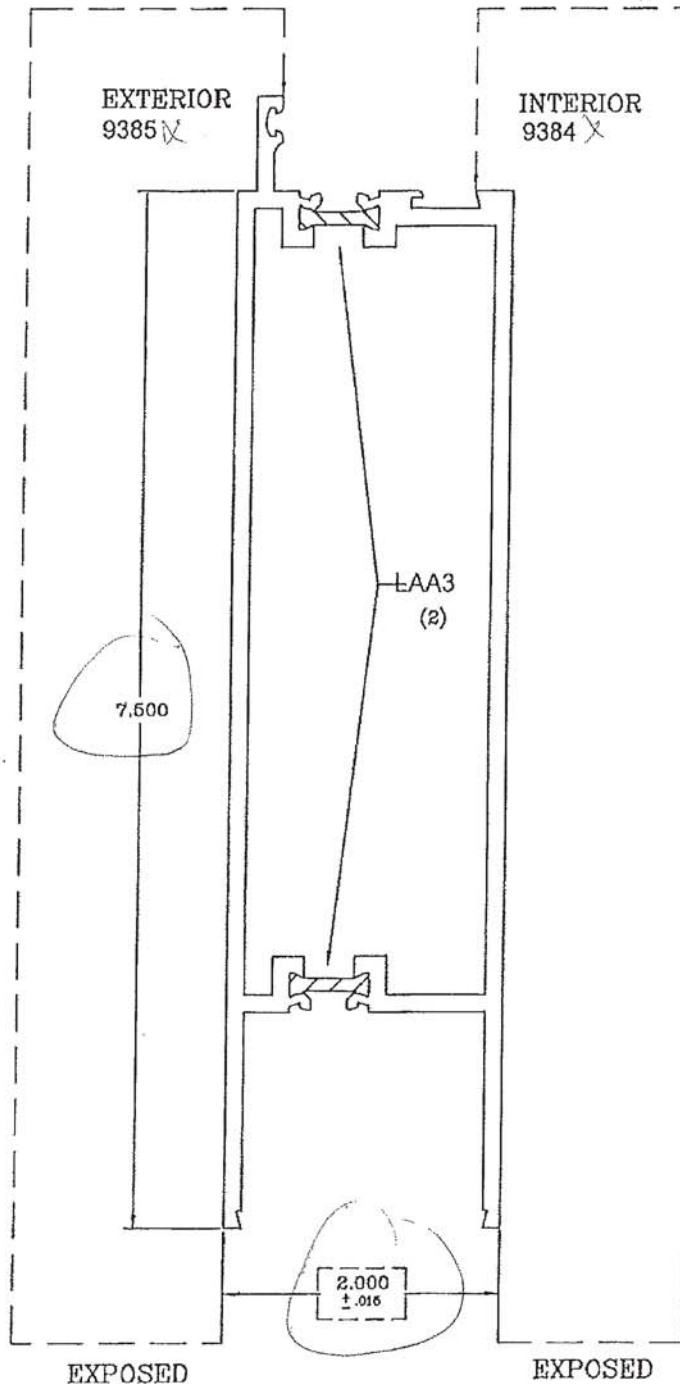
5 5/32" X 1 1/2" THERMAL THRESHOLD HALF

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

Architectural Testing, Inc.
Architectural Testing

Report # 97467
Test sample complies with these details.
Date 9/4/2010 Deviations are noted.

Revisor 974 JMC Lites
Date 02/25/10 Tech BWW



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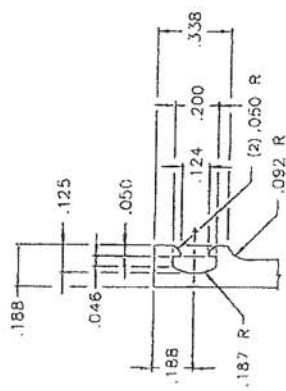
EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

REVISIONS W/DATES:
A Changed Overall Tolerance Dim. 4-28-09

RAM		SCALE:	TITLE	D302 & D502	NO.	Rev.
DATE: 9-5-01		FULL	BOTTOM RAIL		1H21	A

9384



Architectural Testing
 Test sample complies with these details.
 Deviations are noted.

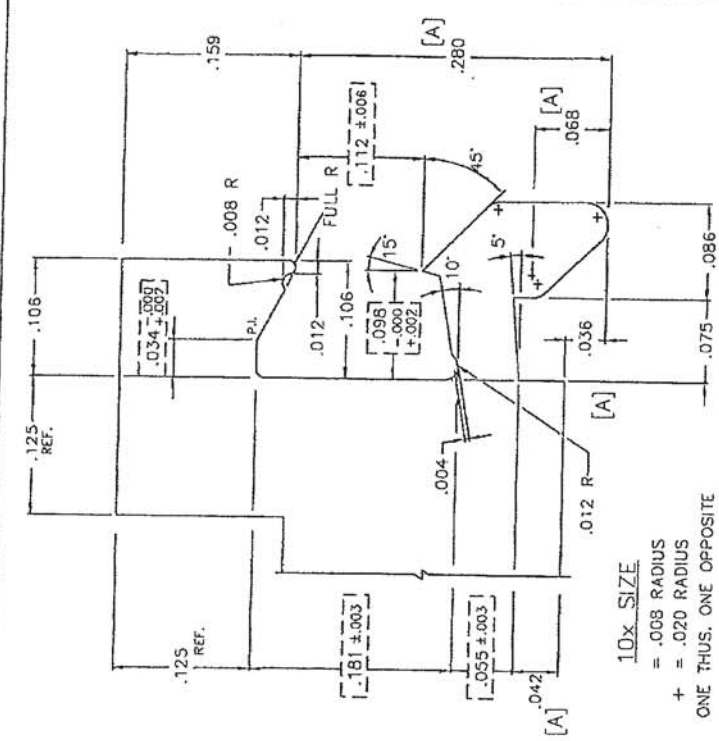
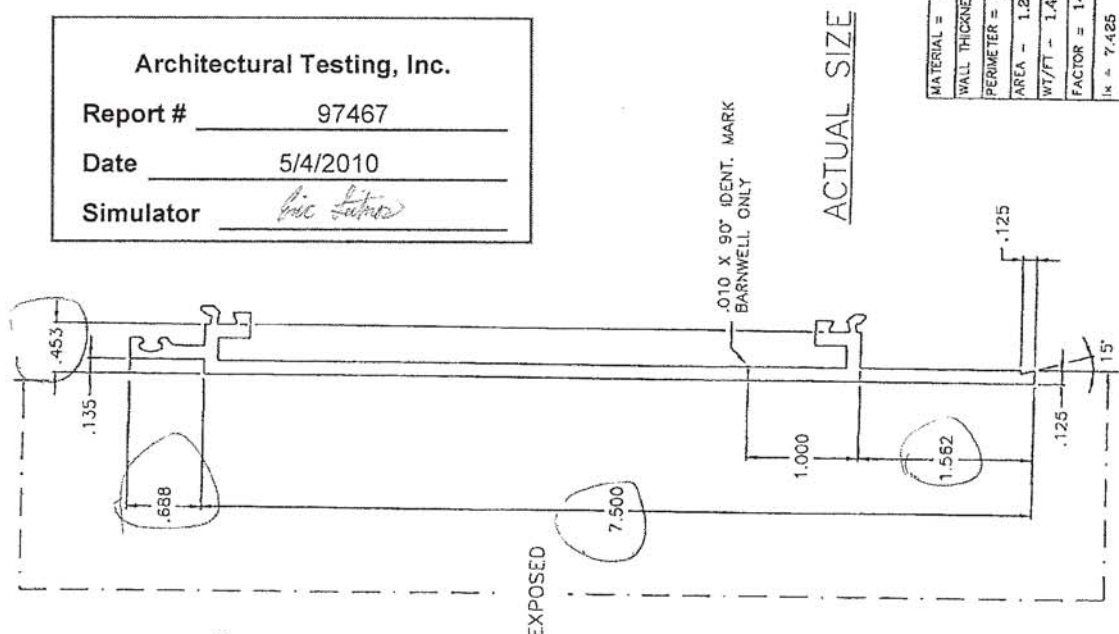
Report # 97473.01
 Date 06/25/10 Tech BWG

Architectural Testing, Inc.

Report # 97467

Date 5/4/2010

Simulator Eric Fisher



10x SIZE
 = .008 RADIUS
 + = .020 RADIUS
 ONE THUS. ONE OPPOSITE

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

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

ACTUAL SIZE

C:1999 EFCO CORPORATION ALL RIGHTS RESERVED

EFCO CORP.

1000 COUNTY ROAD
 MONETT, MD. 65708

REVISIONS W/DATES

DRAWN: JDA
 DATE: 2/26/93
 APPROVED:
 DATE:

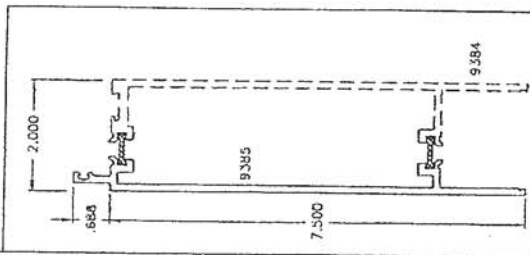
MATERIAL = 6063-T6 ALUM.
 WALL THICKNESS = .125 and as noted

PERIMETER = 30.940
 AREA = 1.238
 WT/FT = 1.488
 FACTOR = 14
 I_x = 7.485
 I_y = .023

SCALE: AS NOTED D603 NO. DIE CIRCLE # 6°

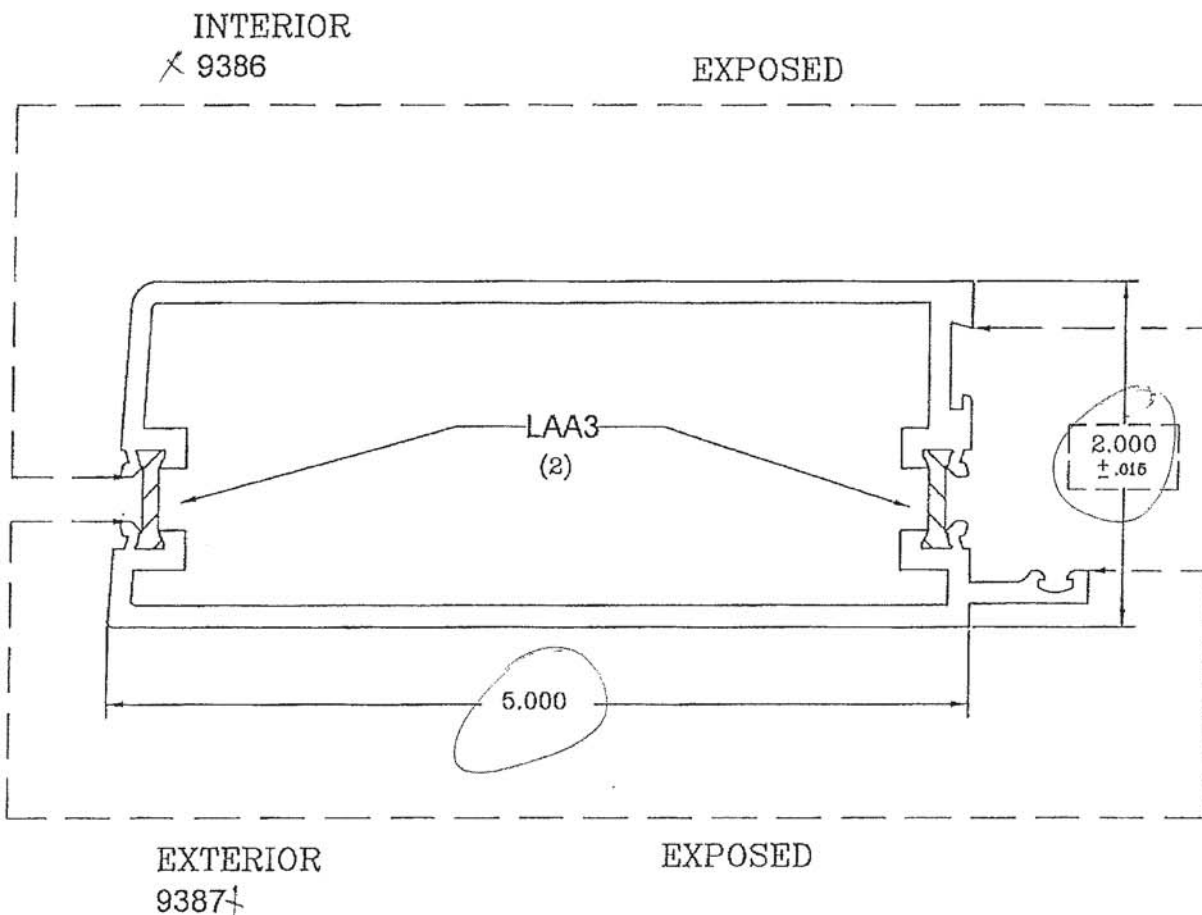
TITLE: THERMAL DOOR BOTTOM RAIL
 1 9/16" DEEP WEB - EXTERIOR HALF

REV. A



COMPOSITE # 1H21
 1 H22 REVERSE

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



Architectural Testing, Inc.
Architectural Testing

Report # 97467

Test sample complies with these details
Date 3/4/2010
Deviations are noted.

Report# 9747 Simulator Eric Luthers

Date 02/25/10 Tech RWG

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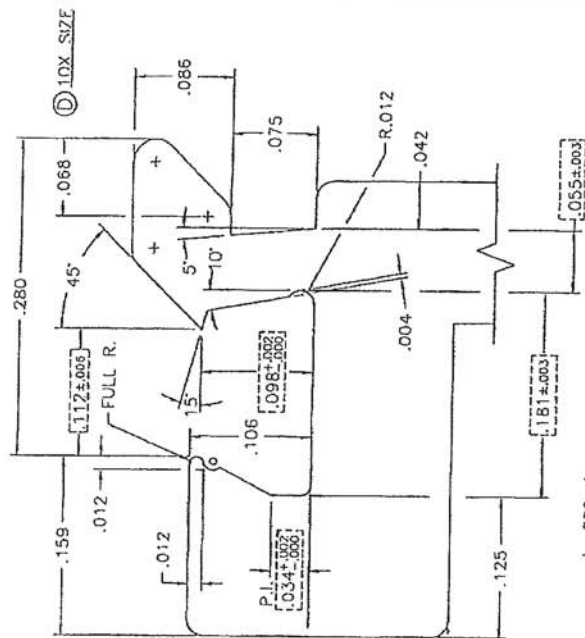
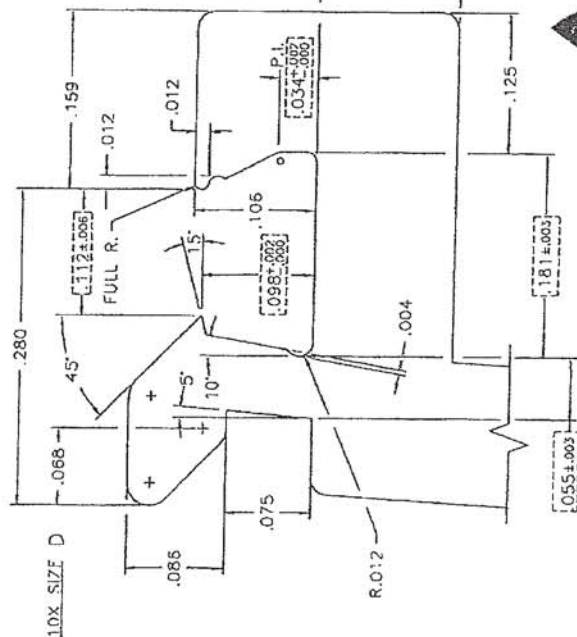
EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

REVISIONS W/DATES:
A Changed Overall Tolerance Dim. T.H. 4-28-09

RAM	SCALE:	TITLE	D502	NO.	Rev.
DATE: 9-4-01	FULL	BEVEL STILE		1H09	A

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


$$= .008 \text{ RADII}$$

$$+ = .020 \text{ RADII}$$

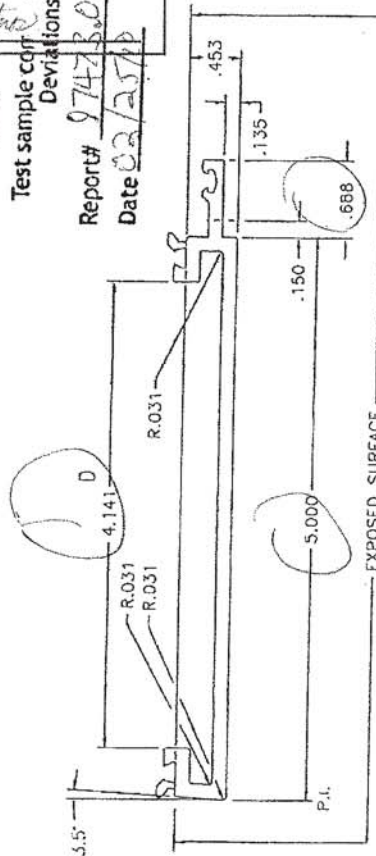
Simulator

Architectural Testing, Inc.

Arch

Test sample conforms with these details.
Deviations are noted.

Report#	97473.01
Date	03/25/08



MATES w/ 9386
COMPOSITE #1H09
REVERSED #1H10

ACTUAL SIZE

DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.

WALL THICKNESS: .125 OR AS NOTED

PERIMETER: 15.908 D

AREA: .926 D

WT/FR; 1.111 D

FACTOR: 14 (D)

22

ORGANIZATION: DPS

DATE: 1/26/04

APR 20 1965

DATE: 1/26/04

SERIES: D502

37111

EXT

7. *Chlorophyll a* (Chl a) and *Chlorophyll b* (Chl b) are the primary photosynthetic pigments in green plants. They are responsible for capturing light energy and converting it into chemical energy through the process of photosynthesis. Chl a is the most abundant pigment, while Chl b is present in smaller amounts. Both pigments absorb light in the blue and red regions of the visible spectrum.

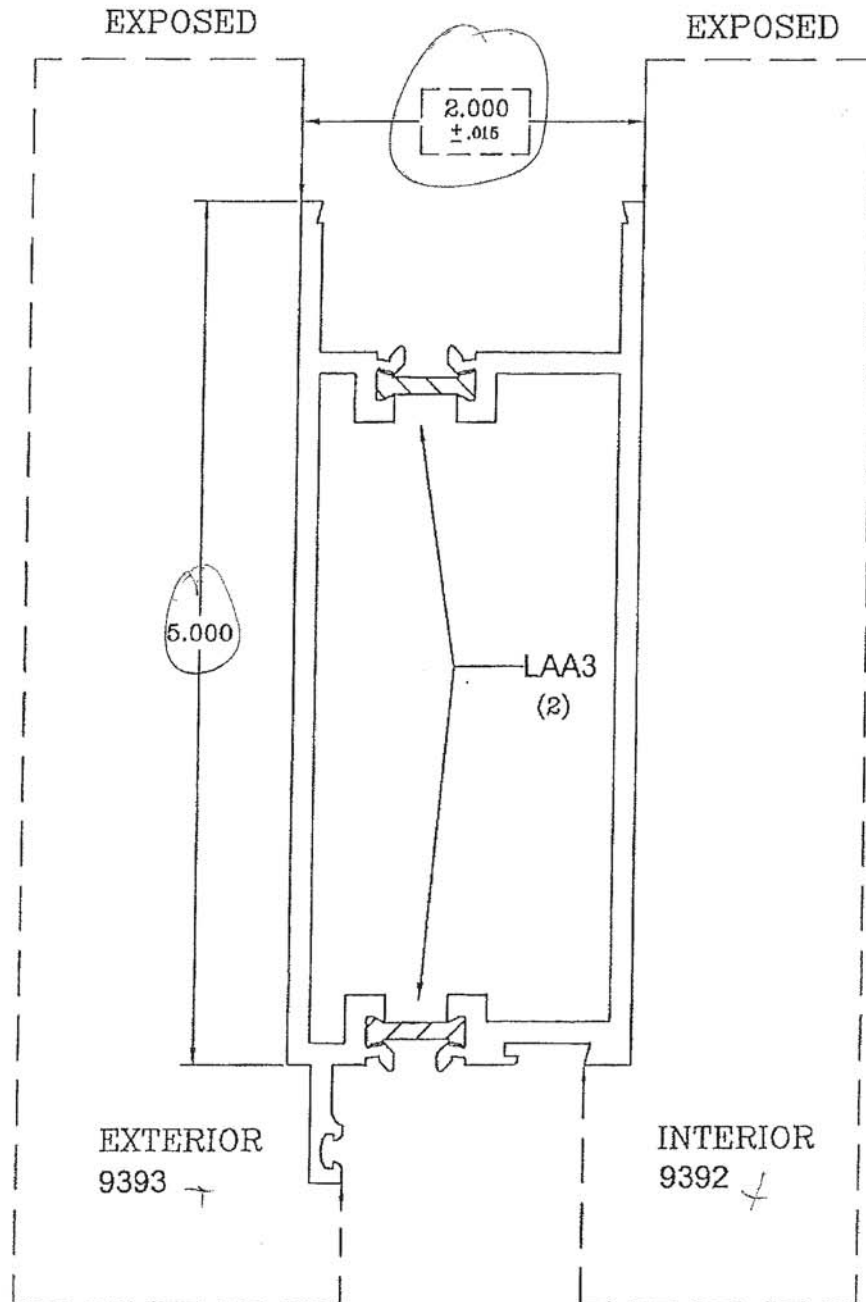
STD. EXTRUSION TOLERANCES AS DEFINED BY
THE ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.

Architectural Testing
Architectural Testing, Inc.

Test sample complies with these details.
Deviations are noted.

Report# 4730 Date 5/4/2010

Date 5/4/2010 Simulator Tech Jim Lupton



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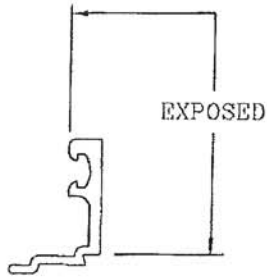
EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

REVISIONS W/DATES:
A Changed Overall Tolerance Dim. T.H. 4-28-09

RAM	SCALE:	TITLE	D502	NO.	Rev.
DATE: 9-4-01	FULL	TOP RAIL		1H17	A

Architectural Testing, Inc.
Report # 97467
Date 5/4/2010
Simulator *Eric Lutz*



ACTUAL SIZE

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

Architectural Testing, Inc.

Report # 97467

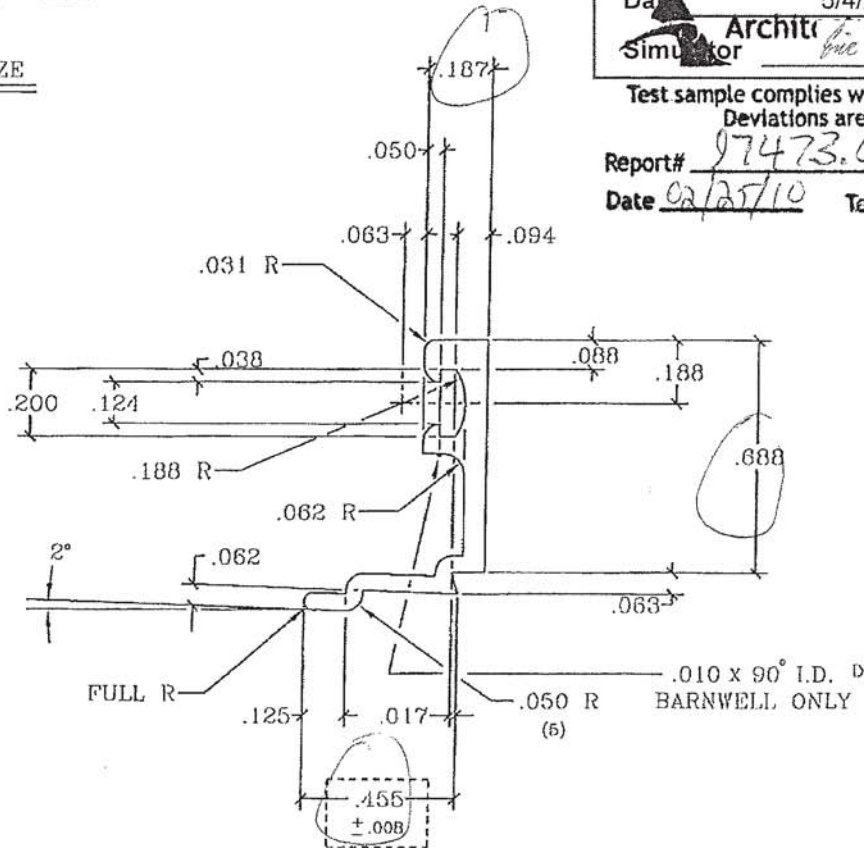
Date 5/4/2010

Architectural Testing
Simulator

Test sample complies with these details.
Deviations are noted.

Report # 97473.01

Date 02/25/10 Tech BGL/6



2 x SIZE

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

D

① REDESIGNED, REDRAWN, ADDED BARNWELL I.D. & NOTES. M.W. 3-4-99

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MATERIAL: 6063-T6 ALUM.

WALL THICKNESS: .050 & AS NOTED

PERIMETER: 3.140

AREA: .093

WT/FT: .112

FACTOR: 20

EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

M.W.

DATE: 3-4-99

APPROVED:

DATE:

REVISIONS W/DATES:

A ADDED MISSING DIM. D.P.S. 1-15-97

① ADDED TOI. NOTE. D.P.S. 2-6-97

C REMOVED EXPERIMENTAL FROM TITLE. D.P.S. 6-9-97

ORIGINAL DWN. BY D.P.S. 12-11-96

SCALE: AS NOTED

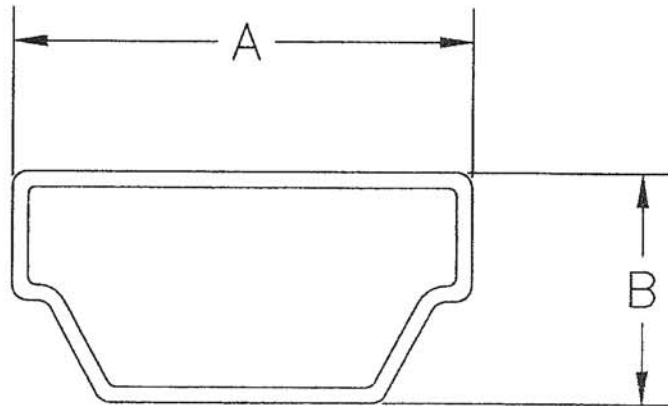
DIE CIRCLE: 1"

DO NOT SCALE PRINT

TITLE 1" GLASS STOP

NO. 9781^D

SPACER



Architectural Testing, Inc.

Report # 97467

Date 5/4/2010

Simulator *Eric L. L...*

Material: _____
Width (A): _____
Height (B): _____
Wall Thickness: _____



PERFORMANCE TEST
EFCO SERIES D-502 SINGLE DOOR
REPORT #CCLI-03-159

September 26, 2003
Page 1 of 4

All performance values shown on this report are for products of a standard configuration, tested in accordance with AAMA specifications, in a laboratory environment under optimum conditions. They are provided for purposes of comparison only. Performance values will vary according to project specifications, such as but not limited to, quality installation workmanship, product size, configuration, hardware, glass type, and accessories. When field testing is required, it is recommended that all EFCO products be tested in accordance with AAMA 502-02 unless otherwise specified.

Project: EFCO Series D-502 Single Door
Performance Test Observation

Date of Testing: August 18, 2003

Tested For: EFCO Corporation
1000 County Road
Monett, MO 65708

Witnessed By: (All or Partial Viewing)

Jeff Boucher	EFCO Corporation
Terry Key	EFCO Corporation
Jeff Litchfield	EFCO Corporation
Shannon Keeler	EFCO Corporation

Jeffrey Crump	Construction Consulting Laboratory, <i>International</i>
---------------	--



PERFORMANCE TEST
EFCO SERIES D-502 SINGLE DOOR
REPORT #CCLI-03-159

September 26, 2003
Page 2 of 4

2. INTRODUCTION

This report presents the performance results of an EFCO Series D-502 Single Door. Tests were conducted at EFCO Corporation testing facility in Monett, MO.

3. SCOPE

Construction Consulting Laboratory, *International*, (CCLI) was requested to witness and report the testing results for an EFCO Corporation Series D-502 Single Door. Tests were conducted in accordance with ASTM E 283-91 "Test Method for Determining Rate of Air Leakage Through Exterior Window, Curtain Wall and Door Under Specified Pressure Differences Across the Specimen" and ASTM E 330-02 "Test for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference."

4. SUMMARY

The EFCO Series D-502 Single Door was tested in accordance with ASTM E 283-91 and ASTM E 330-02 and achieved a positive and negative test load of 150 PSF.

5. TEST SPECIMEN

PRODUCT TYPE:	Aluminum Swing Door, Product Drawings, Appendix A
SERIES/MODEL:	EFCO Series D-502 Single Door
SPECIFICATION:	ASTM E 283-91 & ASTM E 330-02
FRAME SIZE:	3'-4" x 7'-2"
DOOR SIZE:	2'-11 ⁵ / ₈ " x 6'-11 ¹ / ₂ "
CONFIGURATION:	X

Refer to Mock-Up drawing in **Appendix A**. This report is not complete unless these drawings are stamped and initialed by **CCLI** as illustrated below.

Construction Consulting Laboratory, *International*
1001 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
part # 03-159 Reviewed By [Signature]

WEATHER-STRIP: One row bulb vinyl (part # W138) at the exterior face of center leg on frame head and jambs. Vinyl leaf (part #W113) attached to door sweep.

GLASS: Sealed insulating glass: 2 pcs. 1/4" tempered glass, 1/2" air space with a 1" overall thickness.



PERFORMANCE TEST
EFCO SERIES D-502 SINGLE DOOR
REPORT #CCLI-03-159

September 26, 2003

Page 3 of 4

GLAZING: Captured glazed with aluminum snap-in glazing bead and three-flap glazing vinyl (part # W137) at the interior and exterior of glass lite.

WEEP ARRANGEMENT: None

SEALANT: Silicone with backer rod at perimeter interior and exterior. Silicone sealant at all frame and panel corner connections. Threshold set in bed of sealant across back and along jambs.

HARDWARE: One key operated security lock at panel lock stile 42" from panel bottom rail. One select continuous hinge (part #SL12) attached with #12 x 3/4" PH SMS screws in sets of six (6). One (1) aluminum exterior pull handle and one (1) 1990 D.O.M. exit device.

REINFORCEMENT: None

OTHER FEATURES: Frame head to jamb corner attached with aluminum R.H. header shear block and L.H. header shear block (part #K302 and 303). Shear block attached to frame head with two (2) #12-11 x 3/4" screws, and attached to jambs with four (4) #8-15 x 1 3/4" screws. Door top rail attached to door stile by corner clip (part #459) and two (2) 1/4"-20 x 1 1/4" HX-MS 18-8 per connection. Door bottom rail attached to door stile by corner clip (part #K456) and two (2) 1/4"-20 x 1 1/4" HX-MS 18-8 per connection. Door corners are spot welded at each clip. Door sweep attached to door bottom rail by #8-18 x 9/16" PL-PH-SMS ZC tek/2 screws 3" from each end and 6" O.C. Corner plate (part #K454 and K451) located at door top rail and bottom rail. Threshold clip (part #K124) located at frame jamb to threshold connection, attached with five (5) #12 x 1/2" per corner. All frame and door members are thermally broken using insulbar® strut system.

INSTALLATION FEATURES: Test specimen was installed in a #2 (2" x 12") yellow pine wood test buck with #12 wood-screws 6" from each end and on 24" centers.

Date testing started: August 18, 2003

Date testing completed: August 18, 2003

Testing performed at: EFCO Corporation testing facility in Monett, MO.



PERFORMANCE TEST
EFCO SERIES D-502 SINGLE DOOR
REPORT #CCLI-03-159

September 26, 2003
Page 4 of 4

6. PERFORMANCE RESULTS

<u>Title Of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Air Infiltration @ 1.57 PSF	ASTM E 283-91	0.11 cfm/sf	
Air Infiltration @ 6.24 PSF	ASTM E 283-91	0.26 cfm/sf	
Uniform Load Structural @ 150.00 PSF -Positive -Negative -Permanent Set	ASTM E 330-02	No Damage No Damage Negligible	No Damage No Damage 0.336"


Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and have been compared to the test sample submitted. These records will be retained at **CCLI** for a period of four years.

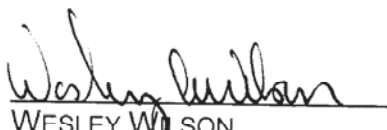
7. CONCLUSION

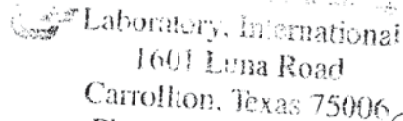
The test specimen meets the manufacturer prescribed test requirements. The tests noted in Section 6 of this report were conducted in accordance with ASTM E 283-91 and ASTM E 330-02.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL

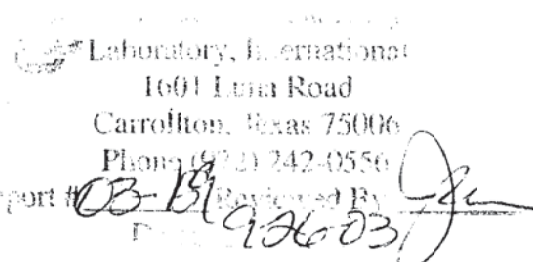
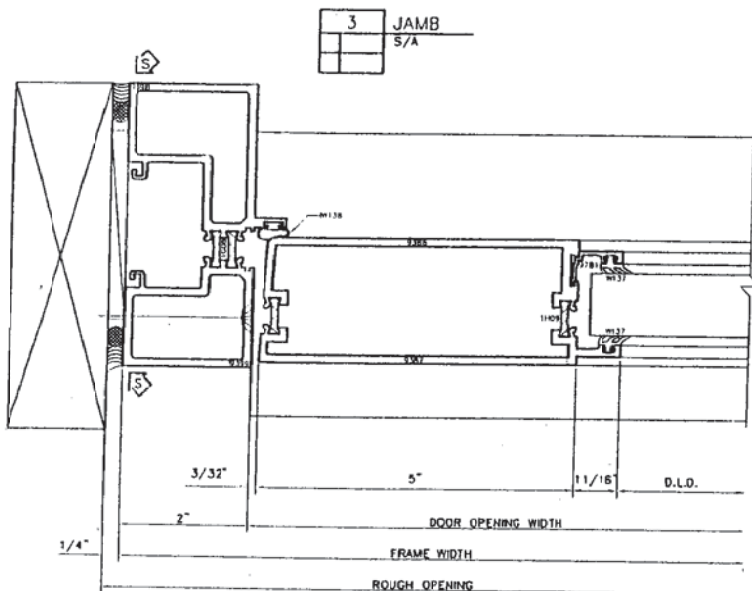

JEFFREY CRUMP
TECHNICIAN


WESLEY WILSON
LABORATORY MANAGER



Phone (972) 242-0556

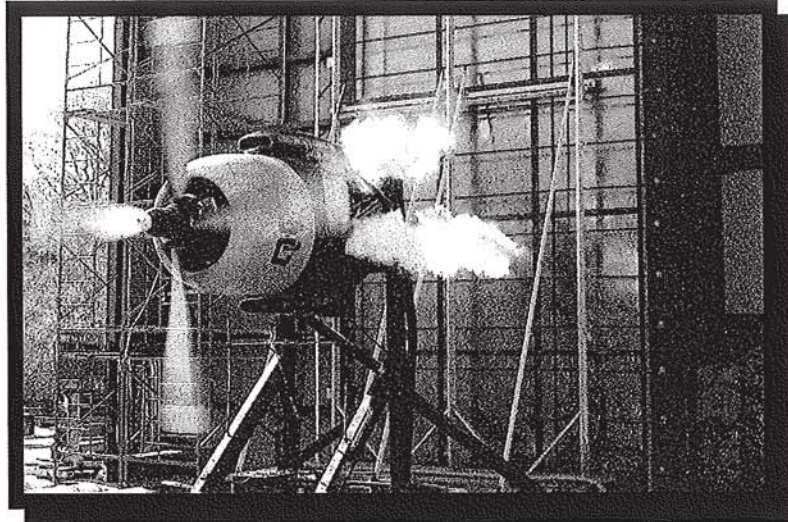
© 2003 EFCO CORPORATION ALL RIGHTS RESERVED



All performance values shown on this report are for products of a standard configuration, tested in accordance with AAMA specifications, in a laboratory environment under optimum conditions. They are provided for purposes of comparison only. Performance values will vary according to project specifications, such as but not limited to, quality installation workmanship, product size, configuration, hardware, glass type, and accessories. When field testing is required, it is recommended that all EFCO products be tested in accordance with AAMA 502-02 unless otherwise specified.



CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



TEST REPORT:

**AAMA 501-05 PERFORMANCE REPORT
EFCO SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180**

October 22, 2013

Prepared for:

EFCO Corporation, a Pella Company
1000 County Road
Monett, MO 65708



AAMA 501-05 PERFORMANCE REPORT
EFCO CORPORATION, A PELLA COMPANY
SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180

October 22, 2013


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1. PROJECT DATA	1
2. SUMMARY.....	1
3. TEST SPECIMEN	1
4. PERFORMANCE RESULTS	3
5. DISCLAIMER.....	4

APPENDICES:

APPENDIX A: EFCO SERIES 403I O.G. STOREFRONT LAYOUT DRAWINGS

Refer to mock-up drawings in **Appendix A**. This report is not complete unless these drawings are stamped and initialed by **CCLI** as illustrated below.

Part #	Details	Date	Stamped as Illustrated
	Elevation	5/21/13	 LABORATORY, INTERNATIONAL 1601 Luna Road Carrollton, Texas 75006 Phone (972) 242-0556 Report# _____, Date _____ Reviewed BY _____

S-UNITED, INC.

A Quality Control Company



AAMA 501-05 PERFORMANCE REPORT
EFCO CORPORATION, A PELLA COMPANY
SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180

October 22, 2013
Page 1 of 4

1. PROJECT DATA

Project: AAMA 501-05 Performance Testing
EfcO Corporation Series 403I O.G. Storefront

Date(s) of Testing: October 15, 2013

Tested For: EFCO Corporation
1000 County Road
Monett, MO 65708

Test Performed At: The EFCO Corporation testing facility in Monett, MO

Witnessed By: (All or Partial Viewing)

Witnessed By	All or Partial Viewing		
EFCO Corporation, A Pella Company	Chad Bolin	Larry Renkoski	Shannon Keeler
	Terry Kee	Jeff Boucher	
Construction Consulting Laboratory, <i>International</i>	Jeffrey Crump		

2. SUMMARY

The EFCO Corporation Series 403I O.G. Storefront was tested in accordance with AAMA 501-05 and passed the short form requirements noted in laboratory test specifications section for Air Infiltration @ 6.24 psf, Water Penetration @ 12 psf, Uniform Load Deflection @ 40 psf with a positive measured deflection of .545", a negative measured deflection of .605" with an allowable of .686 and an Uniform Load Structural Test was performed @ 60 psf positive and negative with no glass breakage or permanent deformation.

3. TEST SPECIMEN

Product Type: Aluminum Storefront, **Product Drawing, Appendix A**
Series Model: 403I O.G. Storefront
Publication No.: AAMA 501-94
Frame Size: 12'-0" x 10'-0"
Configuration: O. O. O
O. O. O
O. O. O



AAMA 501-05 PERFORMANCE REPORT
EFCO CORPORATION, A PELLA COMPANY
SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180

October 22, 2013
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Weather-Stripping: None.

Hardware: None.

Glass: Upper six (6) lites: Sealed insulating glass, 2 pcs 1/4" annealed glass, 1/2" aluminum air space, 1" overall thickness. Lower three (3) lites: Sealed insulating glass, 2 pcs 1/4" tempered glass, 1/2" aluminum air space, 1" overall thickness.

Glazing: Exterior glazed, glass set onto setting block (part #HN32) located at frame sill and intermediate horizontals. Glazing gasket (part #W164) attached to the interior and exterior of frame vertical members, vertical glazing adapters, interior and exterior of frame head pocket, interior exterior of all other horizontal members and attached to exterior glazing stops.

Weep Arrangement: Exterior seam between frame sill (part #1G31) and sill flashing (part #1G64).

Sealant: Backer rod and silicone located at the interior and exterior frame head and jambs of mock-up. Silicone cap seal all anchor bolts. Sealant applied to all vertical-to-horizontal connections. Sealant at interior and exterior gasket race way 1" vertically and horizontally. Sill flashing sealed at interior, exterior and underside of thermal break. Frame sill sealed at sill flashing interior. End dam set in silicone at each end of sill flashing/frame sill. Water deflector set in silicone at frame horizontal mullions. Thermal break sealed with silicone at frame sill glazing pocket.

Reinforcement: None.

Installation Features: Test specimen was installed in a #2 (2" x 10") yellow pine wood test buck with two (2) #1/4" x 3" wood anchor screws, 6" from each vertical member at frame sill and one (1) #1/4" x 3" wood anchor screw, 6" from each vertical member at frame head and 6" from each horizontal member at frame jambs.

Other Features: Frame head (part #1G33) and frame sill (part #1G31) attached to frame jambs by two (2) #10-12 x 7/8" HW-SMS-18-8. Intermediate verticals are connected with three (3) #10-12 x 7/8" HW-SMS-18-8. Vertical glazing adapters are connected with three (3) #10-12 x 1 1/4" HW-SMS-18-8. Frame members and sill flashing are thermally broken using thermal struts. Perimeter adaptors are poured and debridged thermally broken.



AAMA 501-05 PERFORMANCE REPORT
EFCO CORPORATION, A PELLA COMPANY
SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180

October 22, 2013
Page 3 of 4

4. PERFORMANCE RESULTS

<u>Title of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Air Infiltration @ 300 Pa (6.24 psf)	ASTM E 283-04	.0125 L/s•m ² (0.0025 cfm/sf)	.3 L/s•m ² (0.06 cfm/sf)
Air Exfiltration @ 300 Pa (6.24 psf)	ASTM E 283-04	.035 L/s•m ² (.007 cfm/sf)	.3 L/s•m ² (0.06 cfm/sf)
Canadian Air Infiltration/Exfiltration Level Fixed			
Water Resistance @ 580 Pa (12.00 psf)	ASTM E 331-00	No Leakage	No Leakage
Uniform Load Deflection @ Vertical Mullion	ASTM E 330-02		
-Positive @ 1920 Pa (40 psf)		13.84mm (0.545")	17.42mm (0.686")
-Negative @ 1920 Pa (40 psf)		15.37mm (0.605")	17.42mm (0.686")
Uniform Load Deflection @ Horizontal Mullion	ASTM E 330-02		
-Positive @ 1920 Pa (40 psf)		0.01"	0.262"
-Negative @ 1920 Pa (40 psf)		0.01"	0.262"
Uniform Load Structural	ASTM E 330-02		
-Positive @ 2800 Pa (60 psf)		No Damage	No Damage
-Permanent Set		0.0625"	0.240"
-Negative @ 2800 Pa (60 psf)		No Damage	No Damage
-Permanent Set		0.0625"	0.240"

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and were compared to the test sample submitted. These records will be retained at **CCLI** for a period of four years.



AAMA 501-05 PERFORMANCE REPORT
EFCO CORPORATION, A PELLA COMPANY
SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180

October 22, 2013
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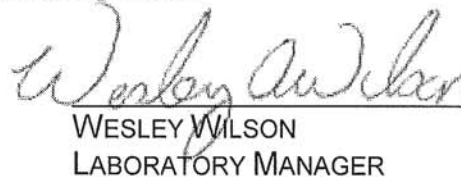
5. DISCLAIMER

The above results were obtained by using the designated test methods indicating compliance with the above specification. This report does not constitute certification of this product, which may only be granted by the program administrator.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*


JEFFREY CRUMP
TESTING MANAGER


WESLEY WILSON
LABORATORY MANAGER



AAMA 501-05 PERFORMANCE REPORT
EFCO CORPORATION, A PELLA COMPANY
SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180

October 22,

APPENDIX



AAMA 501-05 PERFORMANCE REPORT
EFCO CORPORATION, A PELLA COMPANY
SERIES 403I O.G. STOREFRONT
REPORT CCLI #13-180

October 22,

APPENDIX A
PROJECT DRAWINGS

Part #	Details	Date
	Elevation	5/21/13

- END OF REPORT -

