Architectural Testing

TEST REPORT

Report No.: B7507.01-801-47

Rendered to:

Croft LLC
Magnolia, MS

PRODUCT TYPE: 4440
SERIES/MODEL: Fixed Window

SPECIFICATION: AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

	Summary of Results	
Title	**Test Specimen #1**	**Test Specimen #2**
Primary Product Designator	Class R-PG50 2438 x 1524 (96 x 60) Type FW	Class R-PG50 1829 x 1829 (72 x 72) Type FW
Design Pressure	±2400 Pa (±50.13 psf)	±2400 Pa (±50.13 psf)
Air Infiltration	0.10 L/s/m^2 (0.02 cfm/ft^2)	-
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)	-

Test Completion Date: 04/02/2012

Reference must be made to Report No. B7507.01-801-47 dated 05/08/2012 for complete test specimen description and detailed test results.

1.0 Report Issued To: Croft LLC
P.O. Box 826
McComb, MS 39649

2.0 Test Laboratory: Architectural Testing, Inc.
2865 Market Loop
Southlake, Texas 76092
(817)410-7202

3.0 Project Summary:

3.1 Product Type: Fixed Window

3.2 Series/Model: 4440

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimen tested successfully met the performance requirements for a Class R-PG50 2438 x 1524 (96 x 60) Type FW rating and Class R-PG50 1829 x 1829 (72 x 72) Type FW rating.

3.4 Test Dates: 02/28/2012 - 04/02/2012

3.5 Test Record Retention End Date: All test records for this report will be retained until May 08, 2016.

3.6 Test Location: Croft LLC test facility in Magnolia, Mississippi. Calibration of test equipment was performed by Architectural Testing in accordance with AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

3.7 Test Sample Source: The test specimens were provided by the client. Representative samples of the test specimens will be retained by Architectural Testing for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix B. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

Name	Company
Jim Bitz	Croft LLC
Paul Osprey	Croft LLC
Clint Barnett	Architectural Testing, Inc.

4.0 Test Specification(s):

AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

5.0 Test Specimen Description:

5.1 Product Sizes:

Test Specimen #1

Overall Area: 3.7 m^2 (40 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	2438	96	1524	60

Test Specimen #2

Overall Area: 3.3 m^2 (36 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1829	72	1829	72

The following descriptions apply to all specimens.

5.2 Frame Construction:

Frame Member	**Material**	**Description**
All members	Aluminum	Extruded

	Joinery Type	**Detail**
All corners	Coped & butted	Sealed & secured with 2 #8 x 1" truss head screw

5.0 Test Specimen Description: (Continued)

5.3 Weatherstripping: No weatherstripping was utilized.

5.4 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

Test specimen # 1

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
5/8" IG	Aluminum U-Shaped	1/8" Tempered	1/8" Tempered	Interior wet glazed

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed lite	1	2391 x 1461	94-1/8 x 57-1/2	0.50"

Test specimen # 2

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
5/8" IG	Aluminum U-Shaped	3/16" Annealed	3/16" Annealed	Interior wet glazed

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	Inches	
Fixed lite	1	1781 x 1781	70-1/8 x 70-1/8	0.50"

5.5 Drainage: No drainage was utilized.

5.6 Hardware: No hardware was utilized.

5.7 Reinforcement: No reinforcement was utilized.

5.8 Screen Construction: No screen was utilized during testing.

6.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/4" shim space. Screws were anchored through the aluminum glazing bead, and the frame into the wood buck. The window was sealed to the wood buck with silicone around the exterior perimeter joint.

Location	Anchor Description	Anchor Location
Head, Sill, Jambs	1-5/8" pan head screw	2" from each corner then 12" full perimeter

7.0 Test Results: The temperature during testing was 24°C (75°F). The results are tabulated as follows:

Test specimen #1

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.36 L/s/m² (0.07 cfm/ft²)	1.5 L/s/m² (0.3 cfm/ft²) max.	1
Water Penetration, per ASTM E 547 at 140 Pa (2.92 psf)	N/A	N/A	2
Uniform Load Deflection, per ASTM E 330 taken on frame jamb +720 Pa (+15.04 psf) -720 Pa (-15.04 psf)	N/A	N/A	2
Uniform Load Structural, per ASTM E 330 taken on frame jamb +1080 Pa (+22.56 psf) -1080 Pa (-22.56 psf)	N/A	N/A	2
Forced Entry Resistance, per ASTM F 588 Type: D - Grade: 10	Pass	No entry	
Optional Performance			
Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 taken on frame jamb +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	1 mm (0.02") 1 mm (0.01")	Report Only	3, 4, 5
Uniform Load Structural, per ASTM E 330 taken on frame jamb +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	1 mm (0.01") 1 mm (0.01")	2 mm (0.06") max. 2 mm (0.06") max.	4, 5

7.0 Test Specimen Description: (Continued)

Test specimen #2

Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 taken on frame jamb +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	 1 mm (0.03") < 1 mm (0.01")	 Report Only	 3, 4, 5
Uniform Load Structural, per ASTM E 330 taken on frame jamb +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	 < 1 mm (0.01") 1 mm (0.04")	 2 mm (0.06") max. 2 mm (0.06") max.	 4, 5

Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.

Note 2: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 3: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Note 4: Loads were held for 10 seconds.

Note 5: 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.

Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period.

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 specimen(s) 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: Clint Barnett

Clint Barnett
Technician

Digitally Signed by: Andy Cost

Andy Cost
Laboratory Manager

CB:hd

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)
Appendix-B: Drawings (7) complete drawings packet on file with Architectural Testing, Inc.

Appendix A

Alteration Addendum

***Note**: No alterations were required.*

Appendix B
Drawings

***Note**: Complete drawings packet on file with Architectural Testing, Inc.*

BOM

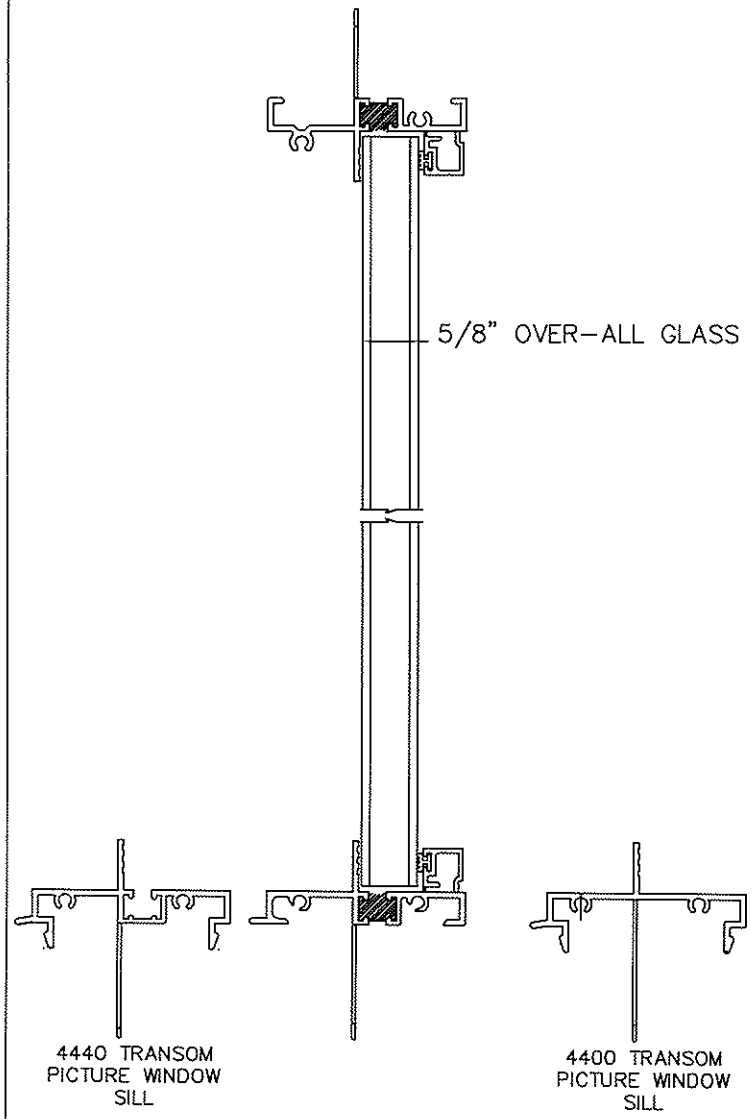
			Series 4440FPW		
	Product height	36			
	Product width	36			
	Finish	W			
	PARENT PART		PARENT		
	NUMBER		DESCRIPTION		
	0		0		
ITEM	PART	SECTION	PART	QTY	UOM
NO.	NUMBER	NUMBER	DESCRIPTION		
			ALUMINUM		
1	60413	4015	FRAME HEAD	1.079	LB
2	60417	4016	FRAME SILL	1.079	LB
3	60418	4017	FRAME JAMB - RIGHT	1.513	LB
4	60419	4018	FRAME JAMB - LEFT	1.189	LB
5	51319	4032	ALUM HORIZONTAL GLAZING BEAD	#N/A	LB
			VINYL		
6	00236	SECT.	HORIZ/VERTICAL GLAZING BEAD	.133	LB
			PURCHASE PARTS		
7	P30064	-	SCREW #8X1 PRPHSMS-A	8.000	EA
8	P31918	-	SCREW #6X1 PRPHSMS-TEK	9.000	EA
9	P90018	-	SIDE PADS	6.000	EA
10	#REF!	-	#REF!	#REF!	LB
11	P20005	-	POLYSTRAPPING	19.000	FT
12	P79120	-	PRODUCT LABEL SELF ADHESIVE FPW	1.000	EA
13	L62216	-	ARGON GAS LABEL	.000	EA
14	P74024	-	AAMA/NFRC CERTIFICATION LABEL	1.000	EA
15	P70055	-	DATE LABEL	1.000	EA
		-	**INSULATED PANELS**		
16	60	-	FPW INSULATED GLASS PANEL	1.000	EA

Architectural Testing

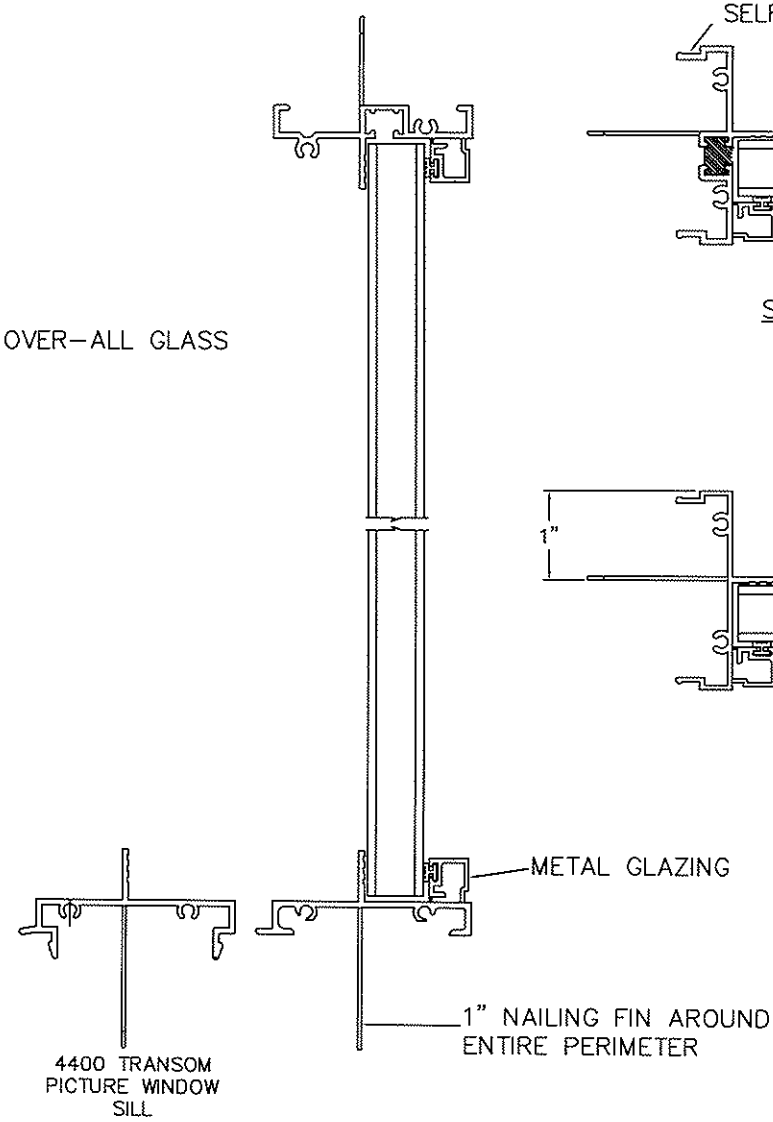
Test sample complies with these details.
Deviations are noted.

Report# B7507.01

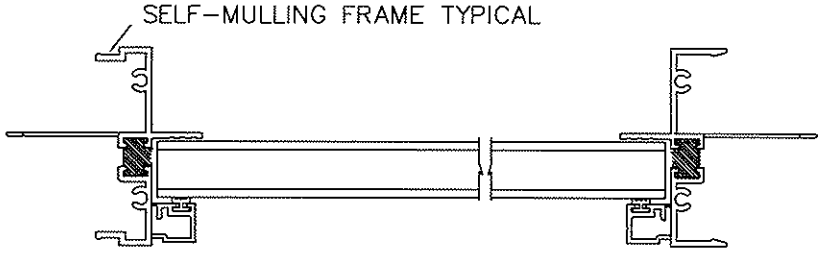
Date 7/11/12 Tech CB



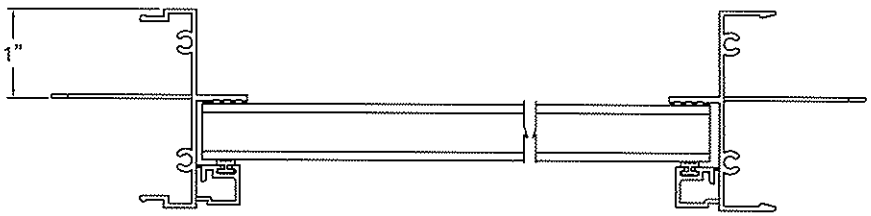
SERIES 4440 FIXED PICTURE WINDOW
WITH THERMAL BREAK



4400 FIXED PICTURE WINDOW



SERIES 4440 FIXED PICTURE WINDOW
WITH THERMAL BREAK



4400 FIXED PICTURE WINDOW

Architectural Testing

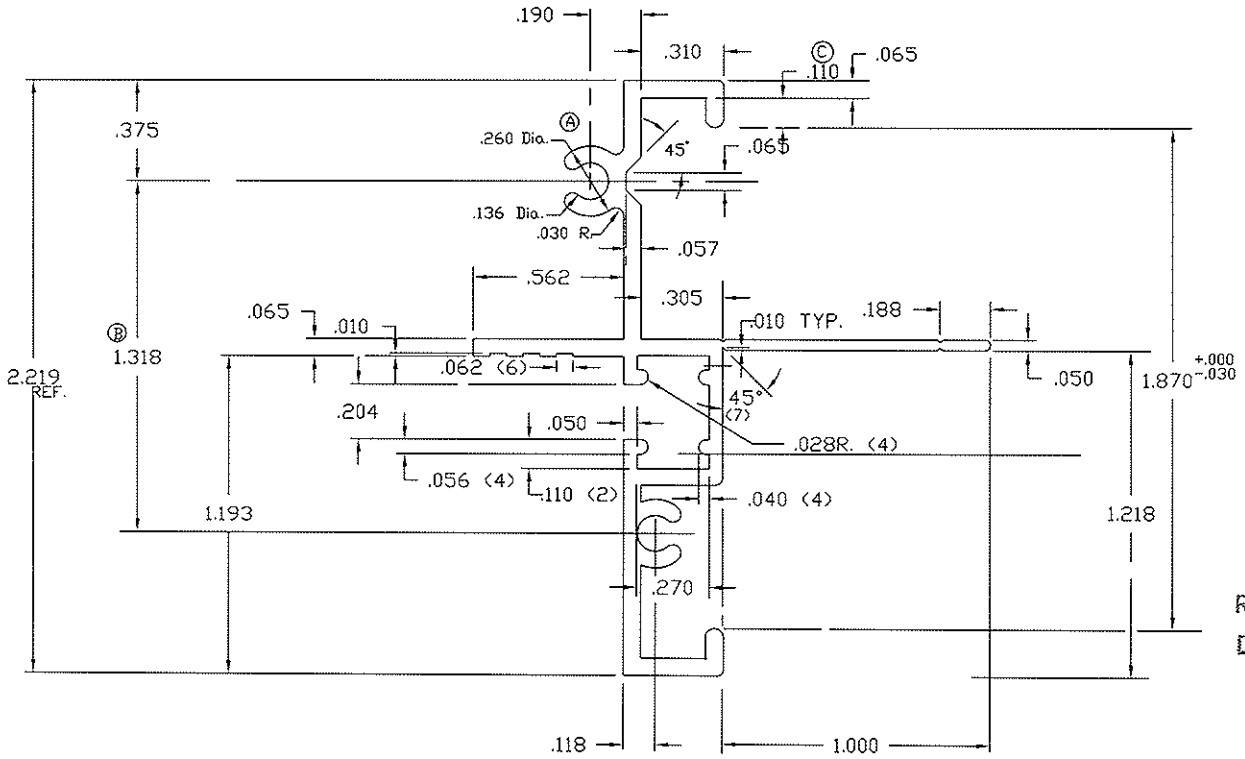
Test sample complies with these details.
Deviations are noted.

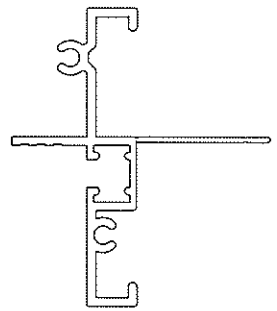
Report# B7502.01

Date 7/11/12 Tech CB

REVISIONS		
CROFT METALS, INC.		
SERIES: 4400/4440	STYLE: 4000	
FIXED PICTURE WINDOW PRODUCT DESIGN		
DWN: JKT	DATE: 2/99	SCALE: FULL
CKD:	DATE:	PRINT NO.: 4000-02
APP:	DATE:	SECTION NO.:

TOLERANCE NOT NOTED DEC. ±.005 FRAC. ±1/64





ACTUAL SIZE

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# B7507.01

Date 7/11/12 Tech CB

C	.110 was .020 1.87 was 2.050	JKT 1/23/2009
B	Moved screw boss location 1.318 was 1.469	JKT 1/13/00
A	Moved screw boss location From outside to in	JKT 1/13/00

STANDARD COMMERCIAL TOLERANCES FOR EXTRUDED PRODUCTS APPLY UNLESS OTHERWISE SPECIFIED

PLEASE NOTE
DIE CONSTRUCTION WILL BE HELD UP PENDING RECEIPT OF APPROVED PRINTS.
PLEASE INDICATE EXPOSED SURFACE

APPROVED DATE

UNLESS NOTED OTHERWISE THE FOLLOWING APPLIES

STANDARD WALL THICKNESS .065
RADII ALL CORNERS .015
WEBSTER HARDNESS SCALE 8-12
DIE HOLES
PRESS TONS
BILLET DIA.
BACKER
BOLSTER
FIRST RUN WT.

CROFT METALS, INC.

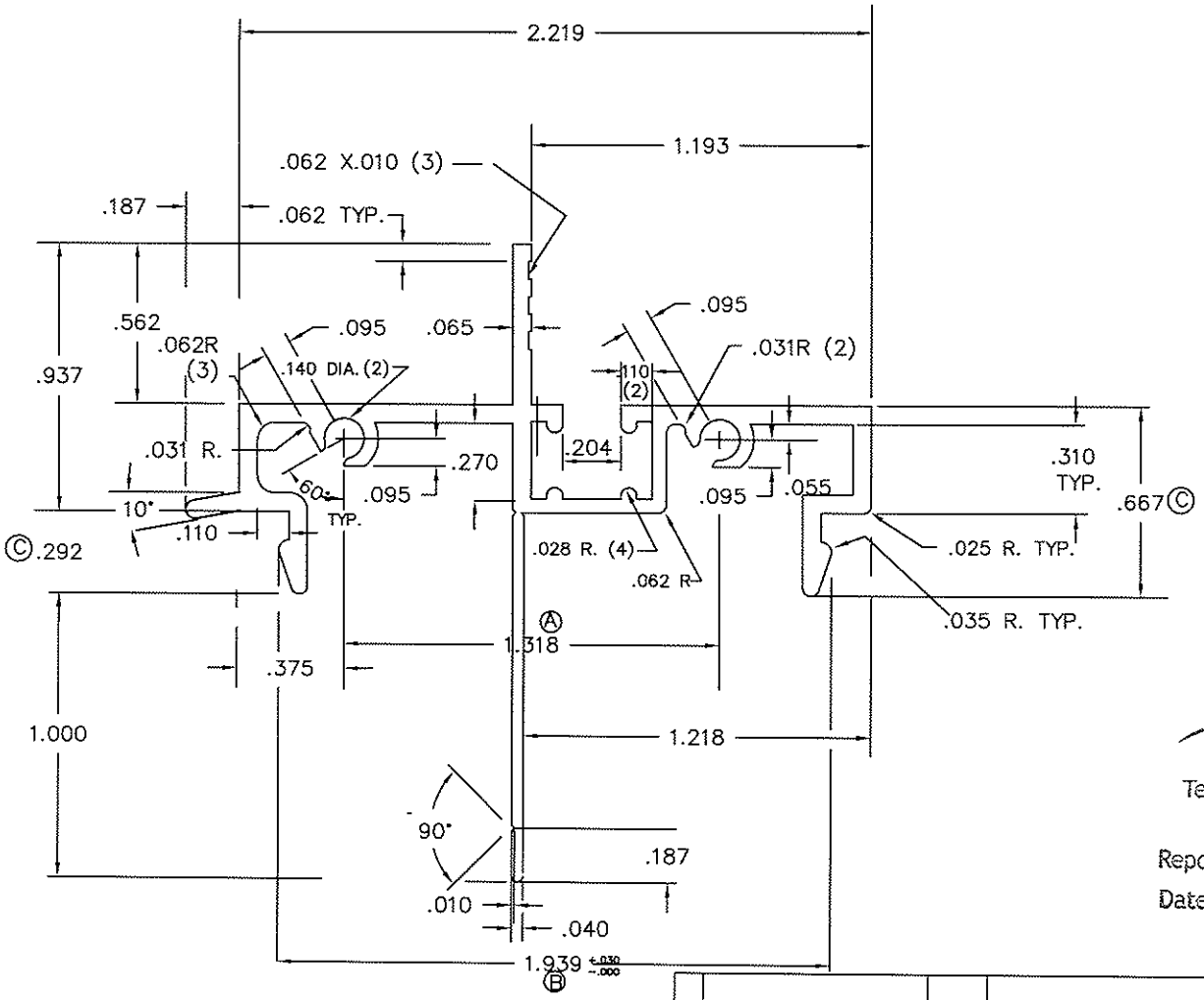
PART NAME: FRAME HEAD	
SERIES 4400/4420/4440	CIRCLE SIZE 2 1/2"
STYLE: RFL/TI/TB FPW	MATERIAL: 6063 T5
EST. AREA: .315 SQ. IN.	SCALE: 2x
EST. WT. PER FT.: .378 LB.	DWN. BY: JKT DATE: 11/10/99
EST. PERIMETER: 12.468 IN.	CKD. BY: DATE:
SURF. AREA: 1.039 SQ. FT./FT.	SECT. NUMBER

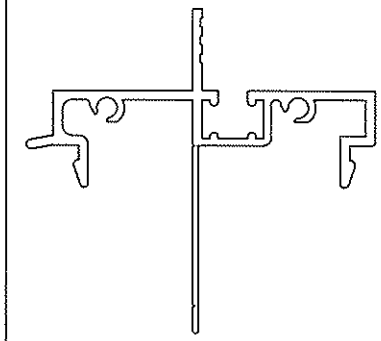
EXTRUSION SHAPE

SOLID ■ SEMI-HOLLOW □ HOLLOW □ SPEC. □

4015

PRINT NO: 4000-215





Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# B7507.01

Date 7/11/12 Tech CB

D	ROTATED SCREW BOSSES ADDED RADII	TR 3/00
C	.292 WAS .262 .667 WAS .637	JKT 1/28/2000
B	1.939 WAS 2.050	JKT 1/28/2000
A	1.318 WAS 1.469	JKT 1/28/2000

STANDARD COMMERCIAL TOLERANCES FOR EXTRUDED PRODUCTS APPLY UNLESS OTHERWISE SPECIFIED

PLEASE NOTE
DIE CONSTRUCTION WILL BE HELD UP PENDING RECEIPT OF APPROVED PRINTS.
PLEASE INDICATE EXPOSED SURFACE

APPROVED DATE

FOLLOWING APPLIES

STANDARD WALL THICKNESS .062

RADII ALL CORNERS .015

WEBSTER HARDNESS SCALE 8–12

DIE HOLES

PRESS TONS

BILLET DIA.

BACKER

BOLSTER

FIRST RUN WT.

UNLESS NOTED OTHERWISE

CROFT METALS, INC.

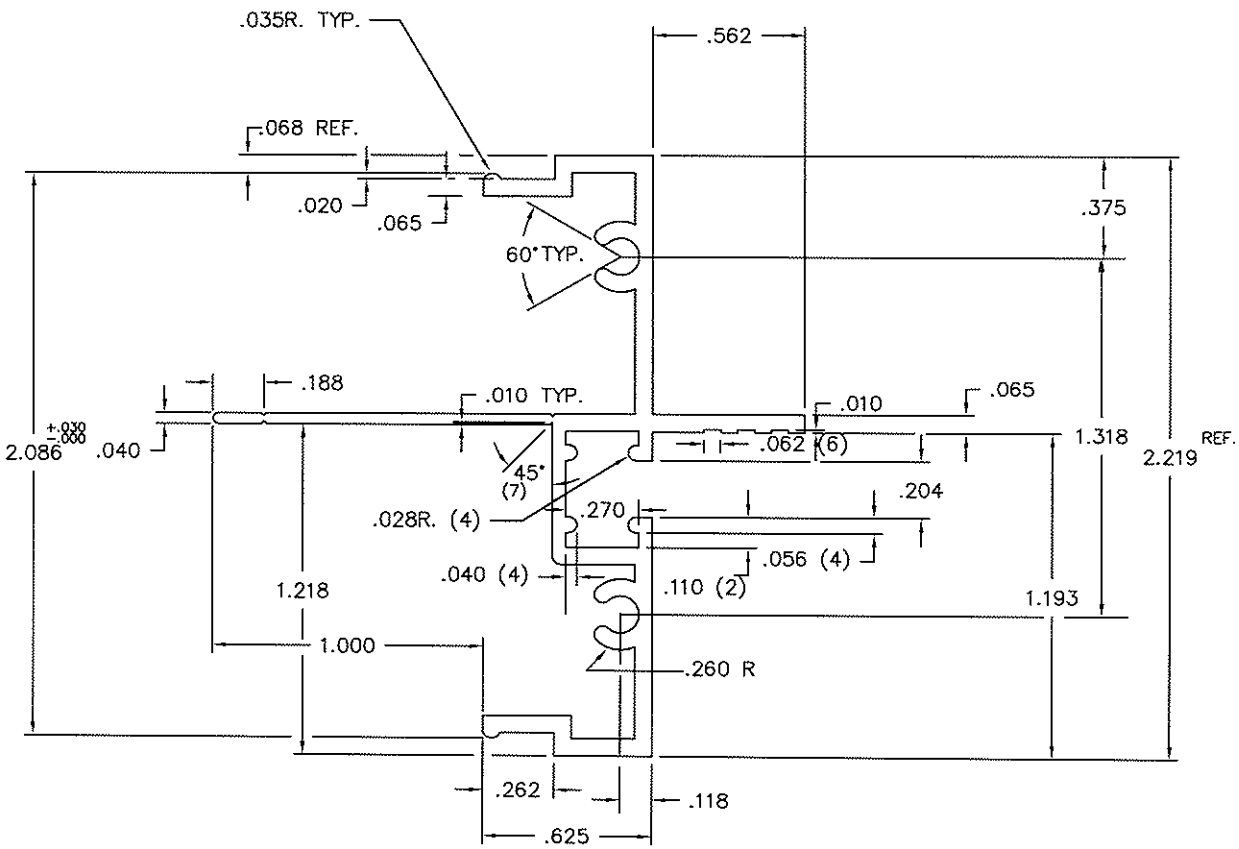
PART NAME: FRAME SILL

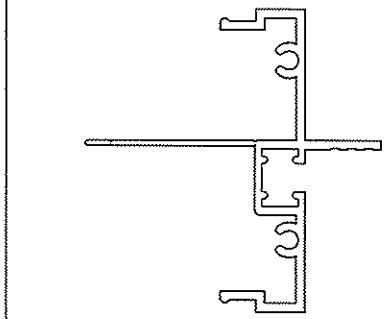
SERIES: 4420FPW/4440FPW	CIRCLE SIZE: 2 1/2"
STYLE: TIFPW/TBFPW	MATERIAL: 6063 T5
EST. AREA: .425 SQ. IN.	SCALE: 2x
EST. WT. PER FT.: .510 LB.	DWN. BY: JKT DATE: 11/99
EST. PERIMETER: 15.709 IN.	CKD. BY: DATE:
SURF. AREA: 1.31 SQ. FT./FT.	SECT. NUMBER 4016

EXTRUSION SHAPE

SOLID ■ SEMI-HOLLOW □ HOLLOW □ SPEC. □

PRINT NO.: 4000–216





ACTUAL SIZE

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 6750?.01

Date 7/11/12 Tech TS

B	GEN-278 PART DESC. "RH" WAS "LH"	TGT 2/2/06
A	1.318 WAS 1.469	JKT 1/2000

STANDARD COMMERCIAL TOLERANCES FOR EXTRUDED PRODUCTS APPLY UNLESS OTHERWISE SPECIFIED

PLEASE NOTE
DIE CONSTRUCTION WILL BE HELD UP PENDING RECEIPT OF APPROVED PRINTS.
PLEASE INDICATE EXPOSED SURFACE

APPROVED DATE

UNLESS NOTED OTHERWISE THE FOLLOWING APPLIES

STANDARD WALL THICKNESS .065
RADII ALL CORNERS .015
WEBSTER HARDNESS SCALE 8-12
DIE HOLES
PRESS TONS
BILLET DIA.
BACKER
BOLSTER
FIRST RUN WT.

CROFT, LLC

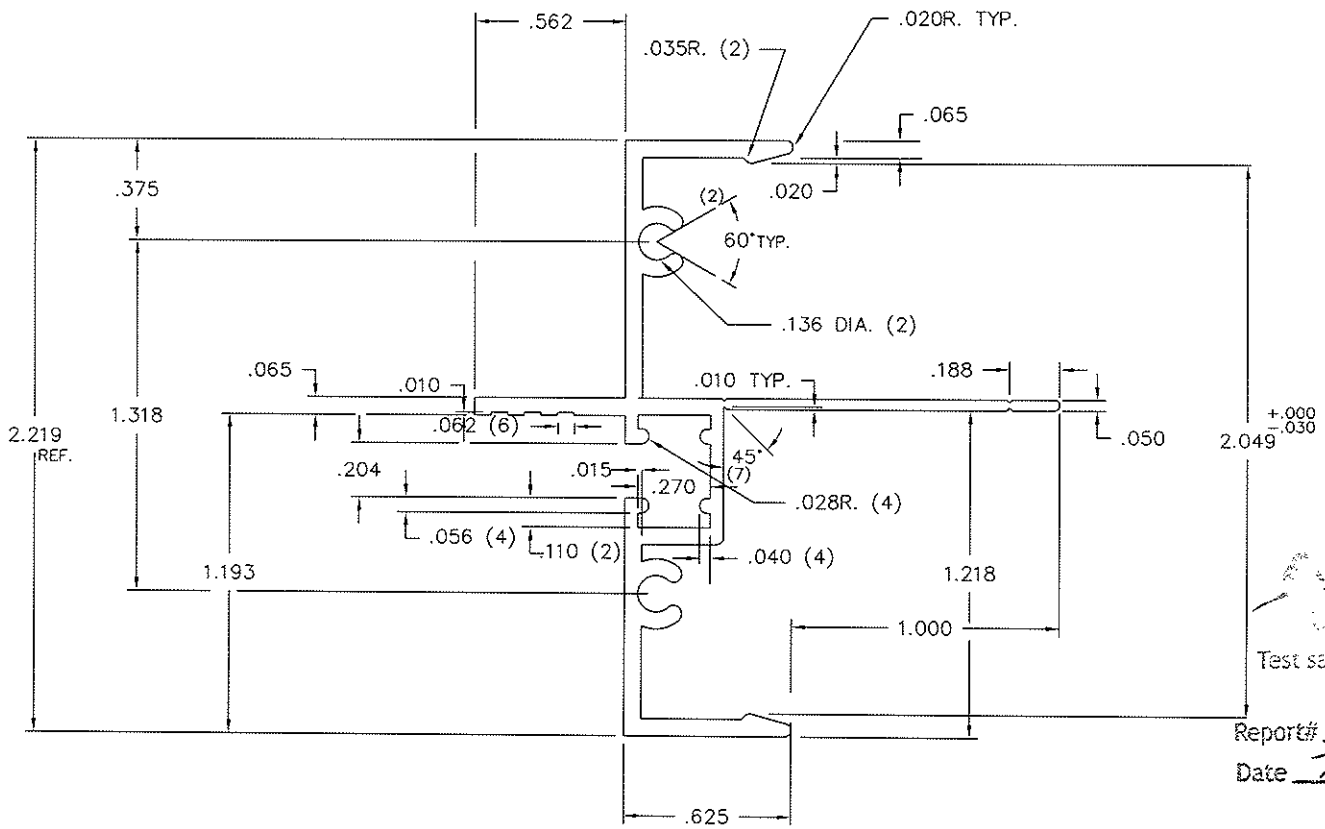
PART NAME: FRAME JAMB – RH (B)

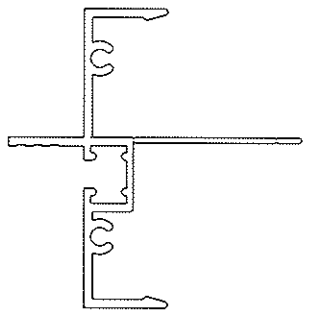
SERIES: 4420FPW/4440FPW	CIRCLE SIZE: 2 1/2"
STYLE: TIFPW/TBFPW	MATERIAL: 6063 T5
EST. AREA: .401 SQ. IN.	SCALE: 2x
EST. WT. PER FT.: .481 LB.	DWN. BY: TR DATE: 1/99
EST. PERIMETER: 13.937 IN.	CKD. BY: DATE:
SURF. AREA: 1.161 SQ. FT./FT.	SECT. NUMBER 4017

EXTRUSION SHAPE

SOLID ■ SEMI-HOLLOW □ HOLLOW □ SPEC. □

PRINT NO.: 4000-217





ACTUAL SIZE

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# B7567.01

Date 7/11/12 Tech CB

A	GEN-279 PART DESC. "LH" WAS "RH"	TGT 2/3/06

STANDARD COMMERCIAL TOLERANCES FOR EXTRUDED PRODUCTS APPLY UNLESS OTHERWISE SPECIFIED

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PLEASE INDICATE EXPOSED SURFACE

APPROVED DATE

UNLESS NOTED OTHERWISE THE FOLLOWING APPLIES

STANDARD WALL THICKNESS .062
RADII ALL CORNERS .015
WEBSTER HARDNESS SCALE 8-12
DIE HOLES
PRESS TONS
BILLET DIA.
BACKER
BOLSTER
FIRST RUN WT.

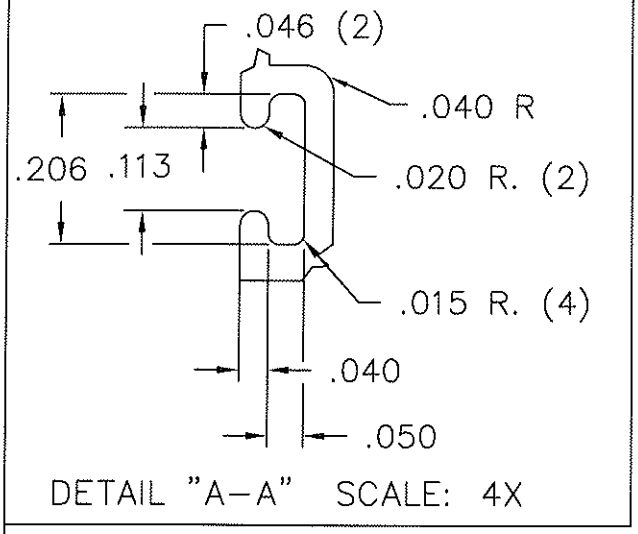
CROFT, LLC

PART NAME: FRAME JAMB - LH (A)	
SERIES: 4420FPW/4440FPW	CIRCLE SIZE: 2 1/2"
STYLE: TIFPW/TBFPW	MATERIAL: 6063 T5
EST. AREA: .315 SQ. IN.	SCALE: 2x
EST. WT. PER FT.: .378 LB.	DWN. BY: TR DATE: 11/99
EST. PERIMETER: 12.468 IN.	CKD. BY: DATE:
SURF. AREA: 1.039 SQ. FT./FT.	SECT. NUMBER 4018

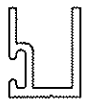
EXTRUSION SHAPE

SOLID ■ SEMI-HOLLOW □ HOLLOW □ SPEC. □

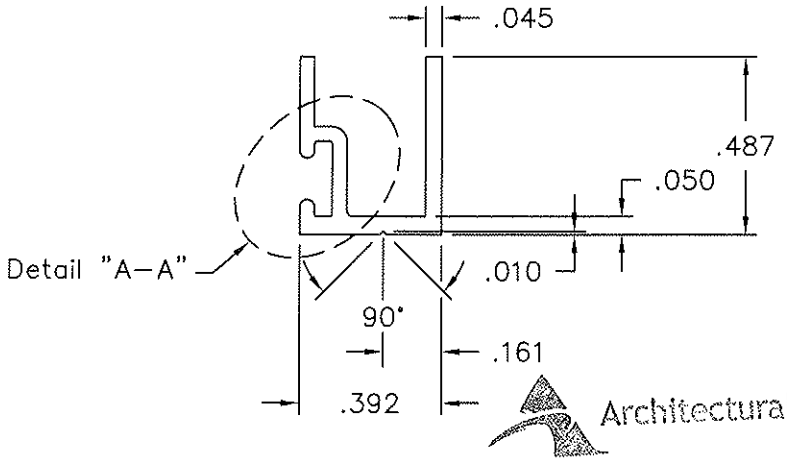
PRINT NO.: 4000-218



DETAIL "A–A" SCALE: 4X



ACTUAL SIZE



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# B7507.01

Date 7/11/12 Tech CS

—	BUL. 9100–163 NEW RELEASE	TGT 11/5/02

STANDARD COMMERCIAL TOLERANCES FOR EXTRUDED PRODUCTS APPLY UNLESS OTHERWISE SPECIFIED

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APPROVED DATE

UNLESS NOTED OTHERWISE THE FOLLOWING APPLIES

STANDARD WALL THICKNESS .040
RADII ALL CORNERS .015
WEBSTER HARDNESS SCALE 8–12
DIE HOLES
PRESS TONS
BILLET DIA.
BACKER
BOLSTER
FIRST RUN WT.

CROFT, LLC

PART NAME: FPW/Decorative Wd. Glazing Bead	
SERIES: 4000/9100/7100	CIRCLE SIZE: 11/16
STYLE: TI/TB	MATERIAL: 6063 T5
EST. AREA: .063 SQ. IN.	SCALE: 2x
EST. WT. PER FT.: .076 LB.	DWN. BY: JKT DATE: 5/12/2000
EST. PERIMETER: 2.927 IN.	CKD. BY: DATE:
SURF. AREA: .713 SQ. FT./FT.	SECT. NUMBER

EXTRUSION SHAPE

SOLID	SEMI-HOLLOW	HOLLOW	SPEC.
■	□	□	□

4032

PRINT NO.: 4000–232