Architectural Testing

TEST REPORT

Report No.: E2307.01-901-44

Rendered to:

COEUR D'ALENE WINDOW
Spokane Valley, Washington

PRODUCT TYPE: Horizontal Sliding Window (XO)
SERIES/MODEL: 3121

SPECIFICATIONS:
AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*
and
AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*
and
CSA A440S1-09, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Title	Summary of Results
AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11	Class LC PG35 1800 x 1400 (71 x 55) Type HS
Design Pressure	±1680 Pa (35.09 psf)
Air Infiltration	0.38 L/s/m^2 (0.08 cfm/ft^2)
Air Exfiltration	0.33 L/s/m^2 (0.06 cfm/ft^2)
Canadian Air Infiltration/Exfiltration Level	A3
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)

Test Completion Date: 12/31/14

Reference must be made to Report No. E2307.01-901-44, dated 02/05/15 for complete test specimen description and detailed test results.

1.0 Report Issued To: Coeur d'Alene Window
3808 N. Sullivan Rd.
Spokane Valley, WA 99216

2.0 Test Laboratory: Architectural Testing, Inc.
22155 68th Avenue South
Kent, WA 98032
253-395-5656

3.0 Project Summary:

3.1 Product Type: Horizontal Sliding Window (XO)

3.2 Series/Model: 3121

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimens tested successfully met the performance requirements for **Class LC PG35 1800 x 1400 (71 x 55) Type HS** rating.

3.4 Test Dates: 12/30/14 - 12/31/14

3.5 Test Record Retention End Date: All test records for this report will be retained until 12/31/18.

3.6 Test Location: Architectural Testing test facility in Kent, Washington.

3.7 Test Specimen 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 reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in the appropriate Appendix. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

Name	Company
Guillermo Silva	Architectural Testing, Inc.
Jeffrey Dideon	Architectural Testing, Inc.

4.0 Test Specifications:

AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

and

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

and

CSA A440S1-09, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 2.52 m^2 (27.1 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1800	70-7/8	1400	55-1/8
Sash	875	34-7/16	1348	53

5.2 Frame Construction:

Member	**Material**	**Description**
All	PVC	White

	Joinery Type	**Detail**
All corners	Mitered	Mitered and thermally welded
Meeting stile/interlock	Mechanical	Each end was coped, butt joined, and secured with two #8 x 2" gasketed screws.
Sill track	Snap-in	Snap-fit into the sill and cut short to allow drainage

5.0 Test Specimen Description: (Continued)

5.3 Sash Construction:

Member	Material	Description
All	PVC	White

	Joinery Type	Detail
All corners	Mitered	Mitered and thermally welded

5.4 Weatherstripping:

Description	Quantity	Location
5.6 mm (0.220") high pile with single center fin	1 row	Sash, full perimeter
5.6 mm (0.220") high pile with single center fin	1 row	Fixed meeting stile/interlock

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

Glass Type Nominal	Spacer Type	Interior Lite Nominal	Exterior Lite Nominal	Glazing Method
19 mm (3/4") IG	Aluminum	3 mm (1/8") annealed	3 mm (1/8") annealed	Glazed with 3/8" foam glazing tape and PVC glazing beads

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Sash	1	793 x 1264	31-1/4 x 49-3/4	12.5 mm (1/2") nominal
Fixed lite	1	830 x 1327	32-5/8 x 52-1/4	12.5 mm (1/2") nominal

5.0 Test Specimen Description: (Continued)

5.6 Drainage:

Method	Size	Qty.	Location
Weep	6.4 mm (1/4")	2	Sill, sill track cut short off each end
Weep	15.9 mm x 4.6 mm (5/8" x 3/16")	2	Sill, sash pocket, approx. 51 mm (2") from the corner, through one wall, (draining into hollow)
Weep	12.2 mm x 6.4 mm (1/2" x 1/4")	2	Sill, screen pocket, approx. 20 mm (3/4") from the corner, through one wall, (draining into hollow)
Weep	23.6 mm x 6.4 mm (15/16" x 1/4")	2	Sill, internal web, at the corner, through one wall, (draining between hollows)
Weep	12.2 mm x 3.2 mm (1/2" x 1/8")	2	Sill, exterior face, approx. 40 mm (1-5/8") from the corner, through one wall, (draining hollows)
Weep	12.2 mm x 6.4 mm (9/32" x 1/4")	2	Sash, bottom rail, glazing pocket, approx. 15 mm (9/16") from the corner, through two walls, (draining glazing pocket)

5.7 Hardware:

Description	Quantity	Location
Metal cam lock	1	Sash, mid-span and secured with two #6 x 7/8" screws
Metal keeper	1	Fixed meeting stiles/interlocks, aligned with lock and secured with two #6 x 7/8" screws
PVC anti-lift blocks	2	Head, above the sash in the closed position
Plastic roller in a plastic housing	2	Sash, bottom rail

5.8 Reinforcement:

Drawing Number	Location	Material
U-2800	Sash, meeting stile/interlock	Steel
U-3650	Fixed meeting stile/interlock	Steel

6.0 Installation:

The specimen was installed into a Doug-Fir wood buck. The rough opening allowed for shim space. The exterior perimeter of the window was set with sealant.

Location	Anchor Description	Anchor Location
Full perimeter	#8 by 1" screws	At the corners and spaced approx. 152 mm (6") apart through pre-punched slots

7.0 Test Results: The temperature during testing was 18°C (64°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 51 N (11.5 lbf) max. Maintain motion: 29 N (6.5 lbf) max. Locks: 13 N (3.0 lbf) max.	Report only 115 N (25.85 lbf) 100 N (22.48 lbf)	
Canadian Operating Force, per ASTM E 2068 Normal Use	Initiate motion: 51 N (11.5 lbf) max. Maintain motion: 29 N (6.5 lbf) max.	90 N (20.23 lbf) 45 N (10.12 lbf)	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.38 L/s/m² (0.08 cfm/ft²)	1.5 L/s/m² (0.3 cfm/ft²)	1
Air Leakage, Exfiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.33 L/s/m² (0.06 cfm/ft²)	1.5 L/s/m² (0.3 cfm/ft²)	
Canadian Air Infiltration/Exfiltration Level	A3	0.5 L/s/m² (0.1 cfm/ft²)	
Water Penetration	N/A	N/A	2
Uniform Load Deflection	N/A	N/A	2
Uniform Load Structural	N/A	N/A	2

7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Forced Entry Resistance, per ASTM F 588, Grade: 20	Pass	No entry	
Forced Entry Resistance, per CAWM 301	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
Deglazing, per ASTM E 987 Operating direction, 320 N (70 lbf) Remaining direction, 230 N (50 lbf)	 Pass Pass	 Meets as stated Meets as stated	
Optional Performance			
Water Penetration, per ASTM E 547 at 260 Pa (5.43 psf)	Pass	No leakage	3
Uniform Load Deflection, per ASTM E 330 Deflections taken at meeting stile/interlock +1680 Pa (35.09 psf) -1680 Pa (35.09 psf)	 13.5 mm (0.53") 13.8 mm (0.54")	 Report Only Report Only	 4, 5, 6
Uniform Load Structural, per ASTM E 330 Permanent sets taken at meeting stile/interlock +2520 Pa (52.63 psf) -2520 Pa (52.63 psf)	 0.3 mm (0.01") 0.5 mm (0.02")	 5.44 mm (0.21") max. 5.44 mm (0.21") max.	 5, 6

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: Without insect screen.

Note 4: 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 5: Loads were held for 10 seconds.

Note 6: Tape and film were not used to seal against air leakage during structural testing.

Architectural Testing will service this report for the entire test record retention period. Test records, 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 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: Guillermo Silva

Guillermo Silva
Technician

Digitally Signed by: Jeffrey L. Dideon

Jeffrey L. Dideon
Director – Regional Operations

JLD:pac

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Alteration Addendum (1)
- Appendix-B: Location of Air Seal (1)
- Appendix-C: Drawings (9)

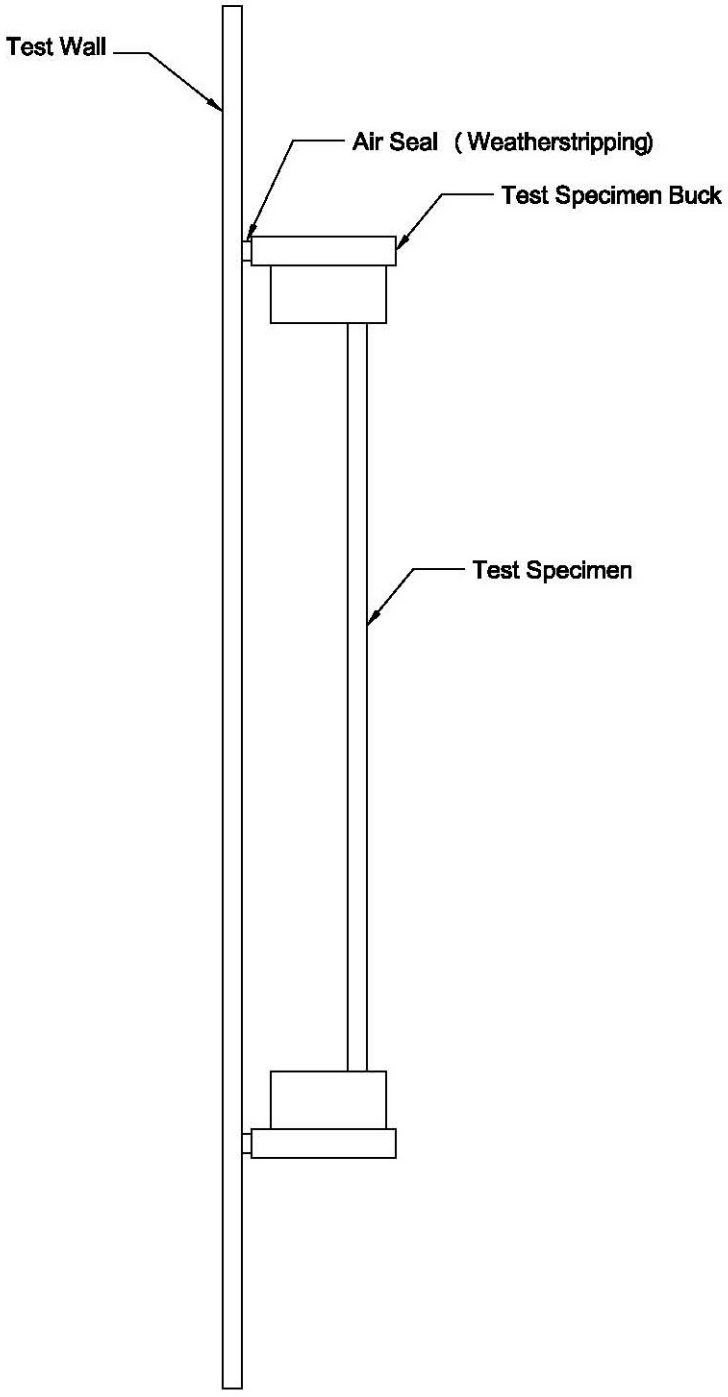
Appendix A

Alteration Addendum

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

Appendix B

Location of Air Seal: The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



Appendix C

Drawings

3121 Slider Series

Part	Part # (63 x 43 5/16)	Part # (70 7/8 x 55 1/8)
Main Frame	R1270-W801	R1270-W801
Mullion	R1279-W801	R1279-W801
Mullion Metal	U365044	U365046
Sash Interlock	R1278-W801	R1278-W801
Sash Interlock Metal	U280094	U280096
Sash Common Rail	R1277-W801	R1277-W801
Lock	A30700404.42	A30700404.42
Keeper	41988.42	41988.42
Lock Screw	085D06P6FSZWHT	085D06P6FSZWHT
Keeper Screw	065D06PPSZ	065D06PPSZ
Anti Lift Clip	R1284-W801	R1284-W801
Slider Track	R1280-W801	R1280-W801
Setting Block	6554(2)	6555 (2)
Setting Block Glue	IPS-56-1021	IPS-56-1021
Glazing Tape	VG1216W-FC515	VG1216W-FC515
Glazing Bead	1994-W801	1994-W801
Wheels	4236-100-2	4236-100-2
Mullion Screw	08A14PT4HVHLDNEO	08A14PT4HVHLDNEO

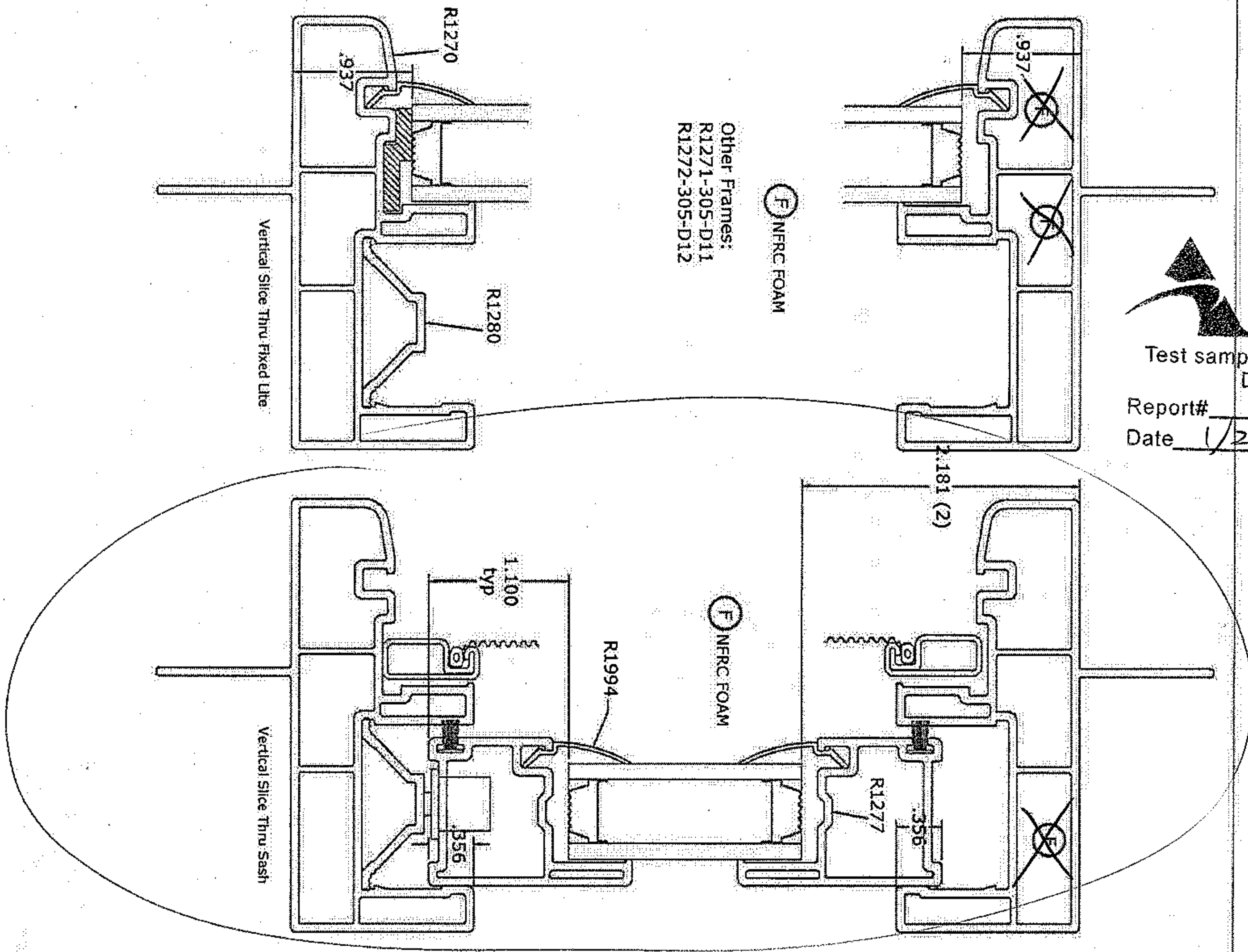
Interlock Reinforcement U-3650
Sash Interlock Reinforcement U-2800

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E2307

Date 1/28/15 Tech BLR



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E2307
Date 1/28/15 Tech BLR

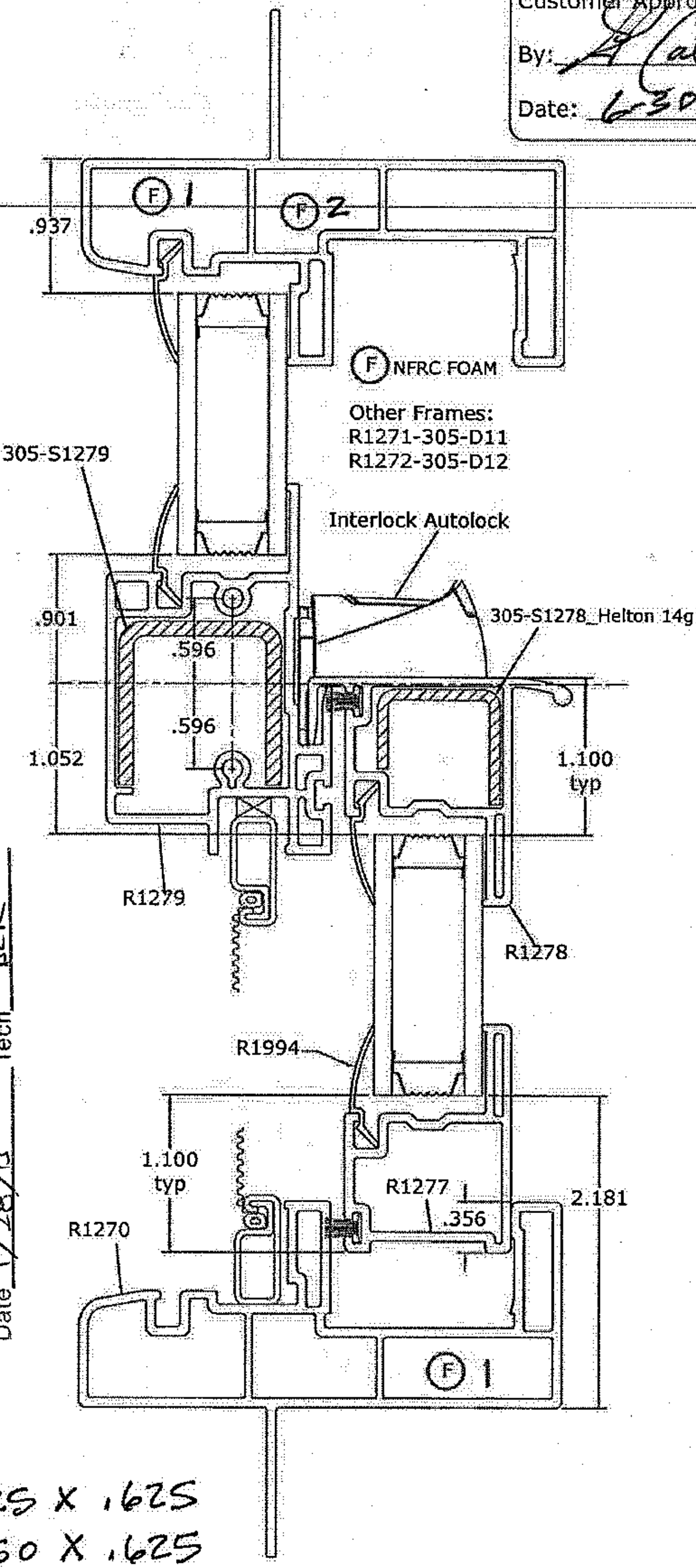
Customer Approval
By: [signature]
Date: 6-30-14

ROYAL Building Products	Die#	THIS DOCUMENT CONTAINS PROPRIETARY AND/OR CONFIDENTIAL INFORMATION AND SHALL NOT BE COPIED, DISCLOSED TO OTHERS, OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS GIVEN, WITHOUT THE WRITTEN PERMISSION OF ROYAL GROUP INC.	Copyright © 2014 Royal Group, Inc. All Rights Reserved	Layout Name: XO_VERT	ACAD#: 305_CdA_Sections_all	Ref xxx
	Sys No. 305-L1270-XO_V			Drawn by: gmc / SCALE 0.875:1		
111 Royal Group Crescent Woodbridge, Ontario Canada L4H 1X9	CUSTOMER Coeur d'Alene Windows		PROJECT: 305_CdA	AREA .000		
TITLE	*XO Vertical Section Slices*		DATE: May 1. 2014	WT/FT .000		

WALL TOLERANCES:		ANGULAR TOLERANCES:		RADII:	
0.000–0.099	±0.006	xx	±1/2°	UNMARKED	0.015
WALL THICKNESS:		SYMBOL:		a	
Exterior	.000	SHARP		b	
Interior	.000	FLEX		c	
■	.xxx	CRITICAL		f	FULL
▲	.xxx	EXPOSED		s	SHARP

LINEAR TOLERANCES:	
0.000–0.999	±0.010
1.000–1.999	±0.015
2.000–3.999	±0.020

Customer Approval
By: [signature]
Date: 6-30-14



Architectural Testing
Test sample complies with these details.
Deviations are noted.
Report# E2307
Date 1/28/15 Tech BLR

F1 = 1.625 X .625
F2 = 1.250 X .625

ROYAL Building Products
111 Royal Group Crescent, Woodbridge, Ontario, Canada L4H 1X9

Die#			
Sys No. 305-L1270-XO_H	THIS DOCUMENT CONTAINS PROPRIETARY AND/OR CONFIDENTIAL INFORMATION AND SHALL NOT BE COPIED, DISCLOSED TO OTHERS, OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS GIVEN, WITHOUT THE WRITTEN PERMISSION OF ROYAL GROUP INC.	Copyright © 2014 Royal Group, Inc. All Rights Reserved	Layout Name: XO_HOR
CUSTOMER Coeur d'Alene Windows		PROJECT: 305_CdA	Drawn by: gmc · SCALE 0.875:1
TITLE XO *Horizontal Section Slice*		DATE: May 1. 2014	AREA .000 · WT/FT .000

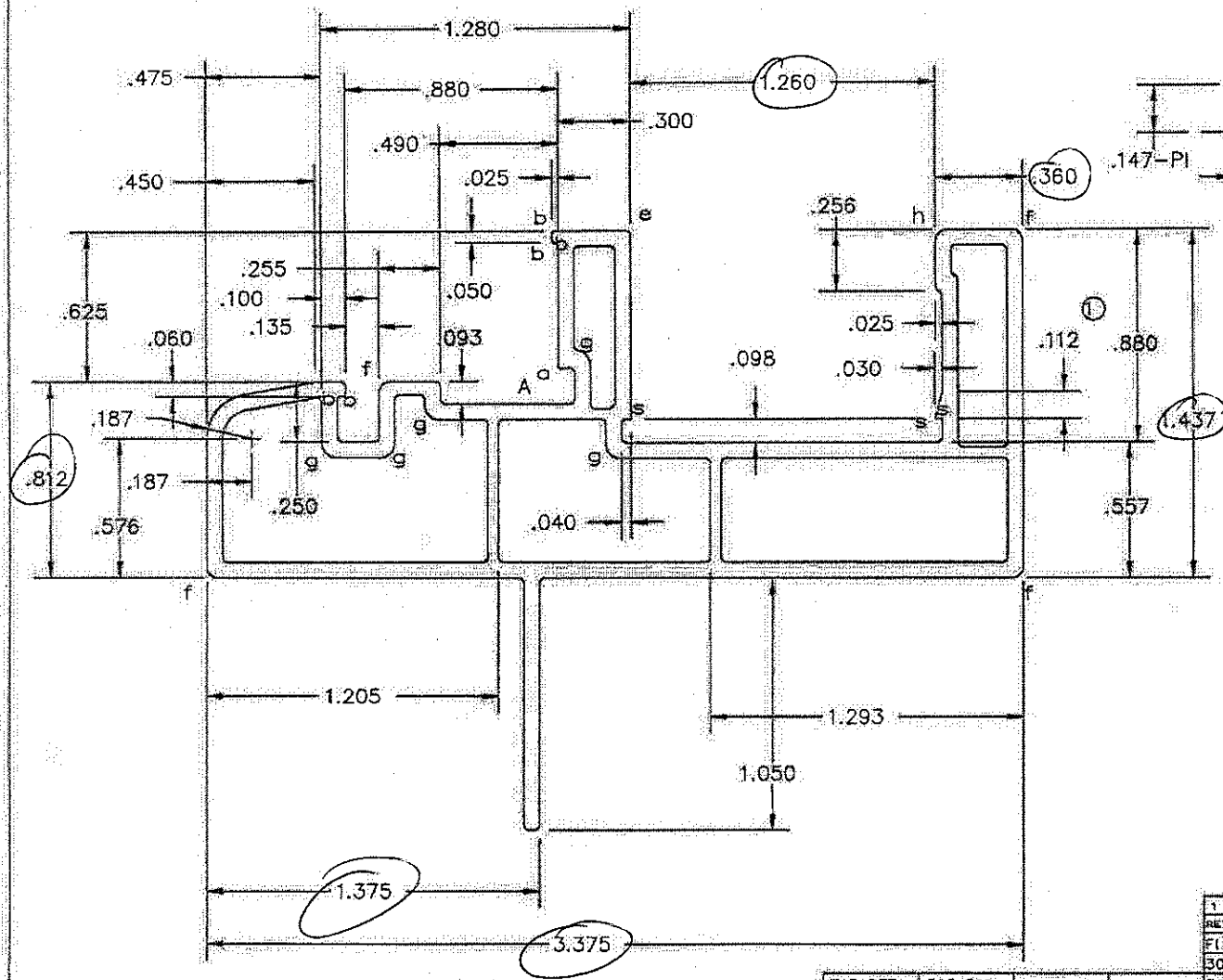
ACAD#: 305_CdA_Sections_all
Ref: xxx

WALL TOLERANCES:		ANGULAR TOLERANCES:		RADII:	
0.000–0.099	±0.006	x.x	±1/2°	UNMARKED	0.015

WALL THICKNESS:		SYMBOL:			
Exterior	.000	SHARP		a	
Interior	.000	FLEX		b	
	.xxx	CRITICAL		c	FULL
	.xxx	EXPOSED		s	SHARP

LINEAR TOLERANCES:	
0.000–0.999	±0.010
1.000–1.999	±0.015
2.000–3.999	±0.020

SCALE : 1.5: 1



DETAIL A
SCALE: 2: 1

a=0. 006R
b=0. 012R
c=0. 015R
d=0. 020R
e=0. 030R
f =0. 045R
g=0. 060R
h=0. 050R
s=SHARP

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E2307

Date 1/28/15 Tech BCR

APPROVED
23–DEC–97
CYCLOID DESIGNS

REV	DATE	DIMENSION ADDED REMARKS			
1	01–18–98				
FIT TO		305–D28	305–D34	291–03	
305–D18		305–D35	305–D27	291–07	
305–D33		305–D45			
305–D49					

FAB REF	305–F9D		
305–F5E			

CYCLOID DESIGNS	DWG: 305–D4	DATE: 31–DEC–97	© 1997 COPYRIGHT ROYAL SIERRA INC SPARKS, NEVADA ALL RIGHTS RESERVED
TITLE: FIXED FRAME W/FIN	RS1270		EXTERNAL WALL: 0.065 INTERNAL WALL: 0.045 CORNER TYP: 0.020R WEIGHT: 0.565 LB/FT

SCALE: 2: 1

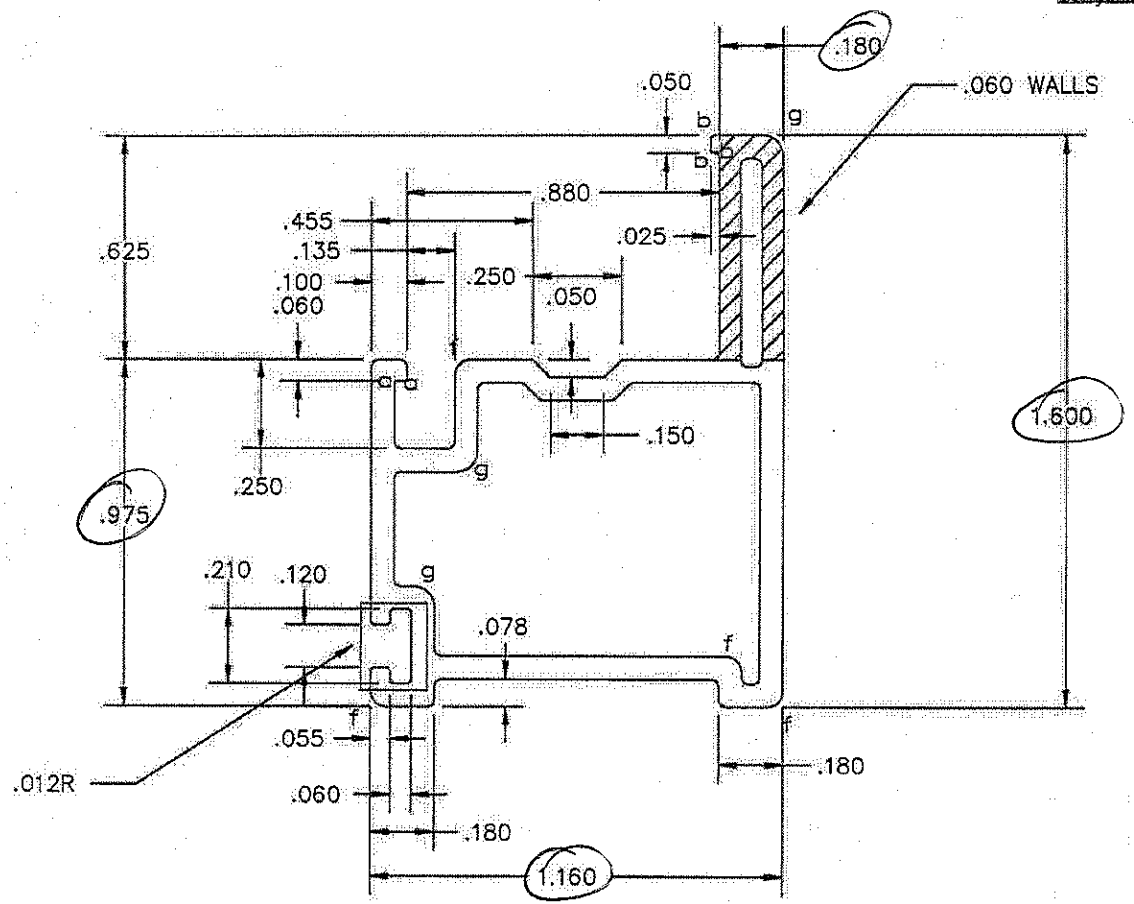
a=0. 006R
b=0. 012R
c=0. 015R
d=0. 020R
e=0. 030R
f=0. 045R
g=0. 060R

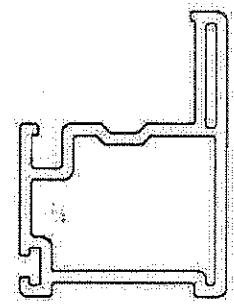
APPROVED
23-DEC-97
CYCLOI D DESI GNS

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E2307
Date 1/28/15 Tech BLR





ACTUAL SI ZE

FAB REF					FI T TO	291-07			
305-F6					305-D35				

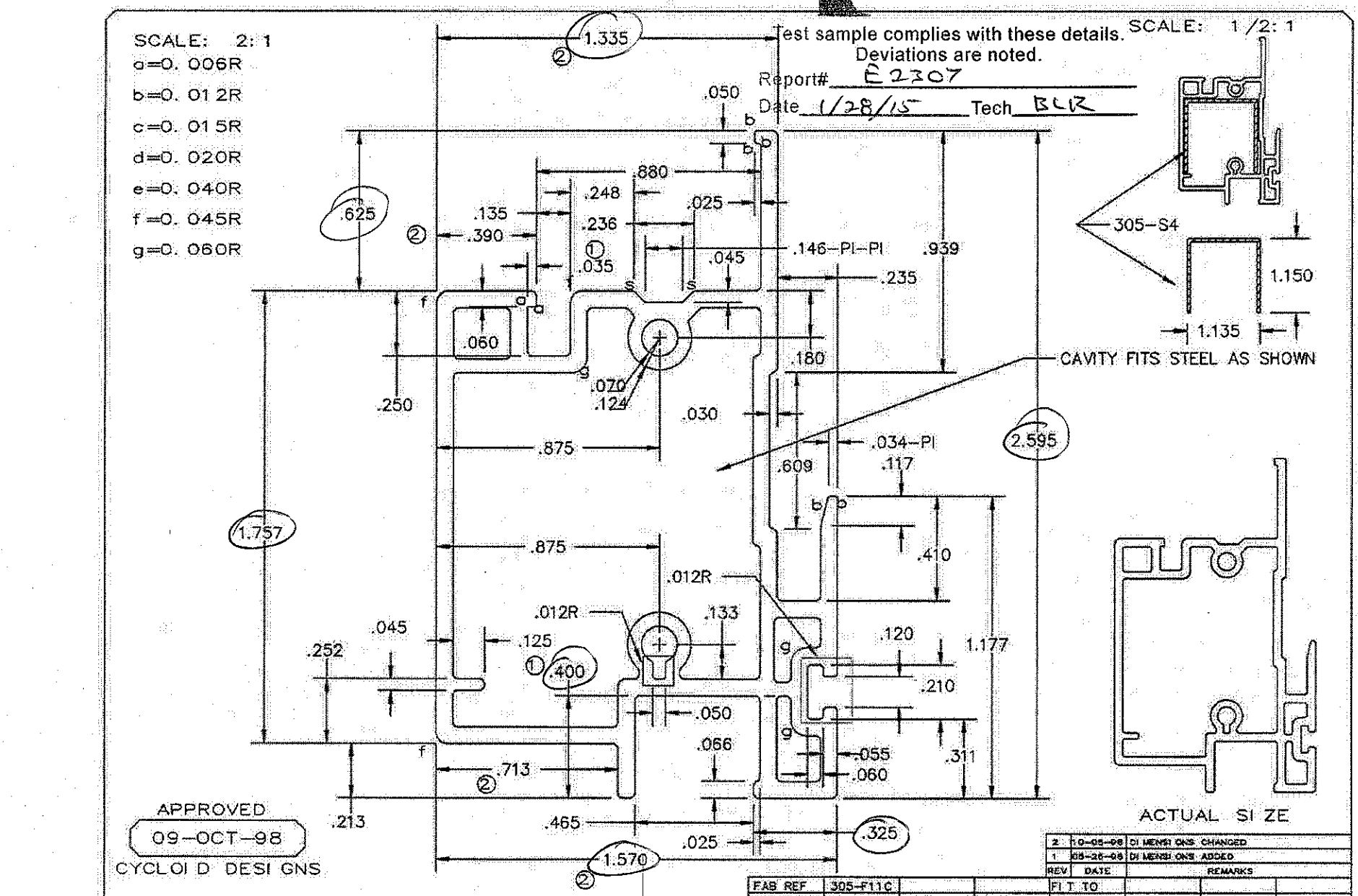
CYCLOI D DESI GNS	DWG: 305-D14	DATE: 17-DEC-97	© 1997 COPYRI GHT ROYAL SI ERRA I NC SPARKS, NEVADA ALL RI GHTS RESERVED
TI TLE: SLI DER SASH RAI L	RS1277		EXTERNAL WALL: 0. 065 I NTERNAL WALL: 0. 054 CORNER TYP: 0. 020R WEI GHT: 0. 234 LB/FT

Architectural Testing

SCALE: 2:1

a=0.006R
b=0.012R
c=0.015R
d=0.020R
e=0.040R
f=0.045R
g=0.060R

Test sample complies with these details.
Deviations are noted.
Report# E2307
Date 1/28/15 Tech BLR



APPROVED
09–OCT–98
CYCLOID DESIGNS

REV	DATE	REMARKS
2	10–05–98	DIMENSIONS CHANGED
1	05–26–98	DIMENSIONS ADDED

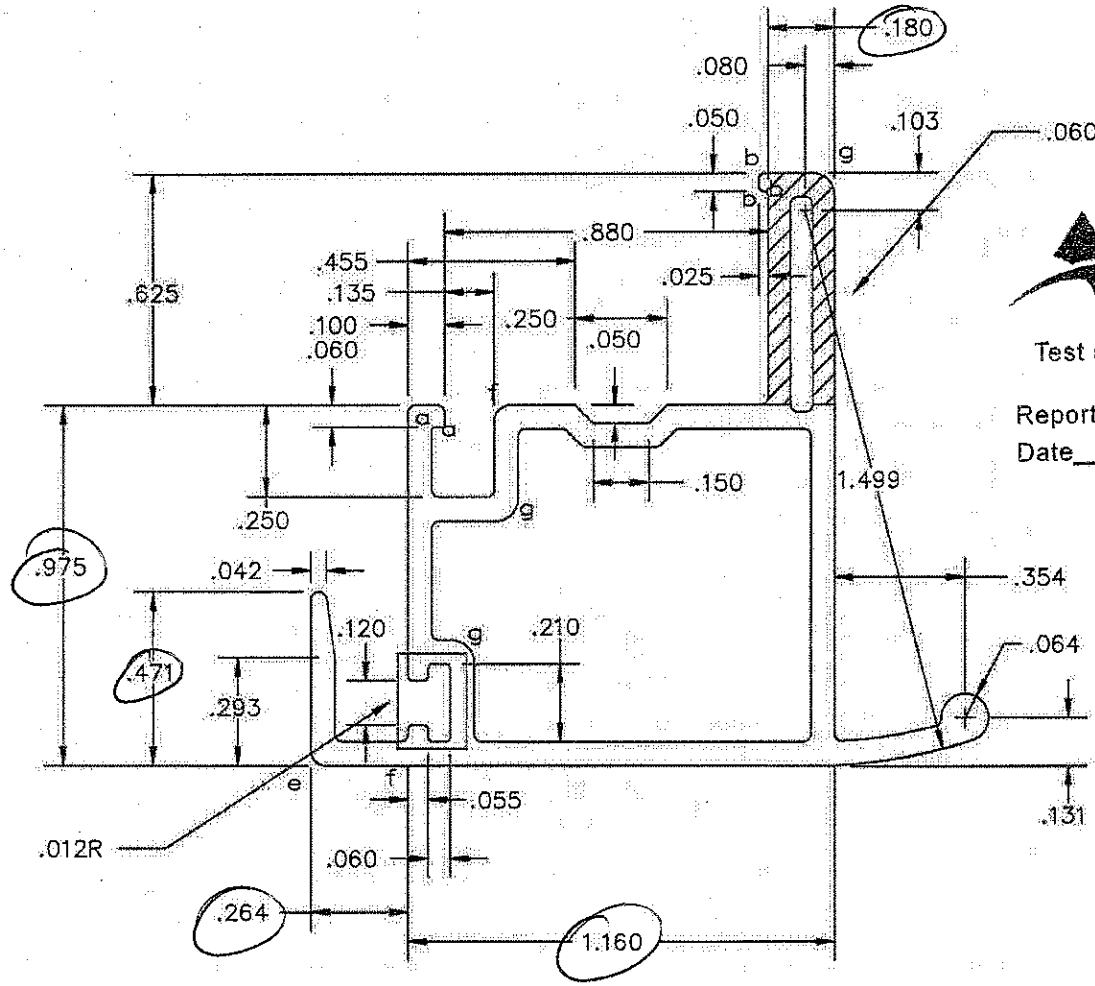
FAB REF	305–F11C			FIT TO			
305–F1A	305–F8A			XXX–XXX			

CYCLOID DESIGNS	DWG: 305–D17R	DATE: 21–MAY–98	© 1998 COPYRIGHT ROYAL SIERRA EXTRUSIONS INC RENO, NEVADA ALL RIGHTS RESERVED
TITLE: FIXED MEETING RAIL	RS1279		EXTERNAL WALL: 0.065 INTERNAL WALL: 0.054 CORNER TYP: 0.020R WEIGHT: 0.439 LB/FT

SCALE: 2: 1

a=0. 006R
b=0. 012R
c=0. 015R
d=0. 020R
e=0. 040R
f=0. 045R
g=0. 060R

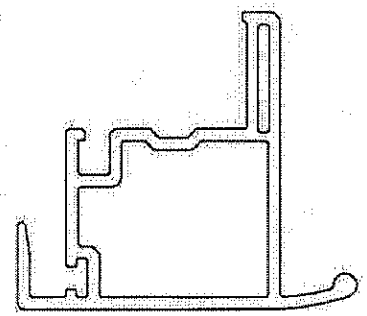
APPROVED
23-DEC-97
CYCLOID DESIGNS



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E2307
Date 1/28/15 Tech BLR



ACTUAL SIZE

FAB REF				FIT TO	291-D7		
305-F8				305-D35			

CYCLOID DESIGNS	DWG: 305-D15	DATE: 17-DEC-97	© 1997 COPYRIGHT ROYAL SIERRA INC SPARKS, NEVADA ALL RIGHTS RESERVED
TITLE: MEETING RAIL	RS1278		

EXTERNAL WALL: 0.065
INTERNAL WALL: 0.054
CORNER TYP: 0.020R
WEIGHT: 0.279 LB/FT

Customer Approval

By: ______

Date: ______

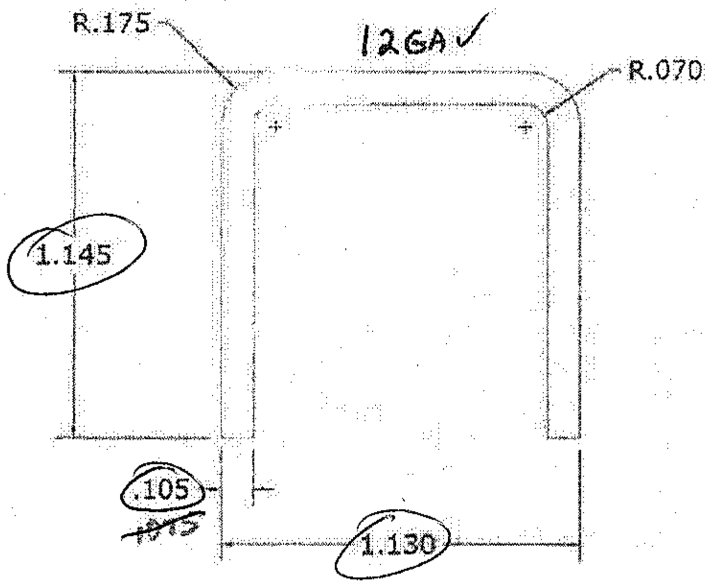
(2)

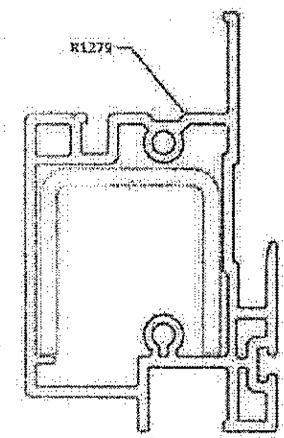
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E2307

Date 1/28/15 Tech BLR





OK ✓

HELTON U-3650

12GA × 1.145" × 1.12" × 1.145"

Iyy = .067 in^4

Cx = .565

Actual Size

50,000 PSI

ROYAL Building Products	Material: Steel => 35,000 psi Yield	Copyright © 2014 Royal Group, Inc. All Rights Reserved	Layout Name: 305-S1279	ACAD#: 305-CdA-Steel Master
	Sys No. 305-S1279		Drawn by: gmc / SCALE 2:1	
	CUSTOMER: CdA Windows	PROJECT: 305	AREA .326	
TITLE Fixed Interlock Stiffener For R1279		DATE: March 19, 2014	WT/FT 1.090	

Customer Approval

By: ____________

Date: ____________

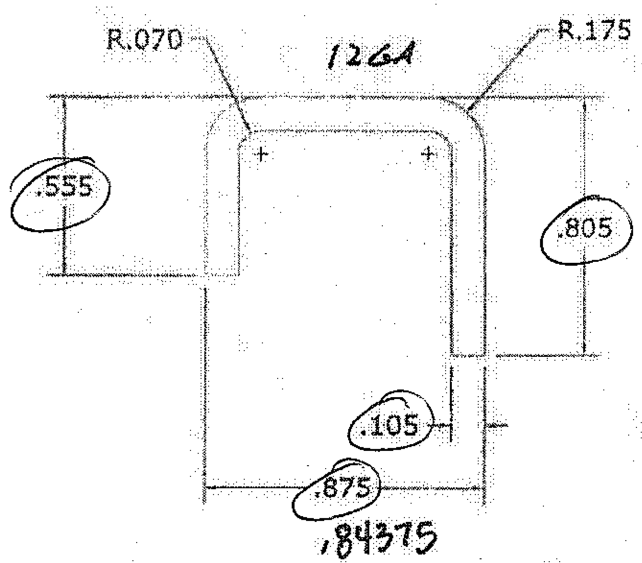
(1)

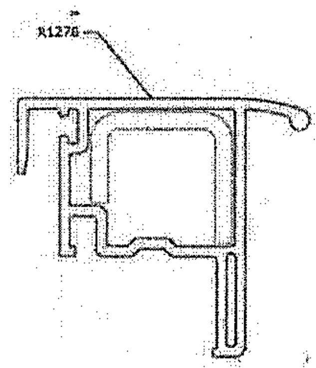
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# E2307

Date 1/28/15 Tech BLR





Actual Size

Iyy = .0215 in^4
Cx= .4375

HELTON U-2800
14ga x .555" x .851" x .805"
.0755

ROYAL Building Products

Material: Steel => 35,000 psi Yield

Sys No. 305-S1278

Customer: CdA Windows

Title: Sash Interlock Stiffener For R1278

Copyright © 2014 Royal Group, Inc. All Rights Reserved

Project: 305

Date: March 19, 2014

Layout Name: 305-S1278

Drawn by: gmc

Scale: 2:1

Area: .202

Wt/Ft: .674

ACAD #: 305-CdA-Steel Master