

RAM INDUSTRIES TEST REPORT

SCOPE OF WORK

AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON SERIES S800 HEAVY PICTURE WINDOW MULLED TO S900 OUTSWING CASEMENT WINDOW

REPORT NUMBER

J8690.01-801-44-R0

TEST DATE(S)

07/09/19

ISSUE DATE

05/12/20

RECORD RETENTION END DATE

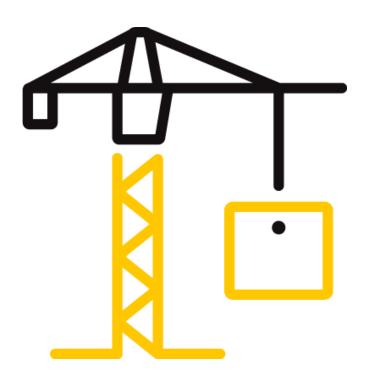
03/18/23

PAGES

23

DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2804 (04/17/18) © 2017 INTERTEK





Telephone: 469-814-0687 www.intertek.com/building

TEST REPORT FOR RAM INDUSTRIES

Report No.: J8690.01-801-44-r0

Date: 05/12/20

REPORT ISSUED TO

RAM INDUSTIRES

8600 Commerce Park Dr. Houston, TX 77036

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Ram Industries to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 on their Series S800 Heavy Picture Window Mulled to S900 Outswing Casement Window. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek test facility in Plano, TX. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-17	CW-PG50-C*
Design Pressure	±2400 Pa (±50.13 psf)

Reference must be made to Intertek B&C Report No. J4516.01-801-44, dated 10/22/19 for complete test specimen description and detailed test results.

For INTERTEK B&C:

COMPLETED BY:	Jeffrey Crump	REVIEWED BY:	Andy Cost
	Sr. Project Manager –		
TITLE:	AWS	TITLE:	Laboratory Manager
SIGNATURE:		SIGNATURE:	
DATE:	05/12/20	DATE:	05/12/20
JC:cm			

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SECTION 3

TEST SPECIFICATION(S)/METHODS

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440-17- North American Fenestration Standard/Specification for Windows, Doors, and Skylights

The following test methods were used during testing:

AAMA 205-15, In-Plant Testing Guidelines for Manufacturers and Independent Laboratories

ASTM E330/E330M-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

SECTION 4

MATERIAL SOURCE/INSTALLATION

Test specimens were provided by the client. Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of four years from the test completion date.

The specimen was installed into a SPF wood buck. The rough opening allowed for a 1/8" shim space and the exterior perimeter of the specimen was sealed to the test buck. Installation of the tested product was performed by the client.

LOCATION	ANCHOR DESCRIPTION	ANCHOR SPACING
Interior	Nail fin frame is installed in a (2" x 6") test	Screws attached 2" from each
perimeter of	buck with #6 x 1-5/8" screws which is	frame end and 12" on center
frame nail fin	attached to outer (2" x 10") SPF wood wrap.	at frame head, sill and jambs.

SECTION 5

EQUIPMENT

Calibration of test equipment was performed by Intertek B&C in accordance with AAMA 205-15.

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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY	COMPANY	
Jeff Ashcraft	Ram Industries		
Jeffrey Crump	Intertek B&C		
Jason Gossage	Intertek B&C		

SECTION 7

GATEWAY

*Reference Intertek B&C Report No. J4516.01-801-44, dated 10/22/19 for complete *Gateway* test specimen description and test results.

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SECTION 8

TEST SPECIMEN DESCRIPTION

Product Type: Heavy Picture Window Mulled to Outswing Casement Window

Series/Model: S800/S900

Product Size(s):

OVERALL AREA:	WIDTH		HEIG	нт
3.3 m ² (36 ft ²)	millimeters	inches	millimeters	inches
Overall size	1829	72	1829	72
Vent Size	886	34-7/8	1797	70-3/4
Vent Daylight Opening	756	29-3/4	1672	65-13/16
Fixed Daylight Opening	838	33	1753	69

Frame Construction:

MEMBER	MATERIAL	DESCRIPTION
Head, sill, jambs, nail fin replacement and vertical mull	Aluminum	Extruded aluminium thermally broken with polyurethane.
		1
	JOINERY TYPE	DETAIL
All corners	Mechanical	Frame corners are attached with two (2) #8 x 1" HX WSHR Type A SMA, each. Aluminum frame corner bracket (2" x .062" thick) located at frame interior pocket. All corners and vertical mull sealed with silicone.
Vertical mull	Mechanical	Frame vertical mull is attached with four (4) #8 x 1" HX WSHR Tek 2 SMS, two at fixed jamb and two at casement jamb. Aluminum frame corner bracket (2" x .062" thick) located at frame interior pocket. All corners sealed. Fixed frame jamb and casement frame jamb snap onto one piece vertical mullion (part #46733). Replacement nail fins snap onto frame perimeter at head, sill and jambs, sealed in place.

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Vent Construction:

MEMBER	MATERIAL	DESCRIPTION
Rails and stiles	Aluminum	Extruded aluminum thermally broken with polyurethane.
	JOINERY TYPE	DETAIL
All corners	Mechanical	Vent corners are attached with two (2) #8 x 1" HX WSHR Type A SMA, each. Aluminum vent corner bracket (2" x .062" thick) located at frame interior pocket. All corners sash foam corner gasket.

Reinforcement: No reinforcement was utilized.

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Ultrafab Vinyl bulb weather-strip	4	Exterior perimeter face of frame interior leg.
HPW Rubber Stop	4	Interior face of exterior leg of vent top rail, bottom rail and stiles.
Truth Gasket	1	At roto-operator to frame connection.

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	SPACER TYPE	INTERIOR LITE	EXTERIOR LITE	GLAZING METHOD
1" IG	Aluminum	1/8" annealed	1/8" annealed	Exterior glazed with 1/16" x 3/8" glazing tape at the interior face of glass and aluminum glazing bead with rubber stop at the exterior face of glass.

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Fixed Head sill and jambs	2	756 x 1652	29-3/4 x 65-13/16	9/16
Vent Rails and Stiles	2	838 x 1753	33 x 69	

Drainage:

METHOD	SIZE	QUANTITY	LOCATION
Weep slot	3/8" x 1/8"	2	Each end of vent and fixed sill glazing bead.

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Hardware:

DESCRIPTION	QUANTITY	LOCATION
Roto-operator	1	Located at frame sill, attached with six (6), #8 x 3/4" phil flat type A SMS.
Lever Lock with support plate with guide bar and tie bar and lock buttons	1	Lever lock attached to frame jamb with #10-24 x 5/8" phil pan type F.
Truth keepers	3	Located appx. 4" from each end and 26" from top, attached with #8 x 3/8" Phil Pan SMS.
Three bar friction hinge	2	Hinge attached to frame and vent with $\#10 \times 1/2$ " Phil Pan Type A SMS 410SS.

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SECTION 9

TEST RESULTS

The temperature during testing was 23°C (73°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
	Initiate motion:		
One wating Faura	58 N (13 lbf)		
Operating Force,	Maintain motion:	Report Only	
per ASTM E 2068	45 N (10 lbf)		
	Pass	No leakage	
Uniform Load Structural,			
per ASTM E330			
Deflections taken at hinge rail			
+1440 Pa (+30.08 psf)	.76 mm (0.03")	10 mm (0.38") max.	
-14400 Pa (-30.08 psf)	8.4 mm (0.33")	10 mm (0.38") max.	
Uniform Load Structural,			
per ASTM E330			
Deflections taken at vertical mull			
+1440 Pa (+30.08 psf)	4.8 mm (0.19")	10 mm (0.39") max.	
-14400 Pa (-30.08 psf)	5.6 mm (0.22")	10 mm (0.39") max.	
OPTIONAL PERFORMANCE			
Uniform Load Deflection,			
per ASTM E330			
Deflections taken at hinge rail			
+2400 Pa (+50.13 psf)	.30 mm (0.01")	10 mm (0.38") max.	
-2400 Pa (-50.13 psf)	9.7 mm (0.38")	10 mm (0.38") max.	3
Uniform Load Deflection,			
per ASTM E330			
Deflections taken at vertical mull			
+2400 Pa (+50.13 psf)	7 mm (0.28")	10 mm (0.39") max.	
-2400 Pa (-50.13 psf)	9.7 mm (0.38")	10 mm (0.39") max.	
Uniform Load Structural,			
per ASTM E330			
Permanent Set taken at hinge rail			
+3600 Pa (+75.19 psf)	<0.10 mm (<0.01")	5 mm (0.20") max.	
-3600 Pa (-75.19 psf)	1.52 mm (0.06")	5 mm (0.20") max.	3

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Uniform Load Structural,			
per ASTM E330			
Permanent Set taken at Vertical			
Mull			
+3600 Pa (+75.19 psf)	1.8 mm (0.07")	5.3 mm (0.21") max.	
-3600 Pa (-75.19 psf)	1 mm (0.04")	5.3 mm (0.21") max.	3

Note 1: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 2: Loads were held for 10 seconds.

Note 3: Tape and film were not used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

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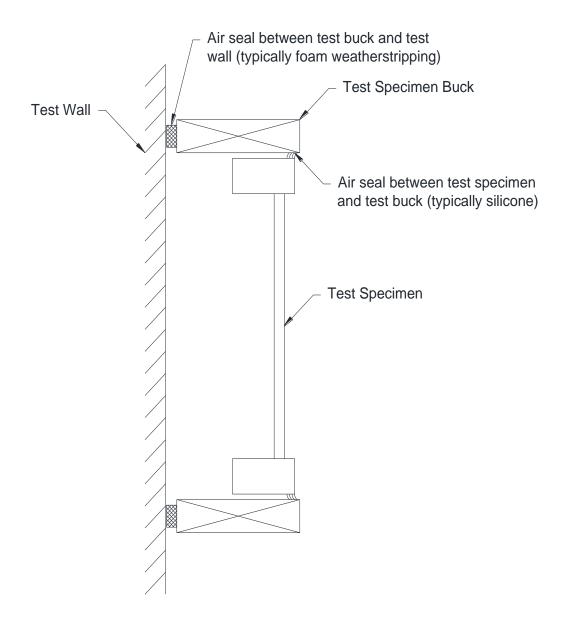
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SECTION 10

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.



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SECTION 11

CONCLUSION

The specimen tested successfully met the performance requirements for a CW-PG50-C rating.

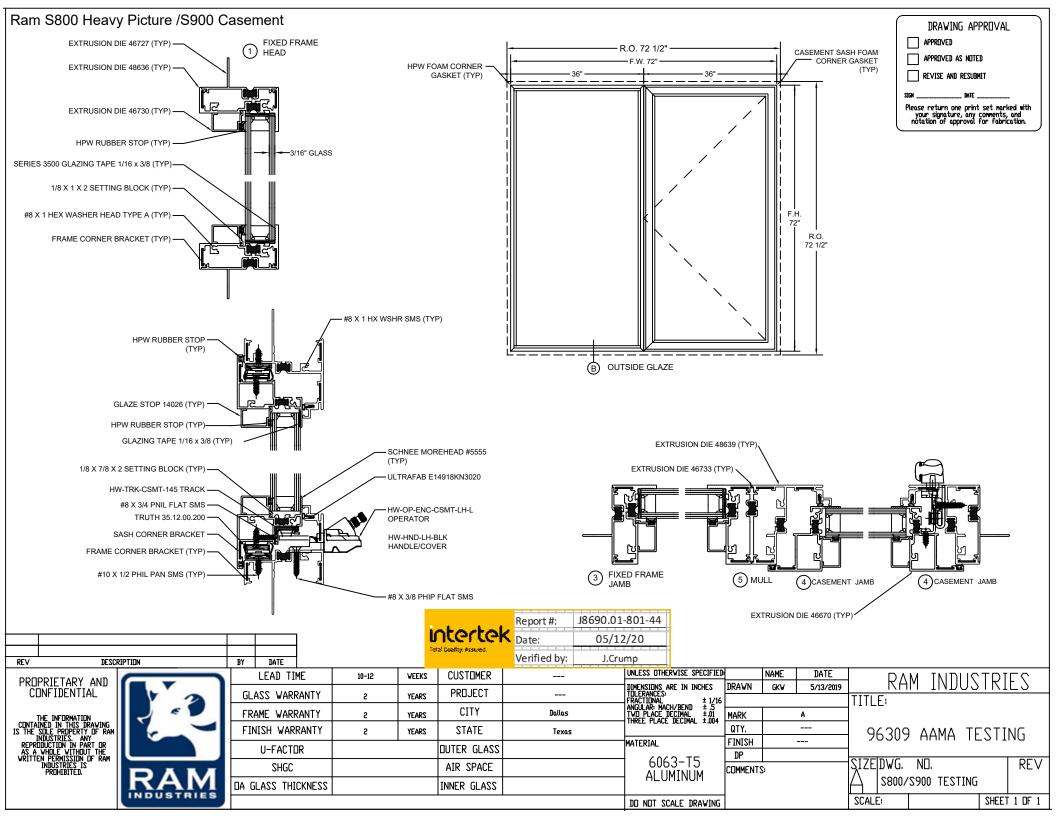
Reference Intertek B&C Report No. J4516.01-801-44, dated 10/22/19 for complete *Gateway* test specimen description and test results.

SECTION 12

DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

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RAM INDUSTRIES

SERIES 800 HPW FIXED (1-LITE)

EXTRUSION		
HPW FRAME	INTERNATIONAL EXT.	DIE 48636
HPW METAL STOP	INTERNATIONAL EXT.	DIE 46730
REPLACEMENT FIN	INTERNATIONAL EXT.	DIE 46727
COMPONENTS		
METAL STOP VINYL WTHST	ORZEN EXTRUDED POLYMERS	1109-02-00
SETTING BLOCK	FRANK LOWE RUBBER	1/8 X 1 X 2
FOAM CORNER GASKET	FRANK LOWE	HPW CORNER GSKT
GLAZING TAPE	TBP CONVERTING	1/8" X 3/8"
FRAME CORNER BRACKET	KELCO TOOL & DESIGN	ALUM .062 X 2"
CORNER SEALANT	TBP CONVERTING	DOW 1199
FRAME FASTENER	ALLOY FASTNER	#8 X 1 HX WSHR SMS TYPE A
GLASS	CARDINAL IG	1" OA ANNEALED



RAM INDUSTRIES

SERIES 900 CASEMENT (1-LITE)

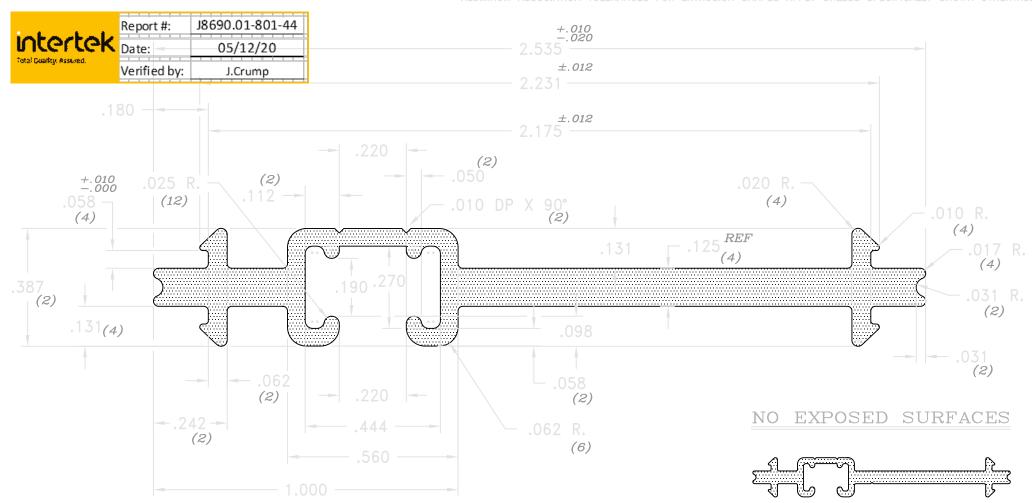
EXTRUSION		
CASEMENT FRAME	INTERNATIONAL EXT.	DIE 48639
CASEMENT INTERNALL MULL	INTERNATIONAL EXT.	DIE 46733
REPLACEMENT FIN	INTERNATIONAL EXT.	DIE 46670
CASEMENT METAL STOP	INTERNATIONAL EXT	DIE 46730
COMPONENTS		
METAL STOP VINYL WTHST	ORZEN EXTRUDED POLYMERS	1109-02-00
SETTING BLOCK	FRANK LOWE RUBBER	1/8 X 1 X 2
FOAM CORNER GASKET	FRANK LOWE	HPW CORNER GSKT
GLAZING TAPE	TBP CONVERTING	1/8" X 3/8"
FRAME CORNER BRACKET	KELCO TOOL & DESIGN	ALUM .062 X 2"
CORNER SEALANT	TBP CONVERTING	DOW 1199
FRAME FASTENER	ALLOY FASTNER	#8 X 1 HX WSHR SMS TYPE A
GLASS	CARDINAL IG	7/8" OA ANNEALED

NOTE:

1. 6063-T5 ALLOY & TAMPER

SYM	REVISION	BY	DATE	CUSTOMER		DIE NO.	_
				RAM INDUS	TRIES, INC.	46/3	5
				PART NAME: MULL—THERMAL	DRAWN: JHN	DATE: 8/26,	/11
				PART NO. 40770	SCALE: 3X	CHKD.	APPR.

ALUMINUM ASSOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHERWISI

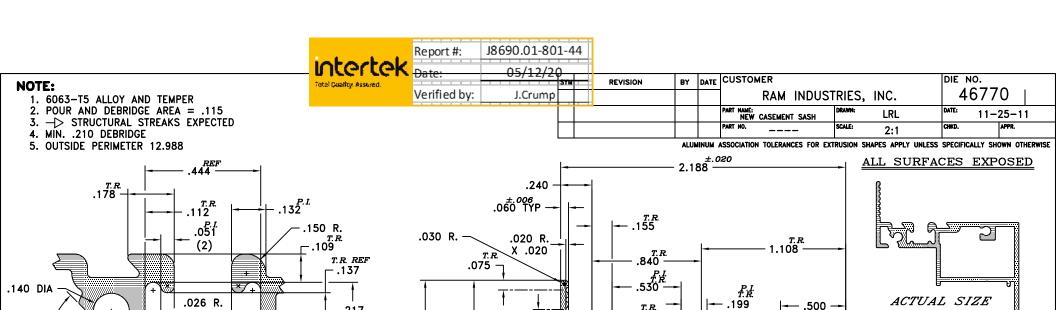


ACTUAL SIZE

UNLESS OTHERWISE NOTED.

ALL CORNERS ARE .015 R. AND TYPICAL WALL THICKNESS IS

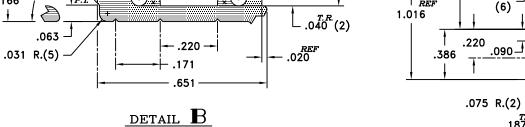
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	EST AREA:	.363	UT-NO.	1023	PORTS	2	WP
International Extrusion Corporation	EST WT/FT:	.436	CIRCLE SIZE:	2.5	BACKER	9	X 44061
202 SINGLETON DRIVE	EST PERI:	7.977	CLASS	SOLID	BOLSTER		3606
WAXAHACHIE, TX 75165 TEL: 972-937-7032, FAX: 972-938-3271	FACTOR:	18	ER	7" = 56	DIE NO.		46733



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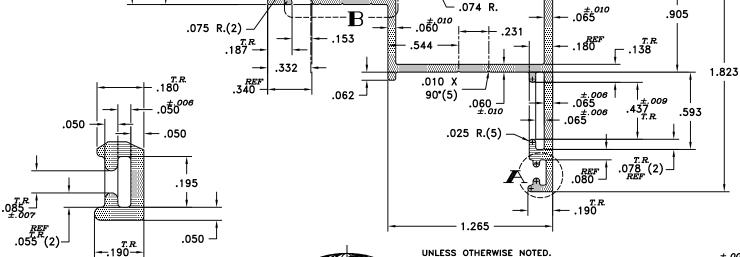


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.026 R.

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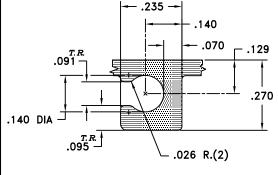


.044(2)

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International Extrusion Corporation
202 SINGLETON DRIVE
WAXAHACHIE, TX 75165 TEL: 972-937-7032, FAX: 972-938-3271

UNLESS OTH			YPICAL WALL T	HICKNESS I	s .060
EST AREA:	.562	UT-NO.	1026A	PORTS 1	WP
EST WT/FT:	.674	CIRCLE SIZE:	3.3	BACKER	
EST PERI:	17.517	CLASS	HOLLOW	BOLSTER	18186
FACTOR:	26	ER	7" = 73	DIE NO.	46770

ACTUAL SIZE

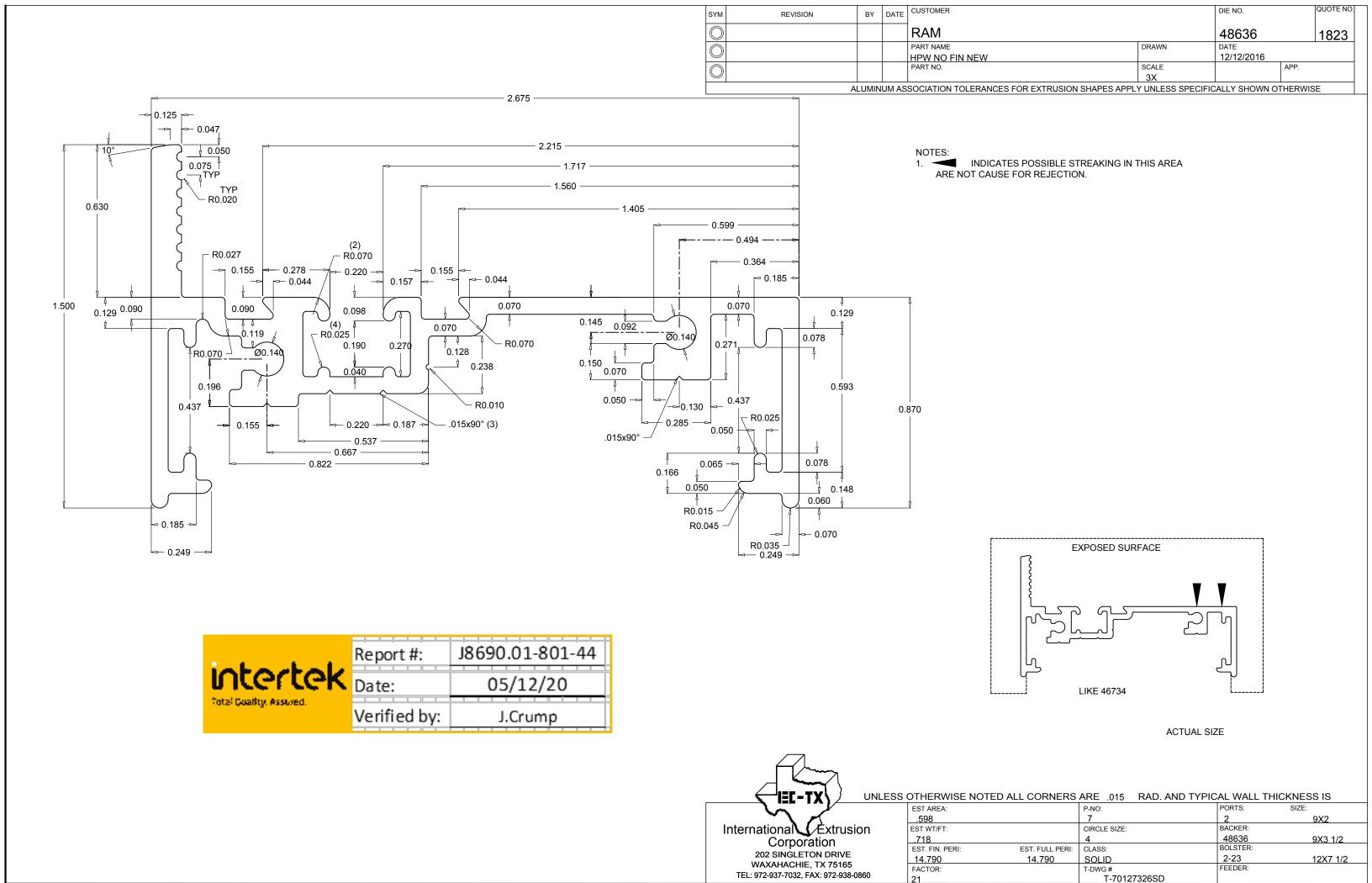
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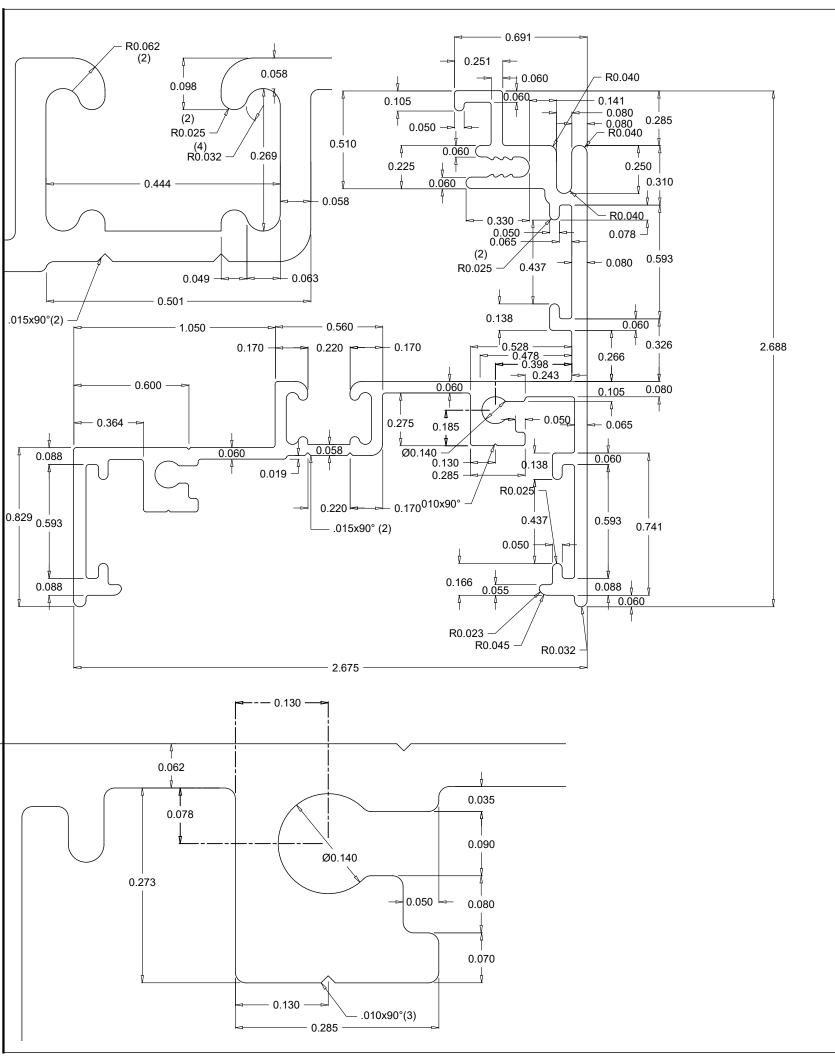
.060

– .500 –

- .164

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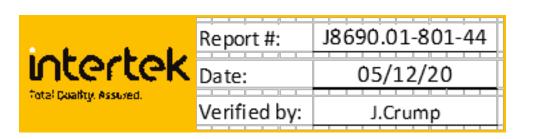


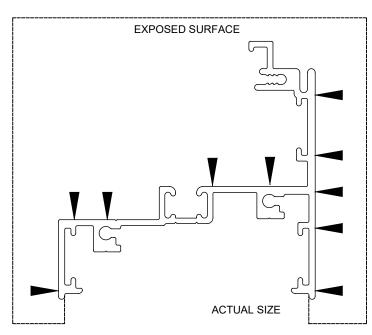


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				RAM		48639		1826
				PART NAME	DRAWN	DATE		
				CASEMENT NO FIN NEW		12/12/2016		
				PART NO.	SCALE		APP.	
19					2x			
	Al	UMIN	IUM AS	SOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY	/ UNLESS SPECIFIC	ALLY SHOWN 07	HERWISI	E

NOTES:

INDICATES POSSIBLE STREAKING IN THIS AREA ARE NOT CAUSE FOR REJECTION.





LIKE 48006

SOLID

T-DWG#

T-70127329SD

BACKER:

48639

BOLSTER:

32121

9X2

9X3 1/2

12X7 1/2

UNLESS OTHERWISE NOTED ALL CORNERS ARE .015 RAD. AND TYPICAL WALL THICKNESS IS EST AREA: P-NO: .721 EST WT/FT: International Éxtrusion CIRCLE SIZE: .865 Corporation EST. FIN. PERI: EST. FULL PERI: 20.236 CLASS: 202 SINGLETON DRIVE WAXAHACHIE, TX 75165

20.236

FACTOR:

TEL: 972-937-7032, FAX: 972-938-0860

intertek Total Quality, Assured.

Report #:	J8690.01-801-44
Date:	05/12/20
Verified by:	LCrumn

2. 183(2) 2. 175 2. 183(2) 3. 288	070 070	4. COOLING DENTS POSSIBLE	2. SNAP FILS WITH CUST P/N 1-46718 3. POUR AND DEBRIDGE AREA=.110	1. 6063-T5 ALLOY & TEMPER	NOTE:	
010 R 031 R 031 R		ALUMIN				SYM REVISION BY
ACTUAL SIZE	NO EXPOSED SURFACES	ALUMINUM ASSOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHER	PART NO. T-46719 SOME: 2 X SIZE	PART NAME LACEMENT FIN DRAWNS LRL	RAM INDUSTRIES	DATE CUSTOMER
17. 010. X .008	URFACES	S SPECIFICALLY SHOWN OTHERWI	CHIO. APPR.	DATE: 8-26-11	46727	DIE NO.

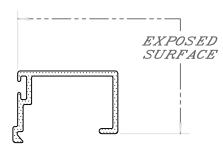


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FEDER	$7^n = 71$	27 RATIO	
BOLSTER 2-1	SOLID	9.495 CLASS	EST PERI:
BACKER 9 X 46727	2.5	.347 CIRCLE SIZE	EST WT/FT:
PORTS 2	UT-1022	.289	EST AREA:
THICKNESS IS .062	ALL CORNERS ARE .015 R. AND TYPICAL WALL TH	ERS ARE .015 R. AN	

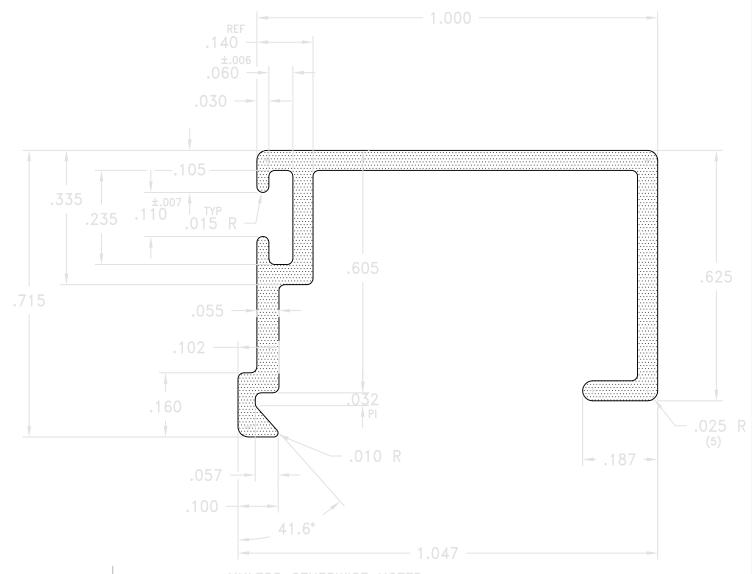
SYM	REVISION	BY	DATE	CUSTOMER DIE NO.
				RAM INDUSTRIES 46730
				PART NAME: GLAZING STOP DRAWN: LRL DATE: 8-22-11
				PART NO. 44195 SCALE: 4 X SIZE CHKD. APPR.
		ALUMI	NUM AS	SOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE

NOTE:



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Date:	05/12/20		
Verified by:	J.Crump		



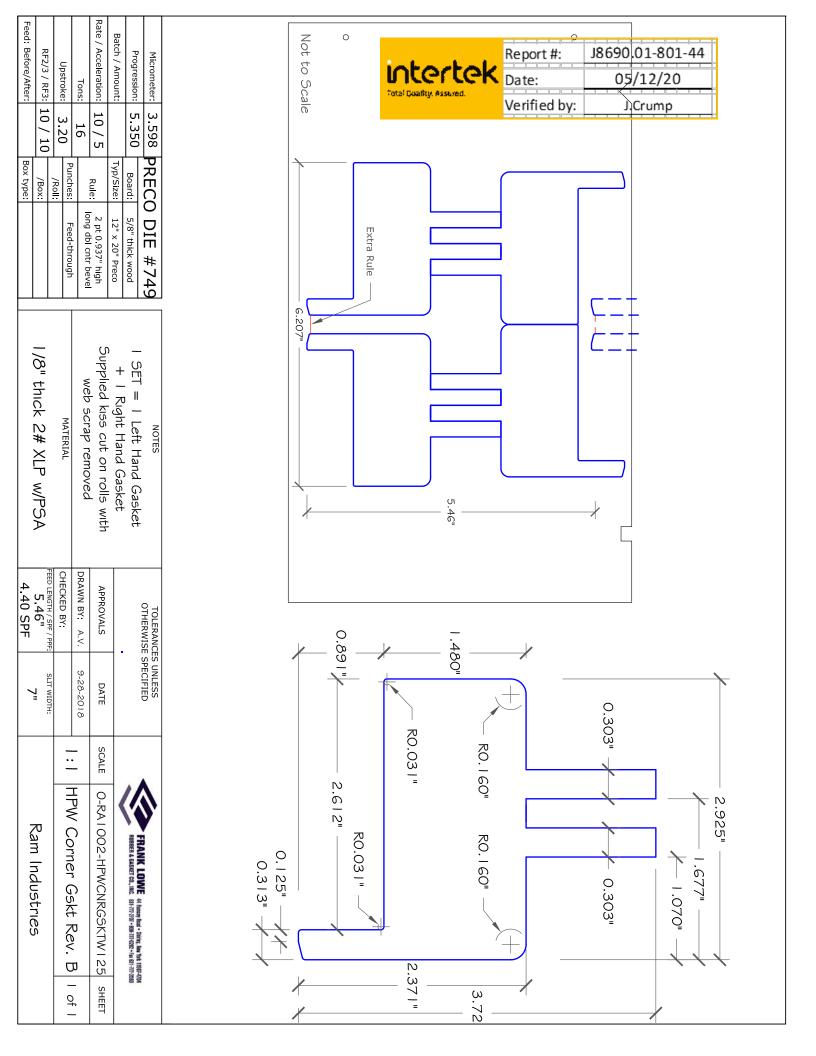
ALL CORNERS ARE .015 R. AND TYPICAL WALL THICKNESS IS

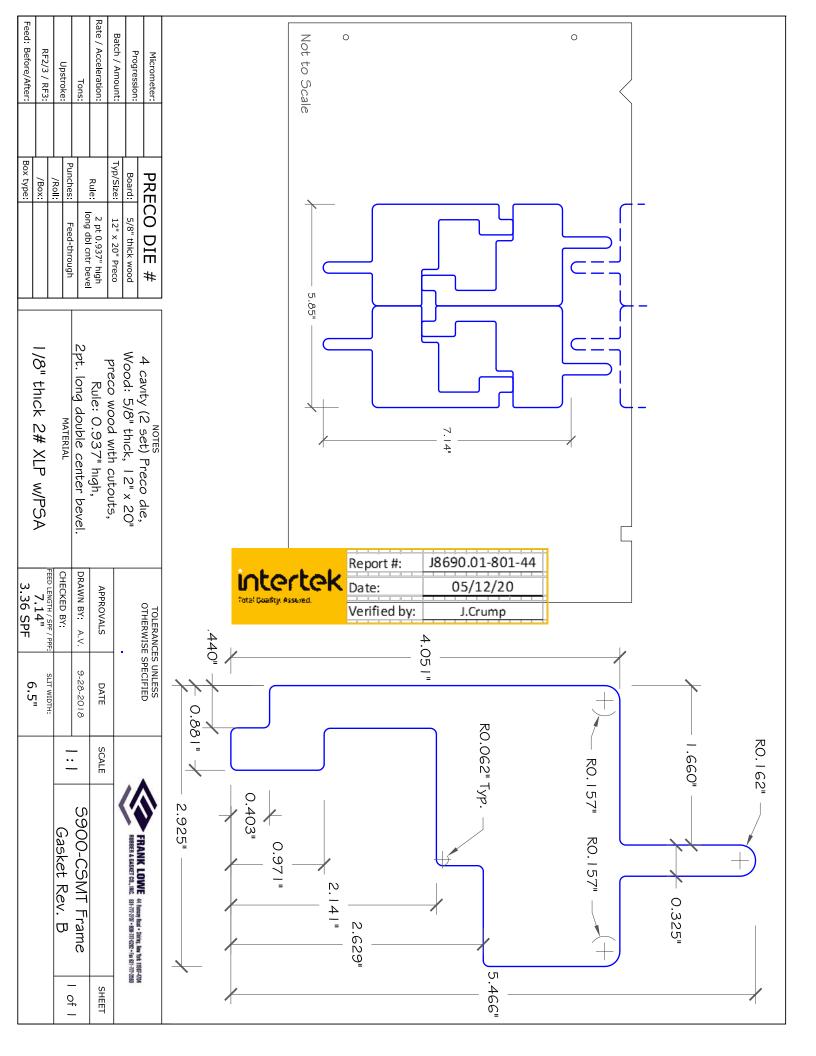
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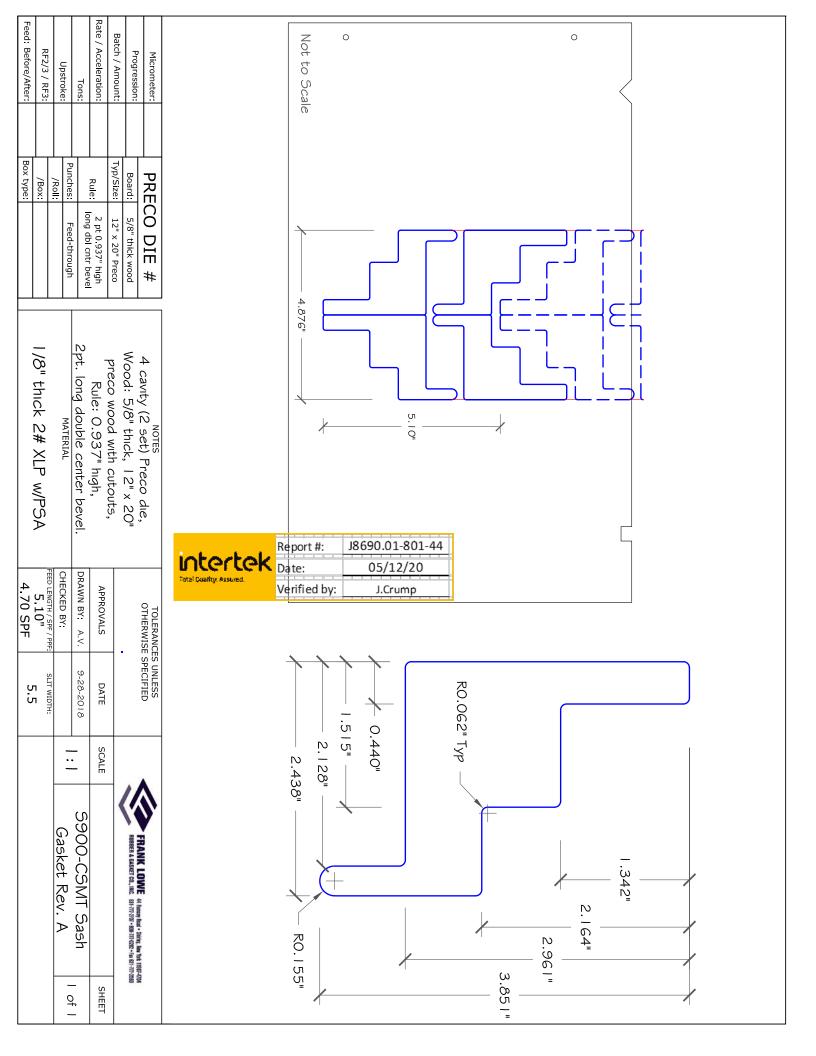
International	Extrusion
Corpo	ration
OOO CINIOL	ETON DON'S

202 SINGLETON DRIVE WAXAHACHIE, TX 75165 TEL: 972-937-7032, FAX: 972-938-3271

EST AREA:	.132	UT-NO.	1019	PORTS	5	WP
EST WT/FT:	.158	CIRCLE SIZE:	1.2	BACKER	9	x 30897
EST PERI:	5.277	CLASS	SOLID	BOLSTER		5-7
FACTOR:	33	ER	7" = 62	DIE NO.		46730









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SECTION 13

REVISION LOG

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