intertek
Total Quality. Assured.

RAM INDUSTRIES
TEST REPORT

SCOPE OF WORK

AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON SERIES S840 INTERIOR SILICONE GLAZED HEAVY PICTURE WINDOW

REPORT NUMBER
L3960.01-801-44-R0

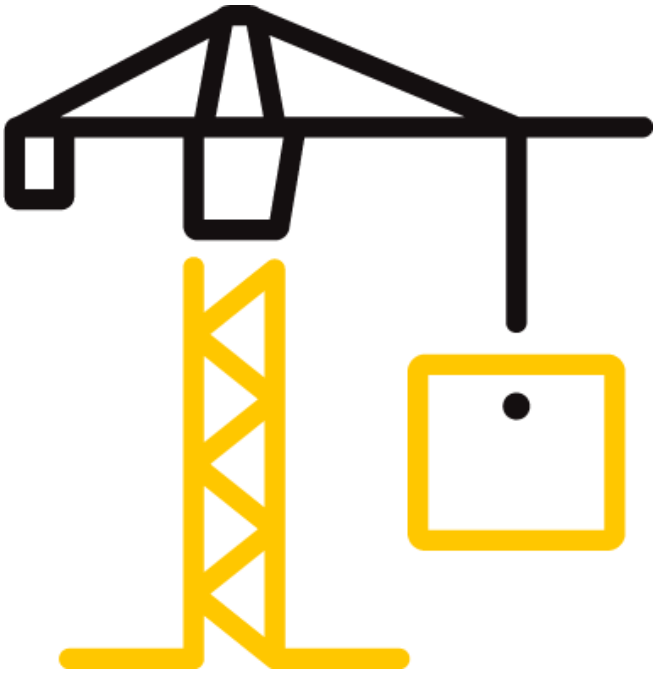
TEST DATE(S)
09/21/20

ISSUE DATE
11/03/20

RECORD RETENTION END DATE
09/21/24

PAGES
13

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



1909 10th Street, Suite 100
Plano, Texas 75074

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

TEST REPORT FOR RAM INDUSTRIES
Report No.: L3960.01-801-44-r0
Date: 11/03/20

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 S840 Interior Silicone Glazed Heavy Picture 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-PG90-FW
Design Pressure	±4320 Pa (±90.23 psf)
Air Infiltration	<0.10 L/s/m^2 (<0.01 cfm/ft^2)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

Reference must be made to Intertek B&C Report No. J6600.01-801-44, dated 02/13/20 for complete test specimen description and detailed test results.

For INTERTEK B&C:

COMPLETED BY:	Jeffrey Crump	**REVIEWED BY:**	Andy Cost
TITLE:	Sr. Project Manager – AWS	**TITLE:**	Laboratory Manager
SIGNATURE:	Digitally Signed by: Jeffrey Crump	**SIGNATURE:**	Digitally Signed by: Andy Cost
DATE:	11/03/20	**DATE:**	11/03/20

JC:cm

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

1909 10th Street, Suite 100
Plano, Texas 75074

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

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 E283-04(2012), *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

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

ASTM E547-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

ASTM F588-17, *Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact*

1909 10th Street, Suite 100
Plano, Texas 75074

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

TEST REPORT FOR RAM INDUSTRIES
Report No.: L3960.01-801-44-r0
Date: 11/03/20

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 perimeter of frame nail fin	Snap in Nail fin frame is installed in a (2" x 6") test buck with #6 x 1-5/8" screws which is attached to outer (2" x 10") SPF wood wrap.	Screws attached 2" from each frame end and 12" on center 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.

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Jeffrey Crump	Intertek B&C
Jason Gossage	Intertek B&C

intertek
Total Quality. Assured.

1909 10th Street, Suite 100
Plano, Texas 75074

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

TEST REPORT FOR RAM INDUSTRIES
Report No.: L3960.01-801-44-r0
Date: 11/03/20

SECTION 7
TEST SPECIMEN DESCRIPTION

Product Type: Fixed Window
Series/Model: S840 Interior Silicone Glazed Heavy Picture Window

Product Size(s):

OVERALL AREA: 1.95 m² (21 ft²)	**WIDTH**		**HEIGHT**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	2134	84	914	36
Daylight Opening	2054	80-7/8	835	32-7/8

Frame Construction:

MEMBER	**MATERIAL**	**DESCRIPTION**
Head, sill, jambs, and snap in nail fin	Aluminum	Extruded aluminum thermally broken with polyurethane.

	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 sealed with silicone.

Reinforcement: *No reinforcement was utilized.*

Weatherstripping: *No weatherstripping was utilized.*

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	3/16" annealed	3/16" annealed	Interior glazed with silicone at the exterior face of glass and aluminum glazing bead with rubber stop at the interior face of glass.

1909 10th Street, Suite 100
Plano, Texas 75074

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

TEST REPORT FOR RAM INDUSTRIES
Report No.: L3960.01-801-44-r0
Date: 11/03/20

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Head sill and jambs	2	2054 x 835	80-7/8 x 32-7/8	9/16

Drainage: Weeps were not utilized

Hardware: *No hardware was utilized.*

SECTION 8
TEST RESULTS

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

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Air Leakage, Infiltration per ASTM E283 at 300 Pa (6.24 psf)	 <0.10 L/s/m^2 (<0.01 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	 1, 2
Air Leakage, Exfiltration per ASTM E283 at 300 Pa (6.24 psf)	 <0.10 L/s/m^2 (<0.01 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	 1, 2
Water Penetration, per ASTM E547 at 580 Pa (12.11 psf)	 Pass	 No leakage	
Uniform Load Structural, per ASTM E330 Deflections taken at Anchors +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	 .51 mm (0.02") 1.02 mm (0.04")	 1.8 mm (0.07") max. 1.8 mm (0.07") max.	

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Uniform Load Structural, per ASTM E330 Permanent Set taken at Anchors +6480 Pa (+135.33 psf) -6480 Pa (-135.33 psf)	 <.10 mm (<0.01") <.10 mm (<0.01")	 1 mm (0.04") max. 1 mm (0.04") max.	 3
Forced Entry Resistance, per ASTM F588, Type: D - Grade: 10	 Pass	 No entry	

1909 10th Street, Suite 100
Plano, Texas 75074

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

TEST REPORT FOR RAM INDUSTRIES
Report No.: L3960.01-801-44-r0
Date: 11/03/20

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: Test Date 09/21/20 / Time: 10:00 AM(Air Note Only)

Note 3: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

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. In our opinion, the tape and film did not influence the results of the test.

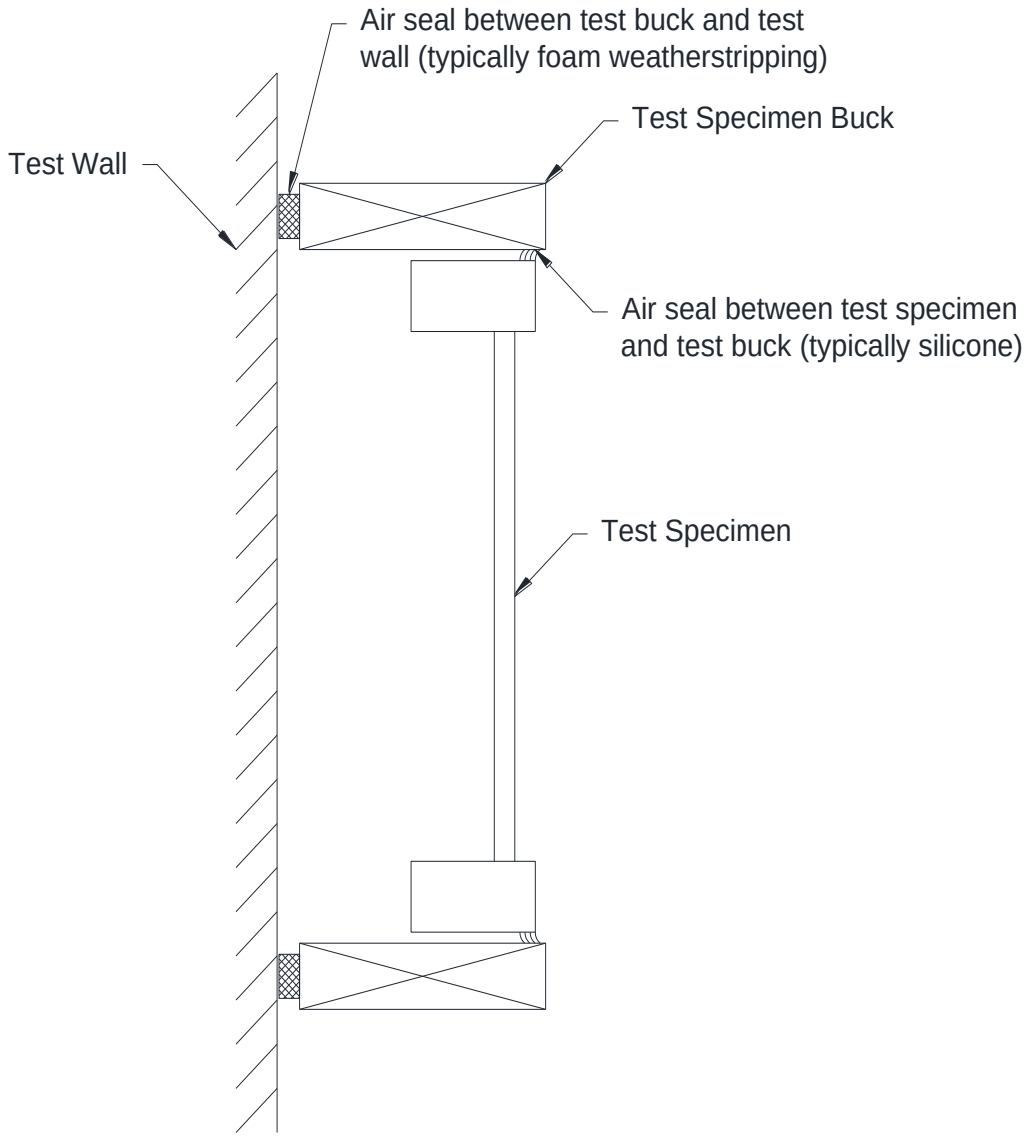
1909 10th Street, Suite 100
Plano, Texas 75074

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

TEST REPORT FOR RAM INDUSTRIES
Report No.: L3960.01-801-44-r0
Date: 11/03/20

SECTION 9
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.



1909 10th Street, Suite 100
Plano, Texas 75074

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

SECTION 10
CONCLUSION

The specimen tested successfully met the performance requirements for a **CW-PG90-FW** rating.

Reference Intertek B&C Report No. J6600.010-801-44, dated 02/13/20 for complete *Gateway* test specimen description and test results.

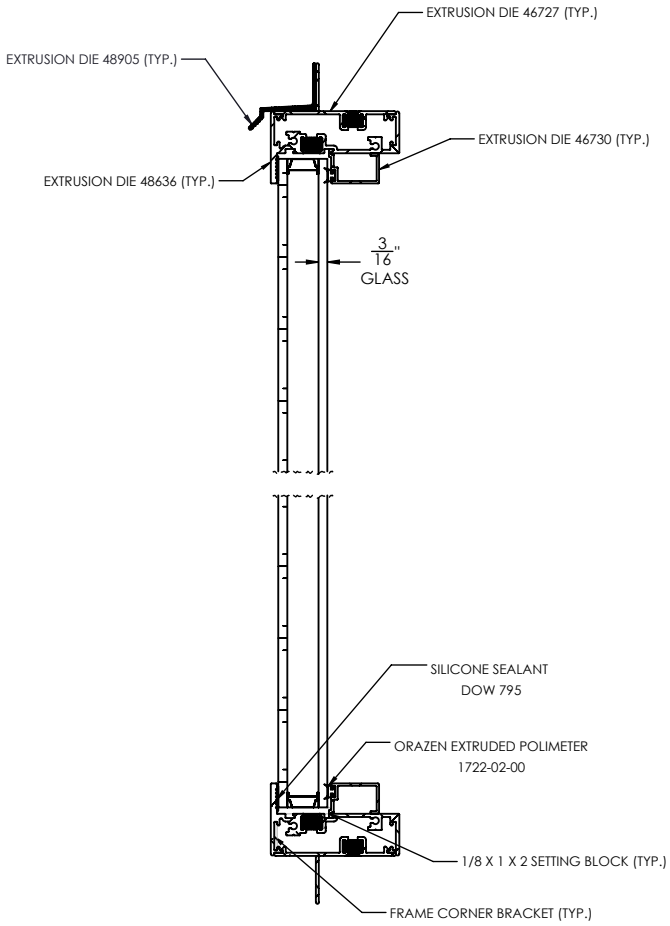
1909 10th Street, Suite 100
Plano, Texas 75074

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

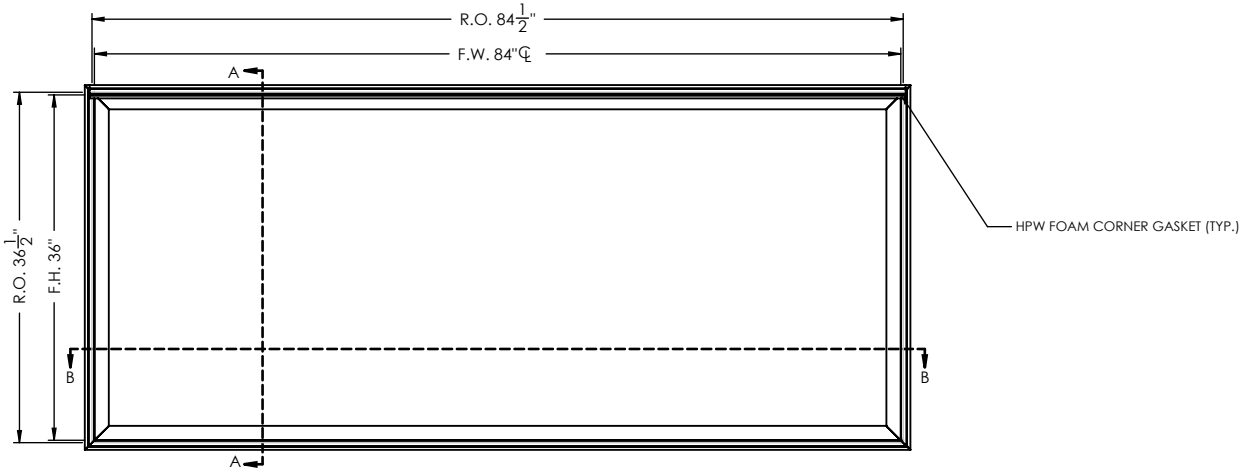
SECTION 11
DRAWINGS

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.

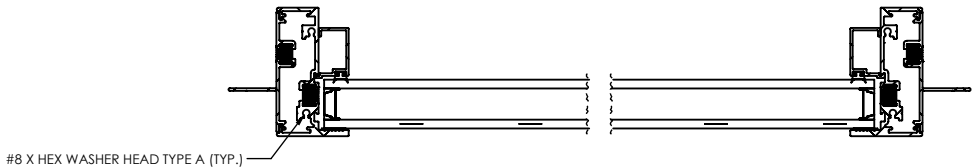
Ram S840 Heavy Picture Window



SECTION A-A
SCALE 1 : 4



intertek Total Quality. Assured.	Report #:	L3960.01-801-44
	Date:	11/03/20
	Verified by:	J.Crump



SECTION B-B
SCALE 1 : 4

DRAWING APPROVAL

- ☐ APPROVED
- ☐ APPROVED AS NOTED
- ☐ REVISE AND RESUBMIT

SIGN _____ DATE _____

Please return one print set marked with your signature, any comments, and notation of approval for fabrication.

REV	DESCRIPTION	BY	DATE
~	~	~	~
~	~	~	~

PROPRIETARY AND CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF RAM INDUSTRIES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF RAM INDUSTRIES IS PROHIBITED.

LEAD TIME	8+	WEEKS	CUSTOMER	Commercial Test Units
GLASS WARRANTY	2	YEARS	PROJECT	Brinkmann Constructors
FRAME WARRANTY	2	YEARS	CITY	Plano
FINISH WARRANTY	2	YEARS	STATE	TX
U-FACTOR	0.35		OUTER GLASS	3/16" Cardinal 366 LoE
SHGC	0.23		AIR SPACE	5/8" Argon
OA GLASS THICKNESS	1"		INNER GLASS	3/16" Clear

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/16
ANGULAR: MACH/BEND ± .5
TWO PLACE DECIMAL ±.01
THREE PLACE DECIMAL ±.004

MATERIAL
6063-T5 ALUMINUM

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	CG	5/12/2020

MARK	Type C
QTY.	1
FINISH	Dark Bronze
DP	CW40

COMMENTS:

RAM INDUSTRIES

TITLE:
Commercial Test Units
Brinkmann Constructors

SIZE	DWG. NO.	REV
A	38755-300-1- DETAILS	~

SCALE: 1:20 | WEIGHT: 121.49 | SHEET 1 OF 1

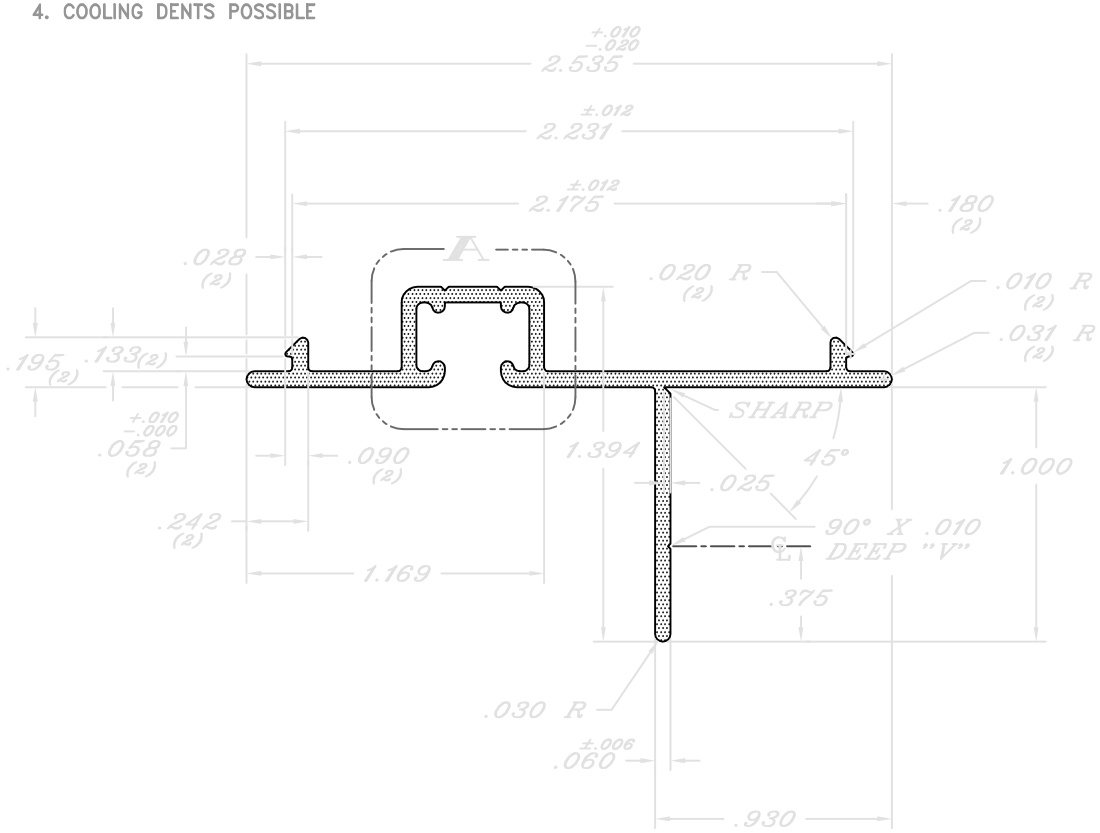
NOTE:

1. 6063-T5 ALLOY & TEMPER
2. SNAP FITS WITH CUST P/N T-46718
3. POUR AND DEBRIDGE AREA=.110
4. COOLING DENTS POSSIBLE

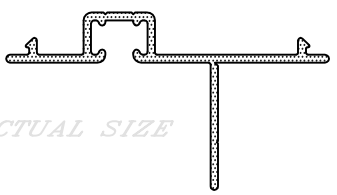
SYM	REVISION	BY	DATE

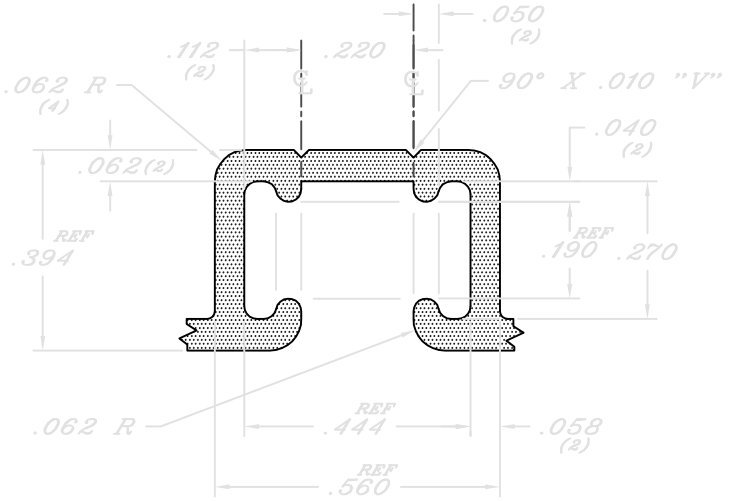
CUSTOMER: RAM INDUSTRIES			DIE NO.: 46727
PART NAME: REPLACEMENT FIN	DRAWN: LRL		DATE: 8-26-11
PART NO.: T-46719	SCALE: 2 X SIZE		CHKD. / APPR.

ALUMINUM ASSOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE



NO EXPOSED SURFACES





DETAIL A
(4 X SIZE)

Report #:	L3960.01-801-44
Date:	11/03/20
Verified by:	J.Crump

intertek
Total Quality Assured.

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

UNLESS OTHERWISE NOTED.
ALL CORNERS ARE .015 R. AND TYPICAL WALL THICKNESS IS ±.006 .062

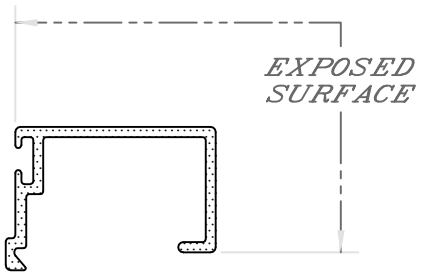
EST AREA:	.289	UT-NO.	UT-1022	PORTS	2
EST WT/FT:	.347	CIRCLE SIZE:	2.5	BACKER	9 X 46727
EST PERI:	9.495	CLASS	SOLID	BOLSTER	2-1
FACTOR:	27	RATIO	7" = 71	FEEDER	---

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.

ALUMINUM ASSOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE

NOTE:

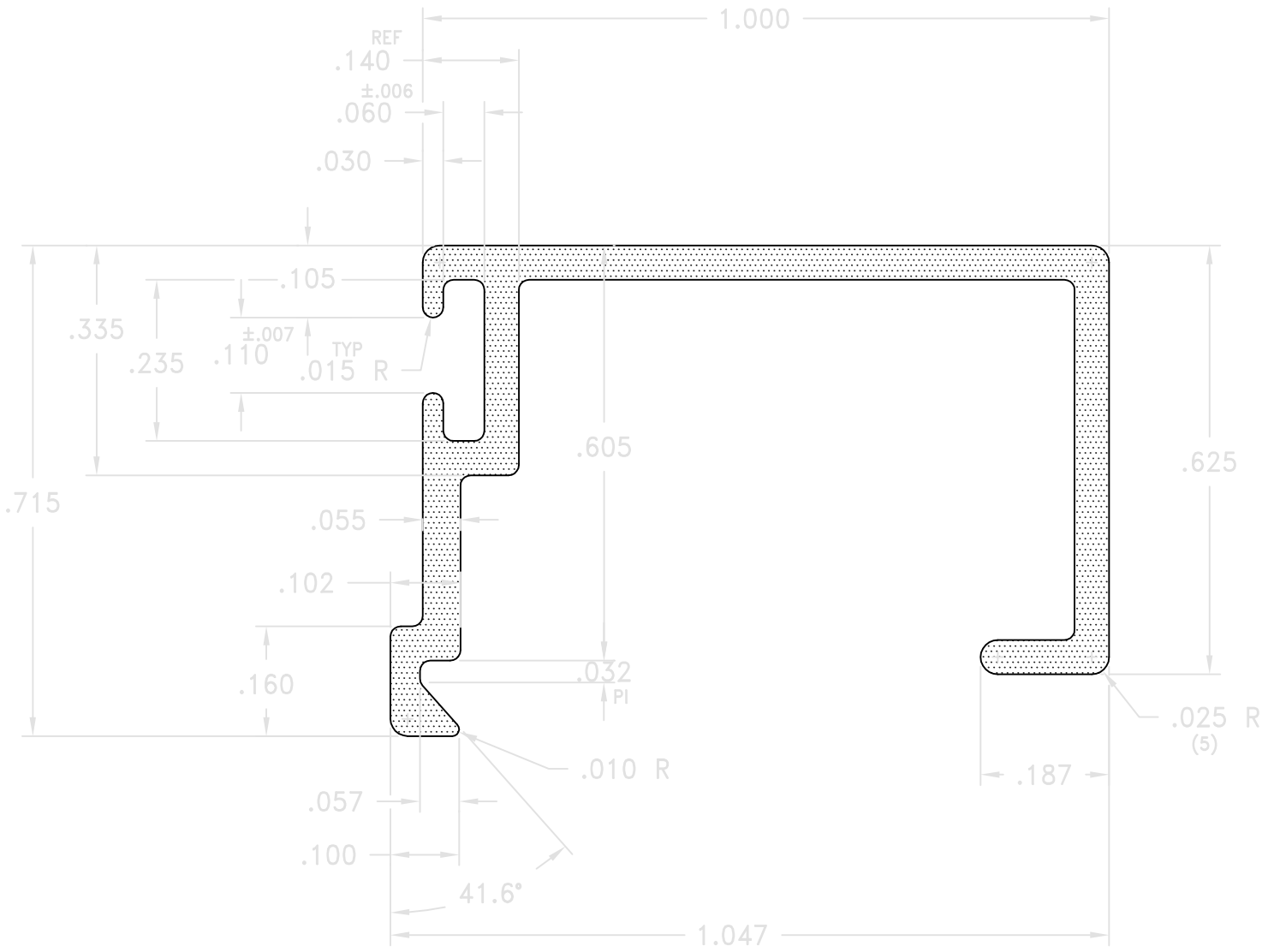
1. 6063-T5 ALLOY & TEMPER
2. MATES WITH PART NO. 44192, 44193, 44194, Q-18694-3 AND Q-18694-8



ACTUAL SIZE

intertek
Total Quality. Assured.

Report #:	L3960.01-801-44
Date:	11/03/20
Verified by:	J.Crump



UNLESS OTHERWISE NOTED.
ALL CORNERS ARE .015 R. AND TYPICAL WALL THICKNESS IS .050 ±.006

International Extrusion Corporation
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

NOTE:

1. 6063-T5 ALLOY & TAMPER

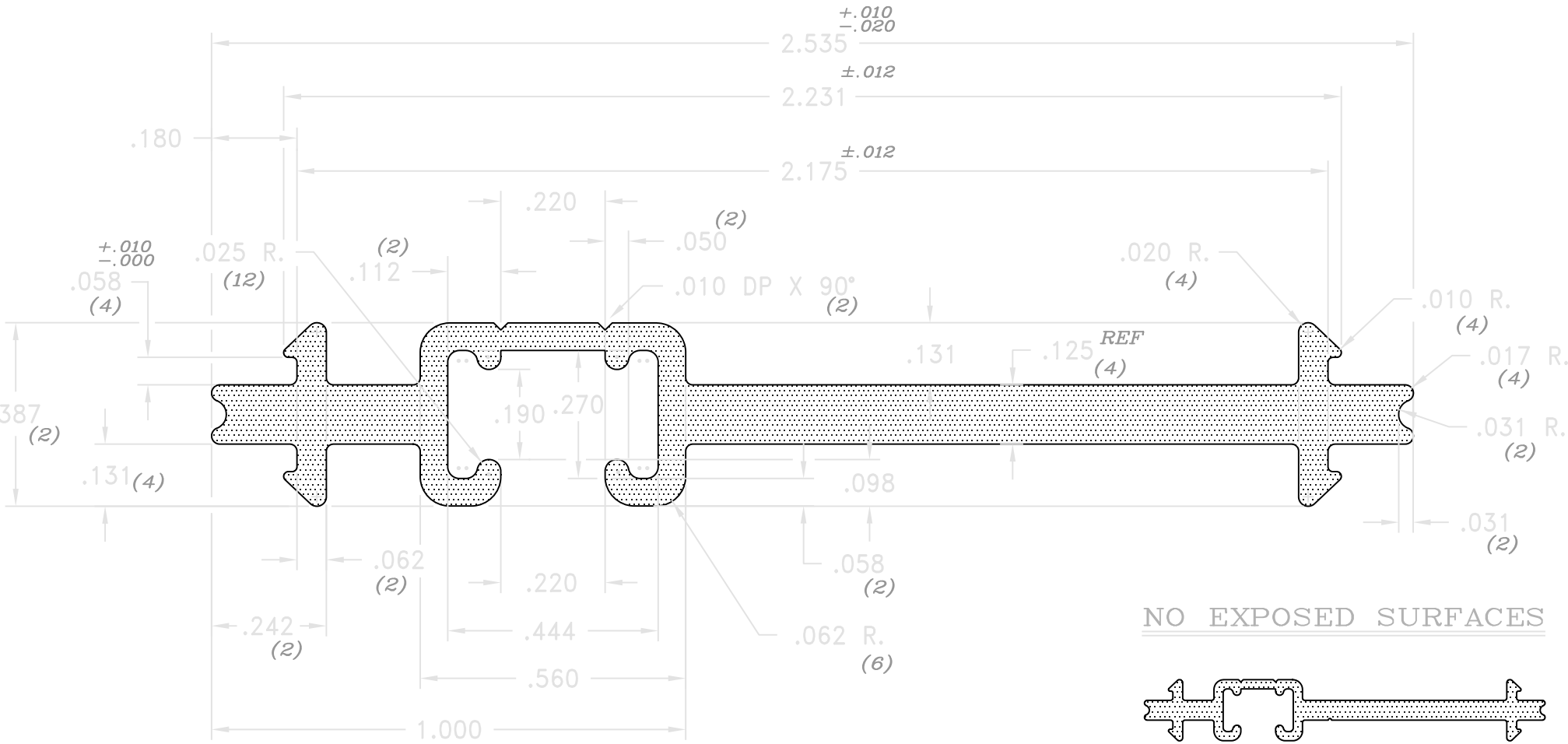
SYM	REVISION	BY	DATE

CUSTOMER: RAM INDUSTRIES, INC.

DIE NO. 46733

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 OTHERWISE



NO EXPOSED SURFACES

ACTUAL SIZE

UNLESS OTHERWISE NOTED.
ALL CORNERS ARE .015 R. AND TYPICAL WALL THICKNESS IS ____

intertek Total Quality. Assured.

Report #:	L3960.01-801-44
Date:	11/03/20
Verified by:	J.Crump

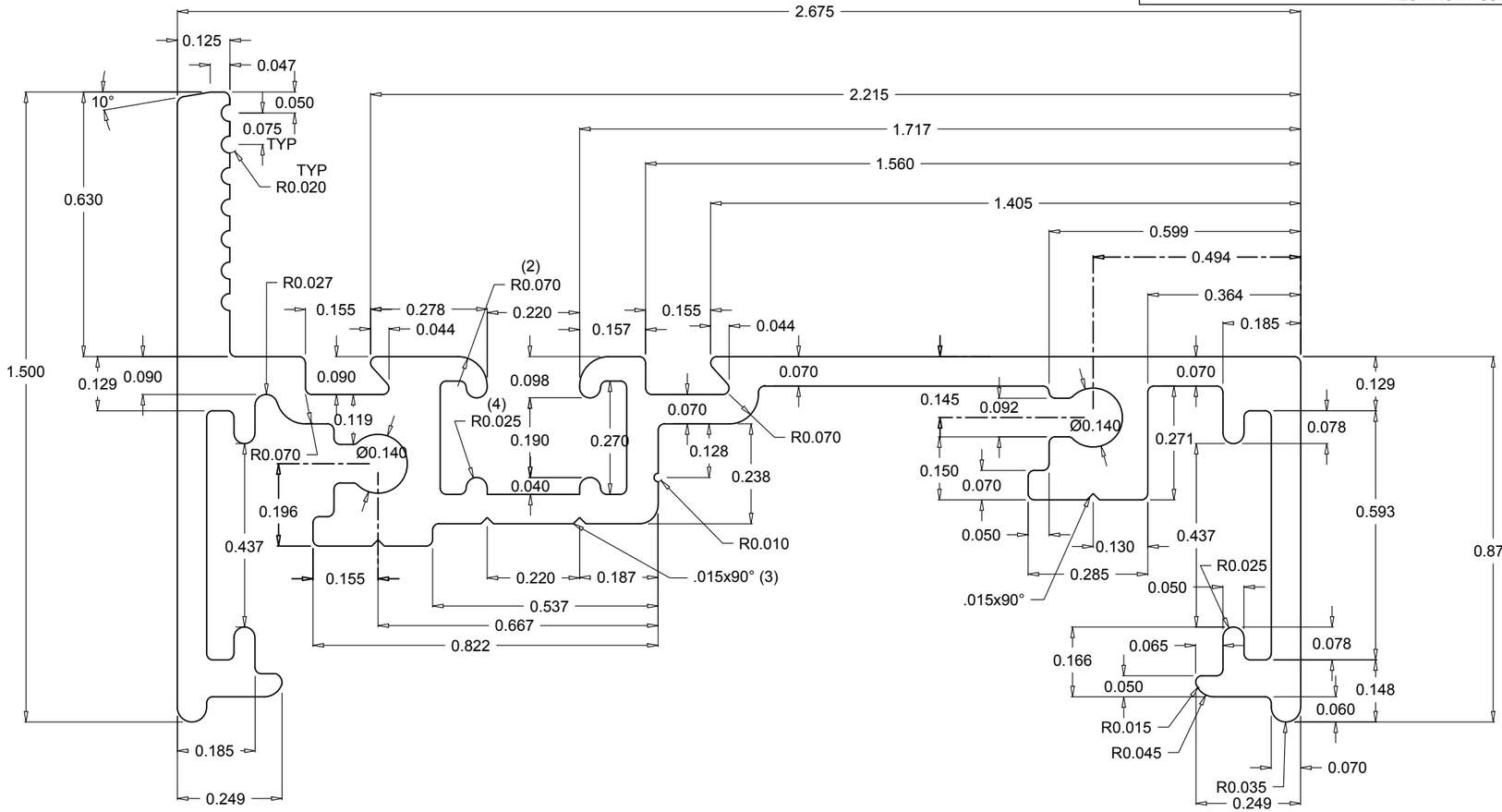
International Extrusion Corporation
202 SINGLETON DRIVE
WAXAHACHIE, TX 75165
TEL: 972-937-7032, FAX: 972-938-3271

EST AREA:	.363	UT-NO.	1023	PORTS	2
EST WT/FT:	.436	CIRCLE SIZE:	2.5	BACKER	9 X 44061
EST PERI:	7.977	CLASS	SOLID	BOLSTER	3606
FACTOR:	18	ER	7" = 56	DIE NO.	46733

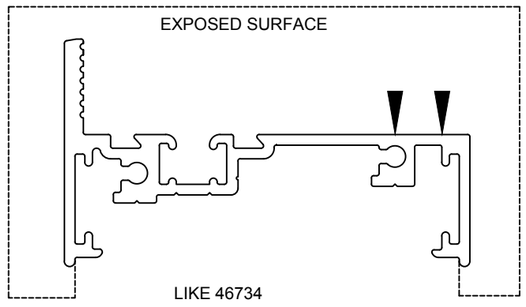
WP ----

SYM	REVISION	BY	DATE	CUSTOMER	DIE NO.	QUOTE NO.
				RAM	48636	1823
				PART NAME: HPW NO FIN NEW	DRAWN:	DATE: 12/12/2016
				PART NO.	SCALE: 3X	APP.

ALUMINUM ASSOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE



NOTES:
1. ◀ INDICATES POSSIBLE STREAKING IN THIS AREA ARE NOT CAUSE FOR REJECTION.



ACTUAL SIZE

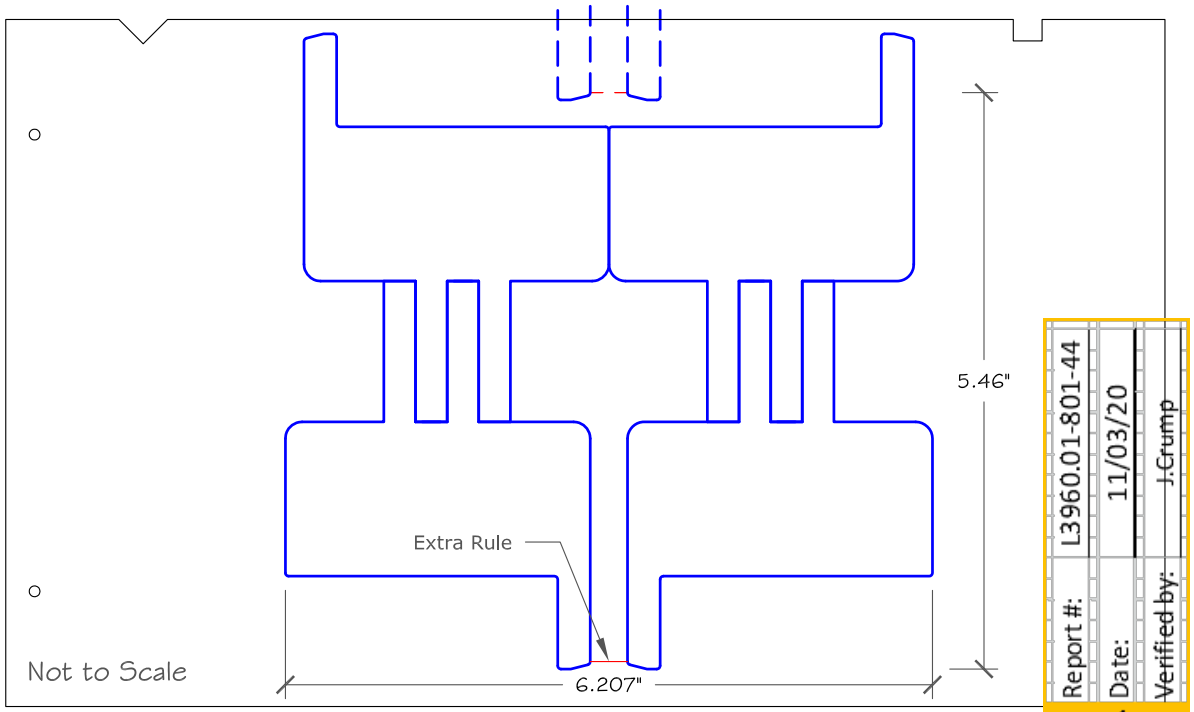
intertek Total Quality. Assured.

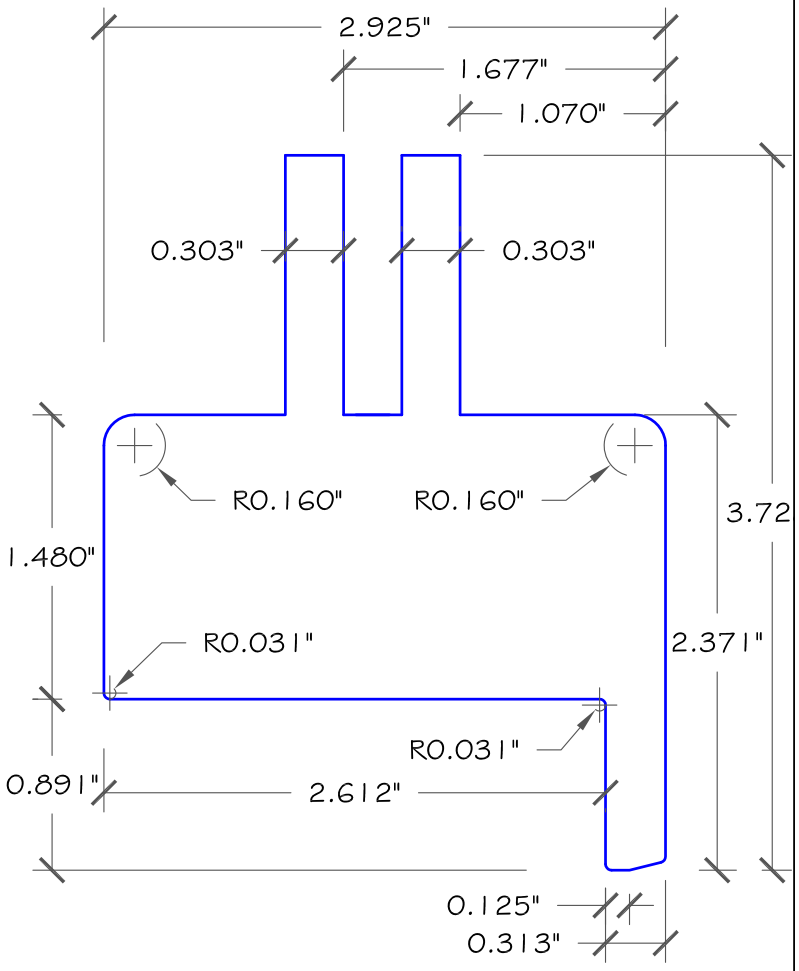
Report #:	L3960.01-801-44
Date:	11/03/20
Verified by:	J.Crump

IEC-TX
International Extrusion Corporation
202 SINGLETON DRIVE
WAXAHACHIE, TX 75165
TEL: 972-937-7032, FAX: 972-938-0860

UNLESS OTHERWISE NOTED ALL CORNERS ARE .015 RAD. AND TYPICAL WALL THICKNESS IS

EST AREA: .598		P-NO: 7	PORTS: 2 SIZE: 9X2
EST WT/FT: .718		CIRCLE SIZE: 4	BACKER: 48636 9X3 1/2
EST. FIN. PERI: 14.790	EST. FULL PERI: 14.790	CLASS: SOLID	BOLSTER: 2-23 12X7 1/2
FACTOR: 21		T-DWG # T-70127326SD	FEEDER:





Micrometer:	3.598	PRECO DIE #749	
Progression:	5.350	Board:	5/8" thick wood
Batch / Amount:		Typ/Size:	12" x 20" Preco
Rate / Acceleration:	10 / 5	Rule:	2 pt 0.937" high long dbl cntr bevel
Tons:	16	Punches:	Feed-through
Upstroke:	3.20	/Roll:	
RF2/3 / RF3:	10 / 10	/Box:	
Feed: Before/After:		Box type:	

NOTES

1 SET = 1 Left Hand Gasket + 1 Right Hand Gasket
Supplied kiss cut on rolls with web scrap removed

MATERIAL

1/8" thick 2# XLP w/PSA

TOLERANCES UNLESS OTHERWISE SPECIFIED

APPROVALS	DATE
DRAWN BY: A.V.	9-28-2018
CHECKED BY:	
FEED LENGTH / SPF / PPF: 5.46" 4.40 SPF	SLIT WIDTH: 7"

FRANK LOWE RUBBER & GASKET CO., INC. 44 Ramsey Road • Shirley, New York 11967-4704 631-777-2737 • 800-777-0202 • Fax 631-777-2560

SCALE	O-RA1002-HPWCNRGSKTW125	SHEET
1:1	HPW Corner Gskt Rev. B	1 of 1

Ram Industries

This Document is subject to ethyl aluminum group standard terms and conditions as Found on the aluminum group's purchase order acknowledgement which includes the following provision. 10: Buyer's Designs, Plans, Drawings, specifications, and requirements: on any material which is not included in seller's standard line offered to the trade generally in the usual course of seller's business. It is agreed that buyer has engaged seller to manufacture such material to buyer's specifications and requirements. buyer recognizes that seller is not responsible for the prints, drawings, specifications and requirements or for the design represented thereby and that materials with such design were requested and specified by buyer. Buyer is responsible for testing or otherwise determining the sufficiency and applicability of the design. Regardless of whether the material purchased is included in seller's standard line offered to the trade generally in the usual course of seller's business, buyer recognizes that seller is not responsible for determining the sufficiency and applicability of the material for buyer's intended use and buyer is responsible for testing or otherwise determining the sufficiency and applicability of the material for buyer's intended use. Buyer will defend. Indemnify and hold seller harmless from any claim, liability or damage arising in whole or in part from the requested design and materials made with such design or the insufficiency or inapplicability of the material for buyer's intended use. Seller makes no warranty of merchantability or fitness for a particular purpose or otherwise as to the design or as to any item or items produced using such design and seller's only warranty and the limitation of seller's liability with respect to such design or item shall be as stated on this agreement.

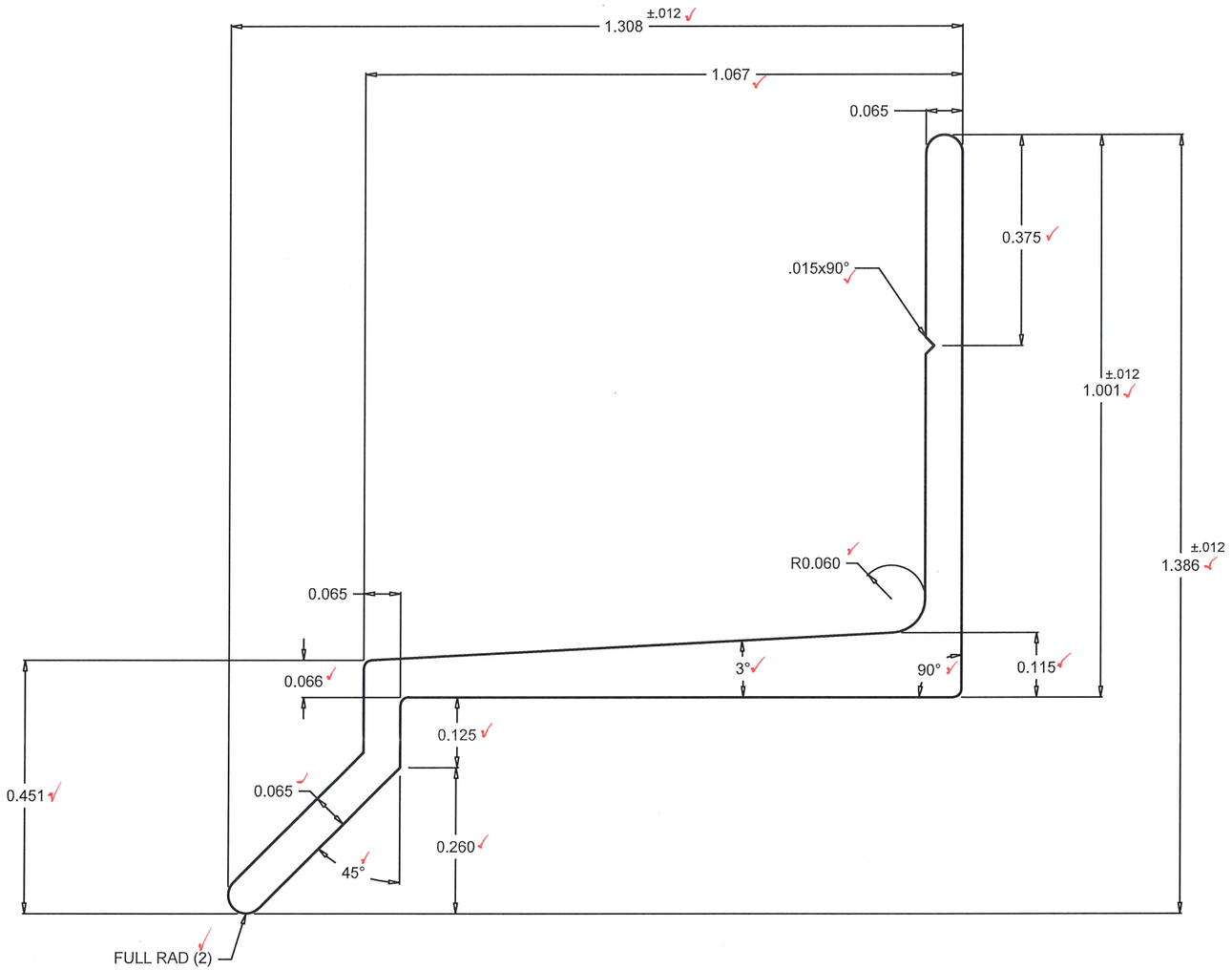
SYM	REVISION	BY	DATE

CUSTOMER: STOCK		DIE NO.	QUOTE NO.
PART NAME: RAM WINDOWS DRIP CAP	DRAWN: SD	DATE: 7/1/2019	
PART NO.: RAM 1.0 DRIP CAP DIE	SCALE: 3X		APP.

ALUMINUM ASSOCIATION TOLERANCES FOR EXTRUSION SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE

7/1/2019 11:46:59 AM

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



DIE DRAWING APPROVAL

I, the undersigned hereby approve this print

[X] As Drawn [ ] As Marked

This includes my approval of Tolerances & Dimensions as shown & I authorize the preparation of extrusion die & acknowledge that I will pay the cost of making this die and any cost to revise this die after the production of this die has started.

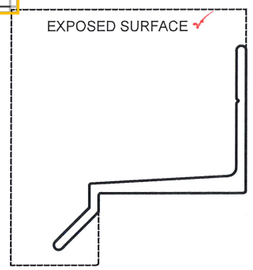
SIGNATURE _____

DATE 7-6-2019

PLEASE INDICATE EXPOSED SURFACE
IF NOT INDICATED WILL PROCESS AS
NO EXPOSED SURFACES

intertek Total Quality Assured.

Report #:	L3960.01-801-44
Date:	11/03/20
Verified by:	J.Crump



ACTUAL SIZE

FOR QUOTING ONLY

UNLESS OTHERWISE NOTED ALL CORNERS ARE .015 RAD. AND TYPICAL WALL THICKNESS IS .065

IEC-TX
International Extrusion Corporation
202 SINGLETON DRIVE
WAXAHACHIE, TX 75165
TEL: 972-937-7032, FAX: 972-938-0860

EST AREA: .188		P-NO:	PORTS: SIZE:
EST WT/FT: .226		CIRCLE SIZE: 3	BACKER:
EST. FIN. PERI: 4.969	EST. FULL PERI: 4.969	CLASS: SOLID	BOLSTER:
FACTOR: 22		T-DWG # T-00063	FEEDER:

1909 10th Street, Suite 100
Plano, Texas 75074

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

TEST REPORT FOR RAM INDUSTRIES
Report No.: L3960.01-801-44-r0
Date: 11/03/20

SECTION 12
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	11/03/20	N/A	Original Report Issue