intertek
Total Quality. Assured.

CMI ARCHITECTURAL PRODUCTS, INC.
COMPUTER SIMULATION REPORT

SCOPE OF WORK
452 WIDE STILE DOOR - AAMA 507

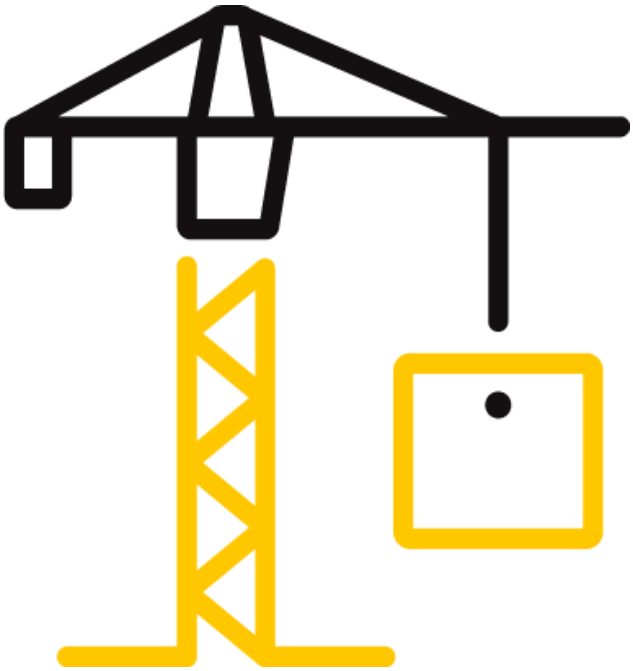
REPORT NUMBER
N8137.01-201-45 R0

TEST DATE
08/25/22

ISSUE DATE
08/25/22

PAGES
27

DOCUMENT CONTROL NUMBER
RT-R-AMER-Test-3753 (02/20/18)



40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

REPORT ISSUED TO
CMI ARCHITECTURAL PRODUCTS, INC.
1630 101st Avenue NE
Blaine, Minnesota 55449

SECTION 1
SUMMARY

SERIES/MODEL: 452 Wide Stile Door

Architectural Testing, Inc. (an Intertek company), dba Intertek Building & Construction (Intertek B&C) was contracted to perform AAMA 507 computer simulations utilizing thermal thermal modeling computer software developed by Lawrence Berkeley National Laboratory Laboratory (LBNL). Results obtained are simulated values and were secured using the designated test methods.

Intertek B&C is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. The record retention end date of this report is 08/25/27.

For INTERTEK B&C:

COMPLETED BY:	Andrew C. Walczak	**REVIEWED BY:**	Eid M. Dushaishi
TITLE:	Simulation Project Manager, SIRC	**TITLE:**	Project Engineer, NFRC Certified Simulator
SIGNATURE:		**SIGNATURE:**	Digitally Signed by: Eid Dushaishi
DATE:	08/25/22	**DATE:**	08/25/22

ACW: emd/wma

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 2
TEST METHODS

The products were evaluated in accordance with the following:

AAMA 507-15, *Standard Practice for Determining the Thermal Performance Characteristics of Fenestration Systems Installed in Commercial Buildings*

ANSI/NFRC 100-2020, *Procedure for Determining Fenestration Product U-Factors*

ANSI/NFRC 200-2020, *Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*

SECTION 3
TEST PROCEDURE

The total product, including specific frame, spacer, and glass details, was modeled using NFRC approved software.

FRAME AND EDGE MODELING	THERM 7.4.4
CENTER-OF-GLASS MODELING	WINDOW 7.4.14
TOTAL PRODUCT CALCULATIONS	WINDOW 7.4.14
SPECTRAL DATA LIBRARY	IGDB 87.0

Modeling Assumptions / Technical Interpretations

Any modeling assumptions and technical interpretations required to model this product are listed below.

1) To prevent air infiltration, tape was applied to all interior sash crack locations.
2) Non-continuous hardware was not modeled.

intertek
Total Quality. Assured.

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

SECTION 4
SIMULATION SPECIMEN DESCRIPTION

SERIES/MODEL	452 Wide Stile Door
PRODUCT TYPE	Swinging Door - Single
FRAME MATERIAL	AT - Aluminum w/ Thermal Breaks - All Members
SASH MATERIAL	AL - Aluminum (Non-thermally Broken)

GLAZING OPTIONS					
	OUTER PANE	***MIDDLE PANE***	***INNER PANE***	***GAP SIZES***	***IG OVERALL***
GL1	1/4"	N/A	1/4"	0.500"	1"
GL2	1/4"	Heat Mirror	1/4"	0.250"	1"

GL1: Dual glazed IG unit (COG=0.48 - COG=0.20)
GL2: Dual glazed IG unit w/ heat mirror (COG=0.18 - COG=0.10)

SPACER OPTIONS			
TYPE	***PRIMARY SEAL***	***SECONDARY SEAL***	***CODE***
Generic Aluminum Dual Seal Spacer	Butyl Rubber	Butyl Rubber	A1-D

SECTION 5
MEASURED SIMULATION DATA

U-FACTOR CALCULATIONS	
Exterior Air Temperature	-0.4°F
Exterior Wind Velocity	12.3 mph (Perpendicular Flow)
Interior Air Temperature	69.8°F

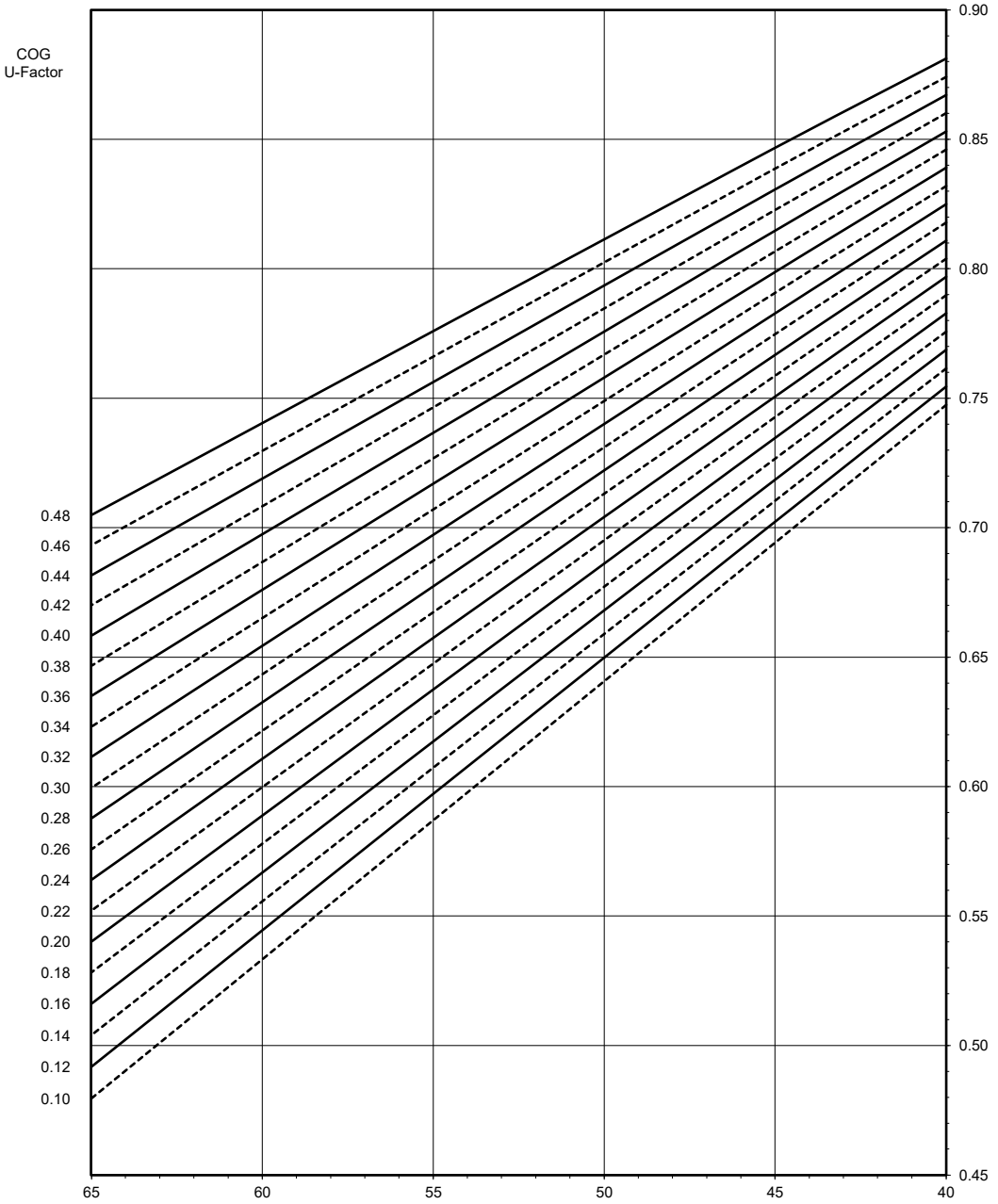
40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

SECTION 6
SIMULATION RESULTS

U-FACTOR CALCULATIONS: System U-Factor vs. Percentage of Vision Area



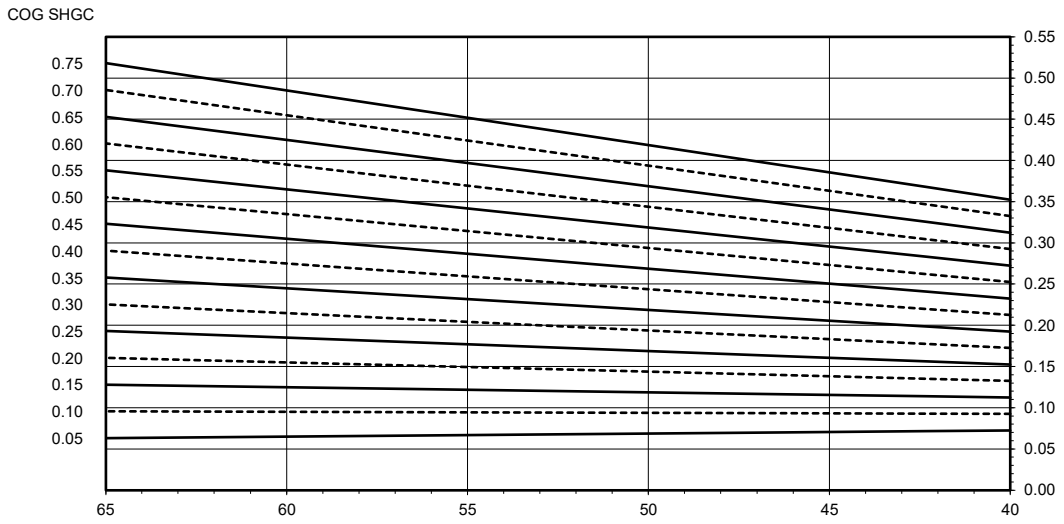
40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

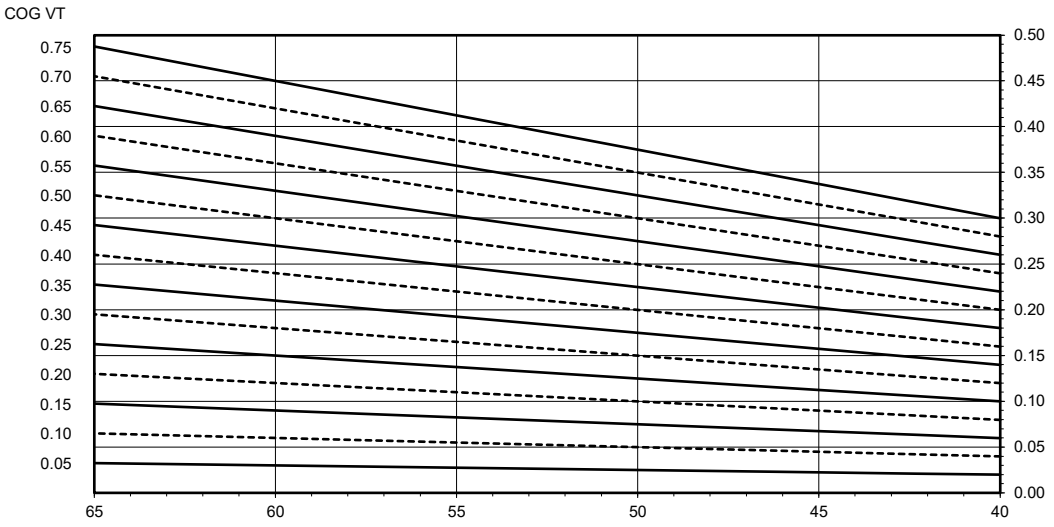
SECTION 6
SIMULATION RESULTS

SHGC CALCULATIONS: System SHGC vs. Percentage of Vision Area



Vision Area / Total Area (%)

VT CALCULATIONS: System VT vs. Percentage of Vision Area



otal Area (%)

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

SECTION 6
SIMULATION RESULTS

U-FACTOR CALCULATIONS (452 Wide Stile Door)		
Size Specific U-Factor Matrix*		
Glazing Option	**Center-of-Glass U-Factor**	**Overall U-Factor**
1	0.48	0.84
2	0.46	0.83
3	0.44	0.82
4	0.42	0.81
5	0.40	0.81
6	0.38	0.80
7	0.36	0.79
8	0.34	0.78
9	0.32	0.77
10	0.30	0.76
11	0.28	0.76
12	0.26	0.75
13	0.24	0.74
14	0.22	0.73
15	0.20	0.72
16	0.18	0.71
17	0.16	0.71
18	0.14	0.70
19	0.12	0.69
20	0.10	0.68

*The size specific U-Factor matrix is based on the Swinging Door - Single NFRC specimen size of 960mm x 2090mm (37.75 in x 82.375 in). This represents 46.2% Vision Area / Total Area.

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 6
SIMULATION RESULTS

SHGC/VT CALCULATIONS (452 Wide Stile Door)			
Size Specific SHGC Matrix*		Size Specific VT Matrix*	
Center-of-Glass SHGC	Overall SHGC	Center-of-Glass VT	Overall VT
0.75	0.39	0.75	0.35
0.70	0.37	0.70	0.32
0.65	0.35	0.65	0.30
0.60	0.32	0.60	0.28
0.55	0.30	0.55	0.25
0.50	0.28	0.50	0.23
0.45	0.26	0.45	0.21
0.40	0.23	0.40	0.18
0.35	0.21	0.35	0.16
0.30	0.19	0.30	0.14
0.25	0.16	0.25	0.12
0.20	0.14	0.20	0.09
0.15	0.12	0.15	0.07
0.10	0.09	0.10	0.05
0.05	0.07	0.05	0.02

*The size specific SHGC and VT matrices are based on the Swinging Door - Single NFRC specimen size of 960mm x 2090mm (37.75 in x 82.375 in). This represents 46.2% Vision Area / Total Area.

intertek
Total Quality. Assured.

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

SECTION 6
SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (452 Wide Stile Door)									
Option Number	COG U-Factor	COG Temperature	Cross Section	Frame Height	Frame U-Factor	Edge U-Factor	Total Product U-Factor		
							40.00% Vision Area	ANSI/NFRC 100-2020	65.00% Vision Area
1	0.48	43.7°F	Head	7.5504	1.1648	0.1990	0.8812	0.8384	0.7050
			L. Jamb	7.5197	1.1560	0.5815			
			R. Jamb	7.5197	1.1560	0.5815			
			Sill	11.603	1.0541	0.1958			
2	0.46	44.8°F	Head	7.5504	1.1650	0.1938	0.8742	0.8302	0.6933
			L. Jamb	7.5197	1.1560	0.5663			
			R. Jamb	7.5197	1.1560	0.5663			
			Sill	11.603	1.0540	0.1907			
3	0.44	45.8°F	Head	7.5504	1.1650	0.1889	0.8671	0.8219	0.6817
			L. Jamb	7.5197	1.1559	0.5511			
			R. Jamb	7.5197	1.1559	0.5511			
			Sill	11.603	1.0539	0.1855			
4	0.42	46.8°F	Head	7.5504	1.1650	0.1842	0.8601	0.8138	0.6701
			L. Jamb	7.5197	1.1559	0.5363			
			R. Jamb	7.5197	1.1559	0.5363			
			Sill	11.603	1.0538	0.1805			
5	0.40	47.9°F	Head	7.5504	1.1650	0.1793	0.8531	0.8055	0.6584
			L. Jamb	7.5197	1.1558	0.5211			
			R. Jamb	7.5197	1.1558	0.5211			
			Sill	11.603	1.0537	0.1754			
6	0.38	48.9°F	Head	7.5504	1.1649	0.1746	0.8461	0.7973	0.6468
			L. Jamb	7.5197	1.1558	0.5065			
			R. Jamb	7.5197	1.1558	0.5065			
			Sill	11.603	1.0536	0.1705			
7	0.36	50.0°F	Head	7.5504	1.1650	0.1698	0.8391	0.7892	0.6351
			L. Jamb	7.5197	1.1557	0.4916			
			R. Jamb	7.5197	1.1557	0.4916			
			Sill	11.603	1.0535	0.1655			
8	0.34	51.0°F	Head	7.5504	1.1649	0.1651	0.8320	0.7809	0.6233
			L. Jamb	7.5197	1.1557	0.4768			
			R. Jamb	7.5197	1.1557	0.4768			
			Sill	11.603	1.0534	0.1606			

intertek
Total Quality. Assured.

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

SECTION 6
SIMULATION RESULTS

TOTAL PRODUCT CALCULATIONS (452 Wide Stile Door)									
Option Number	COG U-Factor	COG Temperature	Cross Section	Frame Height	Frame U-Factor	Edge U-Factor	Total Product U-Factor		
							40.00% Vision Area	ANSI/NFRC 100-2020	65.00% Vision Area
9	0.32	52.0°F	Head	7.5504	1.1649	0.1604	0.8250	0.7727	0.6116
			L. Jamb	7.5197	1.1557	0.4622			
			R. Jamb	7.5197	1.1557	0.4622			
			Sill	11.603	1.0533	0.1557			
10	0.30	53.1°F	Head	7.5504	1.1649	0.1557	0.8180	0.7644	0.5997
			L. Jamb	7.5197	1.1556	0.4476			
			R. Jamb	7.5197	1.1556	0.4476			
			Sill	11.603	1.0532	0.1508			
11	0.28	54.2°F	Head	7.5504	1.1649	0.1511	0.8110	0.7562	0.5879
			L. Jamb	7.5197	1.1556	0.4330			
			R. Jamb	7.5197	1.1556	0.4330			
			Sill	11.603	1.0531	0.1459			
12	0.26	55.2°F	Head	7.5504	1.1649	0.1464	0.8039	0.7479	0.5759
			L. Jamb	7.5197	1.1556	0.4185			
			R. Jamb	7.5197	1.1556	0.4185			
			Sill	11.603	1.0530	0.1411			
13	0.24	56.3°F	Head	7.5504	1.1649	0.1418	0.7969	0.7397	0.5641
			L. Jamb	7.5197	1.1555	0.4041			
			R. Jamb	7.5197	1.1555	0.4041			
			Sill	11.603	1.0529	0.1362			
14	0.22	57.3°F	Head	7.5504	1.1650	0.1371	0.7899	0.7315	0.5522
			L. Jamb	7.5197	1.1556	0.3895			
			R. Jamb	7.5197	1.1556	0.3895			
			Sill	11.603	1.0528	0.1314			
15	0.20	58.4°F	Head	7.5504	1.1650	0.1325	0.7829	0.7232	0.5402
			L. Jamb	7.5197	1.1555	0.3751			
			R. Jamb	7.5197	1.1555	0.3751			
			Sill	11.603	1.0527	0.1266			
16	0.18	59.5°F	Head	7.5504	1.1646	0.1282	0.7758	0.7150	0.5284
			L. Jamb	7.5197	1.1551	0.3621			
			R. Jamb	7.5197	1.1551	0.3621			
			Sill	11.603	1.0523	0.1223			

intertek
Total Quality. Assured.

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

TEST REPORT FOR CMI ARCHITECTURAL PRODUCTS, INC.
Report No.: N8137.01-201-45 R0
Date: 08/25/22

SECTION 6
SIMULATION RESULTS

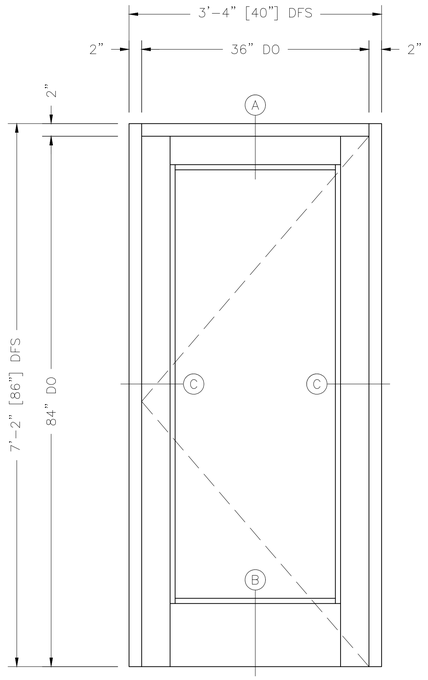
TOTAL PRODUCT CALCULATIONS (452 Wide Stile Door)									
Option Number	COG U-Factor	COG Temperature	Cross Section	Frame Height	Frame U-Factor	Edge U-Factor	Total Product U-Factor		
							40.00% Vision Area	ANSI/NFRC 100-2020	65.00% Vision Area
17	0.16	60.6°F	Head	7.5504	1.1646	0.1235	0.7687	0.7066	0.5162
			L. Jamb	7.5197	1.1551	0.3475			
			R. Jamb	7.5197	1.1551	0.3475			
			Sill	11.603	1.0523	0.1174			
18	0.14	61.6°F	Head	7.5504	1.1648	0.1185	0.7616	0.6983	0.5041
			L. Jamb	7.5197	1.1552	0.3320			
			R. Jamb	7.5197	1.1552	0.3320			
			Sill	11.603	1.0523	0.1122			
19	0.12	62.7°F	Head	7.5504	1.1648	0.1138	0.7545	0.6899	0.4919
			L. Jamb	7.5197	1.1553	0.3176			
			R. Jamb	7.5197	1.1553	0.3176			
			Sill	11.603	1.0522	0.1074			
20	0.10	63.9°F	Head	7.5504	1.1649	0.1091	0.7475	0.6816	0.4797
			L. Jamb	7.5197	1.1553	0.3030			
			R. Jamb	7.5197	1.1553	0.3030			
			Sill	11.603	1.0521	0.1026			

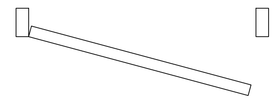
40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 7
DRAWINGS / BILL OF MATERIALS

The drawings which follow have been reviewed by Intertek B&C and are representative of the simulation result(s) reported herein. Any deviations are documented herein or on the drawings.





452 WIDE STILE – SINGLE

45-025 FRAMING SCALE: N.T.S.

PARTS LIST:		
#	USE	DESCRIPTION
47-025	THERMAL DOOR FRAME	6063-T5 ALUMINUM w/POLYURETHANE THERMAL BREAK
45-122	1/2" DOOR STOP	6063-T6 ALUMINUM
51-020	1" GLASS STOP	6063-T5 ALUMINUM
2421	4 1/2" TOP RAIL	6063-T5 ALUMINUM
2428	10" BOTTOM RAIL	6063-T5 ALUMINUM
2423	BEVELED WIDE STILE	6063-T5 ALUMINUM
19-085	GLAZING GASKET	EPDM 70 ±5 DUROMETER
19-053	GLAZING GASKET	EPDM 70 ±5 DUROMETER

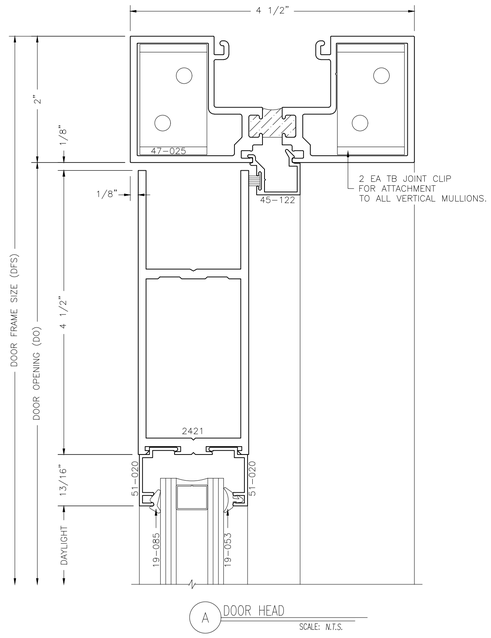
TESTING PARAMETERS:

AAMA 507: STANDARD PRACTICE FOR DETERMINING THE THERMAL PERFORMANCE CHARACTERISTICS OF FENESTRATION SYSTEMS INSTALLED IN COMMERCIAL BUILDINGS.

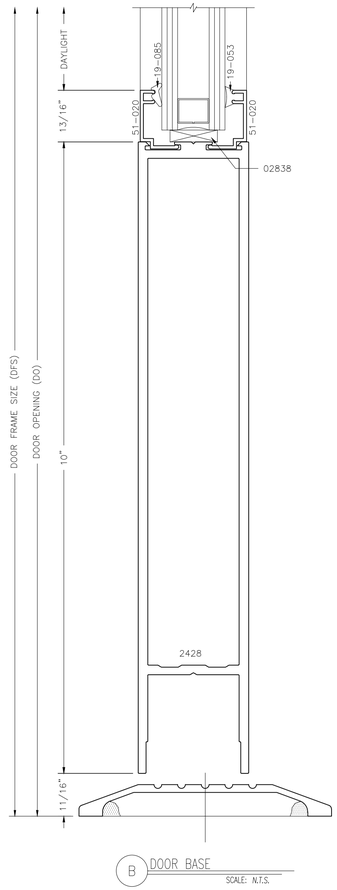
NFRC 100/200/500: PROCEDURES FOR DETERMINING FENESTRATION PRODUCT U-FACTORS, SOLAR HEAT GAIN COEFFICIENT, VISIBLE TRANSMITTANCE AT NORMAL INCIDENCE AND CONDENSATION RESISTANCE VALUES.

intertek Total Quality. Assured.

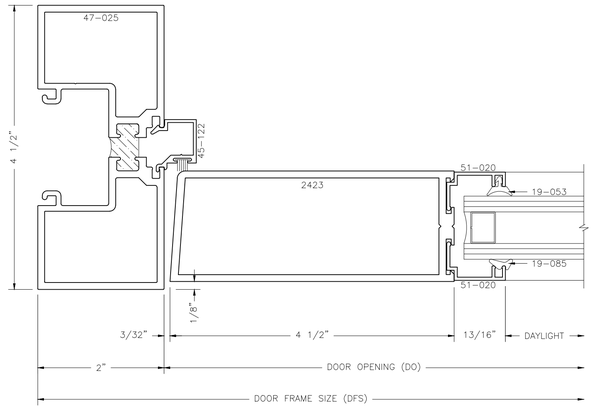
Report #: N8137.01-201-45
Date: 8/29/22
Verified by:



A DOOR HEAD SCALE: N.T.S.



B DOOR BASE SCALE: N.T.S.



C DOOR JAMB SCALE: N.T.S.

CMI Architectural

HQ + MANUFACTURING
20621 HWY 25 N.
DESMET,SOUTH DAKOTA 57231
TF: 800.324.2070
P: 605.854.3326
F: 605.584.3620

SALES + ENGINEERING
1630 101ST AVE NE, SUITE 130
BLAINE, MN 55449
TF: 800.334.1533
P: 763.560.5567
F: 763.560.6399

MANUFACTURING
57135 WOODHOUSE DR.
DOWAGIAC, MI 49047
P: 269.782.0299

WWW.CMIARCH.COM

REVISIONS

REV	INTL	DATE	DISCRIPTION
	-		

TEST:
452 WIDE STILE DOOR - SINGLE
AAMA 507 COMPUTER SIMULATION
NFRC 100/200/500 COMPUTER SIMULATION

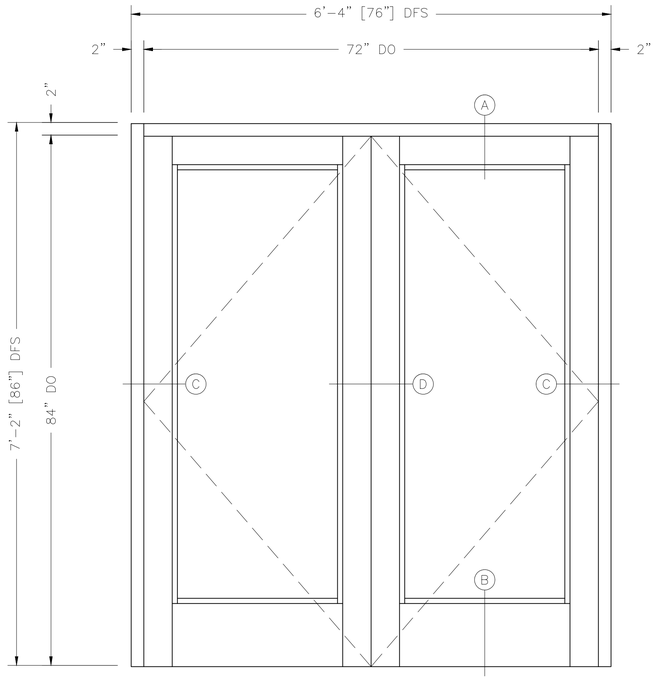
TESTING AGENCY:
INTERTEK - ATI
40 51ST WAY NE
SUITE 100
FRIDLEY, MN 55421
P: 651.636.3835

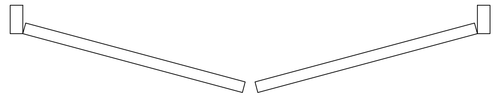
DRAWN BY: **ASHLEY ALT**

DATE: **05.10.2022**

SHEET #:

1





452 WIDE STILE – PAIR

45-025 FRAMING SCALE: N.T.S.

PARTS LIST:		
#	USE	DESCRIPTION
47-025	THERMAL DOOR FRAME	6063-T5 ALUMINUM w/POLYURETHANE THERMAL BREAK
45-122	1/2" DOOR STOP	6063-T6 ALUMINUM
51-020	1" GLASS STOP	6063-T5 ALUMINUM
2421	4 1/2" TOP RAIL	6063-T5 ALUMINUM
2428	10" BOTTOM RAIL	6063-T5 ALUMINUM
2423	BEVELED WIDE STILE	6063-T5 ALUMINUM
6585	BULL NOSE WIDE STILE	6063-T5 ALUMINUM
2435	BULL NOSE WIDE STILE w/ASTRIGAL	6063-T5 ALUMINUM
5731	DOOR ASTRIGAL	6063-T5 ALUMINUM
19-085	GLAZING GASKET	EPDM 70 ±5 DUROMETER
19-053	GLAZING GASKET	EPDM 70 ±5 DUROMETER

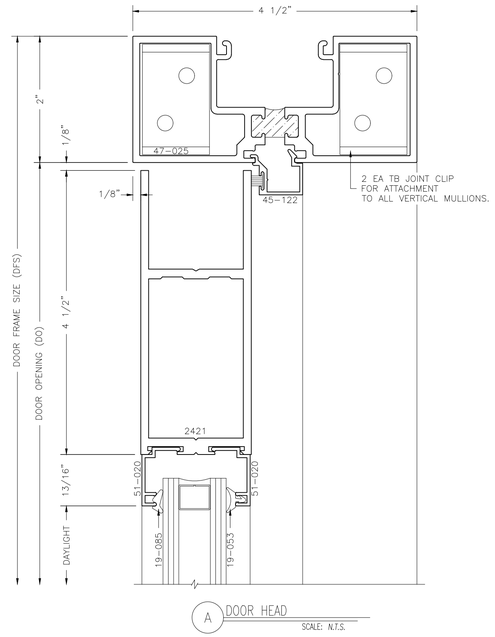
TESTING PARAMETERS:

AAMA 507: STANDARD PRACTICE FOR DETERMINING THE THERMAL PERFORMANCE CHARACTERISTICS OF FENESTRATION SYSTEMS INSTALLED IN COMMERCIAL BUILDINGS.

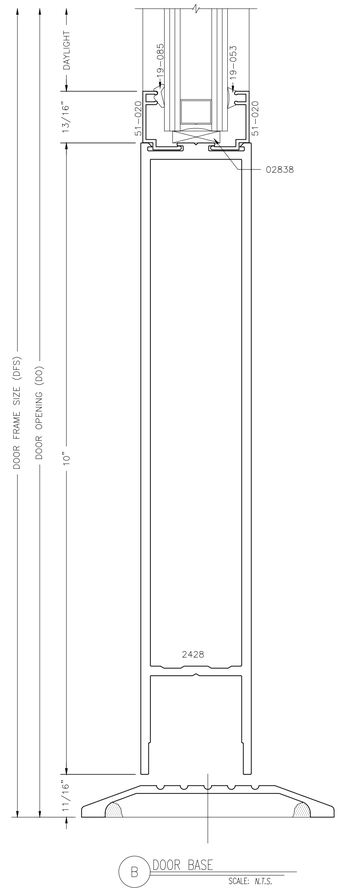
NFRC 100/200/500: PROCEDURES FOR DETERMINING FENESTRATION PRODUCT U-FACTORS, SOLAR HEAT GAIN COEFFICIENT, VISIBLE TRANSMITTANCE AT NORMAL INCIDENCE AND CONDENSATION RESISTANCE VALUES.

intertek Total Quality. Assured.

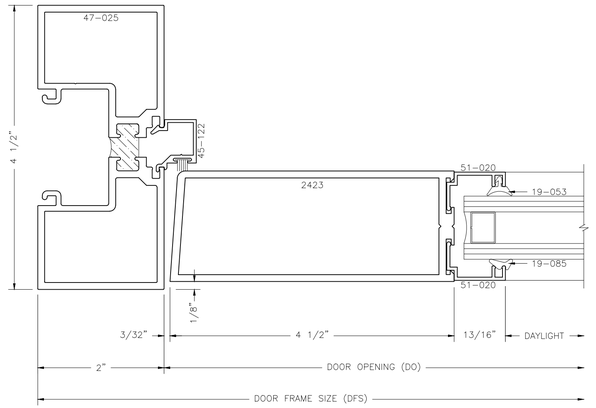
Report #: N8137.01-201-45
Date: 8/29/22
Verified by:



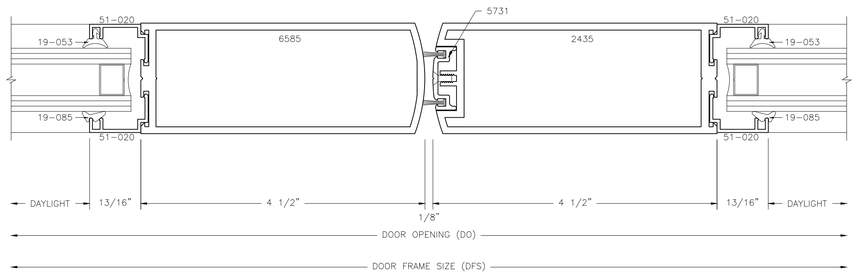
A DOOR HEAD SCALE: N.T.S.



B DOOR BASE SCALE: N.T.S.



C DOOR JAMB SCALE: N.T.S.



D DOOR MEET SCALE: N.T.S.

CMI Architectural

HQ + MANUFACTURING
20621 HWY 25 N.
DESMET,SOUTH DAKOTA 57231
TF: 800.324.2070
P: 605.854.3326
F: 605.584.3620

SALES + ENGINEERING
1630 101ST AVE NE, SUITE 130
BLAINE, MN 55449
TF: 800.334.1533
P: 763.560.5567
F: 763.560.6399

MANUFACTURING
57135 WOODHOUSE DR.
DOWAGIAC, MI 49047
P: 269.782.0299

WWW.CMIARCH.COM

REVISIONS

REV	INTL	DATE	DISCRIPTION
	-		

TEST:
452 WIDE STILE DOOR - PAIR
AAMA 507 COMPUTER SIMULATION
NFRC 100/200/500 COMPUTER SIMULATION

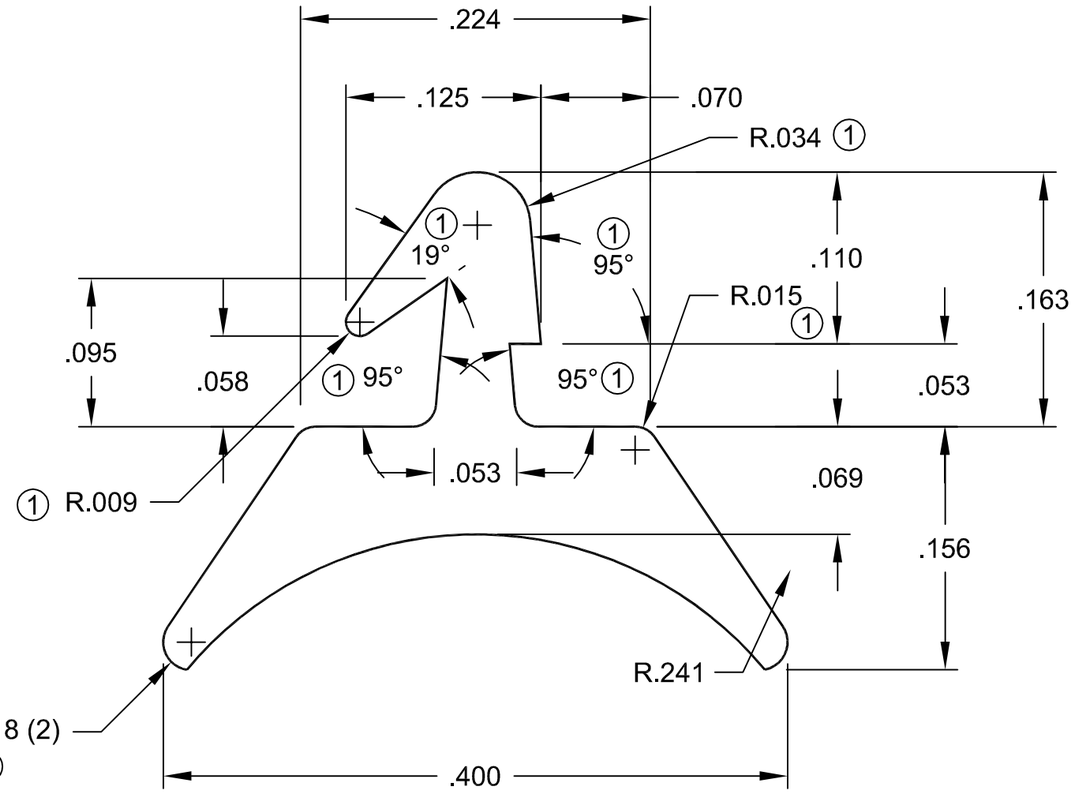
TESTING AGENCY:
INTERTEK - ATI
40 51ST WAY NE
SUITE 100
FRIDLEY, MN 55421
P: 651.636.3835

DRAWN BY: **ASHLEY ALT**

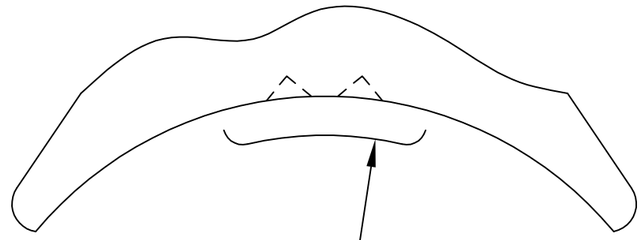
DATE: **05.10.2022**

SHEET #:

1



FULL SCALE



CAVITY ID MARKS TO BE IN THIS LOCATION AND OF TYPE AS SHOWN

EXTRUSION CUT LENGTH TOLERANCE	
0 - 1.6"	±.060"
1.6" - 2.5"	±.080"
2.5" - 4.0"	±.100"
4.0" - 6.3"	±.130"
6.3" - 10.0"	±.160"
10.0" - 16.0"	±.200"
16.0" - 25.0"	±.250"
25.0" - 40.0"	±.400"
40.0" - 63.0"	±.500"
63.0" - 100.0"	±.630"
100.0" - 160.0"	±.800"
+160.0"	±.50%

No.	Date	Description	By
2	1-2-08	ADDED ID MARK LOCATION	DLS
1	8-3-07	ADDED DIMENSIONS (NO PART CHANGE)	DLS

TREMCO
SEALANT / WEATHERPROOFING DIVISION
1451 Jacobson Ave
Ashland, Ohio 44805 U.S.A.
Phone : 800-321-6357
Fax : 419-289-6645

Customer: CMI

Customer Part No. 19-053

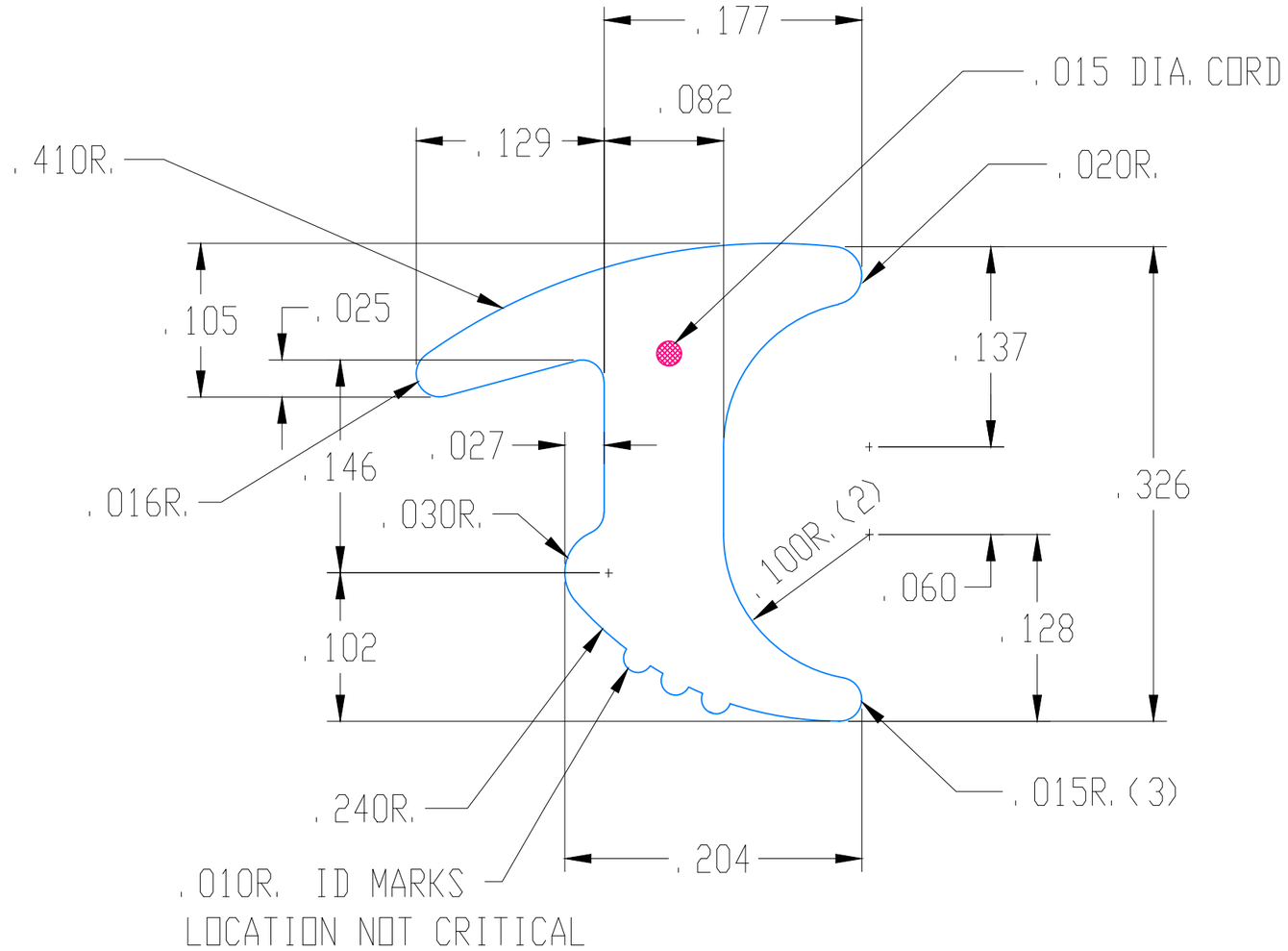
Project:

Drawn by: E. TANGO	Scale: 10X	Date: 6/13/2005
Compound: EPDM	Designed F.C. *.125	Drawing No. TR-13921E
Durometer: 70 ±5	Area: .039	

intertek
Total Quality. Assured.

Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

FULL SIZE



NOTE: PROFILE TO BE SILICONE COATED

NO.	DATE	DESCRIPTION	BY
1	7-27-95	ADD WORLD BANK GRAY EPDM	DAT
1	5-27-86	ADD NOTE	JRB

TREMCO®
1451 JACOBSON AVE.
ASHLAND, OH 44805 U. S. A.

TREMCO STANDARD

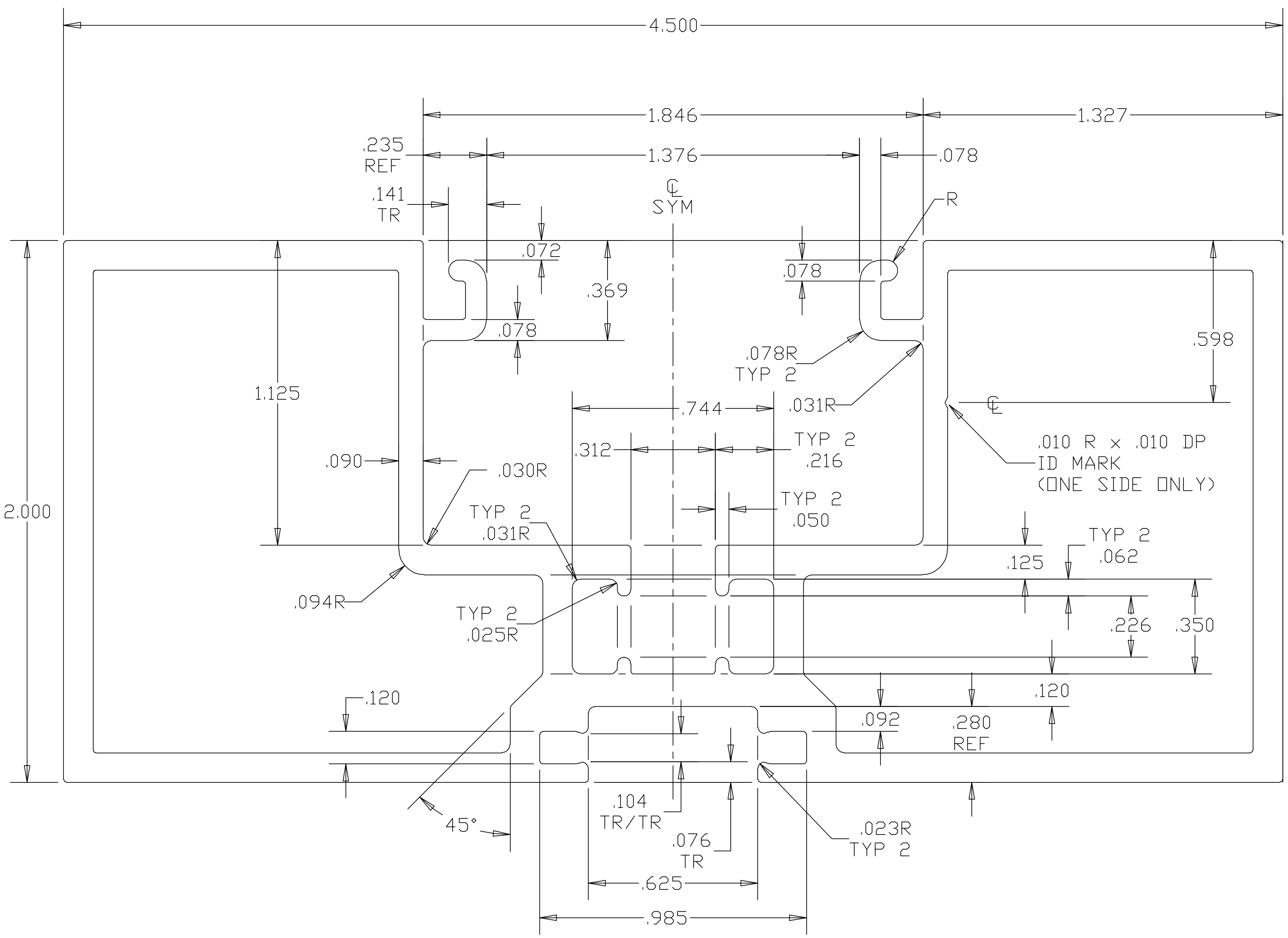
DRAWN BY POIRIER	SCALE 10X	DATE 9-26-85	
COMPOUND EPDM	DESIGNED F. C.	DRAWING NO. TR-1965E	
DUROMETER 70±5	AREA .0420		

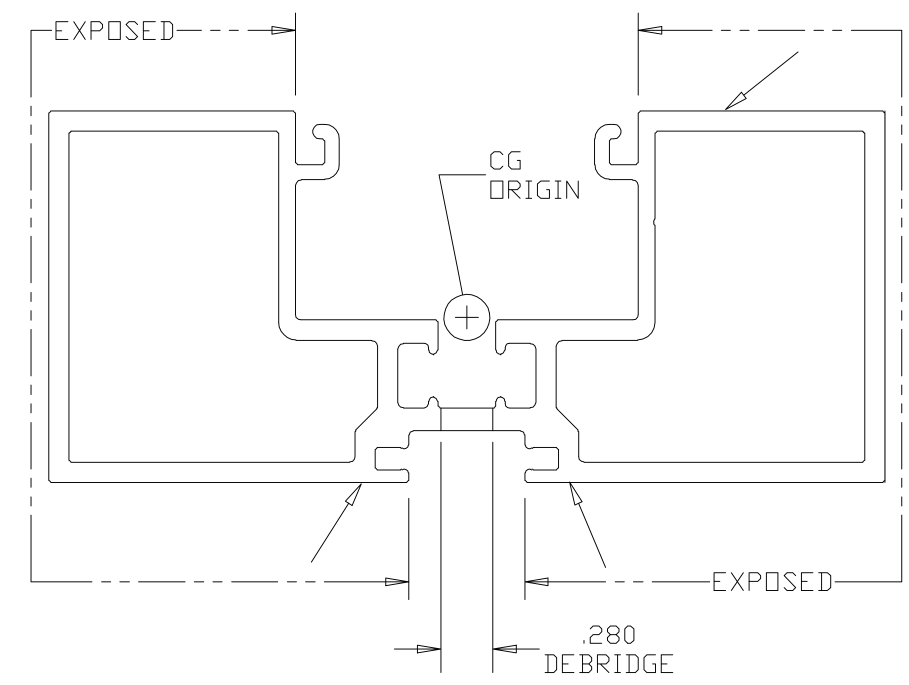
intertek
Total Quality. Assured.

Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

Standard Aluminum Association tolerances apply unless otherwise noted.				DIE NUMBER	REV
CUST PART #: 47025		TITLE BLOCK: REV A	EUC	CRO-8364	
CUST PART NAME: THERMAL DOOR FRAME		DIM AND TOL BLOCK REMOVED	151		
PROPOSAL:	REL. DATE 3-13-12 TMB	ALLOY 6063-T5		FINISH VEL	

STRUCTURAL STREAKS EXPECTED





ACTUAL SIZE

WARRANTY:

Bonnell warrants that the product(s) supplied by Bonnell shall be free from defects in workmanship and material and shall conform to all descriptions and specifications, as agreed between Bonnell and Purchaser. BONNELL DISCLAIMS ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WHETHER CREATED BY CONTRACT, BY STATUTE OR OTHERWISE BY OPERATION OF LAW, INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

PURCHASER'S DESIGNS, PLANS, DRAWINGS, SPECIFICATIONS AND REQUIREMENTS.

For any product that is not included in Bonnell's standard product line offered for sale generally in the usual course of Bonnell's business, it is agreed that Purchaser has engaged Bonnell to manufacture such product to Purchaser's specifications and requirements. Bonnell shall not be responsible for the adequacy of prints, drawings, specifications and requirements respecting such product or for the adequacy of the design represented thereby., Bonnell also shall not be responsible for the adequacy of the materials incorporated in such product or for testing or otherwise determining the sufficiency and applicability of the design. Bonnell shall not be responsible for determining or assuring that such product or the use or application of such product conforms with applicable federal, state or local laws, rules or regulations. Bonnell's only warranty with respect to such products shall be as set forth above: All Designs, plans, prints, or drawings of whatever kind prepared by Bonnell with respect to such products are and shall remain the sole property of Bonnell.

intertek
Total Quality. Assured.

Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

Thickness Tolerance Chart (±)					Structural values estimated for reference only.					
...cle Sizes Less than 10					Ix:	.3817 x 10^6 mm^4	.917 in^4	Iy:	1.5821 x 10^6 mm^4	3.801 in^4
Up t...	...	...	.008	0.750 - 0.999 .010	Sx:	13.526 x 10^3 mm^3	.825 in^3	Sy:	27.683 x 10^3 mm^3	1.689 in^3
0.125 - 0.249	.007	0.500 - 0.749	.009	hollows 10% .010 min .060 max	CGx:	28.22 mm	1.111 in	CGy:	57.15 mm	2.250 in

CRO-8364

12343

CMI ARCHITECTURAL PRODS, INC.
608 4th STREET S.E.
P.O. BOX T

DE SMET SD 57231

BONNELL™
ALUMINUM

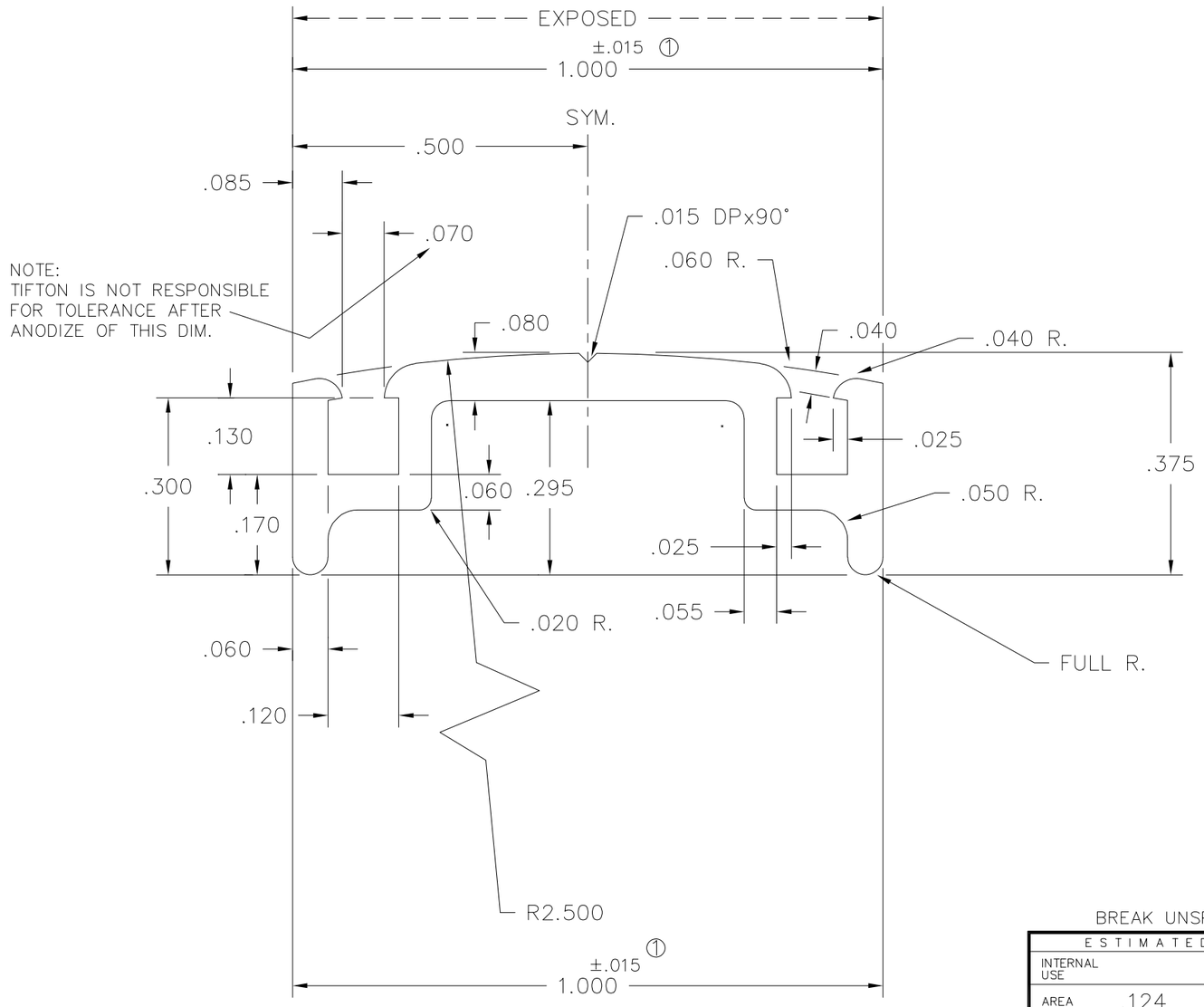
UNSPECIFIED WALLS:	2.77 mm	MASS:	3.264	kg/m	2.194	lb/ft
	.109 in	EST PER:	859.43	mm	33.836	in
UNSPECIFIED RADII:	.25R mm	OUT PER:	517.20	mm	20.362	in
	.010R in	EXP PER:		mm		in
DATE:	3-8-12	BUFF PER:		mm		in
DRAWN:	JMK/TMB	BUFF TURNS:		CLASS:	Hollow III	
SCALE:	2:1	FACTOR:	263	metric	15	imperial
THM BAR:	NO	C.C.D.:	125.08	mm	4.924	in
P&D CODE:	EES	P&D AREA:	182.58	mm^2	.283	in^2

PRINT REVISIONS		DATE
①	ADDED TOL. TO 1.000 DIM M.C.	7-6-95

CRM-170

REV.

DELHI	TIFTON	BOTH
☒	☐	☐



ACTUAL SIZE

BREAK UNSPECIFIED CORNERS .010 R. ---- TYPICAL WALL UNLESS SPECIFIED OTHERWISE.

ESTIMATED DIE DATA			
INTERNAL USE		6063-T5	
AREA	.124	WT/FT	.149
PERIMETER	3.924	CIRCLE SIZE	1 - 2
OUTSIDE PERIMETER		FACTOR	26
EXPOSED PERIMETER	1.770	SOLID	

DIE REVISIONS	DATE

PRESS SIZE

LEGEND

• = .031 R.
○ = .062 R.
× = .125 R.
⊗ = .250 R.
∗ =

sapa: Sapa Extrustions, Inc.
DELHI, LA 71232

CUSTOMER

CMI-CRONSTROMS, INC.
1045 GEMINI ROAD
EAGAN, MN 55121

APPLICATION

DOOR ASTRIGAL

CADD #	MRC--141 279
SCALE	ACTUAL & 4x
DATE	4-21-95
LAST REVISION	7-6-95
DRAWN	M. COPES
JOB	
CUSTOMER NUMBER	5731

intertek
Total Quality. Assured.

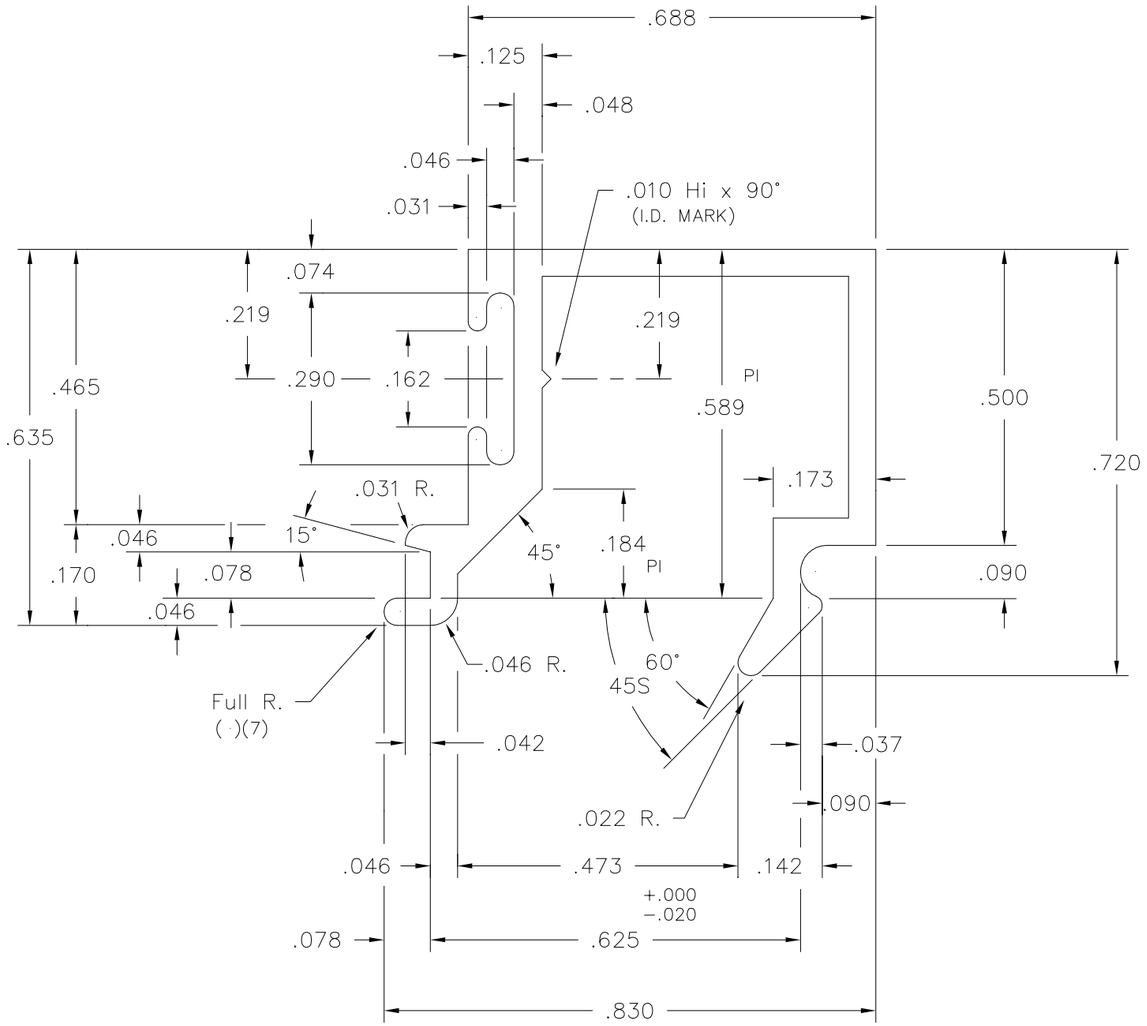
Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

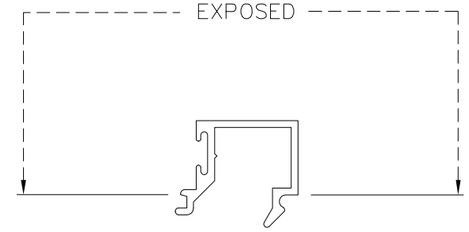
PRINT REVISIONS	DATE

CRM–11C

REV.

DELHI	TIFTON	BOTH
☐	☐	☐





ACTUAL SIZE

BREAK UNSPECIFIED CORNERS .010 R. .046 TYPICAL WALL UNLESS SPECIFIED OTHERWISE.

ESTIMATED DIE DATA			
INTERNAL USE		6063–T6	
AREA	.121	WT/FT	.145
PERIMETER	4.861	CIRCLE SIZE	1–2
OUTSIDE PERIMETER		FACTOR	34
EXPOSED PERIMETER	1.653		

PRESS SIZE

LEGEND
- • = .031 R.
- ○ = .062 R.
- × = .125 R.
- ⊗ = .250 R.
- ∗ =

DIE REVISIONS		MB	DATE
C	REDESIGNED & REDRAWN		2–20–91
	∗		

intertek
Total Quality. Assured.

Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

sapa: **Sapa Extrustions, Inc.**
DELHI, LA 71232

CUSTOMER
CRONSTROMS MFG.
EAGAN, MN

APPLICATION
DOOR STOP

CADD #

SCALE 4x & NOTED

DATE

LAST REVISION 2–20–91

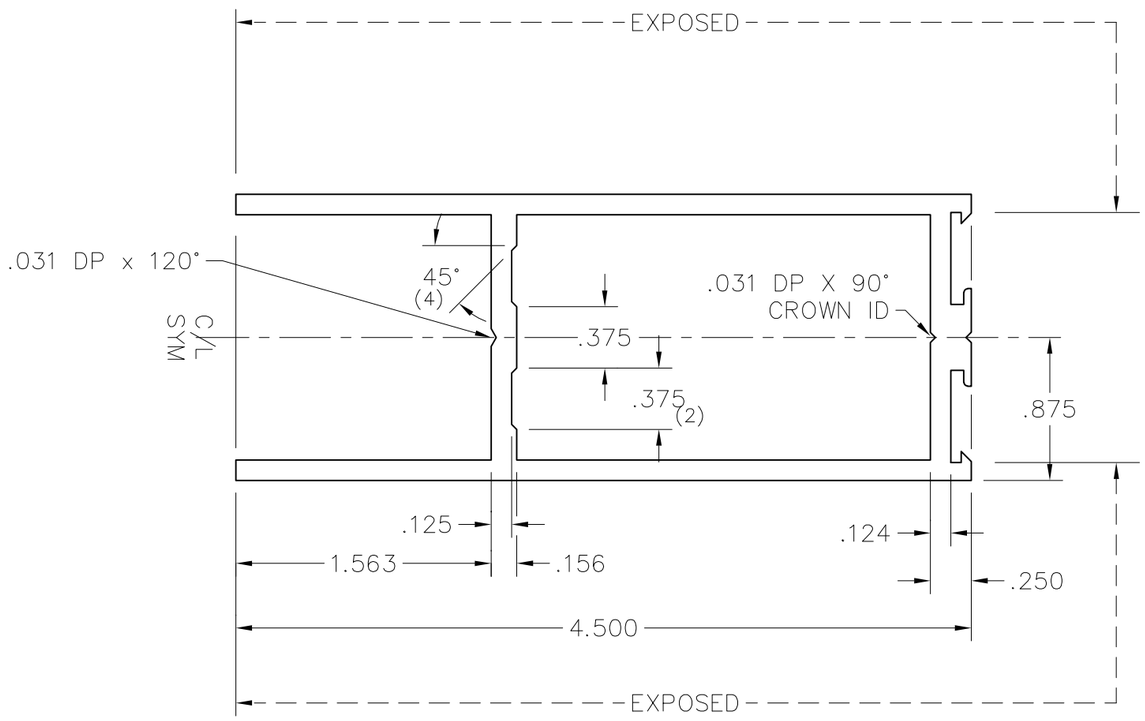
DRAWN J. ALBEREZ

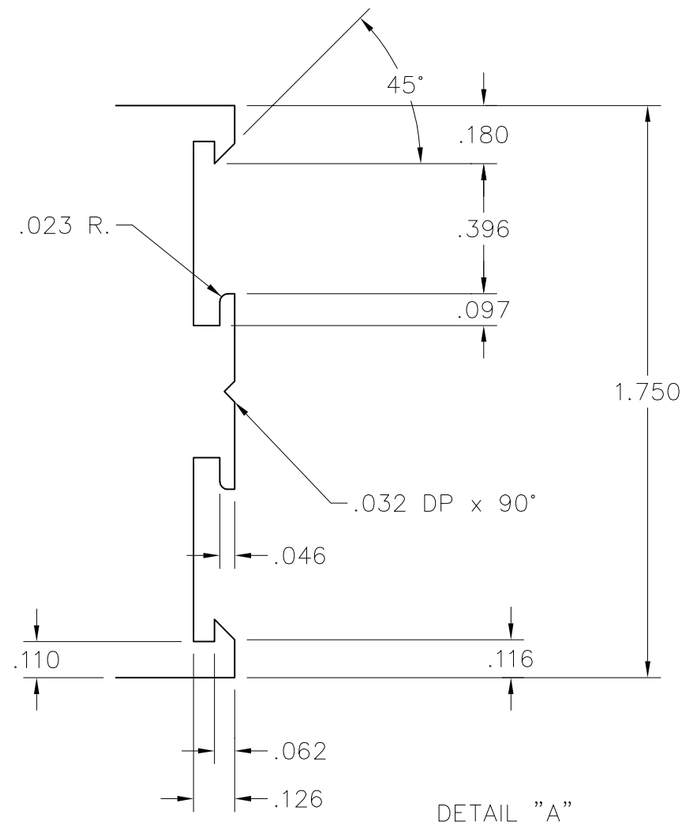
JOB

CUSTOMER NUMBER 6614

PRINT REVISIONS	DATE

13135
Die Number
2421M
Customer Number





DETAIL "A"
2 x SIZE

STRAIGHTNESS & TWIST ARE CRITICAL!

STANDARD TOLERANCES APPLY UNLESS OTHERWISE NOTED

BREAK UNSPECIFIED CORNER: .010 R.

TYPICAL WALL UNLESS OTHERWISE NOTED: .125

intertek
Total Quality. Assured.

Report #: N8137.01-201-45

Date: 8/29/22

Verified by:

ESTIMATED DIE DATA			
ALLOY/TEMPER:	6063–T5		
AREA	1.581	WT/FT	1.898
PERIMETER	24.854	CIRCLE SIZE	4–5
OUTSIDE PERIMETER	16.741	FACTOR	13
EXPOSED PERIMETER	9.232	HOLLOW	

PRESS SIZE

LEGEND

• = .031 R.
o = .062 R.
× = .125 R.
⊗ = .250 R.
∗ =

DIE REVISIONS	DATE

CROWN EXTRUSIONS

Crown Extrusions, Inc.
122 Columbia Court N.
Chaska, MN 55318
952-448-3533 Fax: 952-448-5328

CUSTOMER

[redacted] CMI Architectural
CMI Architectural Products,Inc.
20621 SD Highway 25
DeSmet, SD 57231-5827
605-854-3326 Fax: 605-854-3620

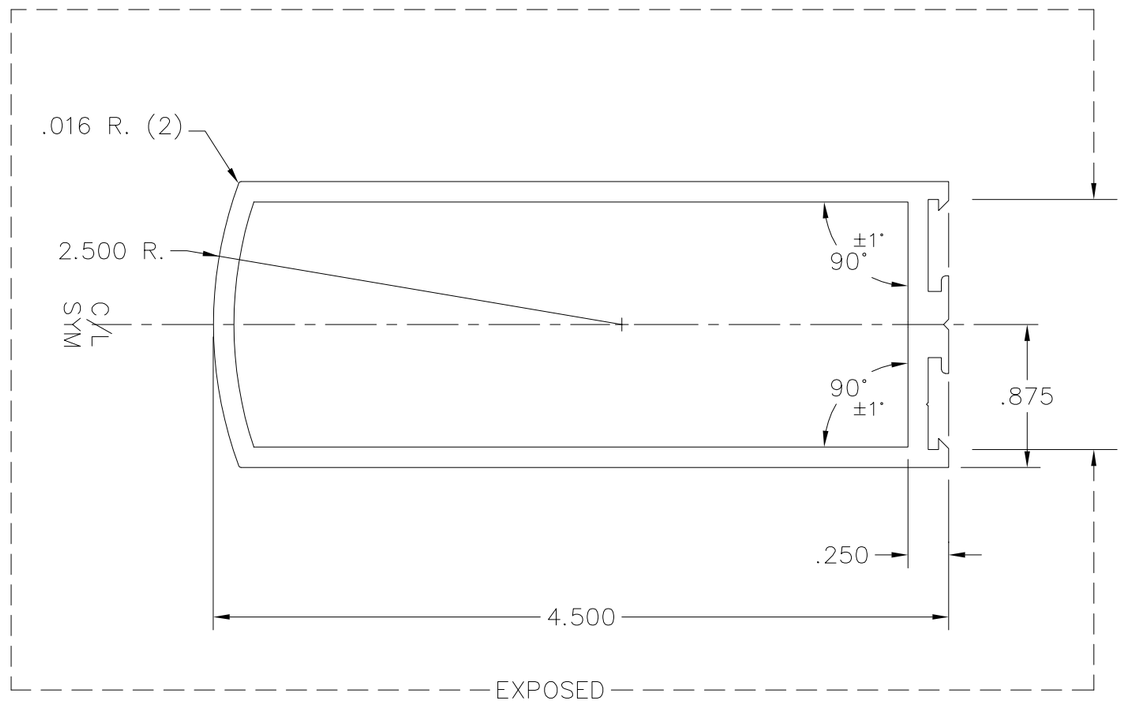
PART NAME: 4 1/2" TOP RAIL

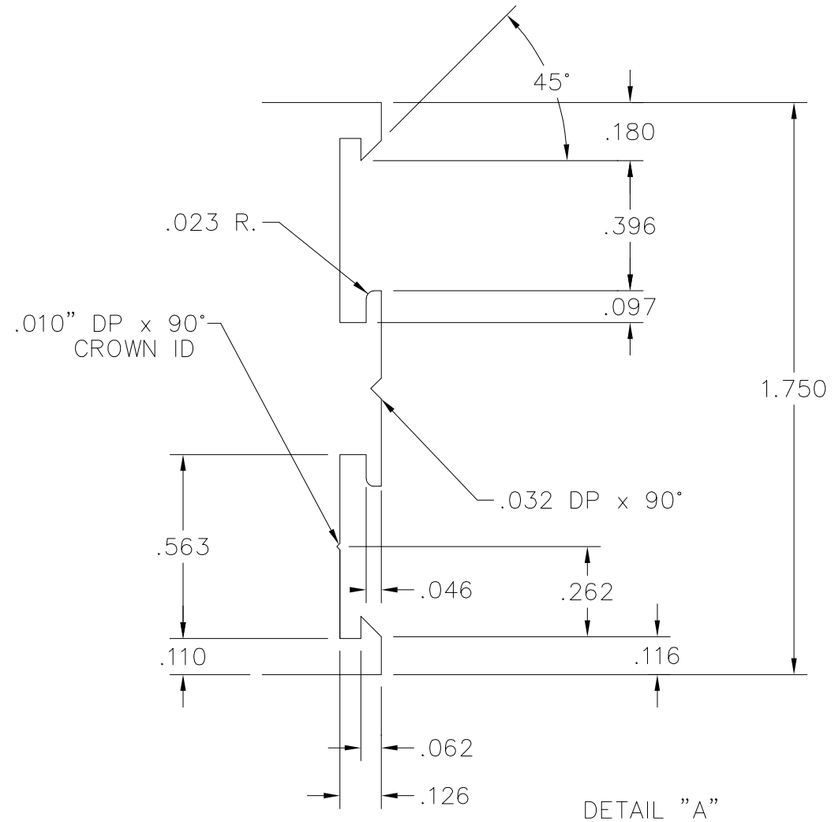
DIE #	13135
SCALE	FULL & NOTED
DATE	11–16–10
LAST REVISION	
DRAWN	GJG
CUSTOMER NUMBER	2421M

PRINT REVISIONS	DATE

12579
Die Number
6585M
Customer Number

ACTUAL SIZE





DETAIL "A"
2 x SIZE

STRAIGHTNESS & TWIST ARE CRITICAL!

BREAK UNSPECIFIED CORNER: .015 R.

TYPICAL WALL UNLESS OTHERWISE NOTED: .125

intertek
Total Quality. Assured.

Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

STANDARD TOLERANCES APPLY UNLESS OTHERWISE NOTED

ESTIMATED DIE DATA			
ALLOY/TEMPER:	6063–T5		
AREA	1.527	WT/FT	1.832
PERIMETER	24.360	CIRCLE SIZE	4 – 5
OUTSIDE PERIMETER	13.314	FACTOR	13
EXPOSED PERIMETER	10.698		HOLLOW

PRESS SIZE

LEGEND
- • = .031 R.
- ○ = .062 R.
- × = .125 R.
- ⊗ = .250 R.
- ∗ =

DIE REVISIONS	DATE

CROWN EXTRUSIONS

Crown Extruslons, Inc.
122 Columbla Court N.
Chaska, MN 55318
952-448-3533 Fax: 952-448-5328

CUSTOMER

CMI Architectural
CMI Architectural Products,Inc.
20621 SD Highway 25
DeSmet, SD 57231-5827
605-854-3326 Fax: 605-854-3620

PART NAME: BULL NOSE WIDE STILE

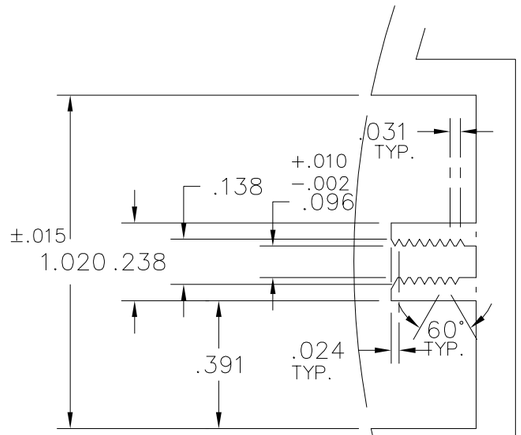
DIE #	12579
SCALE	FULL & NOTED
DATE	12–11–08
LAST REVISION	
DRAWN	TCG
CUSTOMER NUMBER	6585M

PRINT REVISIONS	DATE

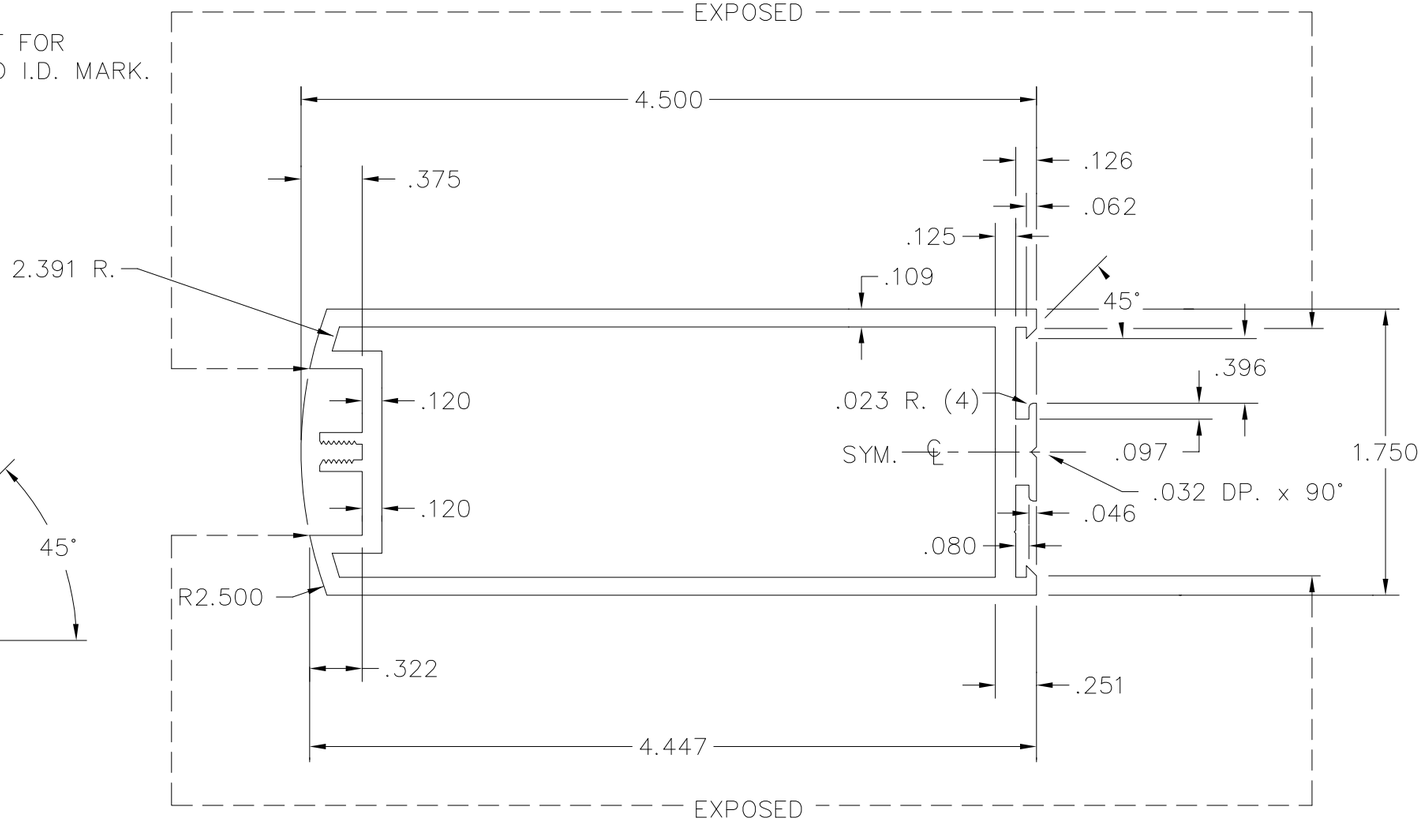
12578
Die Number
2435M
Customer Number

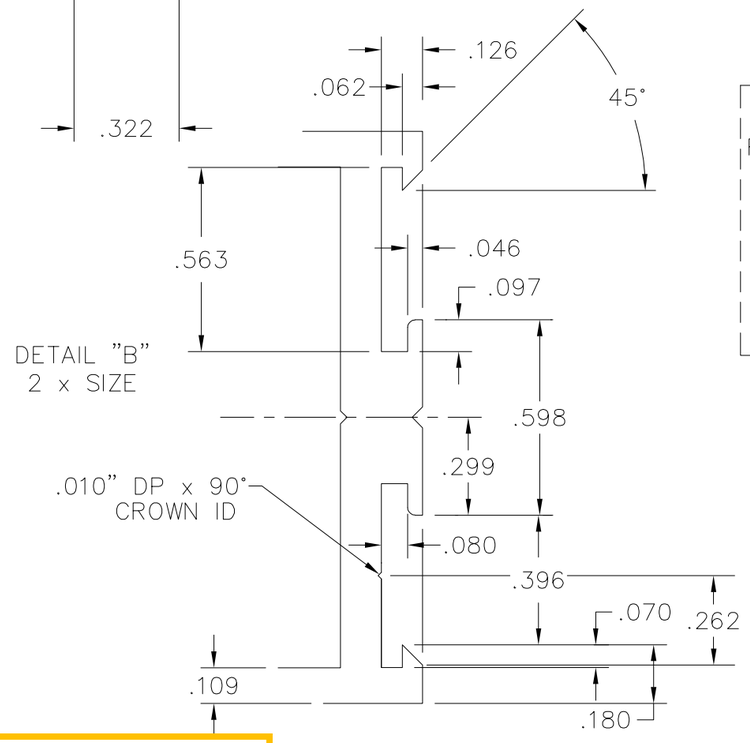
ACTUAL SIZE

NOTE:
SYMMETRICAL EXCEPT FOR
SCREW RECEIVER AND I.D. MARK.



DETAIL "A"
2 x SIZE





DETAIL "B"
2 x SIZE

.010" DP x 90°
CROWN ID

Report #:	N8137.01-201-45
Date:	8/29/22
Verified by:	

intertek
Total Quality. Assured.

STANDARD TOLERANCES APPLY UNLESS OTHERWISE NOTED

BREAK UNSPECIFIED CORNER: .010 R.

TYPICAL WALL UNLESS OTHERWISE NOTED: .109

ESTIMATED DIE DATA			
ALLOY/TEMPER:	6063−T5		
AREA	1.488	WT/FT	1.786
PERIMETER	27.024	CIRCLE SIZE	4 − 5
OUTSIDE PERIMETER	15.295	FACTOR	15
EXPOSED PERIMETER	9.664		HOLLOW

PRESS SIZE

LEGEND
• = .031 R.
○ = .062 R.
× = .125 R.
⊗ = .250 R.
∗ =

DIE REVISIONS	DATE

CROWN EXTRUSIONS
Crown Extruslons, Inc.
122 Columbla Court N.
Chaska, MN 55318
952-448-3533 Fax: 952-448-5328

CUSTOMER

CMI Architectural
CMI Architectural Products,Inc.
20621 SD Highway 25
DeSmet, SD 57231-5827
605-854-3326 Fax: 605-854-3620

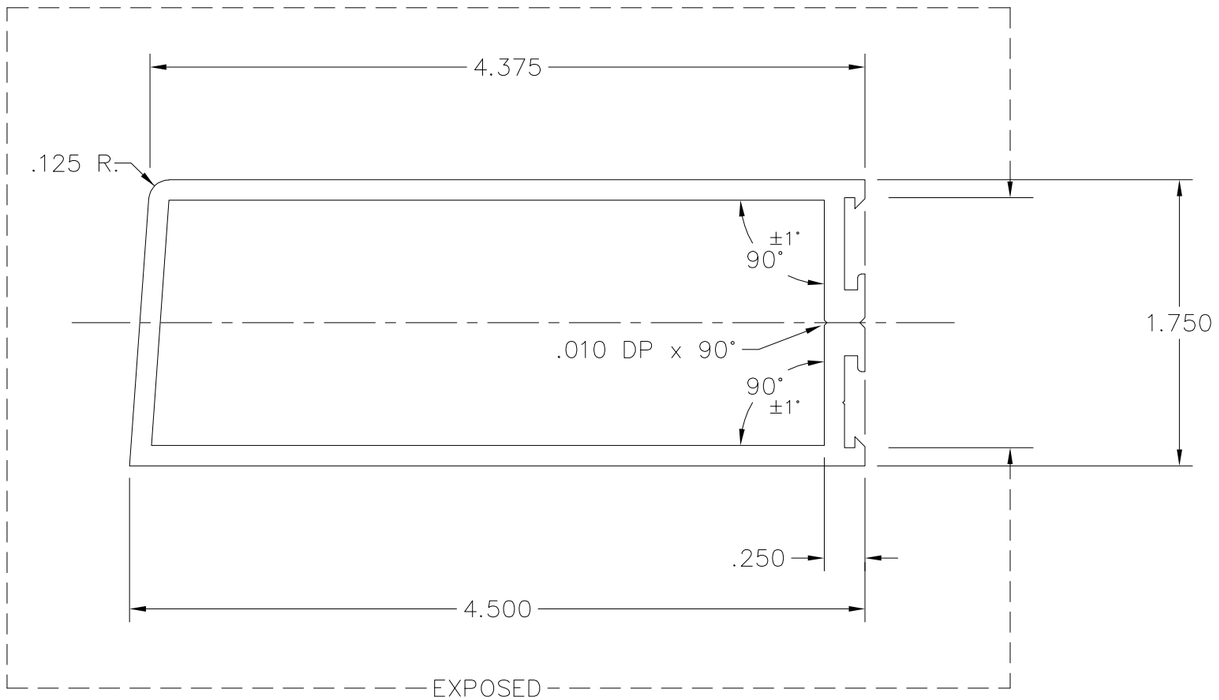
PART NAME:
BULL NOSE WIDE STILE W/ ASTRIGAL

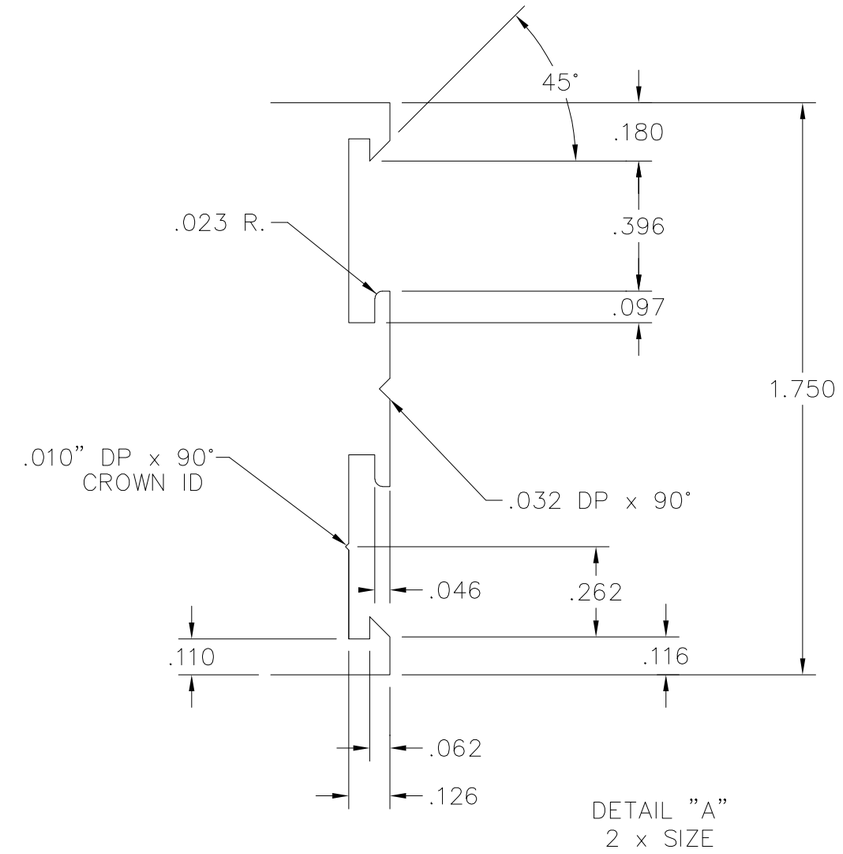
DIE #	12578
SCALE	ACTUAL & NOTED
DATE	12−11−08
LAST REVISION	
DRAWN	TCG
CUSTOMER NUMBER	2435M

PRINT REVISIONS	DATE

12572
Die Number
2423M
Customer Number

ACTUAL SIZE





DETAIL "A"
2 x SIZE

STRAIGHTNESS & TWIST ARE CRITICAL!

intertek
Total Quality. Assured.

Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

STANDARD TOLERANCES APPLY UNLESS OTHERWISE NOTED

BREAK UNSPECIFIED CORNER: .015 R.

TYPICAL WALL UNLESS OTHERWISE NOTED: .125

ESTIMATED DIE DATA			
ALLOY/TEMPER:	6063–T5		
AREA	1.540	WT/FT	1.848
PERIMETER	24.574	CIRCLE SIZE	4 – 5
OUTSIDE PERIMETER	13.432	FACTOR	13
EXPOSED PERIMETER	10.816		HOLLOW

PRESS SIZE
LEGEND
• = .031 R.
○ = .062 R.
× = .125 R.
⊗ = .250 R.
∗ =

DIE REVISIONS	DATE

CROWN EXTRUSIONS

Crown Extruslons, Inc.
122 Columbla Court N.
Chaska, MN 55318
952-448-3533 Fax: 952-448-5328

CUSTOMER

[redacted] CMI Architectural
CMI Architectural Products,Inc.
20621 SD Highway 25
DeSmet, SD 57231-5827
605-854-3326 Fax: 605-854-3620

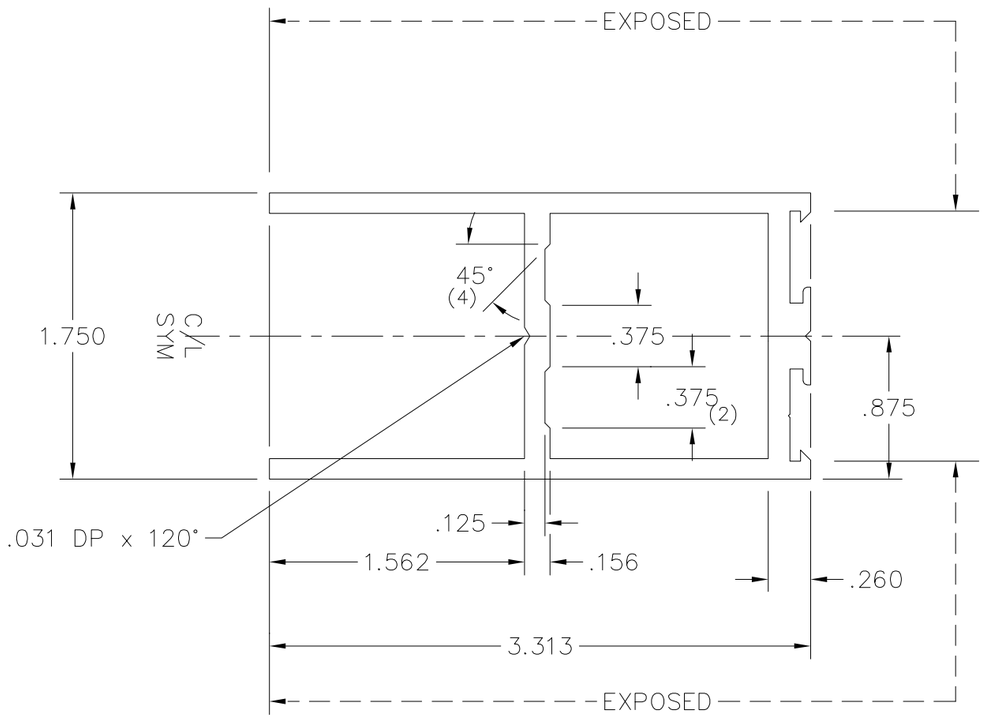
PART NAME: BEVELED WIDE STILE

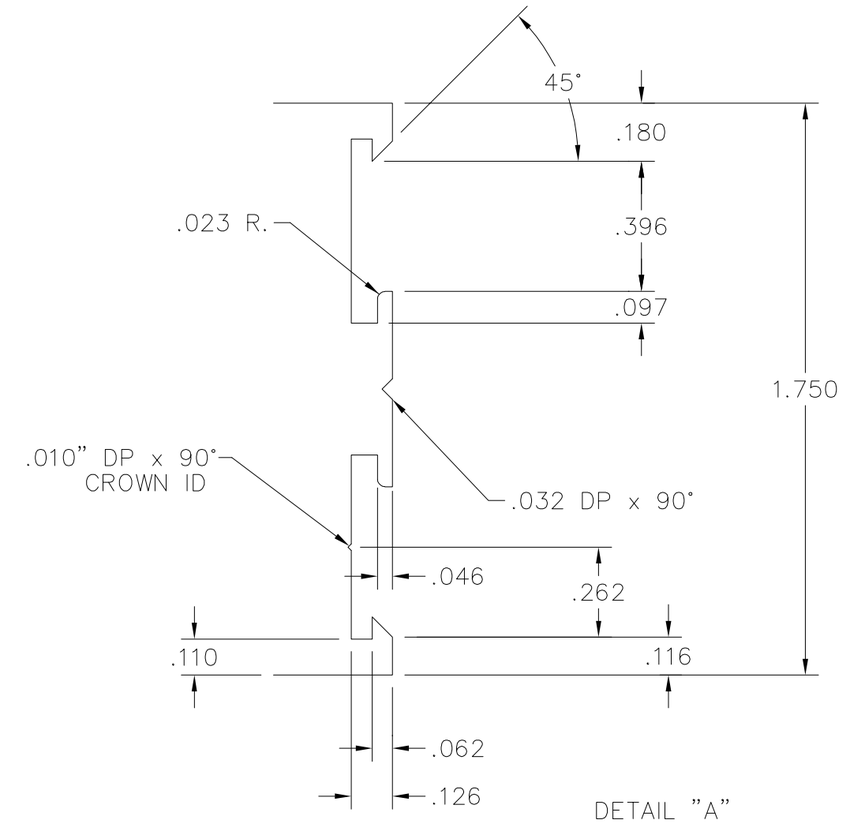
DIE #	12572
SCALE	FULL & NOTED
DATE	12–11–08
LAST REVISION	
DRAWN	TCG
CUSTOMER NUMBER	2423M

PRINT REVISIONS	DATE

12568
Die Number
1349M
Customer Number

ACTUAL SIZE





DETAIL "A"
2 x SIZE

STRAIGHTNESS & TWIST ARE CRITICAL!

BREAK UNSPECIFIED CORNER: .015 R.

TYPICAL WALL UNLESS OTHERWISE NOTED: .125

intertek
Total Quality. Assured.

Report #: N8137.01-201-45
Date: 8/29/22
Verified by:

STANDARD TOLERANCES APPLY UNLESS OTHERWISE NOTED

PRESS SIZE

LEGEND
• = .031 R.
○ = .062 R.
× = .125 R.
⊗ = .250 R.
∗ =

ESTIMATED DIE DATA			
ALLOY/TEMPER:	6063–T5		
AREA	1.298	WT/FT	1.558
PERIMETER	20.109	CIRCLE SIZE	3 – 4
OUTSIDE PERIMETER	14.363	FACTOR	13
EXPOSED PERIMETER	6.858	HOLLOW	

DIE REVISIONS	DATE

CROWN EXTRUSIONS

Crown Extrusions, Inc.
122 Columbia Court N.
Chaska, MN 55318
952-448-3533 Fax: 952-448-5328

CUSTOMER

[redacted] CMI Architectural
CMI Architectural Products,Inc.
20621 SD Highway 25
DeSmet, SD 57231-5827
605-854-3326 Fax: 605-854-3620

PART NAME: NARROW BOTTOM RAIL

DIE #	12568
SCALE	FULL & NOTED
DATE	12–11–08
LAST REVISION	
DRAWN	TCG
CUSTOMER NUMBER	1349M

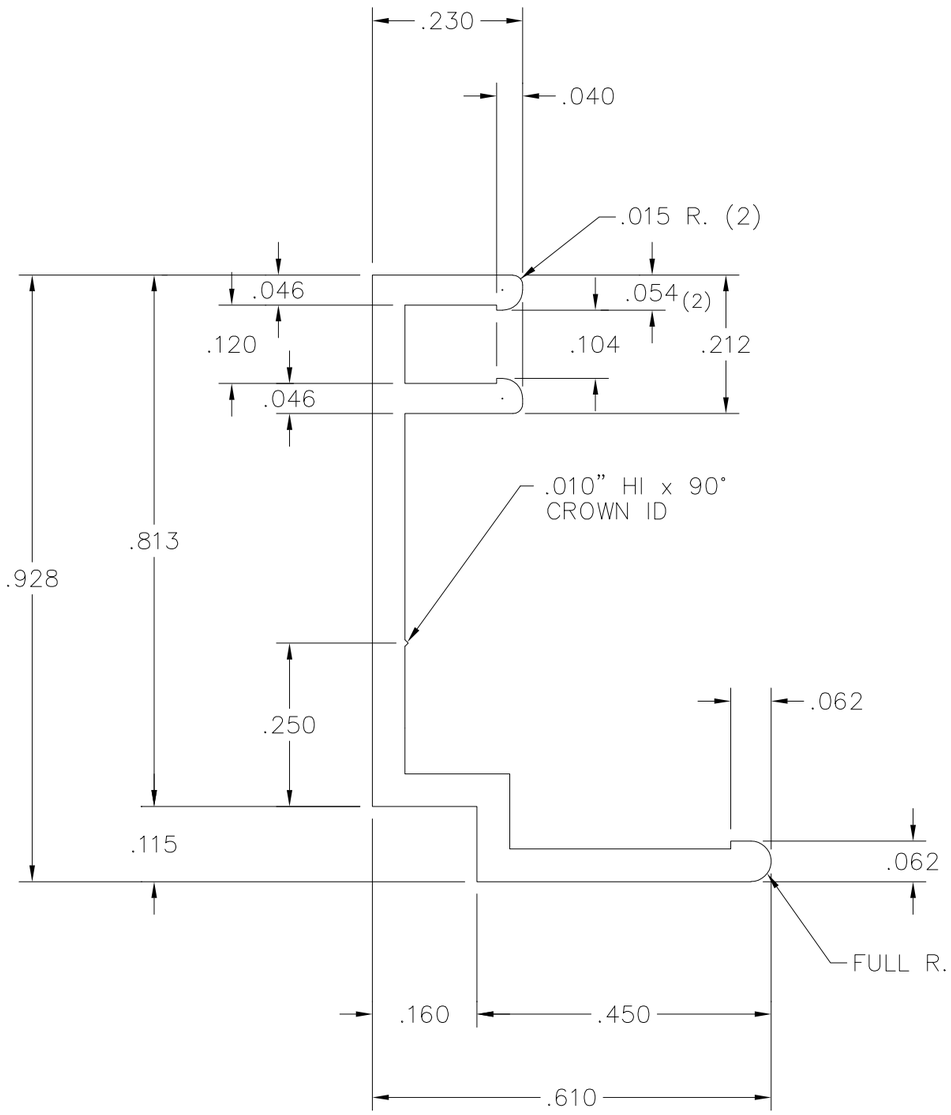
PRINT REVISIONS	DATE

5514

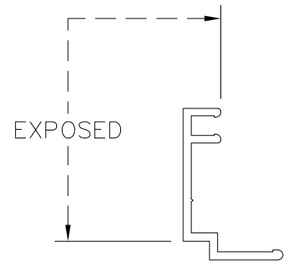
Die Number

51–020

Customer Number



2X SIZE



ACTUAL SIZE

intertek
Total Quality. Assured.

Report #: N8137.01-201-45

Date: 8/29/22

Verified by:

STANDARD TOLERANCES APPLY UNLESS OTHERWISE NOTED

BREAK UNSPECIFIED CORNER: .010 R.

TYPICAL WALL UNLESS OTHERWISE NOTED: .050

ESTIMATED DIE DATA			
ALLOY/TEMPER:	6063–T5		
AREA	.091	WT/FT	.110
PERIMETER	3.786	CIRCLE SIZE	1 – 2
OUTSIDE PERIMETER		FACTOR	35
EXPOSED PERIMETER	1.043		SOLID

PRESS SIZE

LEGEND

• = .031 R.
○ = .062 R.
× = .125 R.
⊗ = .250 R.
∗ =

DIE REVISIONS	DATE

CROWN EXTRUSIONS

Crown Extrusions, Inc.
122 Columbia Court N.
Chaska, MN 55318
952-448-3533 Fax: 952-448-5328

CUSTOMER

CMI Architectural
CMI Architectural Products,Inc.
20621 SD Highway 25
DeSmet, SD 57231-5827
605-854-3326 Fax: 605-854-3620

PART NAME: GLASS STOP

DIE # 5514

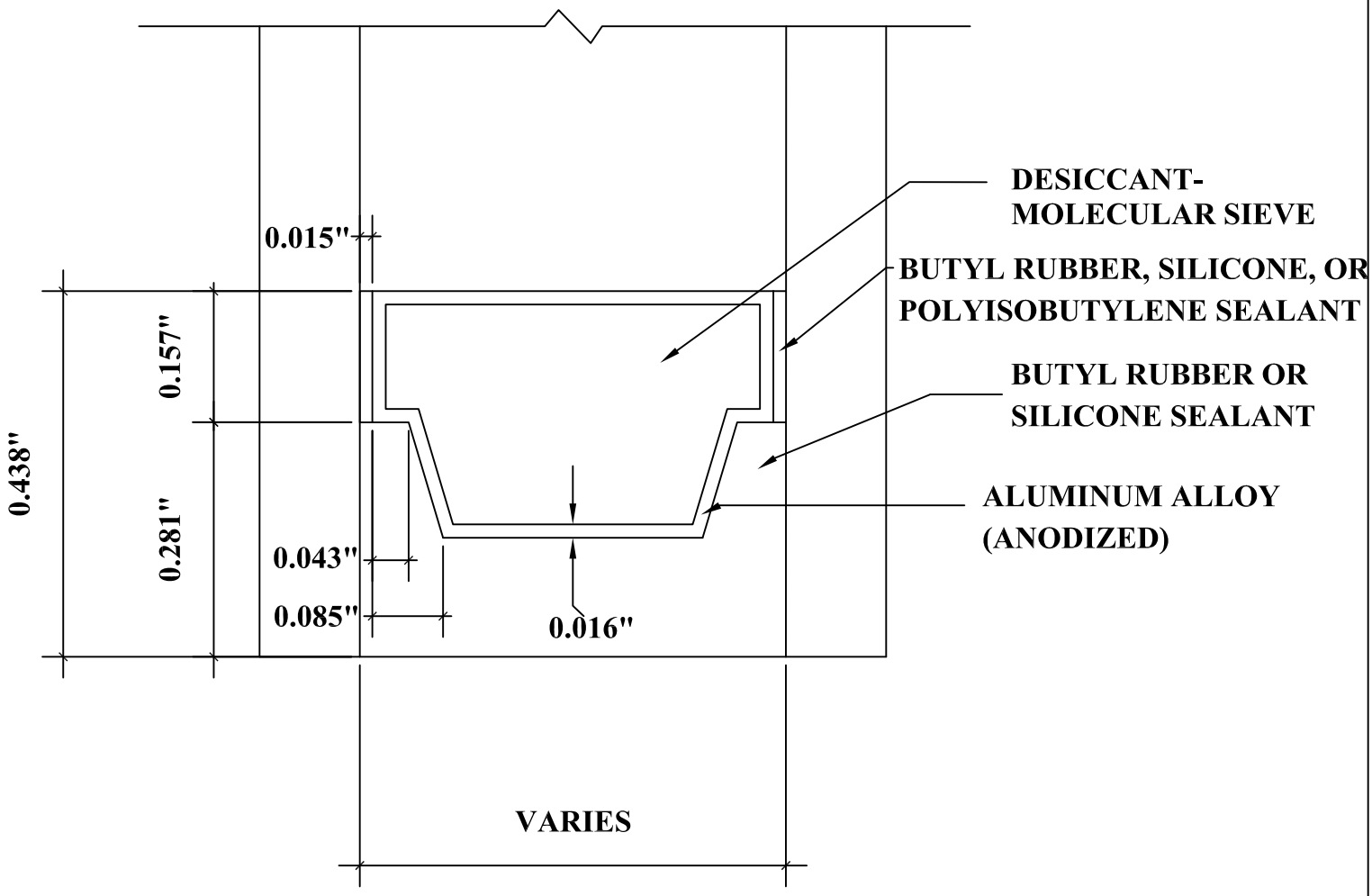
SCALE 4x & NOTED

DATE 12–11–08

LAST REVISION

DRAWN TCG

CUSTOMER NUMBER 51–020



DETAIL FOR THERMAL MODELING OF
ALUMINUM SPACER (A1-D)

intertek
Total Quality. Assured.

Report #:	N8137.01-201-45
Date:	8/29/22
Verified by:	

40 51st Way NE, Suite 100
Fridley, MN 55421

Telephone: 651-636-3835
Facsimile: 717-764-4129
www.intertek.com/building

SECTION 8

REVISION LOG

REVISION #	DATE	PAGES	REVISION
.01R0	08/25/22	N/A	Original Report Issued to CMI Architectural Products, Inc.