Architectural Testing

NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE COMPUTER SIMULATION REPORT

(Revised)

Rendered to:
PROFORMANCE MANUFACTURING, INC.

SERIES/MODEL:
Fiberglass Awning

Report Number:	**B7295.02-201-45**
Original Report Date:	**02/22/12**
Expiration Date:	**02/22/16**
Revised Report Date:	**05/10/12**

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St. Paul, MN 55117
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COMPUTER SIMULATION REPORT
(Revised)

Rendered to:
PROFORMANCE MANUFACTURING, INC.
750 North Country Line Road
Lone Rock, Wisconsin 53556

Report Number:	B7295.02-201-45
Simulation Date:	02/22/12
Original Report Date:	02/22/12
Expiration Date:	02/22/16
Revised Report Date:	05/10/12

Project Summary:

Architectural Testing, Inc. was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed below.

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

NFRC 100-2010:	*Procedure for Determining Fenestration Product U-Factors*
NFRC 200-2010:	*Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*
NFRC 500-2010:	*Procedure for Determining Fenestration Product Condensation Resistance Values*

Software:

Frame and Edge Modeling:	THERM 6.3.38
Center-of-Glass Modeling:	WINDOW 6.3.54
Total Product Calculations:	WINDOW 6.3.54
Spectral Data Library:	23.0

Simulations Specimen Description:

Series/Model:	Fiberglass Awning
Type:	Projected , Awning
Frame Material:	FG Fiberglass
	FF Fiberglass w/ foam-filled insulation
Sash Material:	FG Fiberglass
Standard Size:	1500mm x 600mm

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Modeling Assumptions/Technical Interpretations:

1) Multi-purpose products grouped for one validation matrix per NFRC 100-2010, section 4.2.3.2: Refer to the Architectural Testing, Inc. report number B2516.03-201-45 for the test option of the Fiberglass Casement to validate this product line.
2) Divider grouping per NFRC 100-2010, section 4.2.4.1.E.i: 0.187" x 0.625" and 0.217" x 0.709" dividers were grouped with 0.217" x 0.709" as group leader.
3) Foam was modeled as separate options and was allowable per NFRC 100-2010, section 4.2.1.F.
4) Dividers were not modeled for dual options because there was at least 3mm of air/gas space between the divider and both adjacent glazing surfaces per NFRC 100-2010, section 4.2.4.1.D.ii.a.

Specialty Products Table:

The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 6.3.54. The method gives overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.007393	0.009442	0.011386
SHGC1	0.644968	0.583957	0.526066
VT0	0.000000	0.000000	0.000000
VT1	0.637576	0.574515	0.514680

SHGC = SHGC0 + SHGCc (SHGC1 - SHGC0)

VT = VT0 + VTc (VT1 - VT0)

Validation Matrix:

The following products are part of a validation matrix. Only one is required for validation testing.

Product Line	*Report Number*
Fiberglass Casement	B2516.03-201-45
Fiberglass Awning	B7295.03-201-45

Spacer Option Description

	Sealant		
Spacer Type	*Primary*	*Secondary*	*Code*
Cardinal XL Edge	Polyisobutylene	Silicone	SS-D

Grid Option Description

Grid Size	*Grid Type*	*Grid Pattern*
0.188" x 0.625"	Aluminum Rectangular Grid	NFRC Standard
0.217" x 0.709"	Aluminum Contour Grid	NFRC Standard

Reinforcement Option Description

Location	*Material*
None	

Gas Filling Technique Description

Fill Type	*Method*
90% Argon	Vacuum Chamber
90% Krypton	Vacuum Chamber

Edge-of-Glass Construction

Interior Condition	Silicone
Exterior Condition	ABS Glazing Bead

Weatherstripping

Type	*Quantity*	*Location*
Foam Weatherstripping	2 Rows	Sash Perimeter
Mohair	1 Row	Sash Perimeter

Frame/Sash Materials Finish

Interior	Fiberglass
Exterior	Fiberglass

NFRC 100/200/500 Summary Sheet
Fiberglass Awning

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
No Foam Options												
1	DS 366 Arg DS											
	0.117	0.500	0.117					ARG90	0.022(#2)	CL	SS-D	N,G,S
	U-Factor 0.31			**SHGC (N / <1 / >1) 0.18 / 0.17 / 0.15**					**VT (N / <1 / >1) 0.41 / 0.37 / 0.33**		**CR 60**	
2	DS 366 Arg DS Arg 366 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#5)	CL	SS-D	N
	U-Factor 0.24			**SHGC (N) 0.16**					**VT (N) 0.30**		**CR 70**	
3	DS 272 Arg DS Arg 272 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.042(#2) / 0.042(#5)	CL	SS-D	N
	U-Factor 0.24			**SHGC (N) 0.23**					**VT (N) 0.37**		**CR 70**	
4	DS 366 Arg DS i81											
	0.117	0.500	0.117					ARG90	0.022(#2) / 0.149(#4)	CL	SS-D	N,G,S
	U-Factor 0.29			**SHGC (N / <1 / >1) 0.16 / 0.15 / 0.14**					**VT (N / <1 / >1) 0.37 / 0.33 / 0.30**		**CR 48**	
5	DS 366 Kry DS i81											
	0.117	0.500	0.117					KRY90	0.022(#2) / 0.149(#4)	CL	SS-D	N,G,S
	U-Factor 0.28			**SHGC (N / <1 / >1) 0.16 / 0.15 / 0.14**					**VT (N / <1 / >1) 0.37 / 0.33 / 0.30**		**CR 48**	
6	DS 366 Arg DS 366 Arg DS i81											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor 0.23			**SHGC (N) 0.13**					**VT (N) 0.27**		**CR 59**	
Cap Foam Filled Insulation Option												
7	DS 366 Kry DS 366 Kry DS i81											
	0.117	0.438	0.117	0.438	0.117			KRY90	0.022(#2) / 0.022(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor 0.21			**SHGC (N) 0.13**					**VT (N) 0.27**		**CR 63**	
No Foam Options												
8	DS 366 Arg DS Arg 366 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#5)	CL	SS-D	G,S
	U-Factor 0.24			**SHGC (<1 / >1) 0.15 / 0.13**					**VT (<1 / >1) 0.27 / 0.24**		**CR 70**	
9	DS 272 Arg DS Arg 272 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.042(#2) / 0.042(#5)	CL	SS-D	G,S
	U-Factor 0.24			**SHGC (<1 / >1) 0.21 / 0.19**					**VT (<1 / >1) 0.33 / 0.30**		**CR 70**	
10	DS 366 Arg DS 366 Arg DS i81											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#4) / 0.149(#6)	CL	SS-D	G,S
	U-Factor 0.23			**SHGC (<1 / >1) 0.12 / 0.11**					**VT (<1 / >1) 0.24 / 0.21**		**CR 59**	

NFRC 100/200/500 Summary Sheet
Fiberglass Awning

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
Cap Foam Filled Insulation Option												
11	DS 366 Kry DS 366 Kry DS i81											
	0.117	0.438	0.117	0.438	0.117			KRY90	0.022(#2) / 0.022(#4) / 0.149(#6)	CL	SS-D	G,S
	U-Factor		**0.21**	**SHGC (<1 / >1)**			**0.12 / 0.11**		**VT (<1 / >1)**	**0.24 / 0.21**	**CR**	**63**
Cap/Outer Frame Hollow/Inner Frame Hollow Foam Filled Insulation Options												
12	DS 272 Arg DS											
	0.117	0.500	0.117					ARG90	0.042(#2)	CL	SS-D	N
	U-Factor		**0.29**	**SHGC (N)**			**0.27**		**VT (N)**	**0.46**	**CR**	**59**
13	DS 366 Arg DS											
	0.117	0.500	0.117					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor		**0.28**	**SHGC (N)**			**0.18**		**VT (N)**	**0.41**	**CR**	**60**
14	DS 366 Arg DS i81											
	0.117	0.500	0.117					ARG90	0.022(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor		**0.25**	**SHGC (N)**			**0.16**		**VT (N)**	**0.37**	**CR**	**48**
15	DS 272 Arg DS Arg 272 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.042(#2) / 0.042(#5)	CL	SS-D	N
	U-Factor		**0.21**	**SHGC (N)**			**0.23**		**VT (N)**	**0.37**	**CR**	**72**
16	DS 272 Arg DS 272 Arg DS i81											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.042(#2) / 0.042(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor		**0.20**	**SHGC (N)**			**0.20**		**VT (N)**	**0.33**	**CR**	**59**
17	DS 366 Arg DS Arg 366 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#5)	CL	SS-D	N
	U-Factor		**0.21**	**SHGC (N)**			**0.16**		**VT (N)**	**0.30**	**CR**	**72**
18	DS 366 Arg DS 366 Arg DS i81											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor		**0.20**	**SHGC (N)**			**0.13**		**VT (N)**	**0.27**	**CR**	**60**
Outer Frame Hollow Foam Filled Insulation Options												
19	DS 272 Arg DS											
	0.117	0.500	0.117					ARG90	0.042(#2)	CL	SS-D	N
	U-Factor		**0.30**	**SHGC (N)**			**0.27**		**VT (N)**	**0.46**	**CR**	**59**
20	DS 366 Arg DS											
	0.117	0.500	0.117					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor		**0.29**	**SHGC (N)**			**0.18**		**VT (N)**	**0.41**	**CR**	**60**

NFRC 100/200/500 Summary Sheet
Fiberglass Awning

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1)					Visible Transmittance (VT) Grids (None / <1 / >=1)		Condensation Resistance	
Outer Frame Hollow Foam Filled Insulation Options												
21	DS 366 Arg DS i81											
	0.117	0.500	0.117					ARG90	0.022(#2) / 0.149(#4)	CL	SS-D	N
	U-Factor		**0.27**	**SHGC (N)**				**0.16**	**VT (N)**	**0.37**	**CR**	**48**
22	DS 272 Arg DS Arg 272 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.042(#2) / 0.042(#5)	CL	SS-D	N
	U-Factor		**0.22**	**SHGC (N)**				**0.23**	**VT (N)**	**0.37**	**CR**	**72**
23	DS 272 Arg DS 272 Arg DS i81											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.042(#2) / 0.042(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor		**0.21**	**SHGC (N)**				**0.20**	**VT (N)**	**0.33**	**CR**	**59**
24	DS 366 Arg DS Arg 366 DS											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#5)	CL	SS-D	N
	U-Factor		**0.22**	**SHGC (N)**				**0.16**	**VT (N)**	**0.30**	**CR**	**72**
25	DS 366 Arg DS 366 Arg DS i81											
	0.117	0.438	0.117	0.438	0.117			ARG90	0.022(#2) / 0.022(#4) / 0.149(#6)	CL	SS-D	N
	U-Factor		**0.21**	**SHGC (N)**				**0.13**	**VT (N)**	**0.27**	**CR**	**60**
No Foam Options												
26	DS 180 Arg DS											
	0.118	0.500	0.117					ARG90	0.068(#2)	CL	SS-D	N
	U-Factor		**0.32**	**SHGC (N)**				**0.42**	**VT (N)**	**0.51**	**CR**	**59**
27	DS 180 Arg DS Arg 180 DS											
	0.118	0.438	0.117	0.438	0.118			ARG90	0.068(#2) / 0.068(#5)	CL	SS-D	N
	U-Factor		**0.24**	**SHGC (N)**				**0.36**	**VT (N)**	**0.45**	**CR**	**70**

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Architectural Testing, Inc. is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The NFRC procedure requires that the computational results be verified through actual test results.

Detailed drawings, simulation data files, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire. Results obtained are simulated values and were secured by using the designated test methods. 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 product simulated. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

SIMULATED BY:

Digitally Signed by: Jessica Johnson

Jessica A. Johnson
Simulation Technician

REVIEWED BY:

Digitally Signed by: Heather Duneman

Heather M. Duneman
Senior Simulation Technician
Simulator-In-Responsible-Charge

JAJ:jaj
B7295.02-201-45

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Drawings and Bills of Material (13)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
01-R0	02/22/12	All	Original report issue. Work requested by Mr. Jerry Beranek of Proformance Manufacturing, Inc.
02-R0	3/19/2012	All	Revised report issue. Added 14 glass options (IDs 12-25).
03-R0	5/10/2012	All	Revised report issue. Added 2 glass options (IDs 26-27).

All drawings and Bills of Material used to simulate this product are enclosed in this Appendix

Appendix A

B7295.02-201-45

Awning ~~Casement~~ BOM

Description	Vendor	Part #
Dual Casement Operator	Ashland Hardware	W1491-200/W1491-100
Casement Sash	Teel Plastics	P0006
Casement Frame	Teel Plastics	P0005
Glazing Bead	Teel Plastics	P0136
69" Tie Bar	Ashland Hardware	WCMS4-693003
Backing Plate	Ashland Hardware	W1492-9A1
Snubber	Ashland Hardware	WCS-1601-S1
Bracket	Ashland Hardware	W1491-188-BS1/W1491-288-BS1
14" Wash Hinge Arm Assembly	Ashland Hardware	Top hinge in diagram
Keeper	Ashland Hardware	W1495-01AL2
Lock Actuator	Ashland Hardware	W1492-1KH1
Visual Pack	Ashland Hardware	W1490-700/W1490-800
Retainer	Ashland Hardware	W1494-04DA-P84
Frame Corner Keys	Flambeau	817711AE
Sash Corner Keys	Flambeau	Sash Corner Key

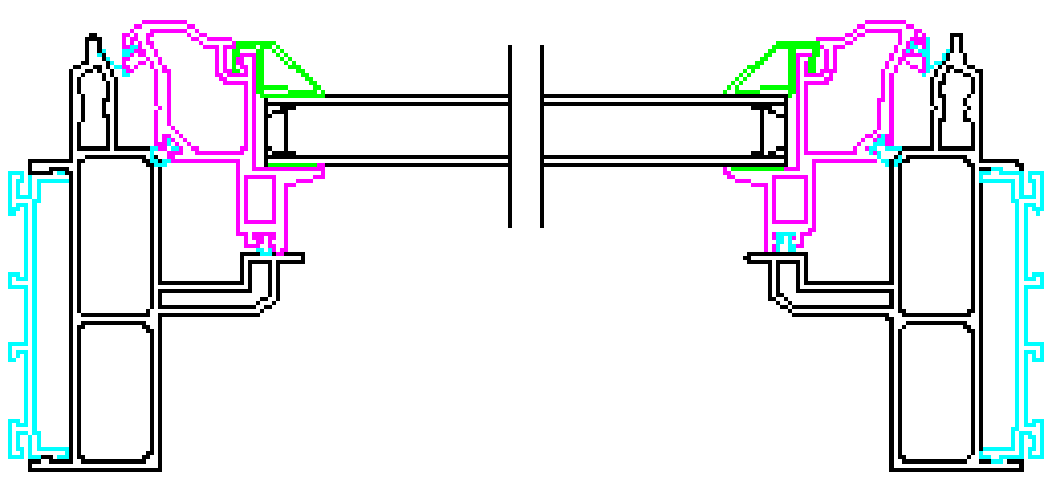
TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Linneman

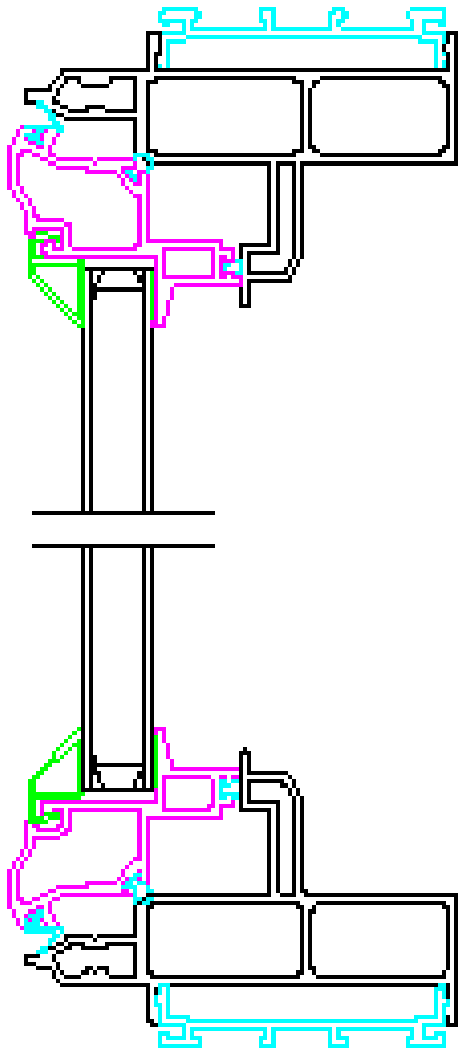
PMI Fiberglass Awning Window

Outside

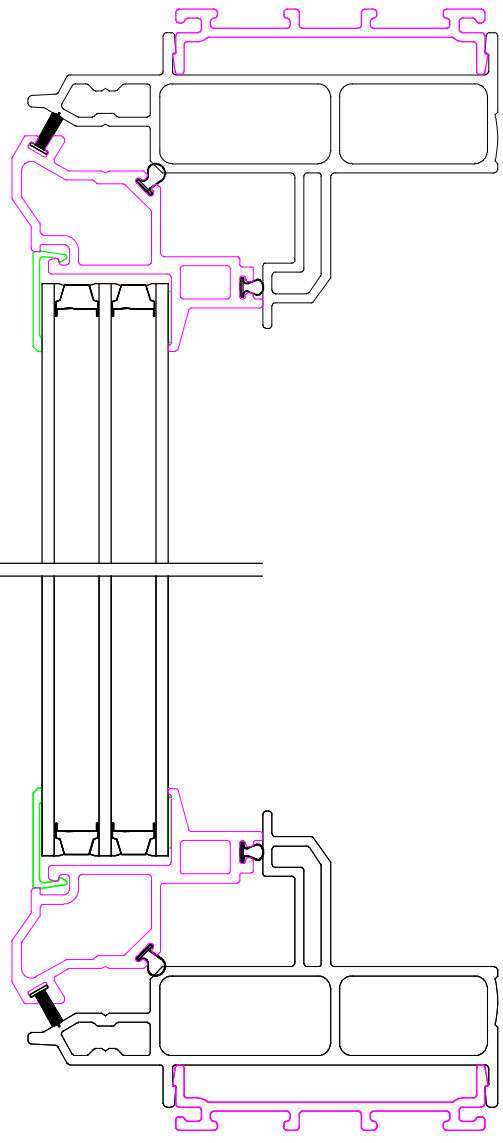


PMI Fiberglass Awning Window Top View

Outside



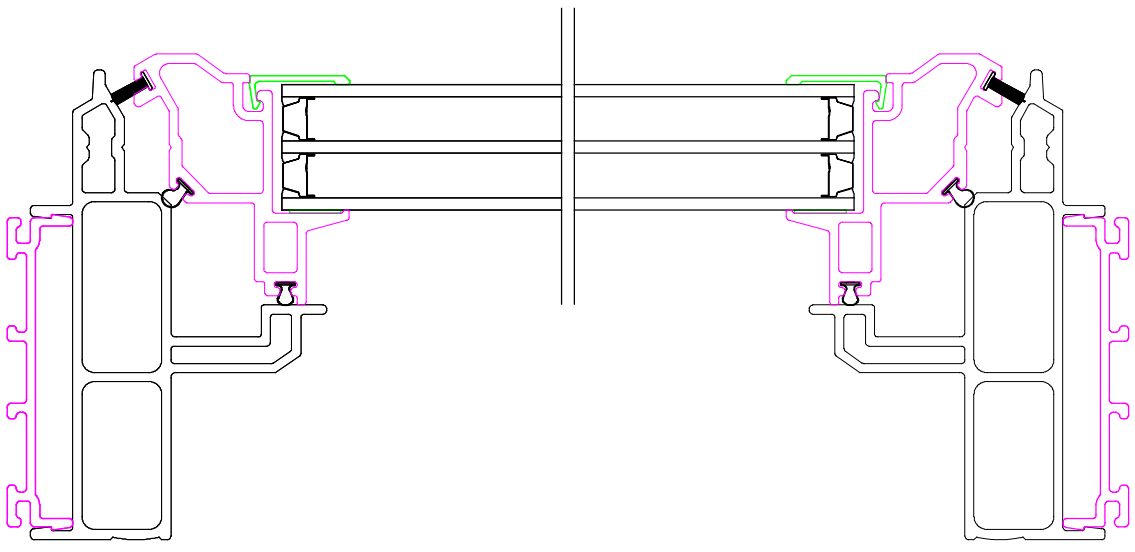
PMI Fiberglass Awning Window End View



Awning

PMI Fiberglass ~~Casement~~ Window End View

Outside



Awning

PMI Fiberglass ~~Casement~~ Window Top View

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ANY DEVIATION IS NOTED.

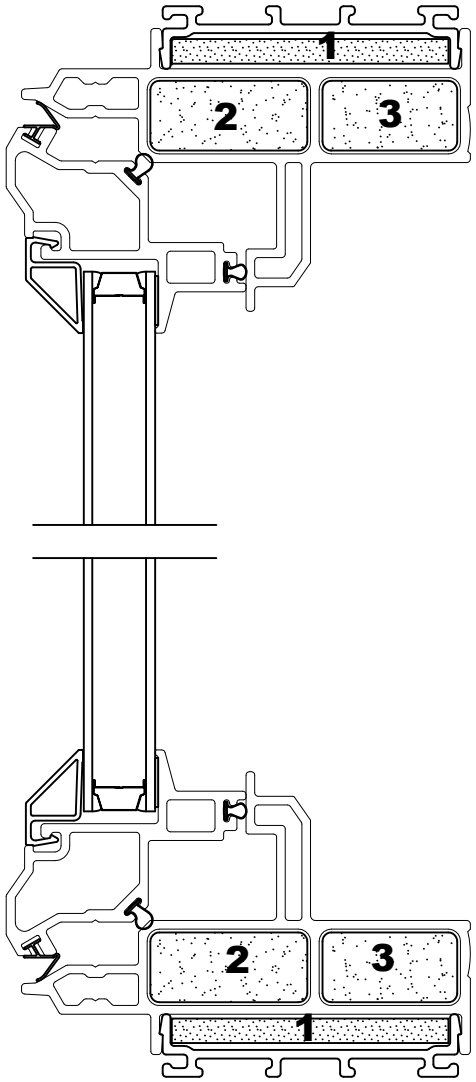
ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Dinsman

Awning

PMI Fiberglass ~~Casement~~ Window

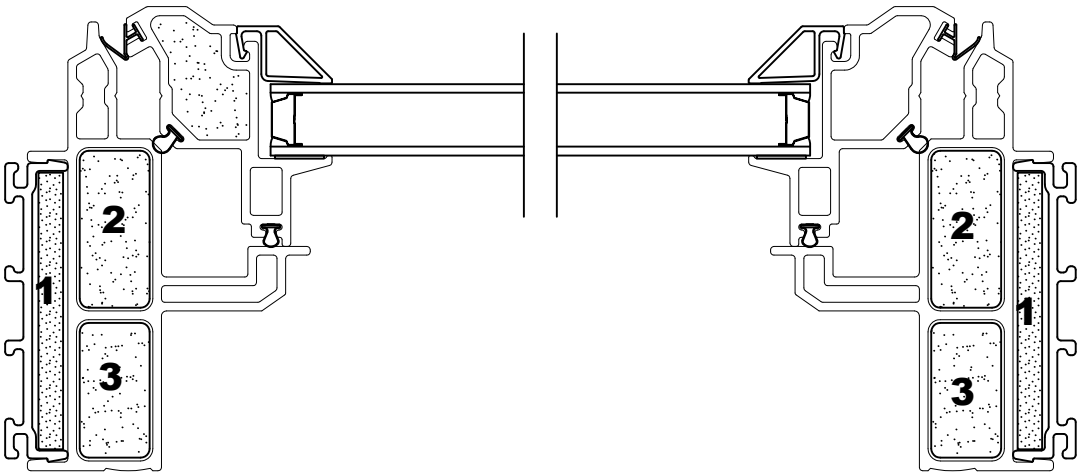
Foam-Filled Options



Awning

PMI Fiberglass ~~Casement~~ Window End View Cardinal Glass
366 XL Edge 95% argon

Outside



Awning

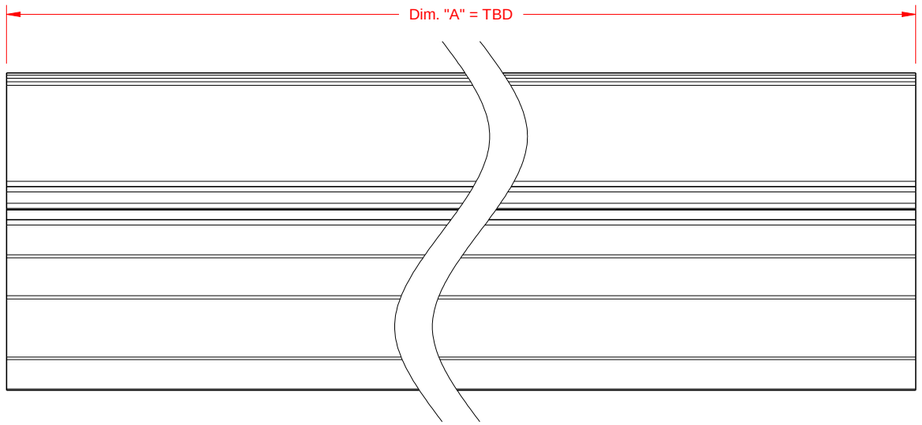
PMI Fiberglass ~~Casement~~ Window Top View

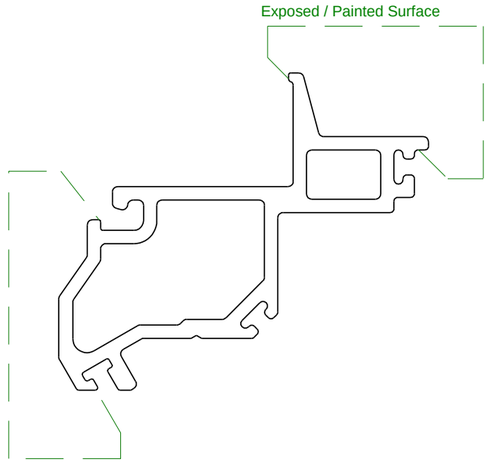
1 Cap

2 Outer Frame Hollow

3 Inner Frame Hollow

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Added Dim, Changed Expoised Surface	02.03.2011	PMI
	.02	Changed Angle on Outside Surface	02.16.2011	PMI
	.03	Bottom "T" Slot was "U" Slot	06.01.2011	PMI





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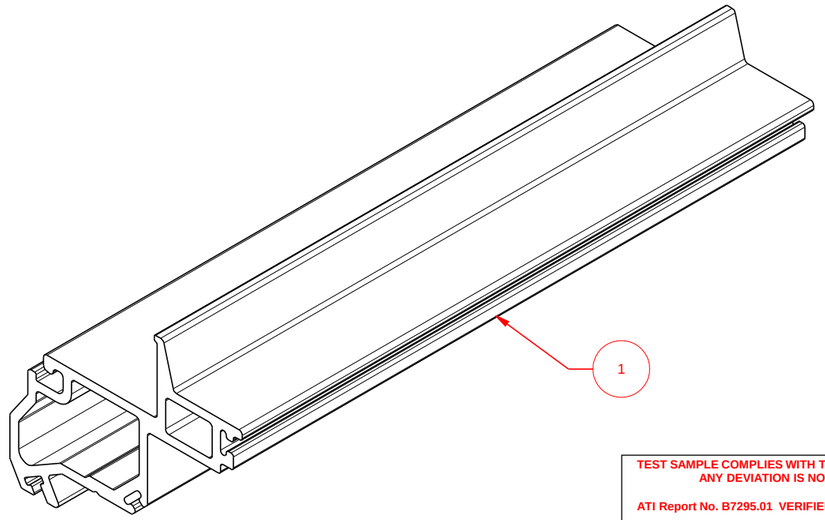
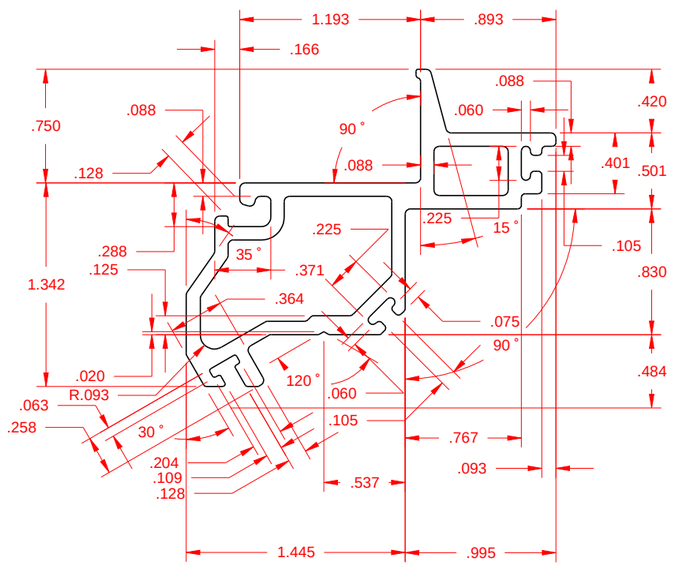


Customer Approval

Sign name on line above Date

Print name on line above



Profile Detail
Scale: 1x

TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Linneman

Item #	Part Name	PMI Part Number	Cost Center	Revision	Comment
1	Casement Sash Profile	P0006	Area: .793 ", Outer Perim: 10.486 ", Inner Perim: 5.517 "		

Note: Industry Standard Tolerances Unless Otherwise Specified.

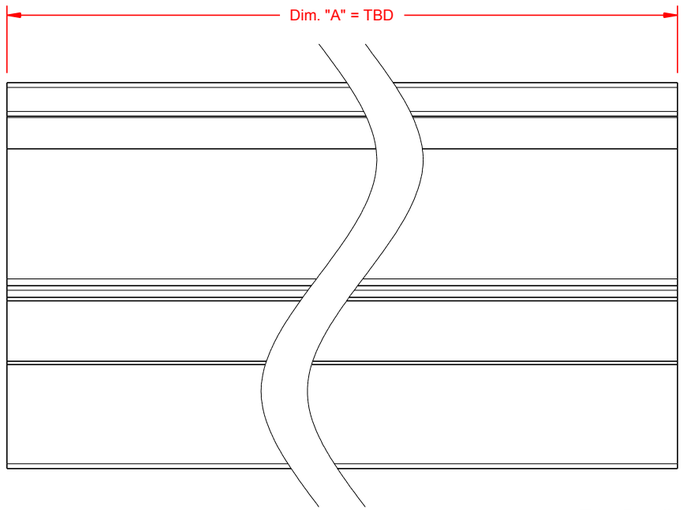
DRAWN	PMI Engineering	06.01.2011
CHECKED		
QA		
MFG		
APPROVED		

Proformance Manufacturing, Inc
750 North County Line Road
Lone Rock, WI 53556
www.pmi-windows.com
608.583.7200
608.583.7060 Fax

SIZE	DWG NO.	DWG Name.	REV
B	PMI-006.03	Casement Sash Profile	.03

SCALE:	Directory	SHEET
As Noted	NBO\PMI\Eng\Casement	1 of 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Added Radius Inside Edge	02.03.2011	PMI
	.02	Changed Sash Stop Location by .250" , Changed lip	02.16.2011	PMI
	.03	Changed Inside Wall Location by .250"	02.17.2011	PMI



Trim Detail
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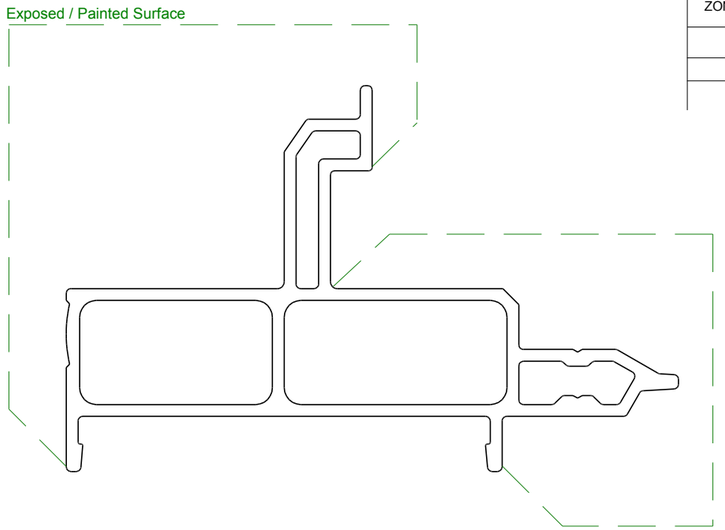
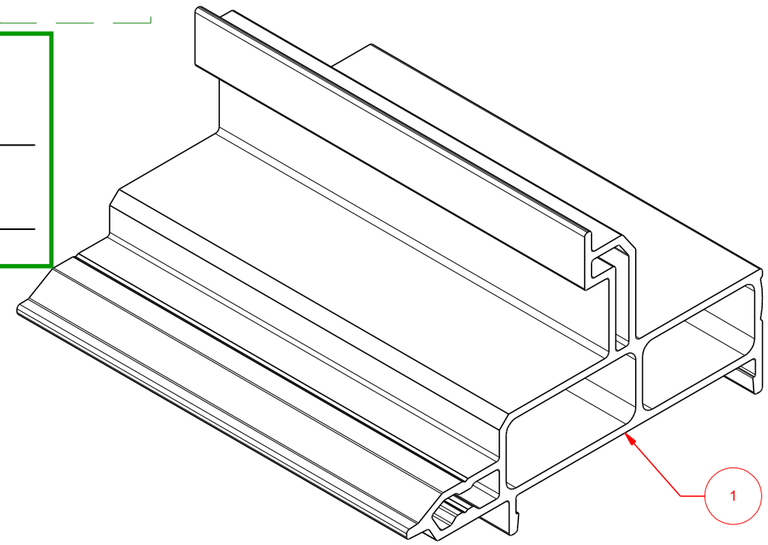
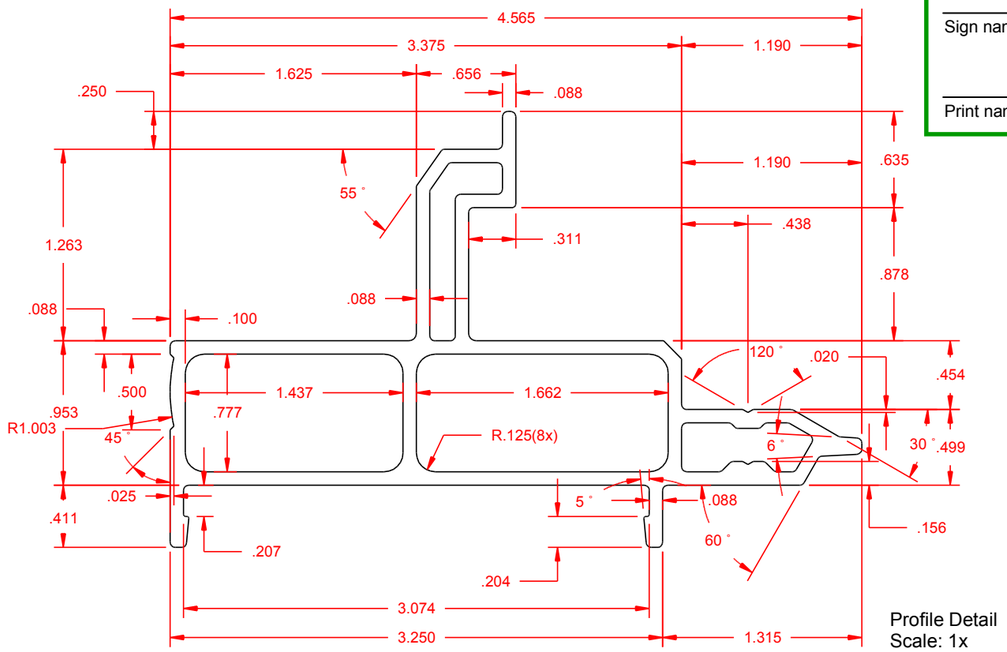


Customer Approval

Sign name on line above Date

Print name on line above





Profile Detail
Scale: 1x

TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Bineman

Item #	Part Name	PMI Part Number	Cost Center	Revision	Comment
1	Casement Frame Profile	P0005	Area: 1.451 ", Outer Perim: 15.750 ", Inner Perim: 14.290 "		

Note: Industry Standard Tolerances Unless Otherwise Specified.

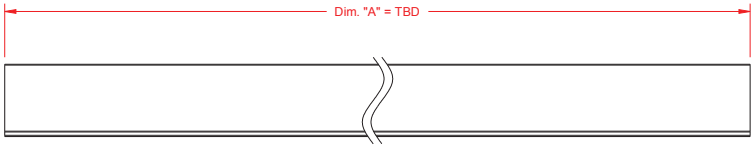
DRAWN	PMI Engineering	DATE 02.17.2011
CHECKED		
QA		
MFG		
APPROVED		

Proformance Manufacturing, Inc
750 North County Line Road
Lone Rock, WI 53556
www.pmi-windows.com
608.583.7200
608.583.7060 Fax

SIZE	DWG NO.	DWG Name.	REV
B	PMI-005.03	Casement Frame Profile	.03

SCALE:	Directory	SHEET
As Noted	NBO\PMI\Eng\Casement	1 of 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Added Cap Area	01.26.2011	Teel



Trim Detail
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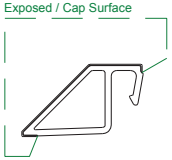
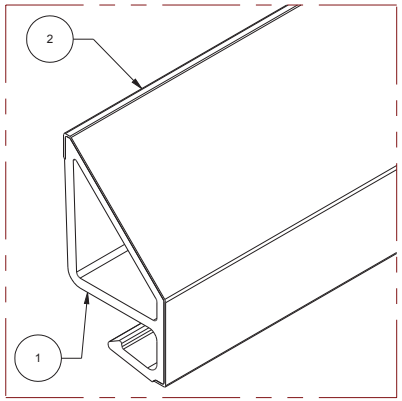
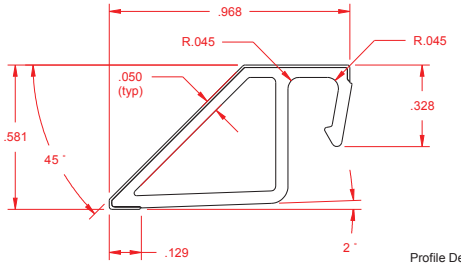


Customer Approval

Sign name on line above Date

Print name on line above





Profile Detail
Scale: 2x

Item #	PMI Part #	Part Name	Cost Center	Rev.	Comment
1	P0136	Glazing Bead .726	Area: .116", Outer Perim: 3.201", Inner Perim: 1.781"	.01	
2		Glazing Bead Cap .72(	Area: .0139 ", Perimeter: 2.791 "		.010" Nominal Cap Wall Thickness

TEST SAMPLE COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Lineman

Note: Industry Standard Tolerances Unless Otherwise Specified.

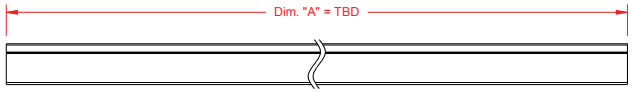
DRAWN	PMI Engineering	DATE 01.26.2011
CHECKED		
QA		
MFG		
APPROVED		

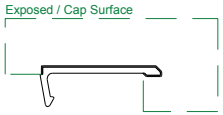
Proformance Manufacturing, Inc
750 North County Line Road
Lone Rock, WI 53556
www.pmi-windows.com
608.583.7200
608.583.7060 Fax

SIZE	DWG NO.	DWG Name.	REV
B	PMI-106.01	Glazing Bead .726	.01

SCALE:	Directory	SHEET
As Noted	PMI\Engineering\Accessory\Sash	1 of 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



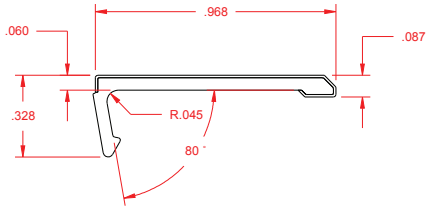


Trim Detail
Scale: 1x

Customer Approval

Sign name on line above Date

Print name on line above



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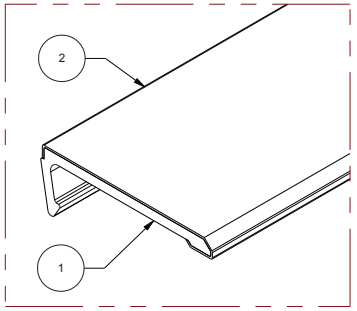


Item #	PMI Part Number	Part Name	Cost Center	Revision	Comment
1	P0137	Triple Glazing Bead	Area: .0630 ", Perimeter: 2.543 "		
2		Triple Glazing Bead Cap	Area: .0122 ", Perimeter: 2.453 "		

TEST SAMPLE COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Linneman

Note: Industry Standard Tolerances Unless Otherwise Specified.

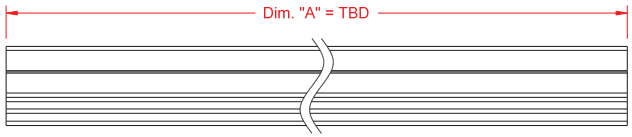
DRAWN	PMI Engineering	DATE 01.27.2011
CHECKED		
QA		
MFG		
APPROVED		

Proformance Manufacturing, Inc
750 North County Line Road
Lone Rock, WI 53556
www.pmi-windows.com
608.583.7200
608.583.7060 Fax

SIZE	DWG NO.	DWG Name.	REV
B	PMI-107	Triple Glazing Bead	

SCALE: As Noted | Directory: NBO\PMI\\Eng\Accessory\Sash | SHEET: 1 of 1

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Final draft	11.17.2010	

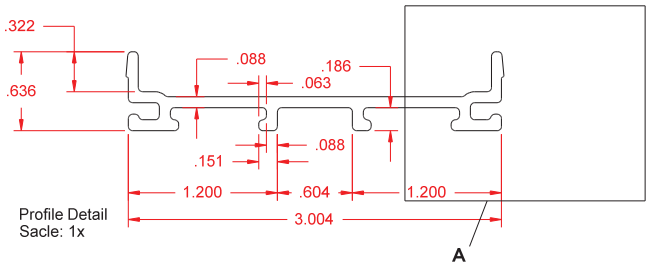


Trim Detail
Scale: 1x

Customer Approval

Sign name on line above Date

Print name on line above



Profile Detail
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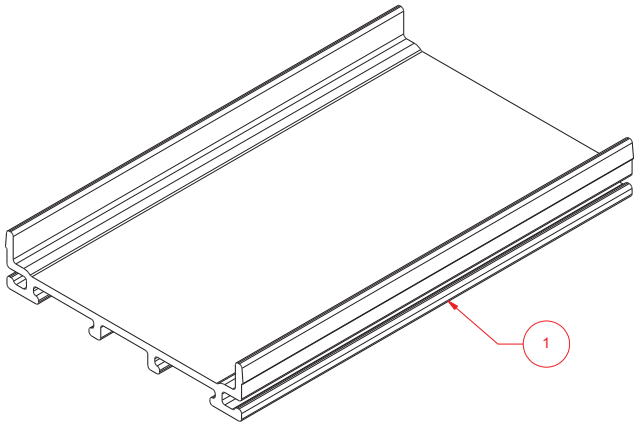
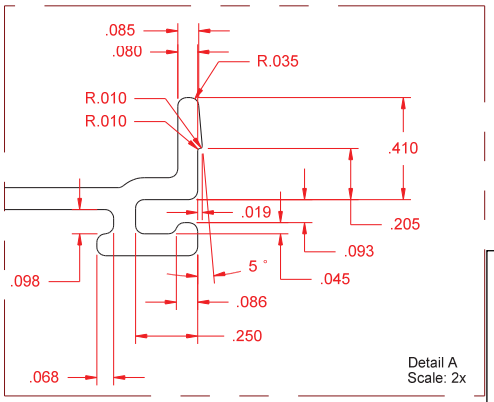




Detail A
Scale: 2x

TEST SAMPLE COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Dinsman

Item #	Part Name	Cost Center	Revision	Comment
1	Frame Cap	Area: .462, Perimeter: 10.201		

Note: Industry Standard Tolerances Unless Otherwise Specified.

DRAWN	PMI Engineering	DATE 11.17.2010
CHECKED		
QA		
MFG		
APPROVED		

Proformance Manufacturing, Inc
750 North County Line Road
Lone Rock, WI 53556
www.pmi-windows.com
608.583.7200
608.583.7060 Fax

SIZE	DWG NO.	DWG Name.	REV
B	PMI-003.01	Frame Cap	.01

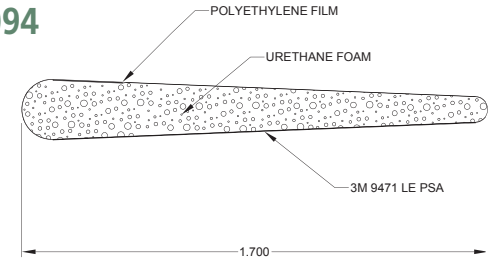
SCALE:	Directory	SHEET
As Noted	NBO\PMI\Eng\Accessory\Frame	1 of 1

Foam Seals™

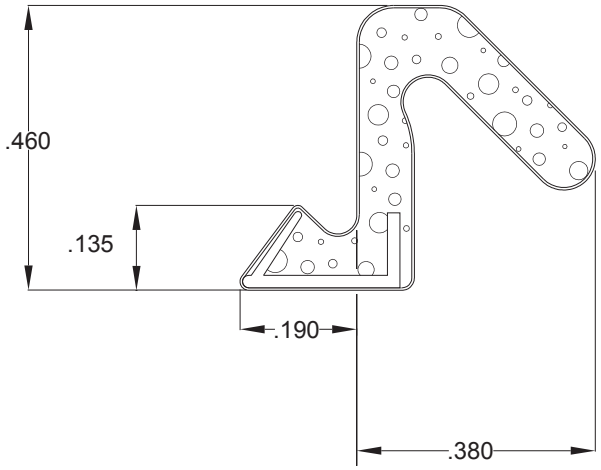
PRO-LON

PART NUMBER AND PRODUCT DETAIL

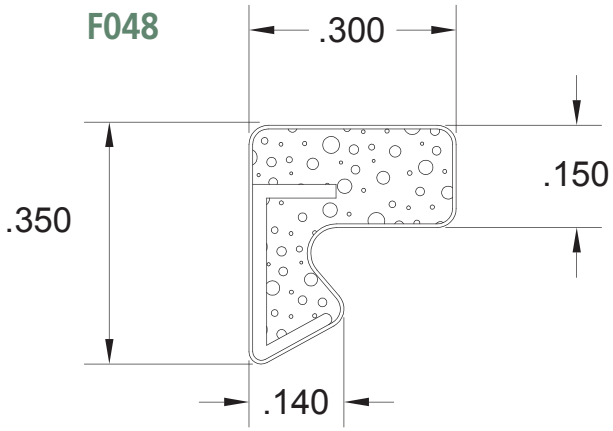
F094



F021



F048



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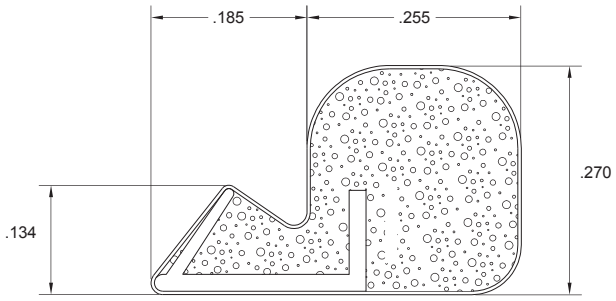
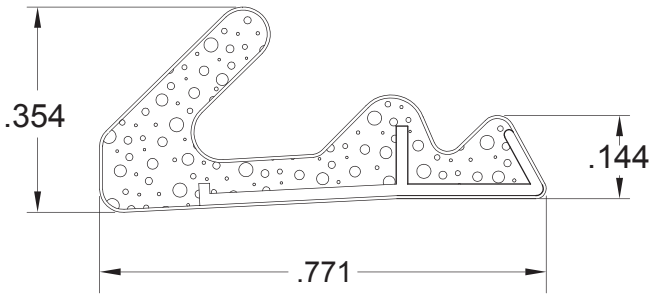
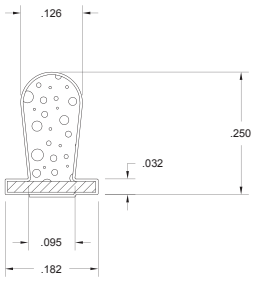


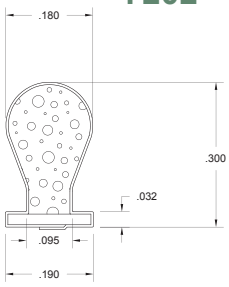
F124



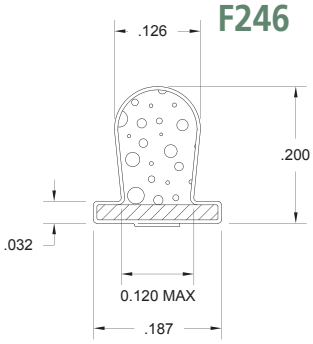
F201



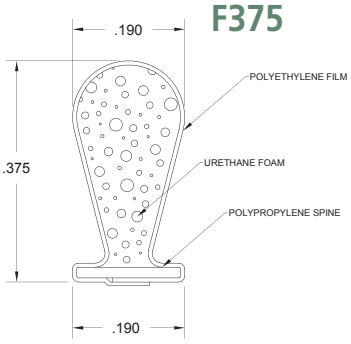
F202



F246



F375



TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

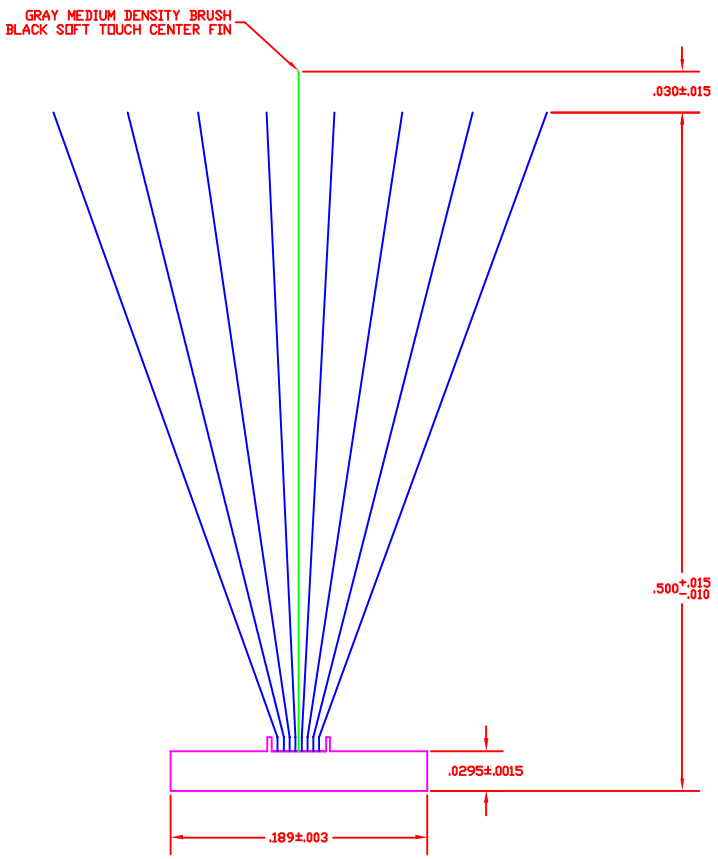
ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Sineman

Ultrafab® INC.

1050 Hook Road • Farmington, NY 14425 • 800.535.1050 or 585.924.2186 • **www.ultrafab.com**

REV	DESCRIPTION	ECR #



TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Lineman

UNITS	.X	.XX	.XXX	.XXXX	ANGLES
INCHES `	.05	.01	.005	.0005	.5~

NOTES:

REMOVE ALL SHARP EDGES UNLESS OTHERWISE STATED

STD MACHINE FINISH 125

DRAWN CAB

CHECKED

ENGINEER

POST PROCESS:

HEAT TREAT:

MAT'L: POLYPROPELENE

ULTRAFAB
www.ultrafab.com
1050 HOOK ROAD
FARMINGTON, NY 14425
PHN (585) 924-2186
FAX (585) 924-7680
WWW.ULTRAFAB.COM

TITLE

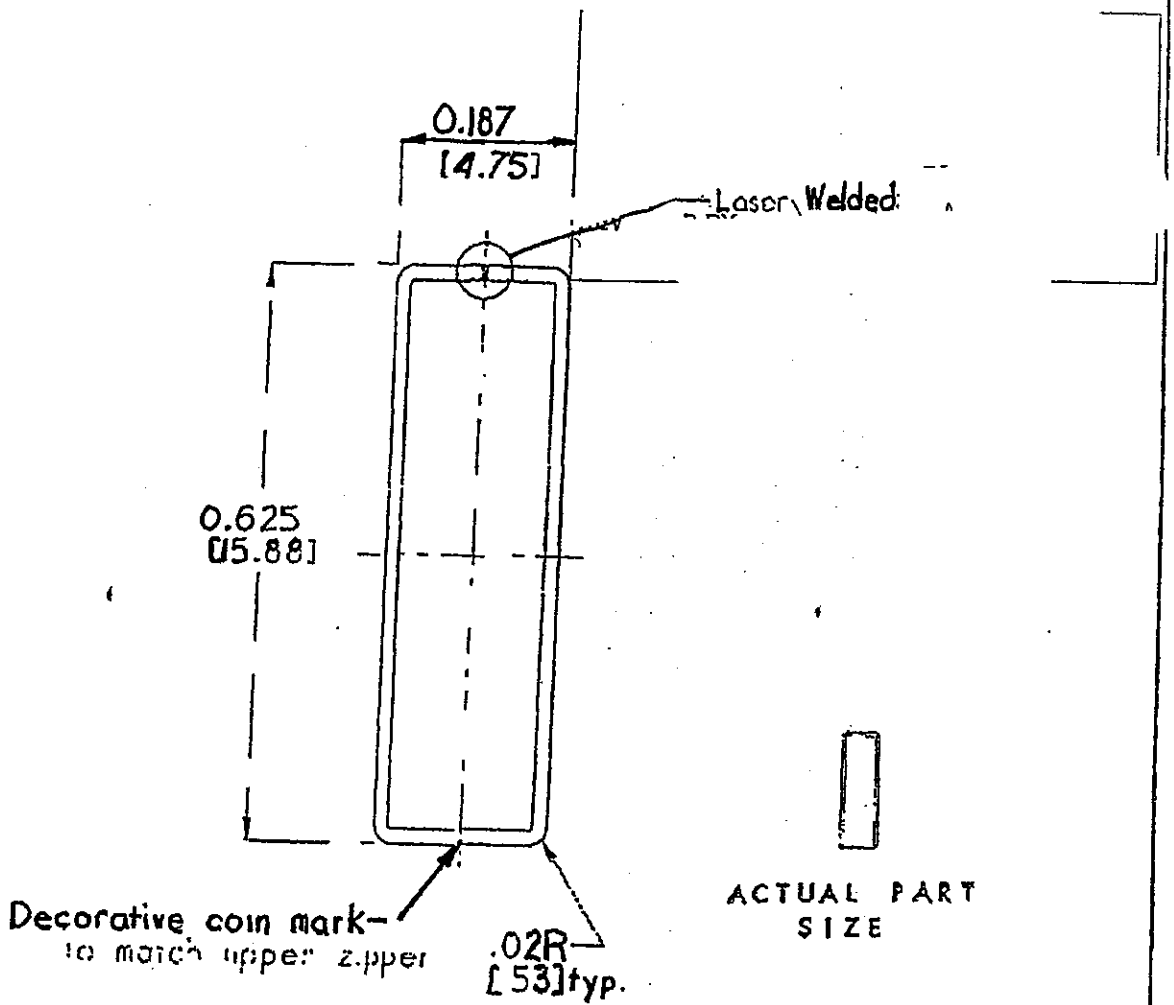
W33501NG

SIZE	DWG NO	REV

SCALE: DO NOT SCALE DRAWING

SHEET OF

NOTE: ALL DIMENSIONS IN [] BRACKETS ARE MM UNLESS NOTED



TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Lineman

DATE	SYM.	REVISION	AUTH.	DRN.	CK.
3/20/97		Initial Release		GRM	

ALLMETAL

TOLERANCES EXCEPT AS NOTED
DECIMAL INCHES .XX ± .01 .XXX ± .005 .XXXX ± .0002
DECIMAL MM .XX ± .13 .XX ± .06
ANGULAR ± 1°

TITLE: 3/16 x 5/8 MBZ (Muntin Bar - Zippered)

MATL: .016" [.41mm] 3105-H24 Aluminum

FINISH: Grey Anod.

DRN. BY G. Matthews
CK. BY
APPR. BY
S.O. NO.

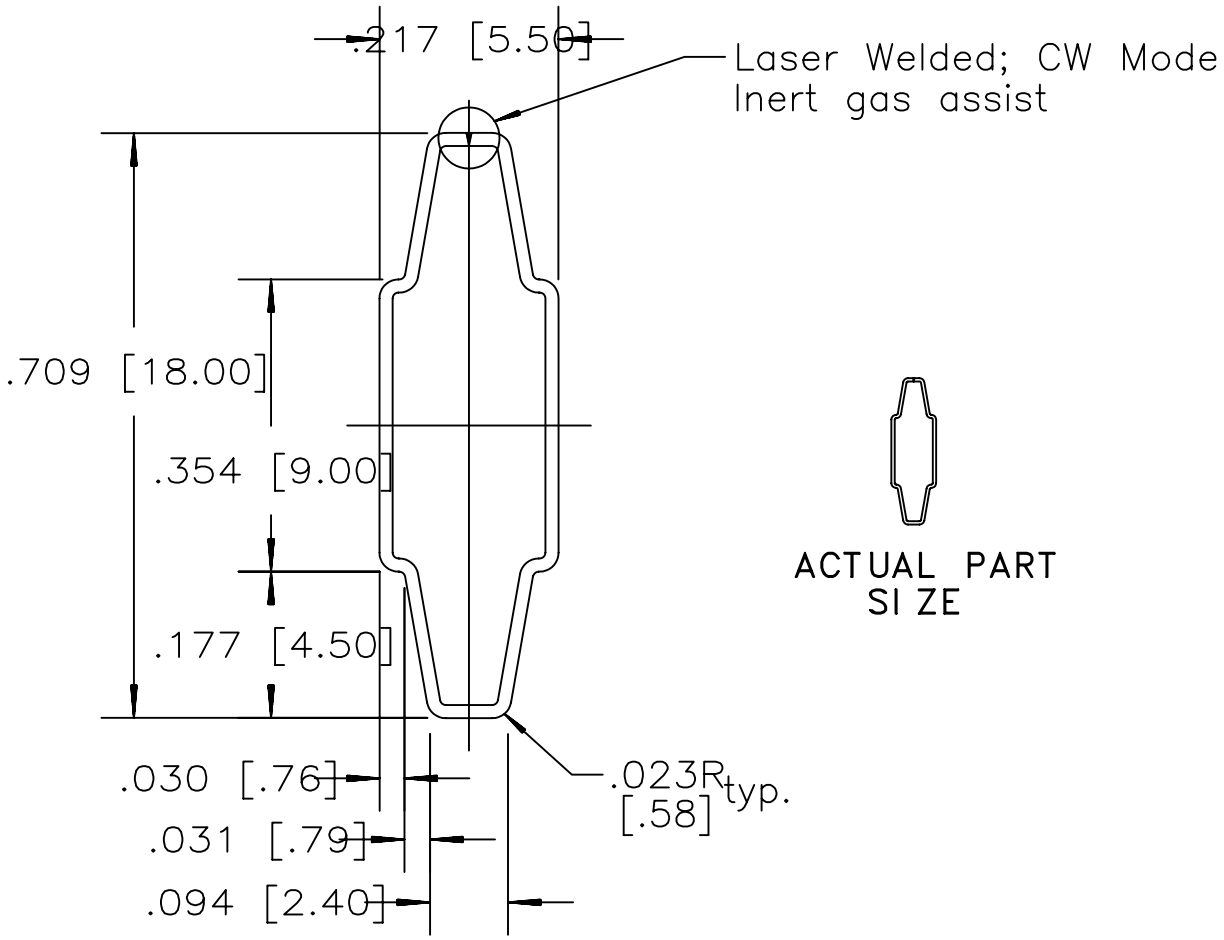
SCALE: 5:1

DATE: 3/20/97

DWG. NO. 10206010101214O

FILENAME: 316X58Z

NOTE: ALL DIMENSIONS IN [] BRACKETS ARE MM UNLESS NOTED



TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Dinsman

DATE	SYM.	REVISION	AUTH.	DRN.	CK.
4/17/97		Weld note changed, Title block changed		GRM	
12/9/92		Initial Release		GRM	

ALLMETAL

TOLERANCES
EXCEPT AS NOTED

DECIMAL INCHES
.XX .XXX .XXXX
± .01 .005 .0002

DECIMAL MM
.XX .XXX
± .13 .06

ANGULAR
± 1°

TITLE: 5.5 x 18mm Contour Muntin Bar (CMB)

MATL.: .016" [.41mm]
3105 Aluminum

FINISH: FULL RANGE
(MILL, ANOD., PAINTED)

DRN. BY G. Matthews

CK. BY

APPR. BY

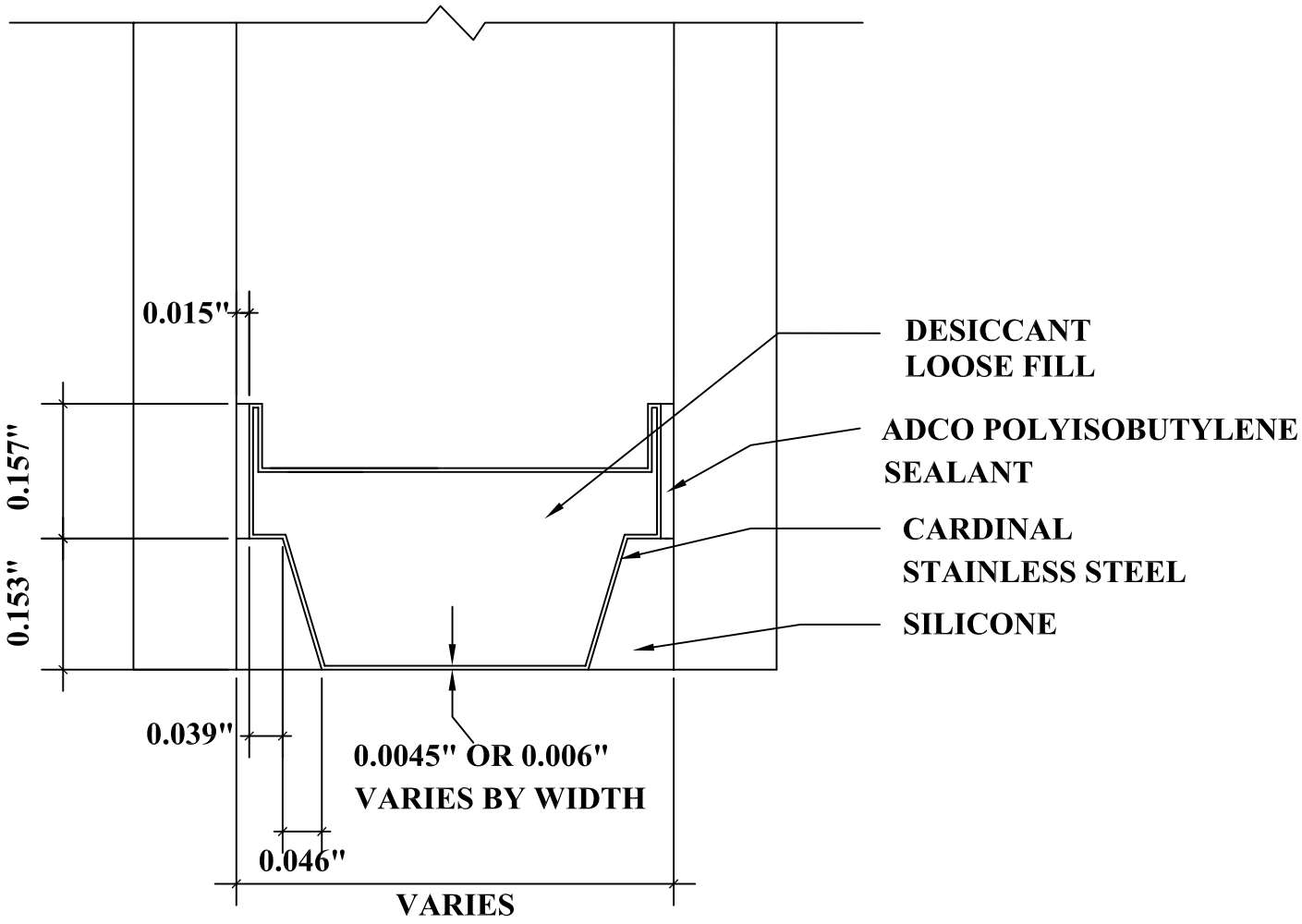
S.O. NO.

SCALE: 4:1

DATE: 4/17/97

DWG. NO.: 1020301010XX255

FILENAME:CMB5518J



DETAIL FOR THERMAL MODELING OF
CARDINAL XL EDGE SPACER (SS-D)

TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B7295.01 VERIFIED DATE: 2/22/12

REVIEWED BY: Heather Sineman