Architectural Testing

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

(Revised)

Rendered to:
PROFORMANCE MANUFACTURING, INC.

SERIES/MODEL:
Fiberglass Picture Window

Report Number:	**B3355.02-201-45**
Report Date:	**09/22/11**
Expiration Date:	**09/22/15**
Revised Report Date:	**05/11/12**

849 Western Avenue North
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COMPUTER SIMULATION REPORT
(Revised)

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

Report Number:	B3355.02-201-45
Simulation Date:	09/22/11
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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 6.3.38.0
Center-of-Glass Modeling:	WINDOW 6.3.54.0
Total Product Calculations:	WINDOW 6.3.54.0
Spectral Data Library:	23.0

Simulations Specimen Description:

Series/Model:	Fiberglass Picture Window
Type:	Fixed , 4-Sided
Frame Material:	FG Fiberglass
	FF Fiberglass with Foam-Filled Insulation
Sash Material:	NA Not Applicable
Standard Size:	1200mm x 1500mm

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Modeling Assumptions/Technical Interpretations:

1) 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.
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.

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	0.004177	0.006948	0.009563
SHGC1	0.798869	0.716359	0.638530
VT0	0.000000	0.000000	0.000000
VT1	0.794952	0.709671	0.629227

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*
-----	----

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	Single Probe
90% Krypton	Single Probe

Edge-of-Glass Construction

Interior Condition	ABS Glazing Bead
Exterior Condition	Foam Weatherstripping

Weatherstripping

Type	*Quantity*	*Location*
None		

Frame/Sash Materials Finish

Interior	Fiberglass
Exterior	Fiberglass

NFRC 100/200/500 Summary Sheet
Fiberglass Picture Window

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 0.29			**SHGC (N / <1 / >1) 0.22 / 0.20 / 0.18**					**VT (N / <1 / >1) 0.51 / 0.46 / 0.41**		**CR 59**	
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 0.20			**SHGC (N) 0.19**					**VT (N) 0.37**		**CR 64**	
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 0.20			**SHGC (N) 0.28**					**VT (N) 0.46**		**CR 64**	
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 0.25			**SHGC (N / <1 / >1) 0.20 / 0.18 / 0.16**					**VT (N / <1 / >1) 0.46 / 0.41 / 0.36**		**CR 47**	
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 0.24			**SHGC (N / <1 / >1) 0.20 / 0.18 / 0.16**					**VT (N / <1 / >1) 0.46 / 0.41 / 0.36**		**CR 50**	
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 0.18			**SHGC (N) 0.16**					**VT (N) 0.33**		**CR 62**	
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 0.16			**SHGC (N) 0.16**					**VT (N) 0.33**		**CR 65**	
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 0.20			**SHGC (<1 / >1) 0.17 / 0.16**					**VT (<1 / >1) 0.33 / 0.29**		**CR 64**	
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 0.20			**SHGC (<1 / >1) 0.26 / 0.23**					**VT (<1 / >1) 0.41 / 0.36**		**CR 64**	
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 0.19			**SHGC (<1 / >1) 0.14 / 0.13**					**VT (<1 / >1) 0.30 / 0.26**		**CR 62**	

NFRC 100/200/500 Summary Sheet
Fiberglass Picture Window

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-Foam-Filled Insulation											
	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	**0.16**		**SHGC (<1 / >1)**	**0.14 / 0.13**				**VT (<1 / >1)**	**0.30 / 0.26**	**CR**	**65**
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	**0.27**		**SHGC (N)**	**0.33**				**VT (N)**	**0.57**	**CR**	**60**
13	DS 366 Arg DS											
	0.117	0.500	0.117					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor	**0.26**		**SHGC (N)**	**0.22**				**VT (N)**	**0.51**	**CR**	**61**
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	**0.22**		**SHGC (N)**	**0.20**				**VT (N)**	**0.46**	**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	**0.17**		**SHGC (N)**	**0.28**				**VT (N)**	**0.46**	**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	**0.16**		**SHGC (N)**	**0.24**				**VT (N)**	**0.41**	**CR**	**63**
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	**0.17**		**SHGC (N)**	**0.19**				**VT (N)**	**0.37**	**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	**0.15**		**SHGC (N)**	**0.16**				**VT (N)**	**0.33**	**CR**	**64**
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	**0.28**		**SHGC (N)**	**0.33**				**VT (N)**	**0.57**	**CR**	**60**
20	DS 366 Arg DS											
	0.117	0.500	0.117					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor	**0.27**		**SHGC (N)**	**0.22**				**VT (N)**	**0.51**	**CR**	**60**

NFRC 100/200/500 Summary Sheet
Fiberglass Picture Window

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		**0.23**	**SHGC (N)**				**0.20**	**VT (N)**	**0.46**	**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		**0.19**	**SHGC (N)**				**0.28**	**VT (N)**	**0.46**	**CR**	**69**
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		**0.17**	**SHGC (N)**				**0.24**	**VT (N)**	**0.41**	**CR**	**63**
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		**0.18**	**SHGC (N)**				**0.19**	**VT (N)**	**0.37**	**CR**	**69**
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		**0.17**	**SHGC (N)**				**0.16**	**VT (N)**	**0.33**	**CR**	**64**
No Foam Options												
26	DS 180 Arg DS											
	0.118	0.500	0.117					ARG90	0.068(#2)	CL	SS-D	N
	U-Factor		**0.30**	**SHGC (N)**				**0.52**	**VT (N)**	**0.63**	**CR**	**58**
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		**0.20**	**SHGC (N)**				**0.45**	**VT (N)**	**0.56**	**CR**	**65**

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
B3355.02-201-45

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Drawings and Bills of Material (10)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
01-R0	09/22/11	All	Original report issue. Work requested by Mr. Jerry Beranek of Proformance Manufacturing, Inc.
02-R0	5/11/2012	All	Revised report issue. Added 16 glass options (IDs 12-27).

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

Appendix A

B3355.02-201-45

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

ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____

Picture Window Bill of Materials

Description	Part #	Vendor
Glazing Bead	P1036	Teel Plastics
Triple Glazing Bead	P1037	Teel Plastics
Frame Cap	P0003	Teel Plastics
Picture Window Frame	P0007	Teel Plastics

TEST SAMPLE COMPLIES WITH THESE DETAILS.
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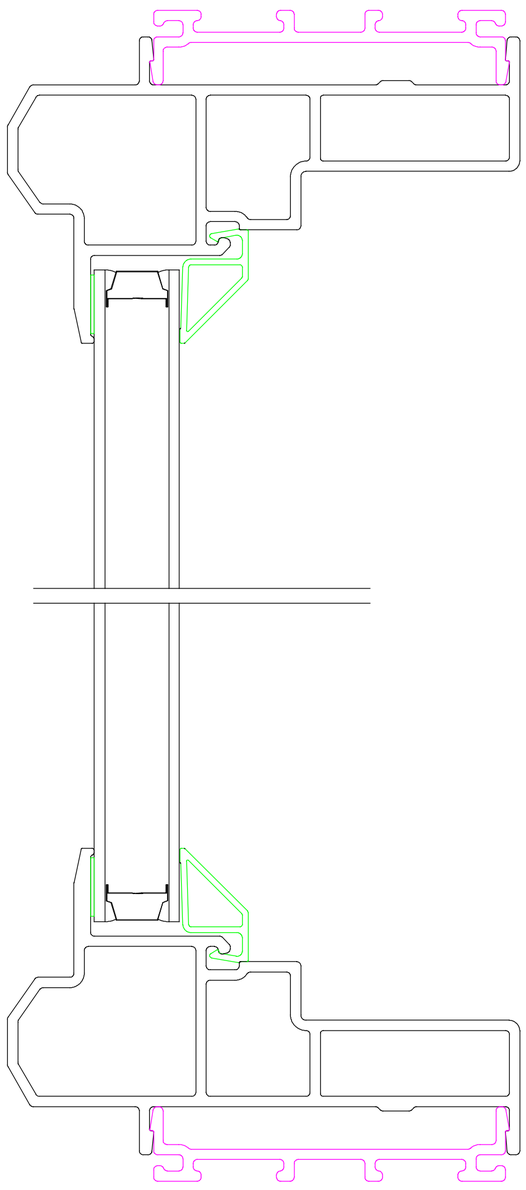
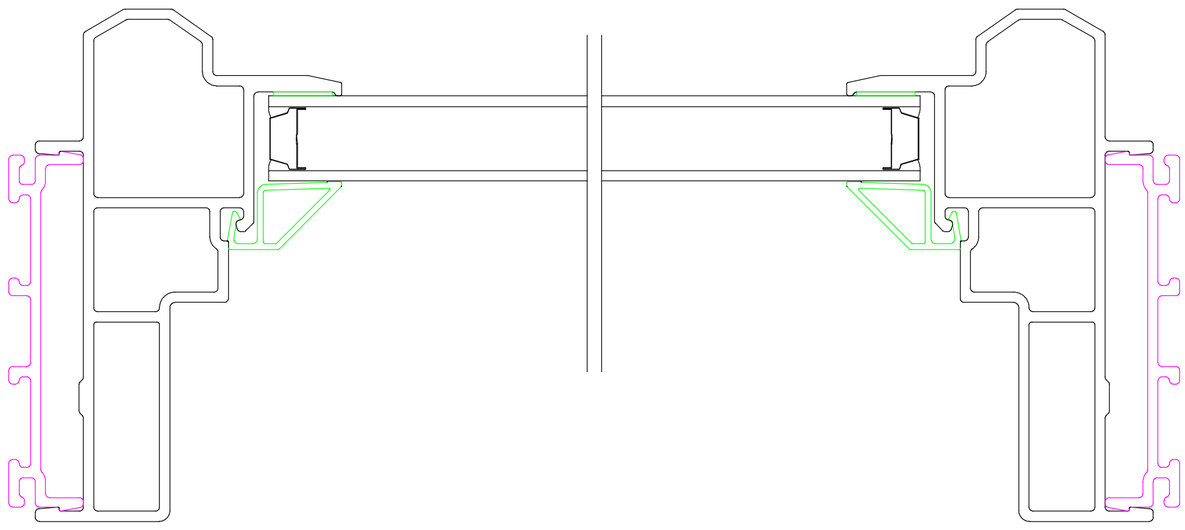
ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____

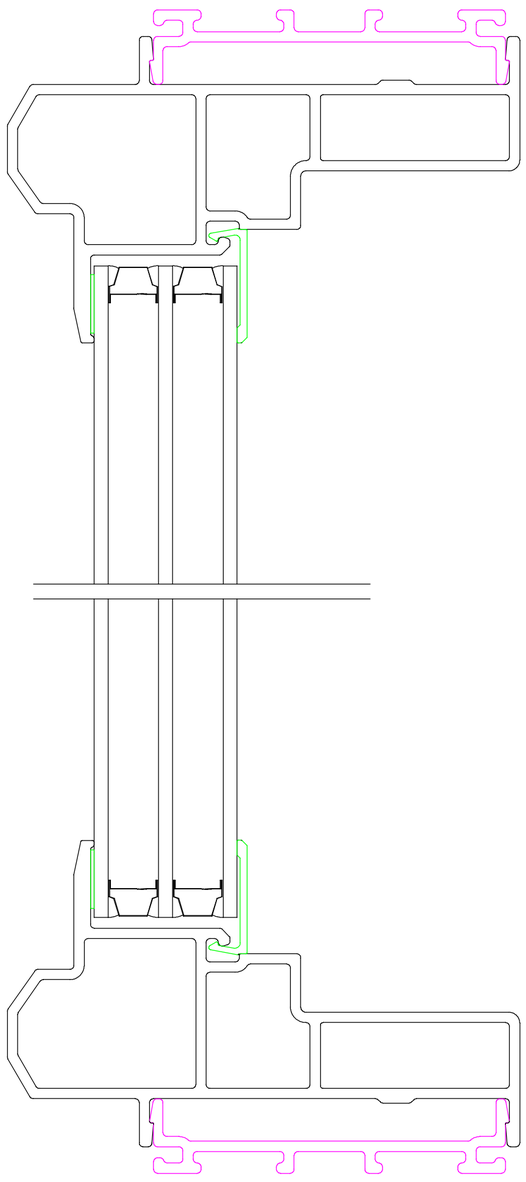


PMI Picture Window End View



PMI Picture Window Top View

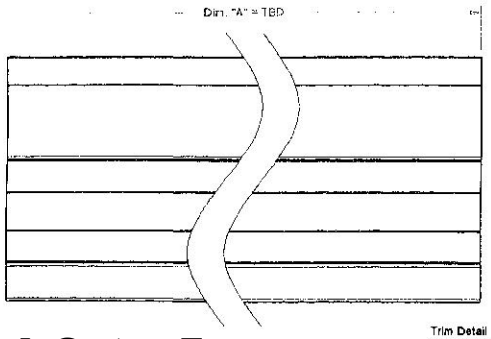
DRAFT

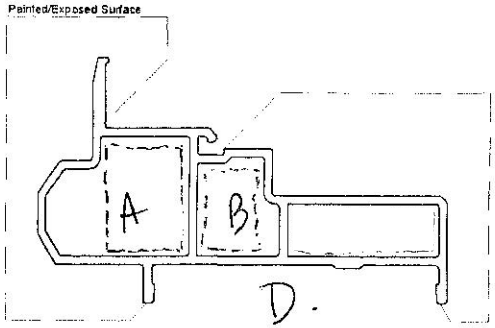


PMI Picture Window End View

PMI Picture Window Top View

Foam-Filled Options

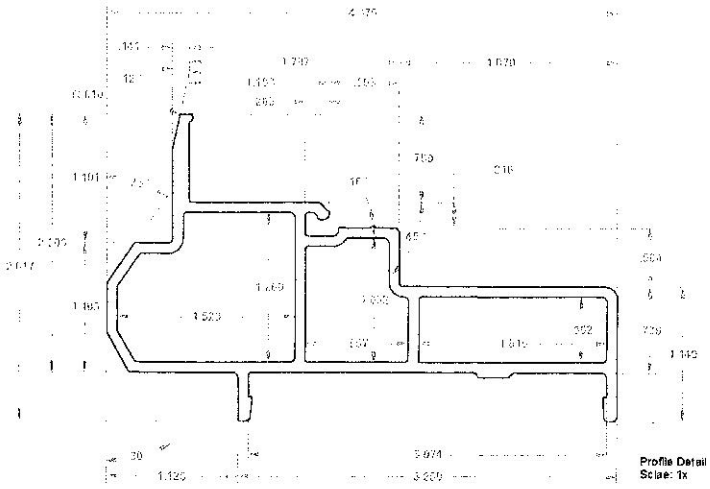




A Outer Frame

B Inner Frame

D Cap



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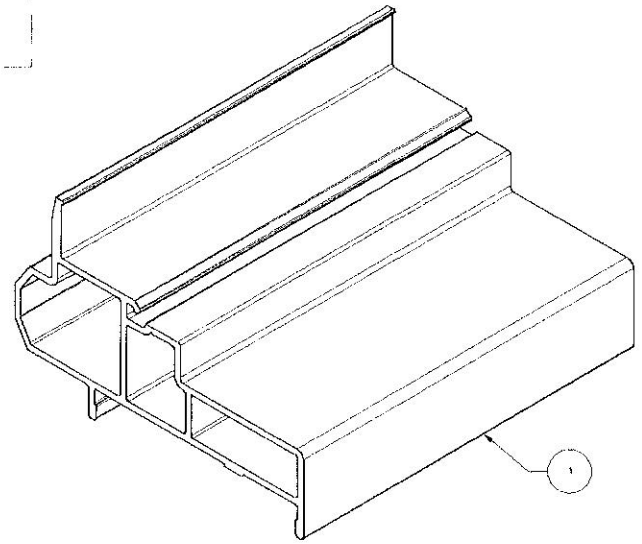


REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

TEST SAMPLE COMPLIES WITH THESE DETAILS
ANY DEVIATION IS NOTED.
ATI Report No. B3355.01 VERIFIED DATE 5/2011
REVIEWED BY:

Item #	Customer Part #	Part Name	Cost Center	Revision	Comment
1		PW Frame Profile	Area: 1.325 ", Outer Perim: 14.900 ", Inner Perim: 13.261 "		

Note: Industry Standard Tolerances Unless Otherwise Specified.

DRAWN	PMI Engineering	DATE 03.25.2011
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

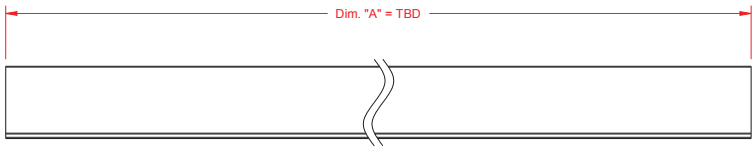
SIZE	DWG NO	DWG Name	REV
B	PMI-011	PW Frame Profile	

SCALE	Directory	SHEET
As Noted	PMI\Double Hung\Picture Window	1 of 1

Architectural Testing

Report #: B3355-201-45
Date: 05/11/2012
Verified by:

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



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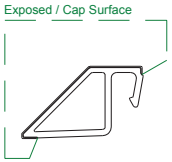

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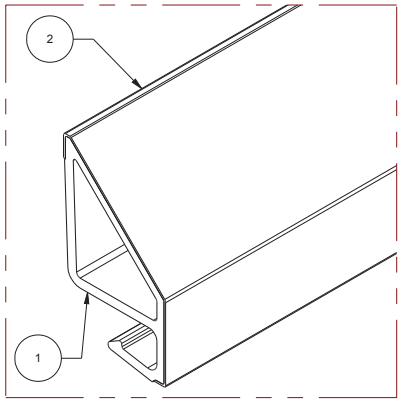
ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

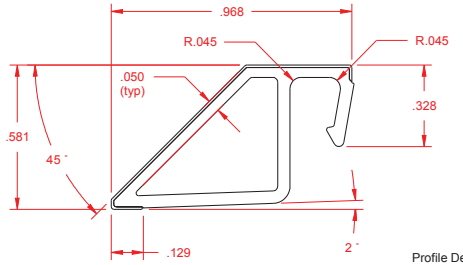
REVIEWED BY: _____

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

Note: Industry Standard Tolerances Unless Otherwise Specified.

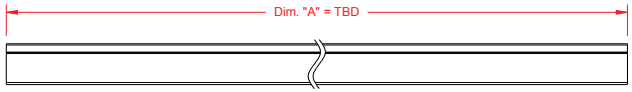
DRAWN	PMI Engineering	DATE 01.26.2011
CHECKED		
QA		
MFG		
APPROVED		

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

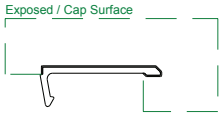
SIZE	DWG NO.	DWG Name.	REV
B	PMI-106.01	Glazing Bead .726	.01

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

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



Trim Detail
Scale: 1x



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

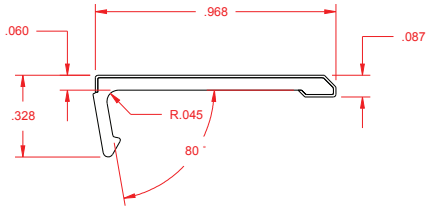
ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____

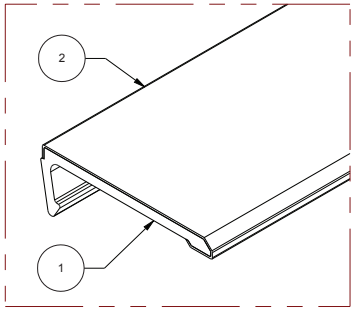
Customer Approval

Sign name on line above Date

Print name on line above



Profile Detail
Scale: 2x



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 "		

Note: Industry Standard Tolerances Unless Otherwise Specified.

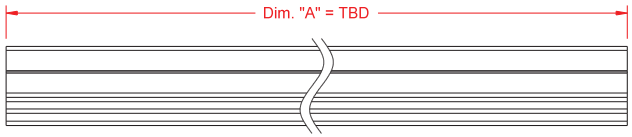
DRAWN	PMI Engineering	DATE 01.27.2011
CHECKED		
QA		
MFG		
APPROVED		

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

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Final draft	11.17.2010	

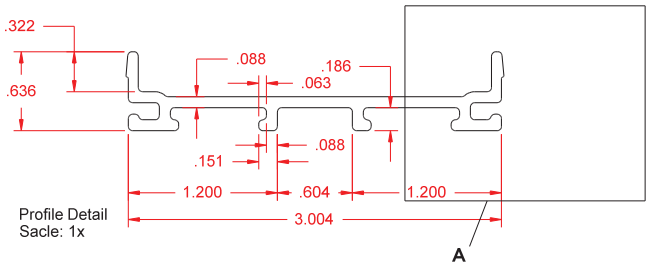


Trim Detail
Scale: 1x

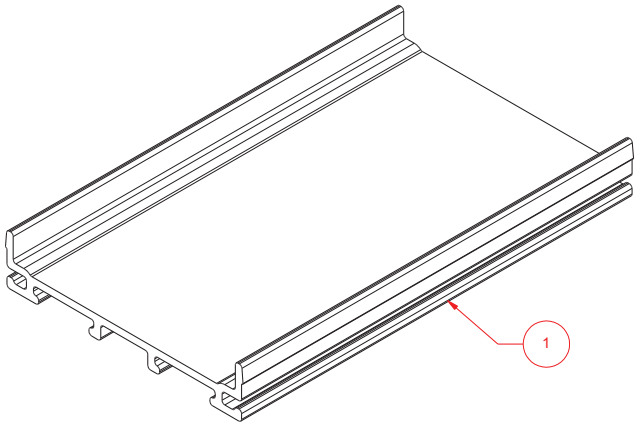
**TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.**

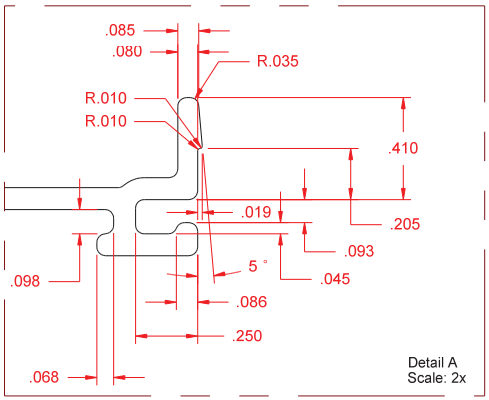
ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____



Profile Detail
Sacle: 1x





Detail A
Scale: 2x

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

Note: Industry Standard Tolerances Unless Otherwise Specified.

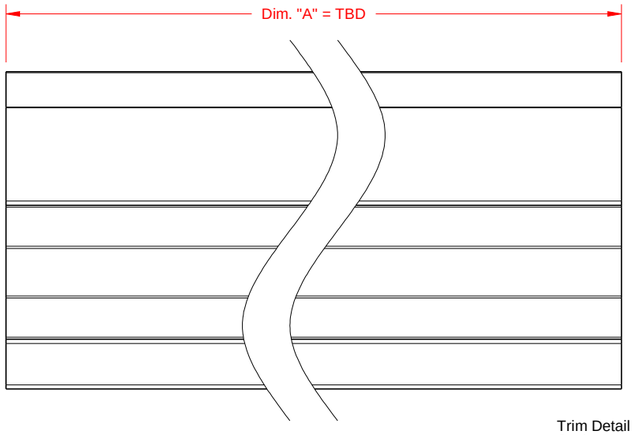
DRAWN	PMI Engineering	DATE 11.17.2010
CHECKED		
QA		
MFG		
APPROVED		

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

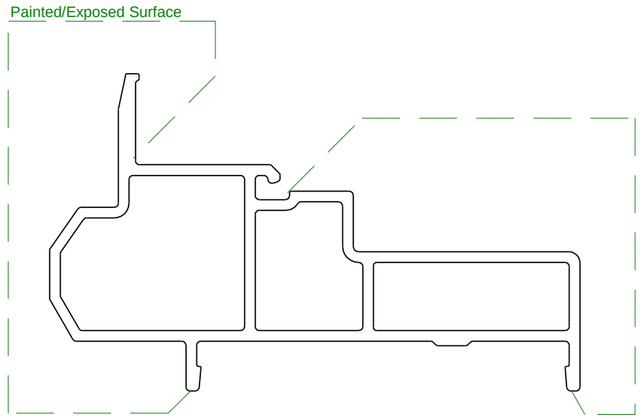
SIZE	DWG NO.	DWG Name.	REV
B	PMI-003.01	Frame Cap	.01

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

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



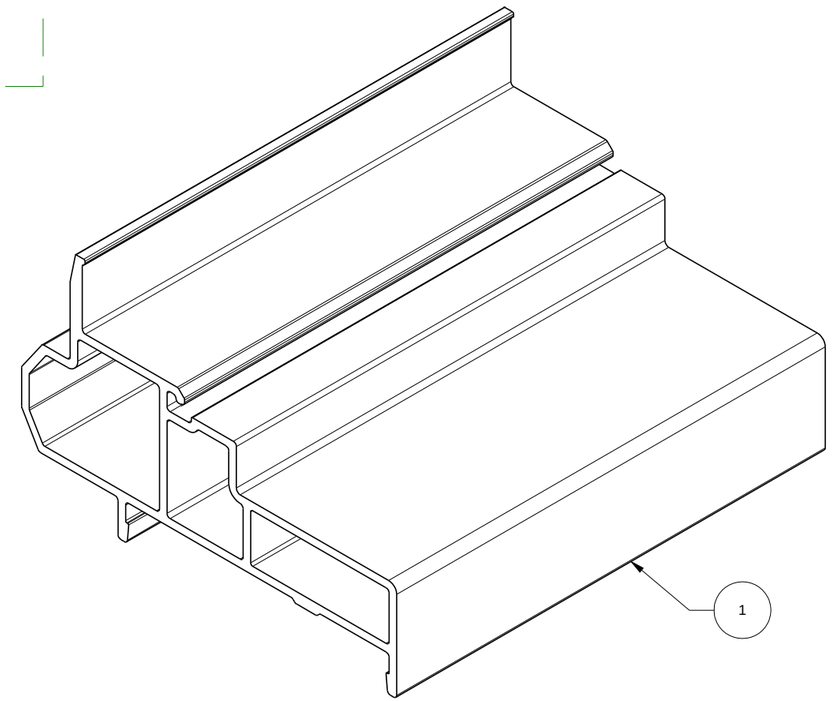
Trim Detail
Scale: None



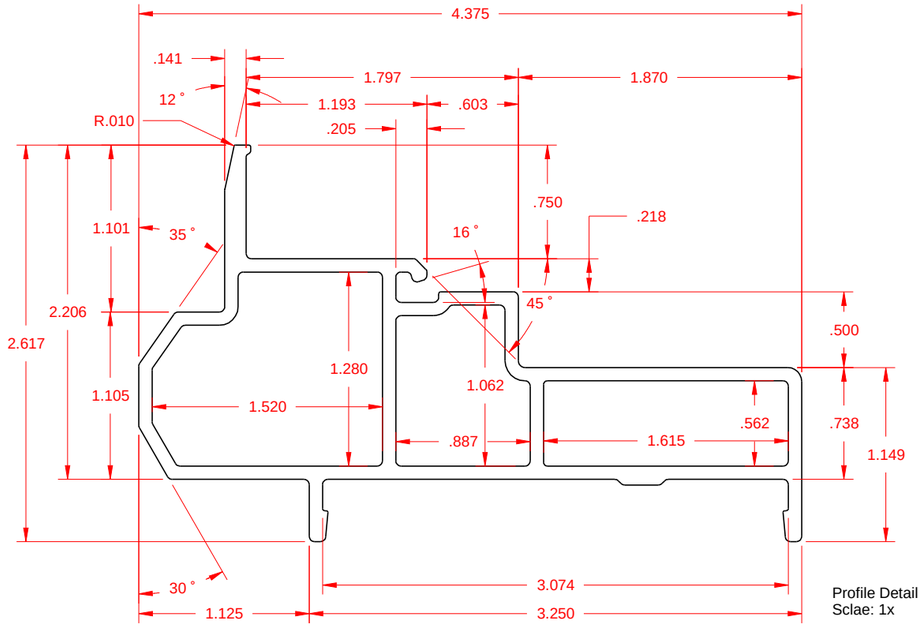
TEST SAMPLE COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.

ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____



DRAFT



Profile Detail
Sclae: 1x

Item #	Customer Part #	Part Name	Cost Center	Revision	Comment
1		PW Frame Profile	Area: 1.325 ", Outer Perim: 14.900 ", Inner Perim: 13.261 "		

Note: Industry Standard Tolerances Unless Otherwise Specified.

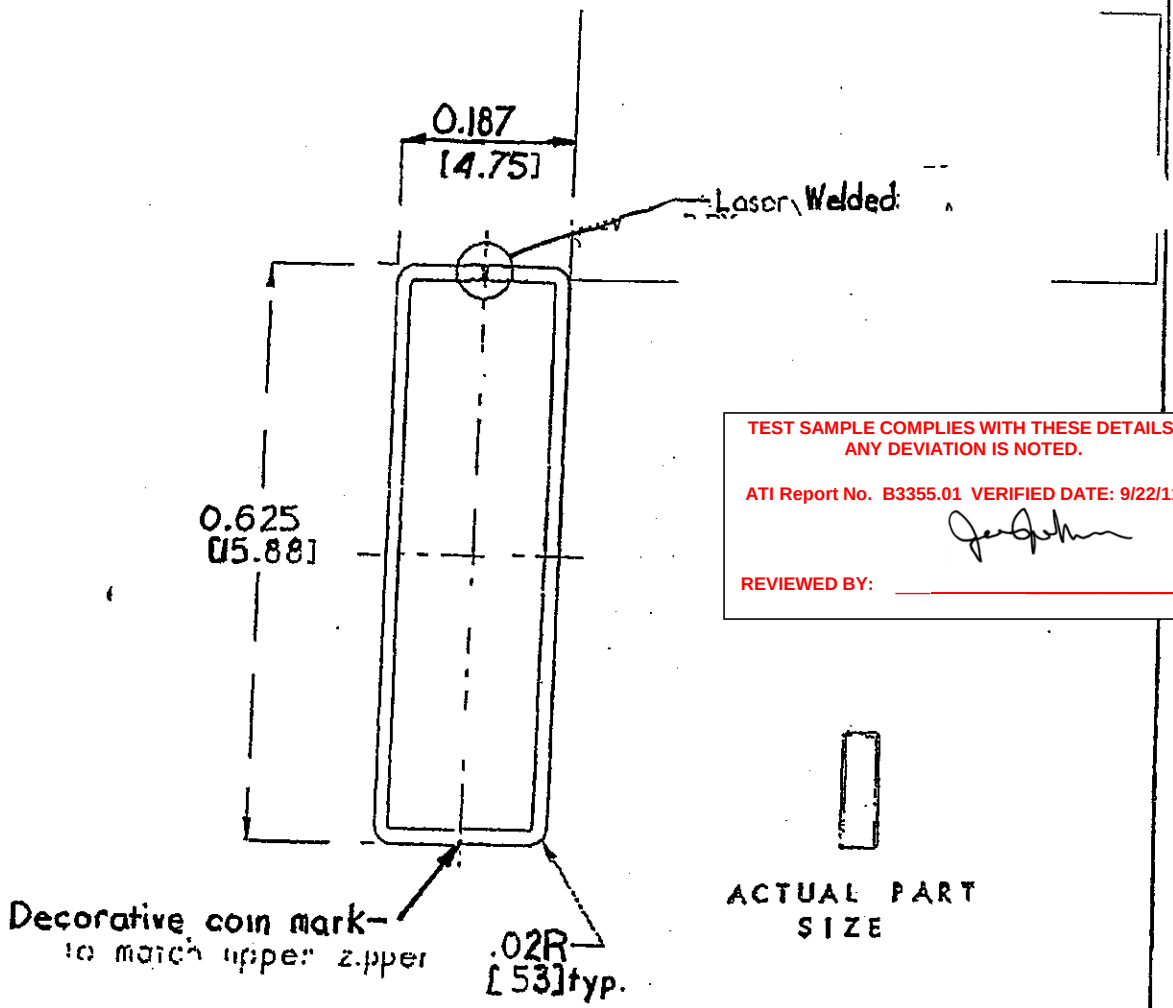
DRAWN	PMI Engineering	03.25.2011
CHECKED		
QA		
MFG		
APPROVED		

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-011	PW Frame Profile	

SCALE:	Directory	SHEET
As Noted	PMI\Double Hung\Picture Window	1 of 1

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



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

ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____

ACTUAL PART SIZE

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.

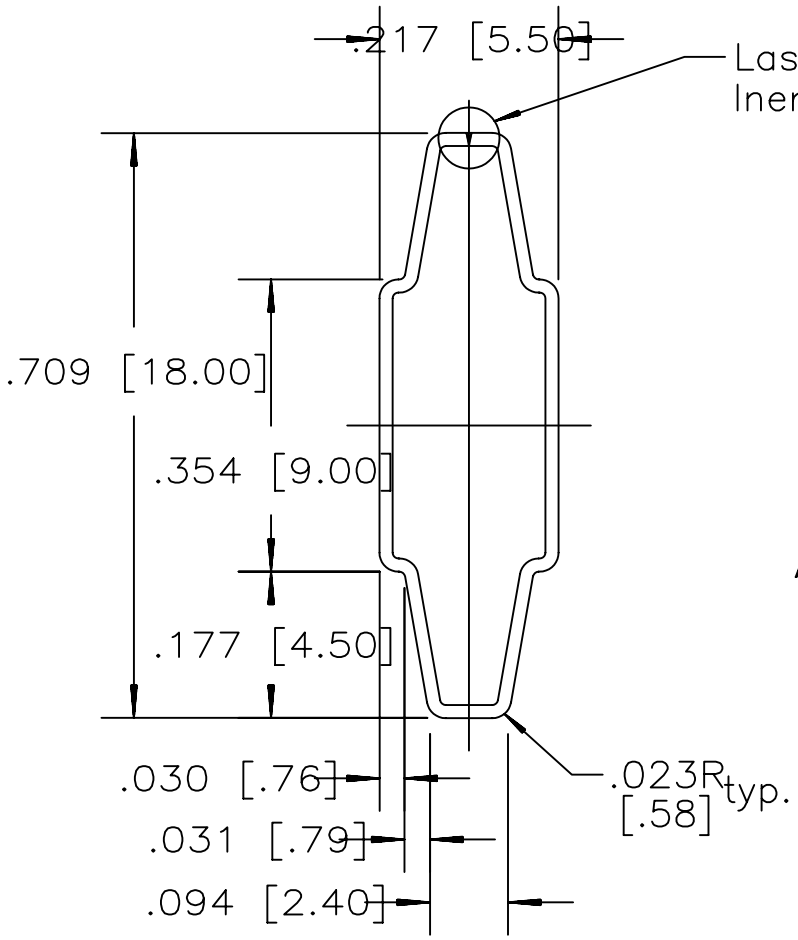
SCALE: 5:1

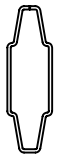
DATE: 3/20/97

DWG. NO. 10206010101214O

FILENAME:316X58Z

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





ACTUAL PART
SI ZE

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

ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____

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

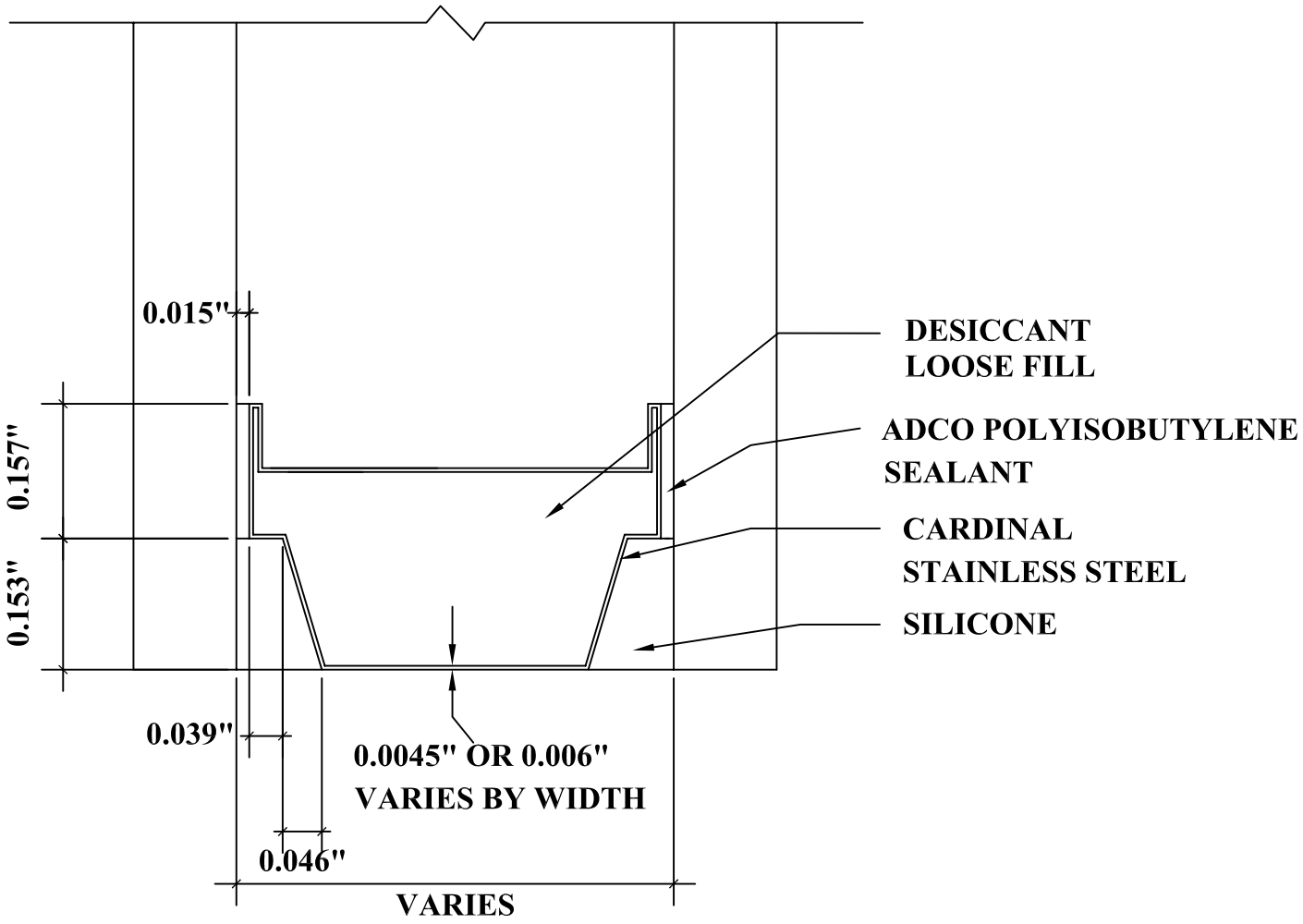
DWG. NO.: 1020301010XX255

FILENAME:CMB5518J

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

ATI Report No. B3355.01 VERIFIED DATE: 9/22/11

REVIEWED BY: _____



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