

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

(Revised)

**Rendered to:
PROFORMANCE MANUFACTURING, INC.**

**SERIES/MODEL:
Fiberglass Slider**

Report Number: B2518.02-201-45
Report Date: 09/20/11
Expiration Date: 09/20/15
Revised Report Date: 05/11/12

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

(Revised)

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

Report Number: B2518.02-201-45
Simulation Date: 09/20/11
Report Date: 09/20/11
Expiration Date: 09/20/15
Revised Report Date: 05/11/12

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 6.3.38.0
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 Slider
Type: Horizontal Slider , Operable/Operable
Frame Material: FG Fiberglass
FF Fiberglass with Foam-Filled Insulation
Sash Material: OT Fiberglass with Vertical Members Reinforced
Standard Size: 1500mm x 1200mm

Technical Interpretations:

- 1) Multi-purpose products grouped for one validation matrix per NFRC 100-2010, section 4.2.3.2: Refer to Architectural Testing, Inc. report number B2517.02-201-45 for the test option of the Fiberglass Double Hung 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.

Modeling Assumptions:

- 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.

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	0.004648	0.007242	0.009678
SHGC1	0.702051	0.624841	0.552314
VT0	0.000000	0.000000	0.000000
VT1	0.697147	0.617343	0.542380

$$SHGC = SHGC0 + SHGCc (SHGC1 - SHGC0)$$

$$VT = VT0 + VTc (VT1 - VT0)$$

Validation Matrix:

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

<i>Product Line</i>	<i>Report Number</i>
Fiberglass Double Hung	B2517.02-201-45
Fiberglass Slider	B2518.02-201-45

Spacer Option Description

<i>Spacer Type</i>	<i>Sealant</i>		
	<i>Primary</i>	<i>Secondary</i>	<i>Desiccant</i>
Cardinal XL Edge - SS-D	Polyisobutylene	Silicone	Yes

Grid Option Description

<i>Grid Size</i>	<i>Grid Type</i>	<i>Grid Pattern</i>
0.187" x 0.625"	Aluminum Rectangular Grid	NFRC Standard
0.217" x 0.709"	Aluminum Contour Grid	NFRC Standard

Reinforcement Option Description

<i>Location</i>	<i>Material</i>
None	

Gas Filling Technique Description

<i>Fill Type</i>	<i>Method</i>
90% Argon	Single Probe
90% Krypton	Single Probe

Edge-of-Glass Construction

<i>Interior Condition</i>	Silicone
<i>Exterior Condition</i>	ABS Glazing Bead

Weatherstripping

<i>Type</i>	<i>Quantity</i>	<i>Location</i>
Mohair	2 Rows	Sash Perimeter and Sill
Mohair	1 Row	Meeting Rails

Frame/Sash Materials Finish

<i>Interior</i>	Fiberglass
<i>Exterior</i>	Fiberglass

**NFRC 100/200/500 Summary Sheet
Fiberglass Slider**

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 0.30			SHGC (N / <1 / >1) 0.19 / 0.18 / 0.16				VT (N / <1 / >1) 0.45 / 0.40 / 0.35			CR	61
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 0.22			SHGC (N) 0.17				VT (N) 0.32			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 0.22			SHGC (N) 0.25				VT (N) 0.40			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 0.26			SHGC (N / <1 / >1) 0.18 / 0.16 / 0.14				VT (N / <1 / >1) 0.40 / 0.36 / 0.31			CR	50
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 0.26			SHGC (N / <1 / >1) 0.17 / 0.16 / 0.14				VT (N / <1 / >1) 0.40 / 0.36 / 0.31			CR	52
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 0.20			SHGC (N) 0.14				VT (N) 0.29			CR	61
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 0.18			SHGC (N) 0.14				VT (N) 0.29			CR	64
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 0.22			SHGC (<1 / >1) 0.15 / 0.14				VT (<1 / >1) 0.29 / 0.25			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 0.22			SHGC (<1 / >1) 0.22 / 0.20				VT (<1 / >1) 0.35 / 0.31			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 0.20			SHGC (<1 / >1) 0.13 / 0.11				VT (<1 / >1) 0.26 / 0.23			CR	61

**NFRC 100/200/500 Summary Sheet
Fiberglass Slider**

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 0.18			SHGC (<1 / >1) 0.13 / 0.11				VT (<1 / >1) 0.26 / 0.23			CR 64	
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 0.30			SHGC (N) 0.29				VT (N) 0.50			CR 61	
13	DS 366 Arg DS											
	0.117	0.500	0.117					ARG90	0.022(#2)	CL	SS-D	N
	U-Factor 0.29			SHGC (N) 0.19				VT (N) 0.45			CR 62	
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 0.26			SHGC (N) 0.18				VT (N) 0.40			CR 50	
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) 0.25				VT (N) 0.40			CR 66	
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) 0.21				VT (N) 0.36			CR 61	
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) 0.17				VT (N) 0.32			CR 66	
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) 0.14				VT (N) 0.29			CR 61	
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) 0.29				VT (N) 0.50			CR 61	
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) 0.19				VT (N) 0.45			CR 62	

NFRC 100/200/500 Summary Sheet
Fiberglass Slider

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 0.26			SHGC (N) 0.18				VT (N) 0.40			CR 50	
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) 0.25				VT (N) 0.40			CR 65	
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 0.20			SHGC (N) 0.21				VT (N) 0.36			CR 60	
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 0.21			SHGC (N) 0.17				VT (N) 0.32			CR 65	
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 0.20			SHGC (N) 0.14				VT (N) 0.29			CR 61	
No Foam Options												
26	DS 180 Arg DS											
	0.118	0.500	0.117					ARG90	0.068(#2)	CL	SS-D	N
	U-Factor 0.31			SHGC (N) 0.45				VT (N) 0.55			CR 60	
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 0.22			SHGC (N) 0.40				VT (N) 0.49			CR 64	

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:

REVIEWED BY:

Jessica A. Johnson
Simulation Technician

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

JAJ:jaj

B2518.02-201-45

Attachments (pages):

This report is complete only when all attachments listed are included.

Appendix A: Drawings and Bill of Materials (19)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
01-R0	9/20/2011	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


B2518.02-201-45

BOM for 71X60 Slider for AAMA testing for 7-13-2011

Description	Vendor	Part #	
Weep Doors	Ashland Hardware	64400-001	X
Locks (White)	Ashland Hardware	D1000AL-01	X
Keeper (White)	Ashland Hardware	14161-999-001	X
Lift Handle (White)	Ashland Hardware	13314-999-01-BG	X
Glides	Ashland Hardware	94-05-03-BW	X
Left Tilt Latches (White)	Ashland Hardware	80290	X
Right Tilt Latches (White)	Ashland Hardware	80291	X
Left Toggle tilt latches	Ashland Hardware	83100	X
Right Toggle tilt latches	Ashland Hardware	82100	X
Tilt Latch Reinforcement	Ashland Hardware	14186-385	X
Keys Sash	Flambeau	817710AE	X
Keys Frame	Flambeau	817711AE	X
Frame Material (White)	Teel Plastics	97097001	X
Sash Material (White)	Teel Plastics	97097002	X
Glazing Bead	Teel Plastics	P0136	X
Interlocks	Teel Plastics	P0135	X
Balance Covers	Teel Plastics	P0140	X
Sash Stiffener	Sureview	SV19	X
Weather strip	Ultra Fab	W33291NG	X
Weather strip	Ultra Fab	W131319W0000	X
Frame extender	Teel Plastics	PMI.003.01	

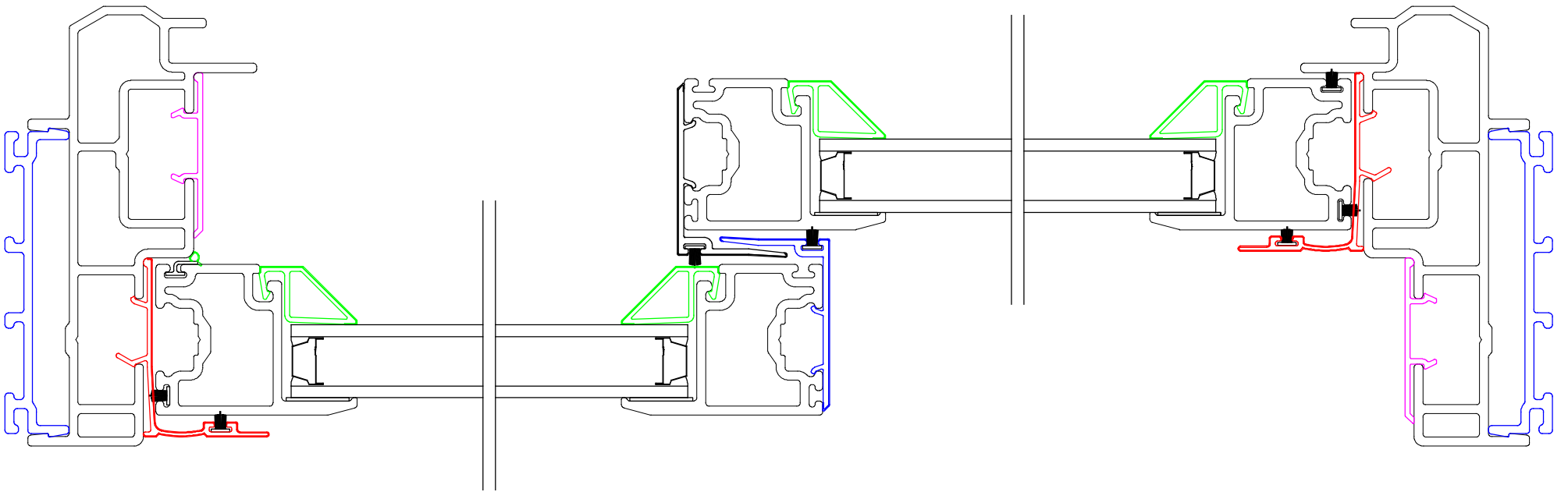
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ANY DEVIATION IS NOTED.

ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

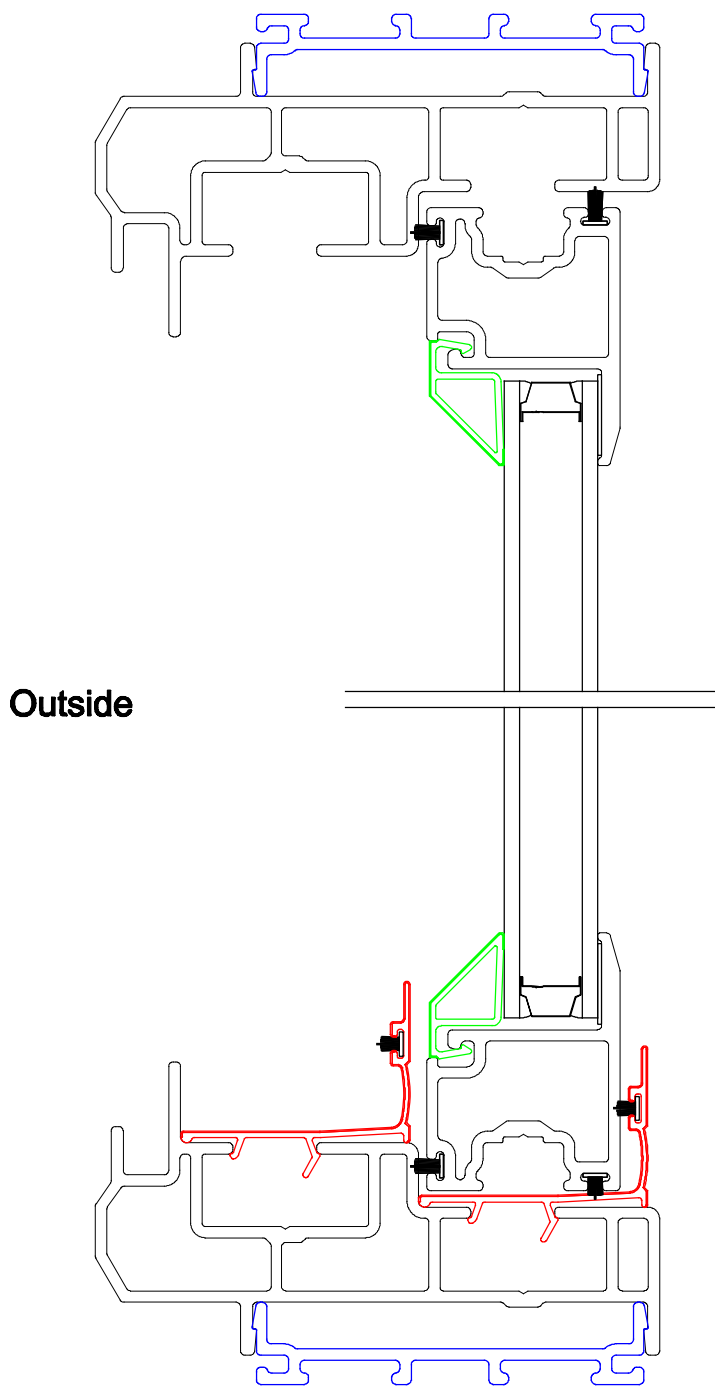
REVIEWED BY: 

PMI Fiberglass Double Slide Window

Outside

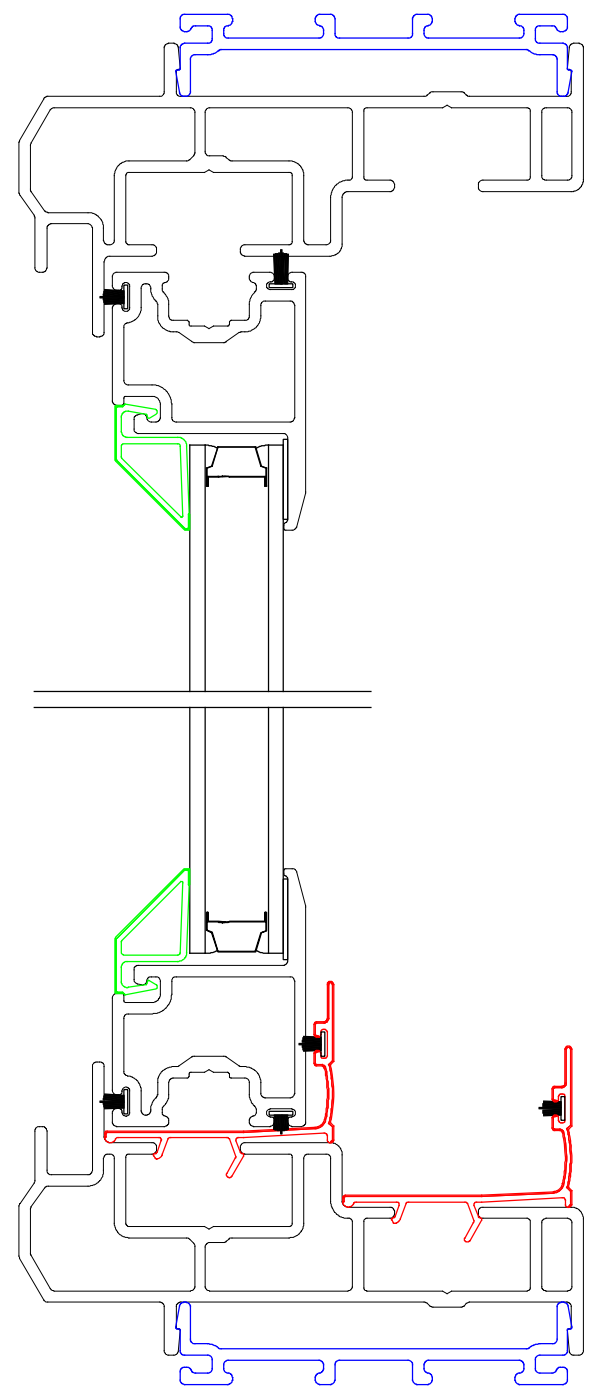


PMI Fiberglass Double Slide Top View



Outside

PMI Fiberglass Double Slide End View (inner sash)



Outside

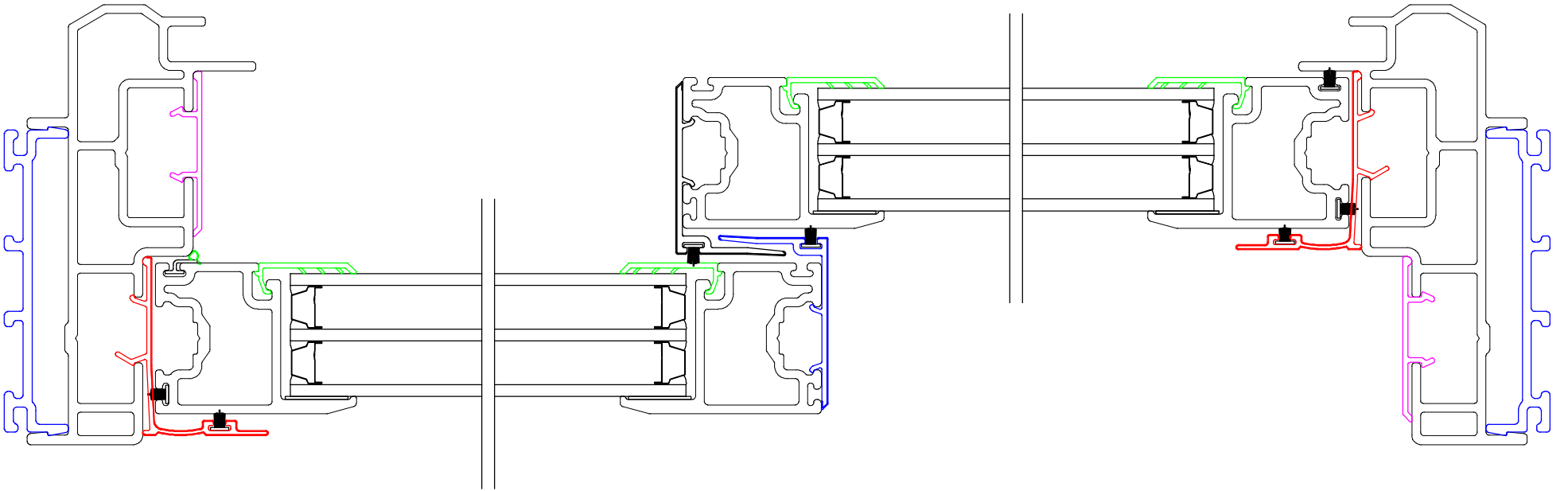
PMI Fiberglass Double Slide End View (outer sash)

TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
ATI Report No. B2518.01 VERIFIED DATE: 9/8/11
REVIEWED BY: *Kathleen Dinerman*

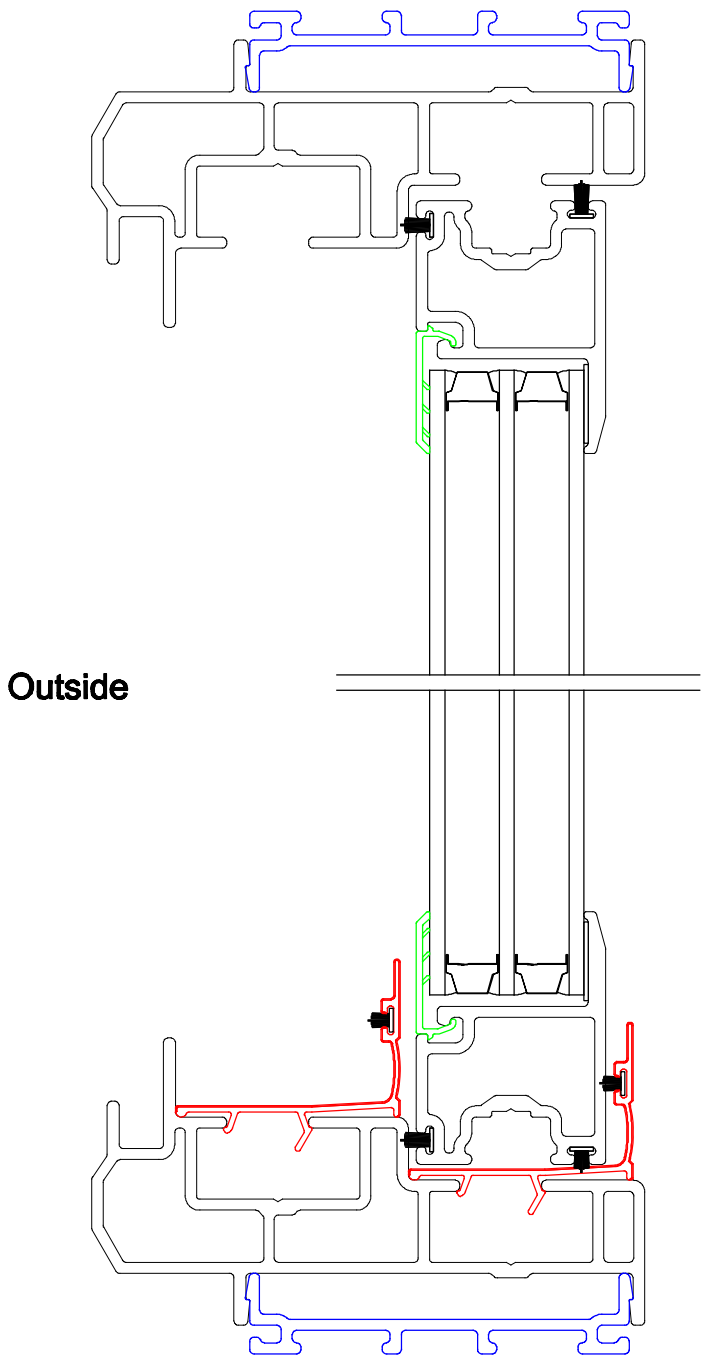
PMI Fiberglass Double Slide Window End View. Cardinal Glass

PMI Fiberglass Double Slide Window

Outside

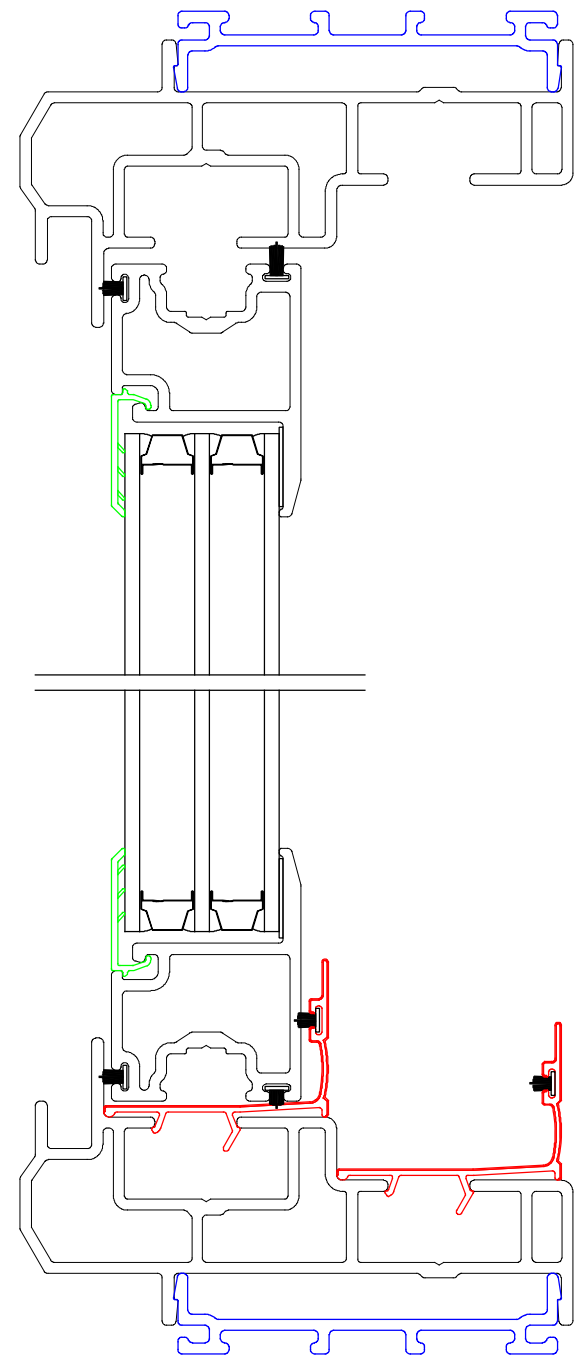


PMI Fiberglass Double Slide Top View



Outside

PMI Fiberglass Double Slide End View (inner sash)



Outside

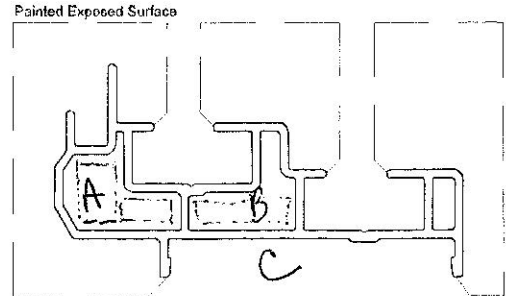
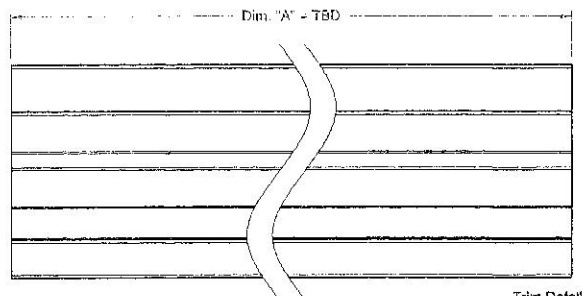
PMI Fiberglass Double Slide End View (outer sash)

PMI Fiberglass Double Slide Window End View. Cardinal Glass
 3-pane, 366 on 2 and 5 surfaces, 90% argon, 2 panes of 3.0 and 1 pane of 3.1 glass

TEST SAMPLE COMPLIES WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 ATI Report No. B2518.01 VERIFIED DATE: 9/8/11
 REVIEWED BY: *Heather Linneman*

Foam-Filled Options

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Final draft	11.17.2010	



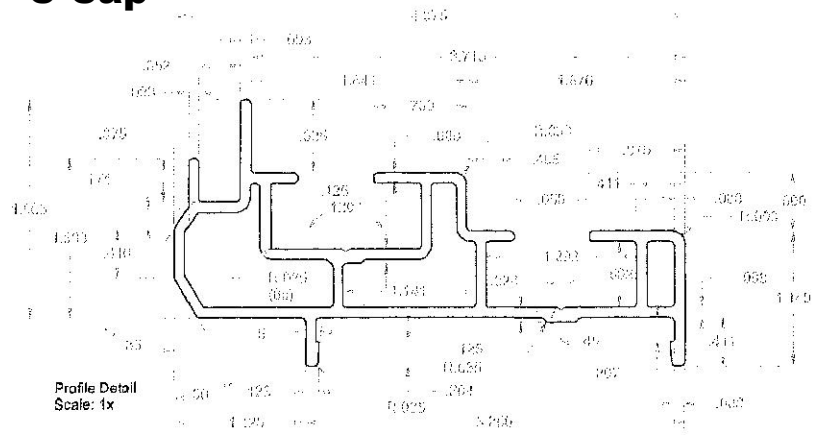
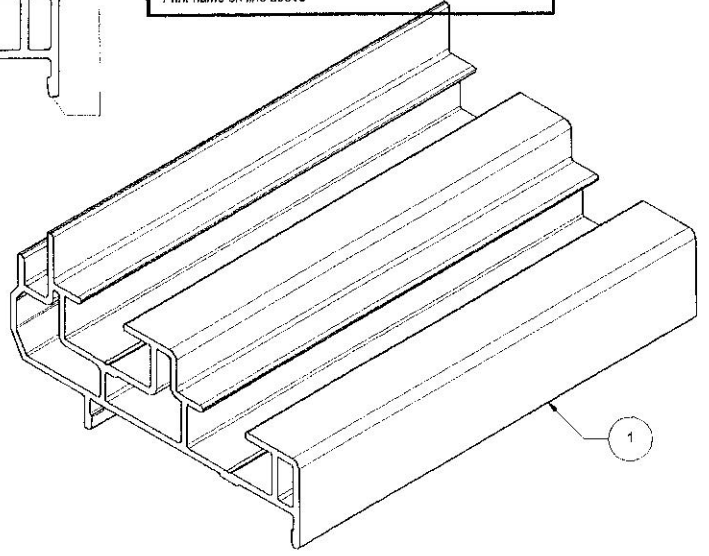
Customer Approval

Sign name on line above


Date

Print name on line above

- A Outer Frame**
- B Inner Frame**
- C Cap**



Item #	Part Name	Cost Center	Revision	Comment
1	DH Frame Profile	Area: 1.363, Outer Perimeter: 19.420", Inner Perimeter: 10.010"		

Note: Industry Standard Tolerances Unless Otherwise Specified. The contents of this document or electronic media are confidential and proprietary information of Performance Manufacturing, Inc. Distribution or reproduction of this information without the express written consent of Performance Manufacturing, Inc. is prohibited © 2010 PMI All rights reserved.	DRAWN PMI Engineering	DATE 11.17.2010	 Performance Manufacturing, Inc. 750 North County Line Road Lone Rock, WI 53556 www.pmi-windows.com 608.583.7200 608.583.7060 Fax	
	CHECKED			
	QA			
	MFG			
APPROVED			SIZE: B DWG NO.: PMI-001.01 DWG Name: Double Hung Frame Profile SCALE: As Noted Director: NBCIPMINEnglDouble Hung	REV: .01 SHEET: 1 of 1

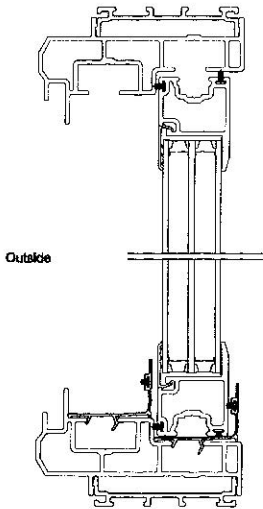
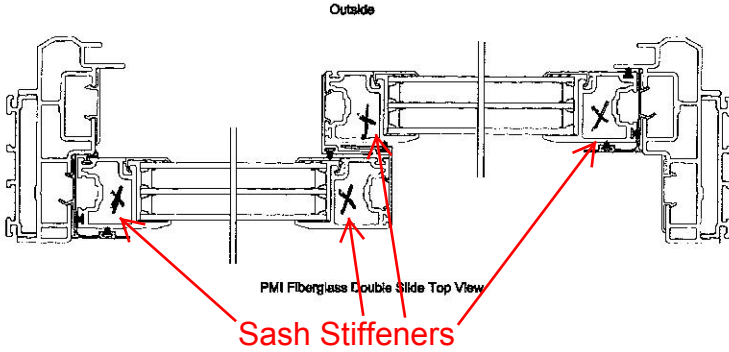


Report #: B2518-201-45

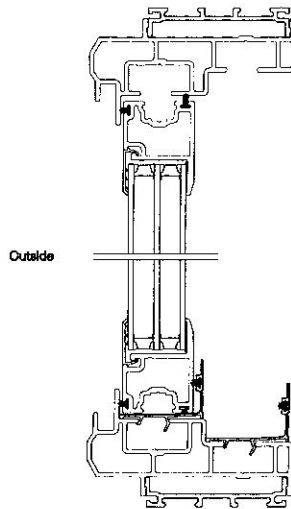
Date: 05/11/2012

Verified by: *[Signature]*

PMI Fiberglass Double Slide Window



PMI Fiberglass Double Slide End View (inner sash)



PMI Fiberglass Double Slide End View (outer sash)

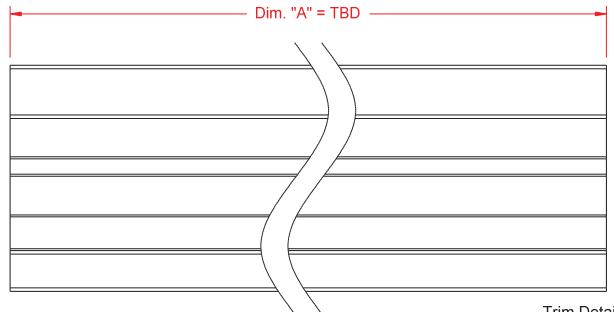
PMI Fiberglass Double Slide Window End View. Cardinal Glass
3-pane, 366 on 2 and 5 surfaces, 90% argon, 2 panes of 3.0 and 1 pane of 3.1 glass

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

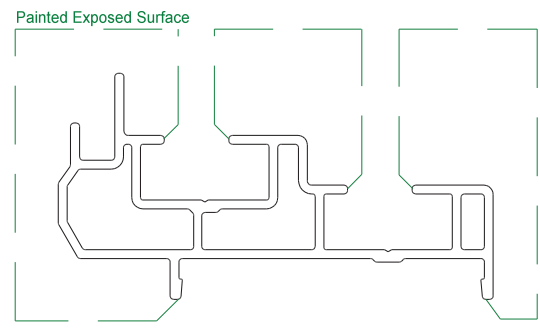
ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: Shelley Steinman

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Final draft	11.17.2010	



Trim Detail
Scale: None

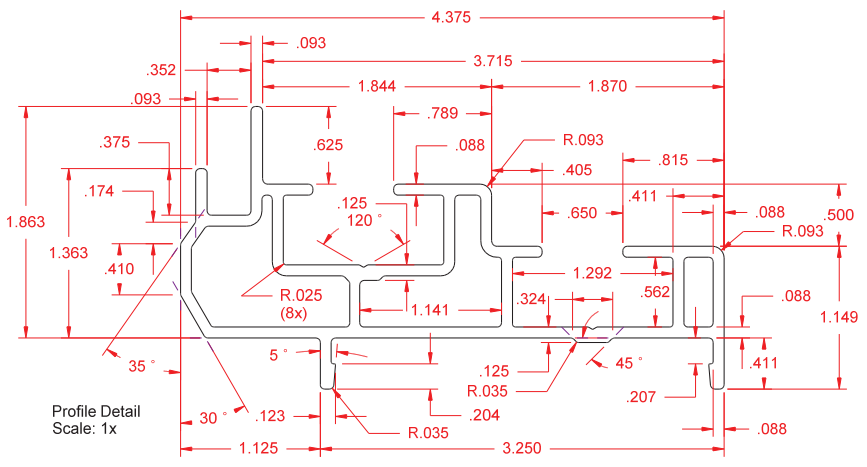
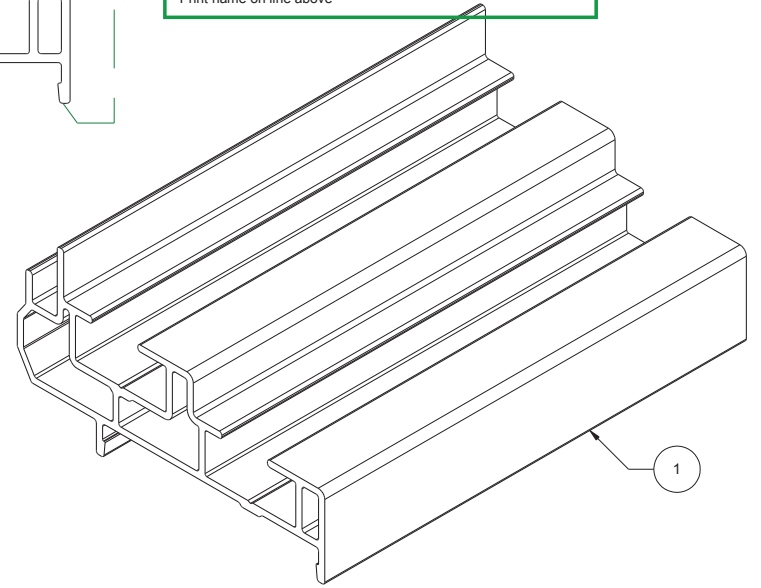


Customer Approval

Sign name on line above

Date

Print name on line above



Profile Detail
Scale: 1x

Item #	Part Name	Cost Center	Revision	Comment
1	DH Frame Profile	Area: 1.363, Outer Perimeter: 19.420", Inner Perimeter: 10.010"		

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	PMI Engineering	11.17.2010	
	CHECKED		
	QA		
MFG			
APPROVED			

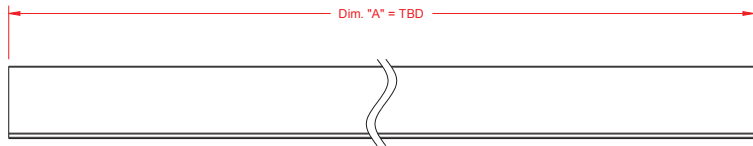
SIZE	DWG NO.	DWG Name:	REV
B	PMI-001.01	Double Hung Frame Profile	.01
SCALE:	Directory	SHEET	
As Noted	NBO\PMI\Eng\Double Hung	1 of 1	

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

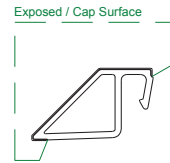
ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: *Shelley Dineen*

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



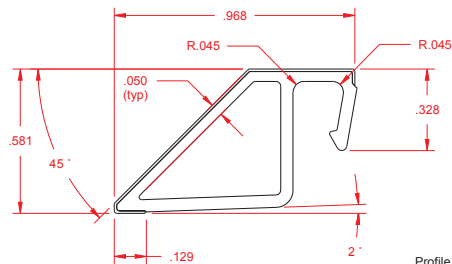
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Scale: 1x



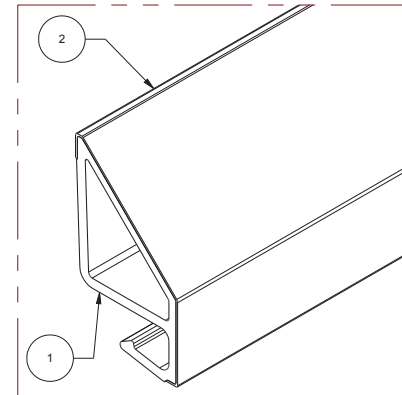
Customer Approval

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 .726	Area: .0139", Perimeter: 2.791"		.010" Nominal Cap Wall Thickness

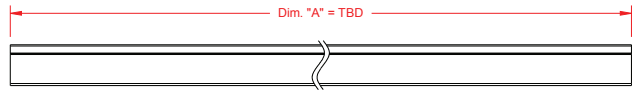
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	PMI Engineering	01.26.2011		
	CHECKED			
	QA			
MFG			SIZE B DWG NO. PMI-106.01 DWG Name. Glazing Bead .726 REV .01	
APPROVED			SCALE: As Noted Directory: PMI\Engineering\Accessory\Sash SHEET 1 of 1	

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

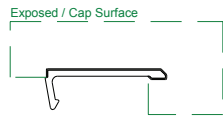
ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: *Heather Duneman*

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



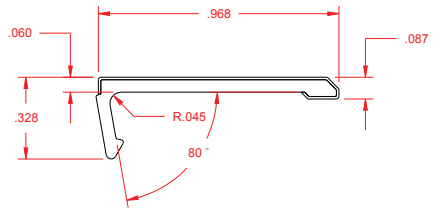
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Scale: 1x



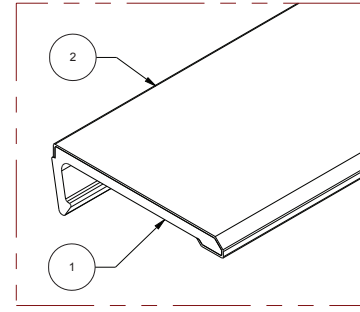
Customer Approval

Sign name on line above Date


Print name on line above



Profile Detail
Scale: 2x



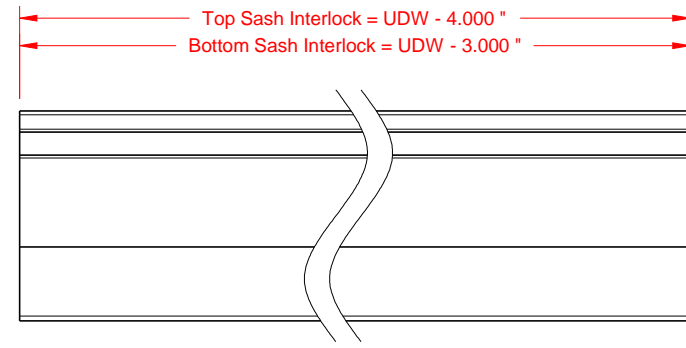
Item #	PMI Part Number	Part Name	Cost Center	Revision	Comment
1	P0137	Triple Glazing Bead	Area: .0630 ", Perimeter: 2.543 "		
2		Triple Glazing Bead Cap	Area: .0122 ", Perimeter: 2.453 "		

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	PMI Engineering	01.27.2011		
	CHECKED			
	QA			
	MFG			
APPROVED			SIZE B DWG NO. PMI-107 DWG Name. Triple Glazing Bead REV SCALE: As Noted Directory NBO\PMI\Eng\Accessory\Sash SHEET 1 of 1	

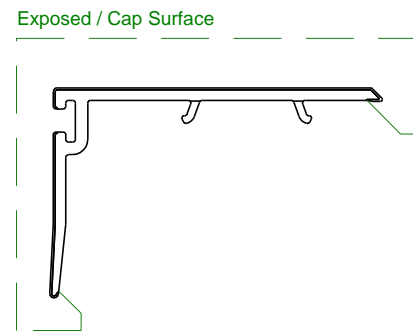
TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: Heather Beneman



Trim Detail
Scale: 1x



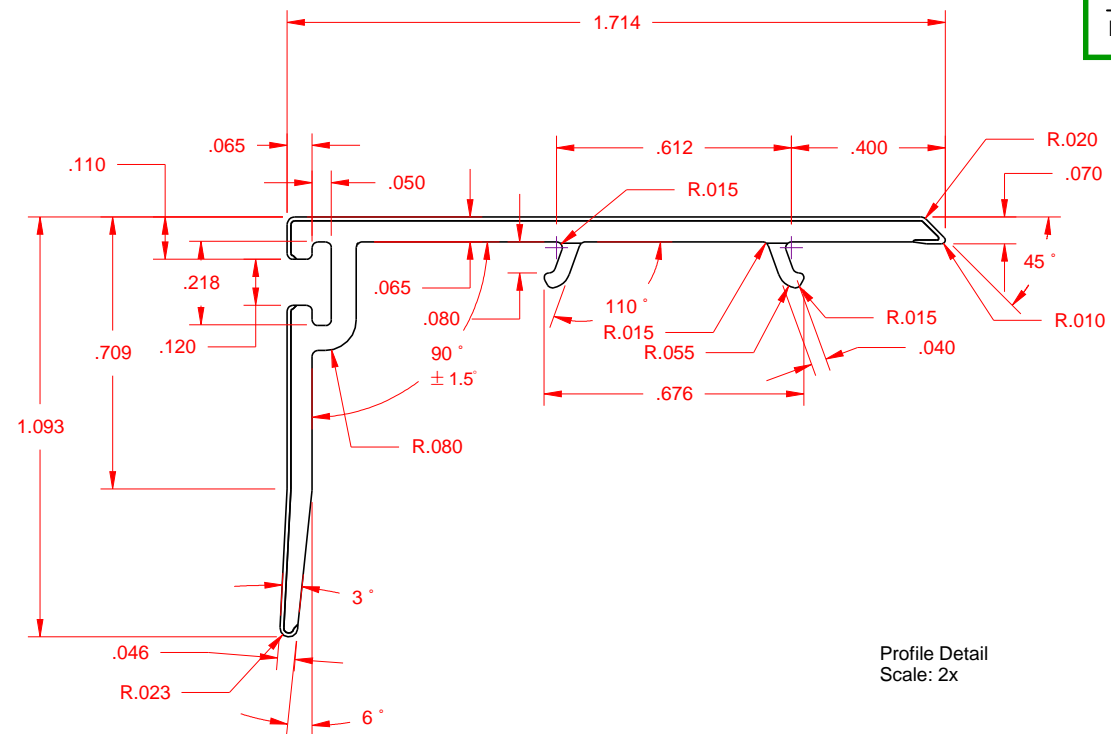
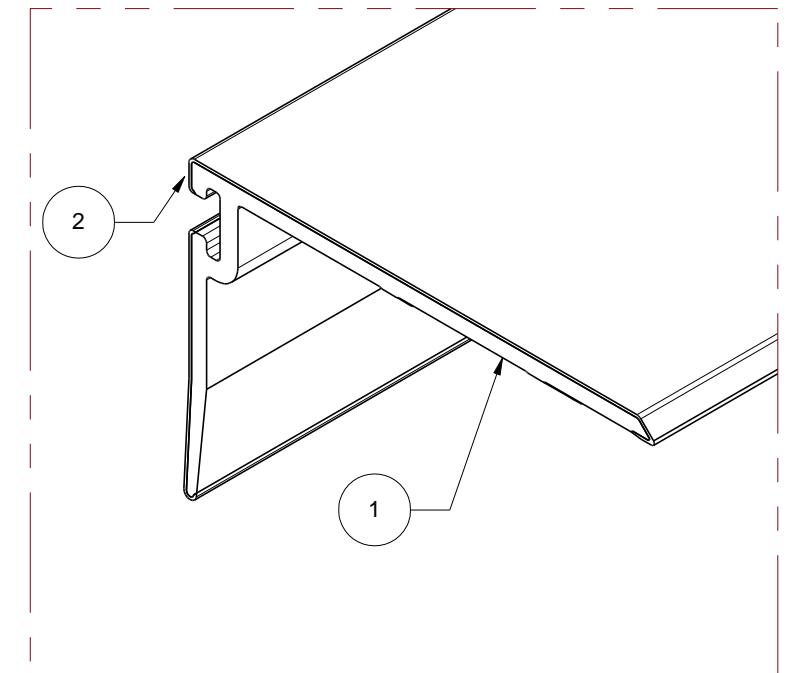
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Removed Flex, added "T" Slot	01.25.2011	PMI
	.02	Added Cap Area	01.26.2011	Teel
	.03	Changed Barbs	03.18.2011	Teel

Customer Approval


Sign name on line above _____

Date _____

Print name on line above _____



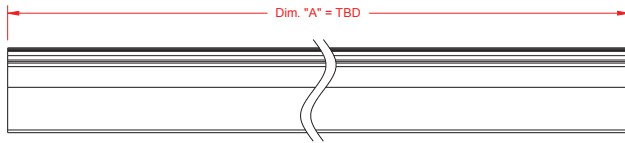
Item #	PMI Part Number	Part Name	Cost Center	Revision	Comment
1	P0135	Interlock	Area: 1.681 ", Perimeter: 6.236 "	.03	
2		Interlock Cap	Cap Area: .0282 ", Perim: 5.687 "		.010" Nominal Cap Wall Thickness

Note: Industry Standard Tolerances Unless Otherwise Specified.		DRAWN PMI Engineering	DATE 01.26.2010	 <p>Proformance Manufacturing, Inc 750 North County Line Road Lone Rock, WI 53556 www.pmi-windows.com 608.583.7200 608.583.7060 Fax</p>	
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		QA			
		MFG			
		APPROVED		SIZE: B DWG NO.: PMI-105.03 DWG Name: Interlock SCALE: As Noted Directory: NBO\PMI\Engineering\Accessory\Sash	REV: .03 SHEET: 1 of 1

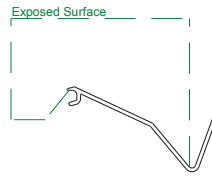
TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: *Nathan Seneman*



Trim Detail
Scale: 1x

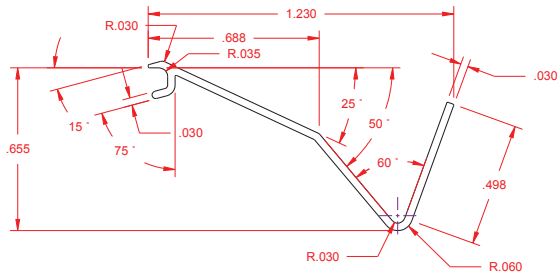
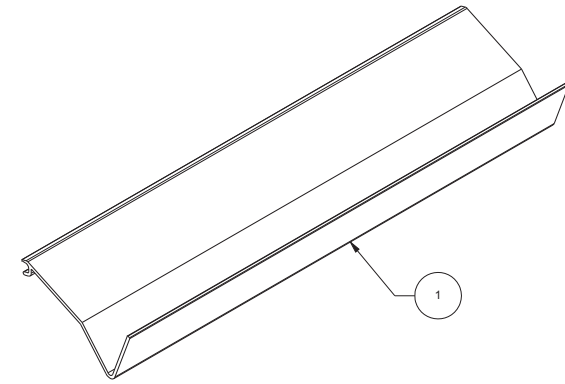


REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

Customer Approval

Sign name on line above _____ Date _____

Print name on line above _____



Profile Detail
Scale: 2x

Item #	PMI Part Numbe	Part Name	Cost Center	Revision	Comment
1	P0140	Balance Cover	Area: .0574 ", Perim: 3.877 "		

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	PMI Engineering	01.24.2011		
	CHECKED			
	QA			
MFG				
APPROVED				
SIZE	DWG NO.	DWG Name.		
B	PMI - 110	Balance Cover		
SCALE:	Directory		SHEET	
As Noted	\\Eng\Accessory\Fram\Extruded		1 of 1	

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

ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

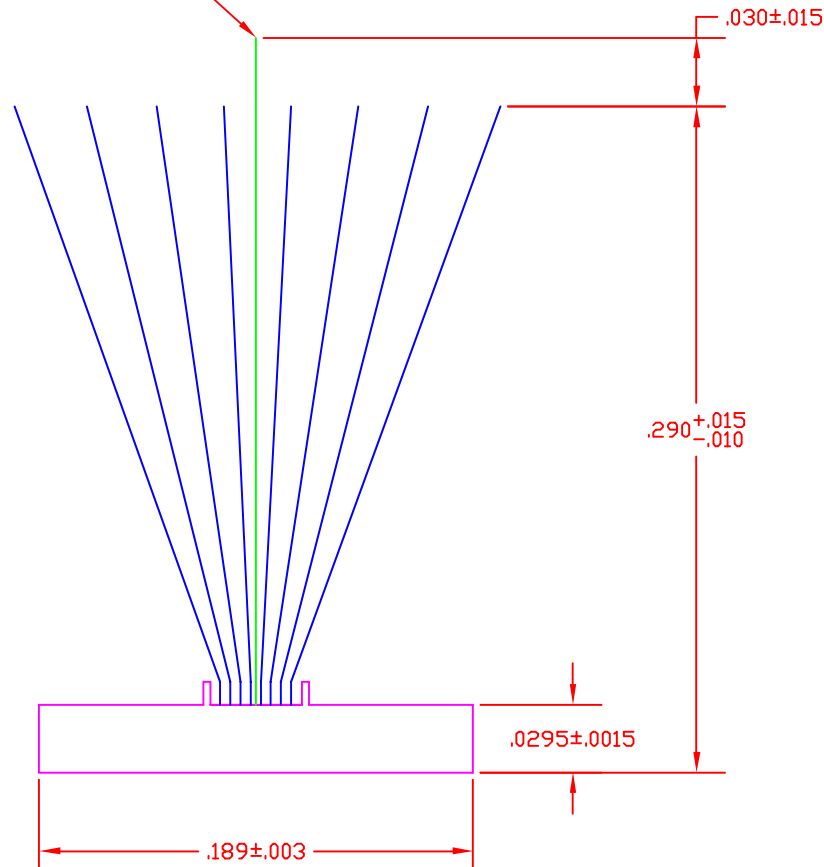
REVIEWED BY: Heather Duneman

2

1

GRAY MEDIUM DENSITY BRUSH
BLACK SOFT TOUCH CENTER FIN

REV	DESCRIPTION	ECR #



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

ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: *Debbie Dunman*

NOTES:

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

REMOVE ALL SHARP EDGES UNLESS OTHERWISE STATED

STD MACHINE FINISH 125

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CHECKED	
ENGINEER	
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HEAT TREAT:	
MAT'L:	POLYPROPELENE

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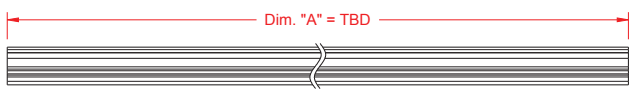
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FARMINGTON, NY 14425
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FAX (585) 924-7680
WWW.ULTRAFAB.COM

TITLE			W33291NG
SIZE	DWG NO	REV	
SCALE: DO NOT SCALE DRAWING		SHEET	OF

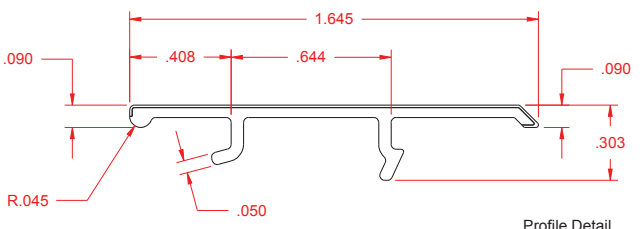
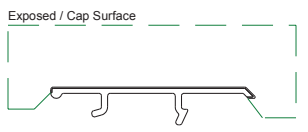
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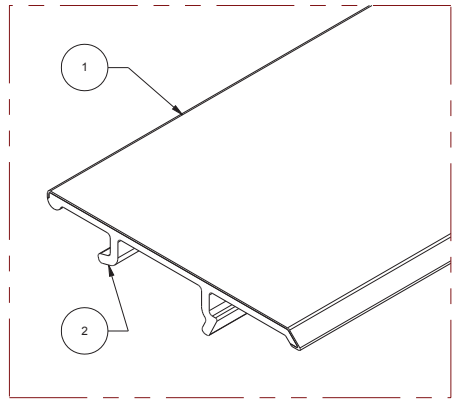
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Added Cap Area	01.27.2011	Teel



Trim Detail
Scale: 1x



Profile Detail
Scale: 2x




Customer Approval

Sign name on line above Date

Print name on line above

Item #	PMI Part Num	Part Name	Cost Center	Revision	Comment
2	P0131	Sash Stop	Area: .0937 ", Perimeter: 4.346 "	.01	
1		Sash Stop Cap	Area: .0176 ", Perimeter: 3.531 "		.010" Nominal Cap Wall Thickness

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	PMI Engineering	01.27.2011		
	CHECKED			
	QA			
MFG		SIZE B DWG NO. PMI-101.01 DWG Name. Sash Stop		
APPROVED		SCALE: As Noted Directory PMI\Eng\Accessory\Fram\Extruded SHEET 1 of 1		

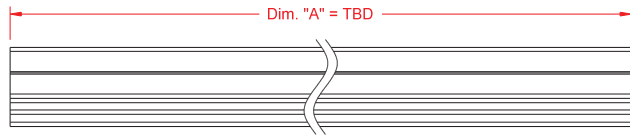
TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

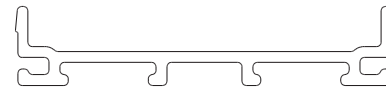
REVIEWED BY: *Keith Seneman*

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
	.01	Final draft	11.17.2010	



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Scale: 1x

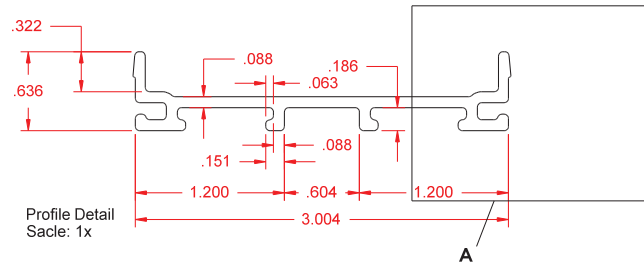


Customer Approval

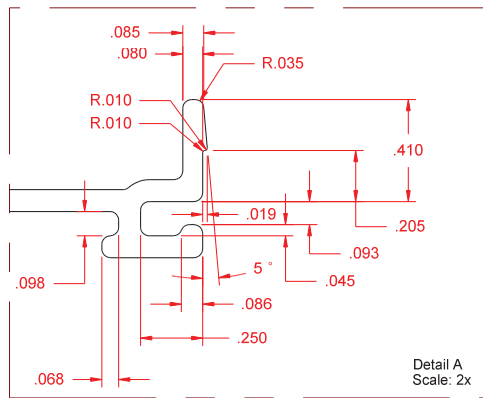
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Date

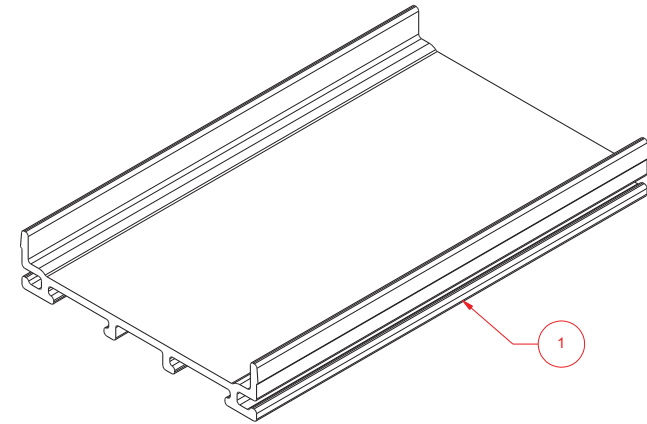
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Profile Detail
Scale: 1x



Detail A
Scale: 2x

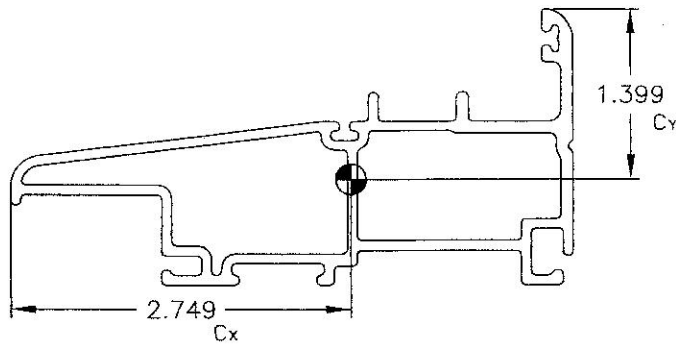


Item #	Part Name	Cost Center	Revision	Comment
1	Frame Cap	Area: .462, Perimeter: 10.201		
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SIZE B	DWG NO. PMI-003.01	DWG Name. Frame Cap	REV .01	
SCALE: As Noted	Directory NBO\PMI\Eng\Accessory\Frame	SHEET 1 of 1		

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

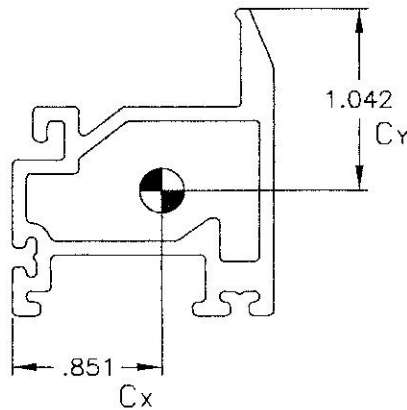
ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: *Kathleen Duneman*

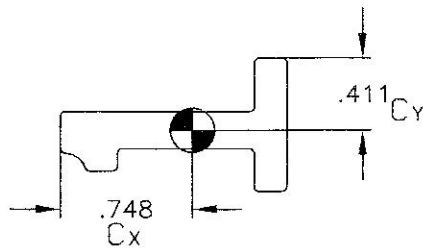


PART #		SV01
WEIGHT		1.0423 lb/ft
AREA		1.3029 in ²
PERIMETER		29.6477 in
MOMENT OF INERTIA	x:	0.3824 in ⁴
	y:	2.5210 in ⁴
RADIUS OF GYRATION	x:	0.5431 in
	y:	1.3910 in
SECTION MODULUS	x:	0.1398 in ³
	y:	1.8020 in ³

TEST SAMPLE COMPLIES WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 ATI Report No. B2518.01 VERIFIED DATE: 9/8/11
 REVIEWED BY: *Shelley Burman*

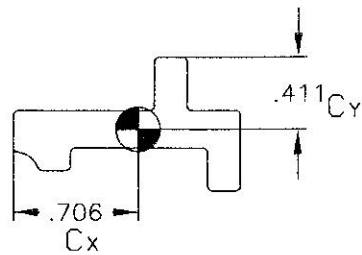


PART #		SV06
WEIGHT		0.4987 lb/ft
AREA		0.6234 in ²
PERIMETER		12.8810 in
MOMENT OF INERTIA	x:	0.1299 in ⁴
	y:	0.1743 in ⁴
RADIUS OF GYRATION	x:	0.4565 in
	y:	0.5287 in
SECTION MODULUS	x:	0.1526 in ³
	y:	0.1673 in ³



PART #		SV19
WEIGHT		0.3194 lb/ft
AREA		0.3992 in ²
PERIMETER		4.1427 in
MOMENT OF INERTIA	x:	0.0083 in ⁴
	y:	0.0686 in ⁴
RADIUS OF GYRATION	x:	0.1446 in
	y:	0.4146 in
SECTION MODULUS	x:	0.0111 in ³
	y:	0.1669 in ³

[Handwritten signature]



PART #		SV19a
WEIGHT		0.3194 lb/ft
AREA		0.3992 in ²
PERIMETER		4.1170 in
MOMENT OF INERTIA	x:	0.0083 in ⁴
	y:	0.0580 in ⁴
RADIUS OF GYRATION	x:	0.1446 in
	y:	0.3812 in
SECTION MODULUS	x:	0.0118 in ³
	y:	0.1411 in ³

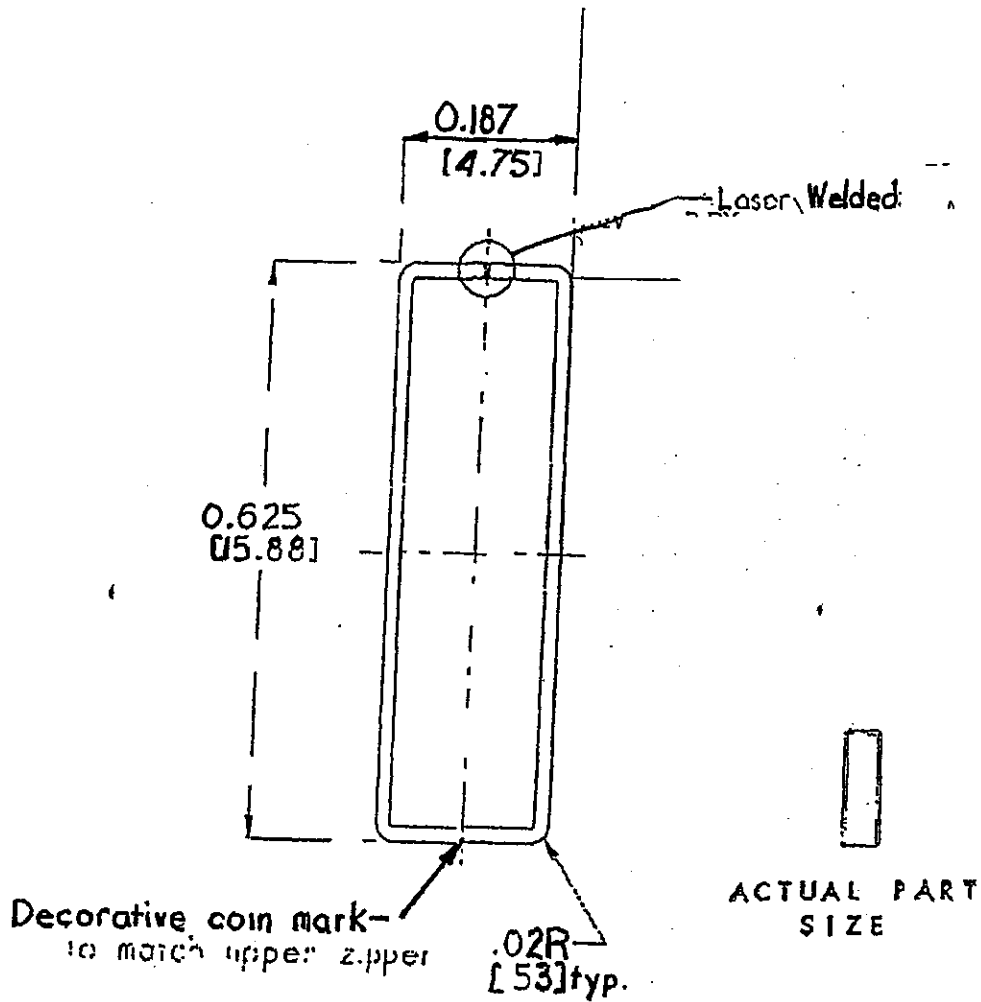
SureView
Fiberglass Window Systems

25101 Chagrin Boulevard
 Suite 350
 Cleveland, OH 44122

ENGINEERING DATA

Issue Date:
 AUGUST-2009
 Page:
 1.9.2

NOTE: ALL DIMENSIONS IN () BRACKETS ARE MM UNLESS NOTED

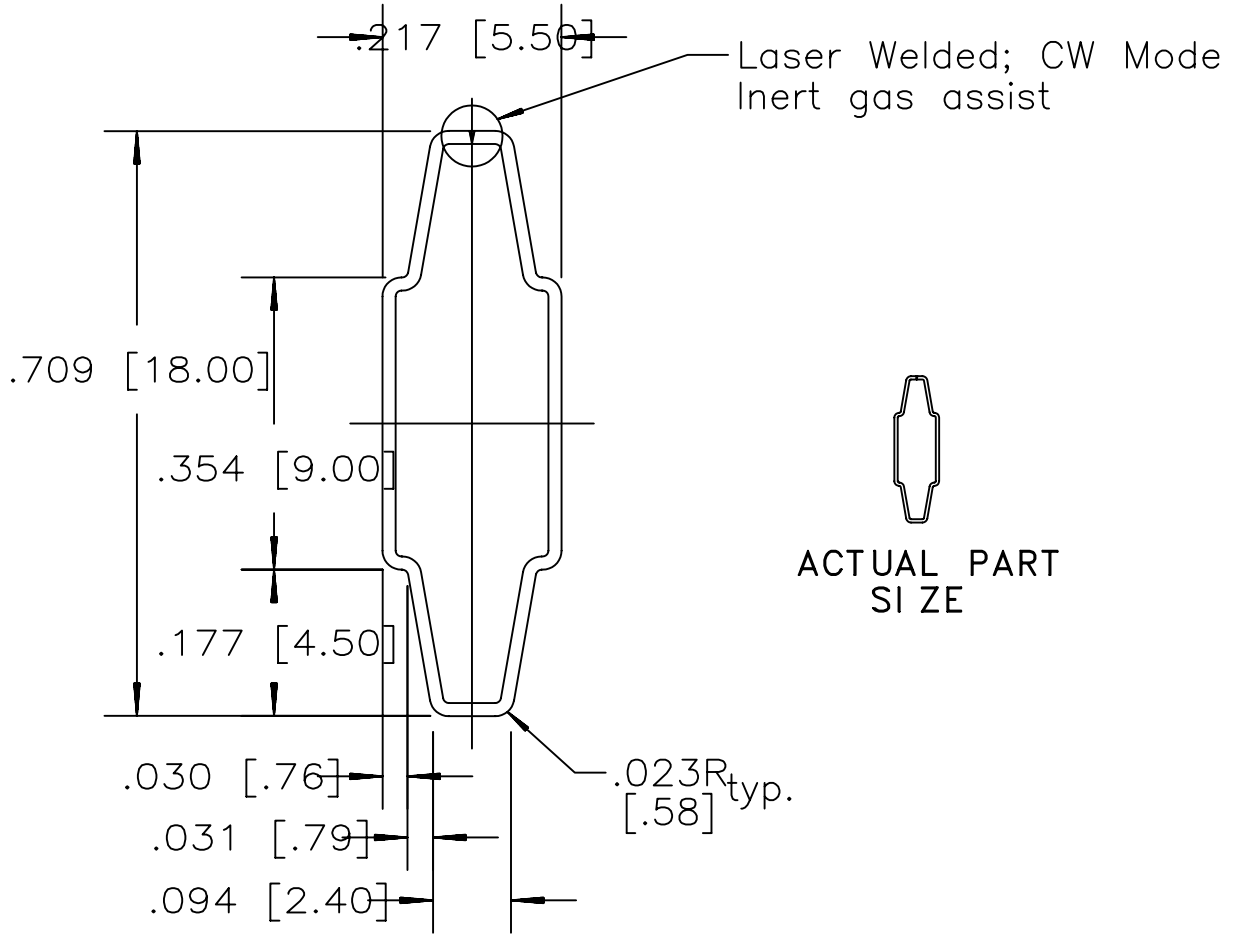


TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.
ATI Report No. B2518.01 VERIFIED DATE: 9/8/11
REVIEWED BY: Debbie Dunman

FILENAME: 316X56Z

3/20/97	Initial Release				GRM
DATE	SYM.	REVISION	AUTH.	DKN.	CK.
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.016" [.4mm] 3105-H24 Aluminum		FINISH Grey Anod.			
SCALE	DATE	DWG. NO.			
5:1	3/20/97	102060101012140			

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



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ATI Report No. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY:

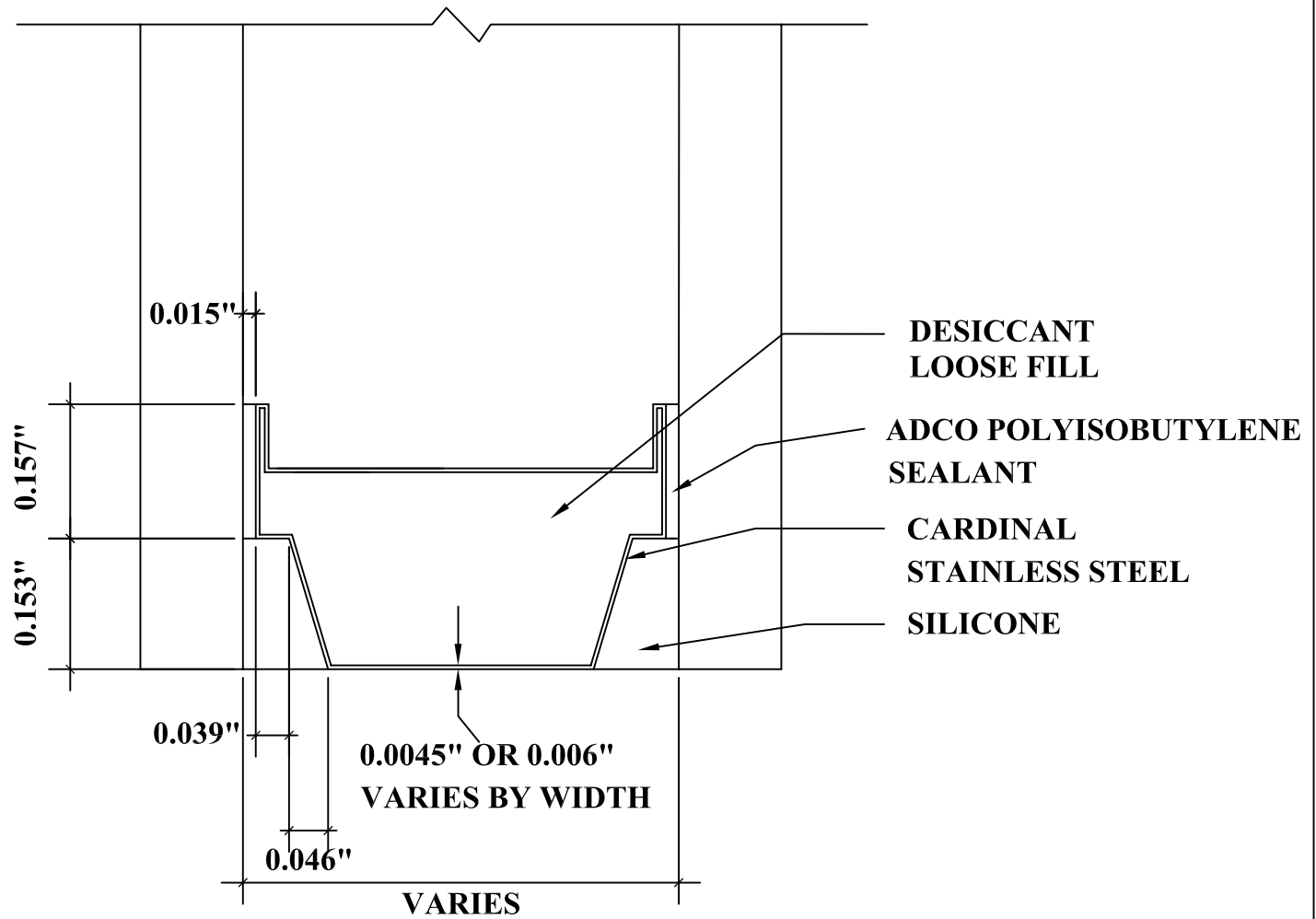
DATE	SYM.	REVISION	AUTH.	DRN.	CK.
4/17/97		Weld note changed, Title block changed			GRM
12/9/92		Initial Release			GRM



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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)		DRN. BY <i>G. Matthews</i>
	MATERIAL .016" [.41mm] 3105 Aluminum		CK. BY
	FINISH FULL RANGE (MILL, ANOD., PAINTED)		APPR. BY
	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. B2518.01 VERIFIED DATE: 9/8/11

REVIEWED BY: Skottis Beneman