

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

(Revised)

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

**SERIES/MODEL:
Fiberglass Casement**

Report Number: B2516.03-201-45
Original Report Date: 09/20/11
Expiration Date: 09/20/15
Revised Report Date: 05/10/12

**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: B2516.03-201-45
Simulation Date: 09/20/11
Original Report Date: 09/20/11
Expiration Date: 09/20/15
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 Casement
Type: Casement , Single Vent
Frame Material: FG Fiberglass
FF Fiberglass with Foam-Filled Insulation
Sash Material: FG Fiberglass
Standard Size: 600mm x 1500mm

Modeling Assumptions/Technical Interpretations:

- 1) 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.
- 2) Foam was modeled as separate options and was allowable per NFRC 100-2010, section 4.2.1.F.
- 3) 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.
- 4) Multi-purpose products grouped for one validation matrix per NFRC 100-2010, section 4.2.3.2: This product validated the Fiberglass Awning in Architectural Testing, Inc. report number B7295.03-201-45.

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 | 0.007501 | 0.009550 | 0.011494 |
| SHGC1 | 0.644911 | 0.583915 | 0.526040 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.637670 | 0.574625 | 0.514806 |

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

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

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 Casement | B2516.03-201-45 |
| Fiberglass Awning | B7295.03-201-45 |

Spacer Option Description

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

Grid Option Description

| <i>Grid Size</i> | <i>Grid Type</i> | <i>Grid Pattern</i> |
|------------------|---------------------------|---------------------|
| 0.188" 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 | Vacuum Chamber |
| 90% Krypton | Vacuum Chamber |

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> |
|-----------------------|-----------------|-----------------|
| Foam Weatherstripping | 2 Rows | Sash Perimeter |
| Mohair | 1 Row | Sash Perimeter |

Frame/Sash Materials Finish

| | |
|-----------------|------------|
| <i>Interior</i> | Fiberglass |
| <i>Exterior</i> | Fiberglass |

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

| 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 0.32 | | | SHGC (N / <1 / >1) 0.18 / 0.17 / 0.15 | | | | VT (N / <1 / >1) 0.41 / 0.37 / 0.33 | | | 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 0.24 | | | 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 | 49 |
| 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 | 51 |
| 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 | 62 |
| 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 0.25 | | | 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 Casement**

| 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 62 | |
| 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 61 | |
| 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 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 0.25 | | | SHGC (N) 0.16 | | | | VT (N) 0.37 | | | CR 49 | |
| 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 71 | |
| 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 71 | |
| 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 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) 0.18 | | | | VT (N) 0.41 | | | CR 61 | |

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

| 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) 0.16 | | | | VT (N) 0.37 | | | CR 49 | |
| 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 71 | |
| 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 71 | |
| 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 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 0.24 | | | 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:

REVIEWED BY:

Jessica A. Johnson
Simulation Technician

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

JAJ:jaj

B2516.03-201-45

Attachments (pages):

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

Appendix A: Drawings and Bills of Material (13)

Revision Log

| <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 | 3/16/2012 | 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


B2516.03-201-45

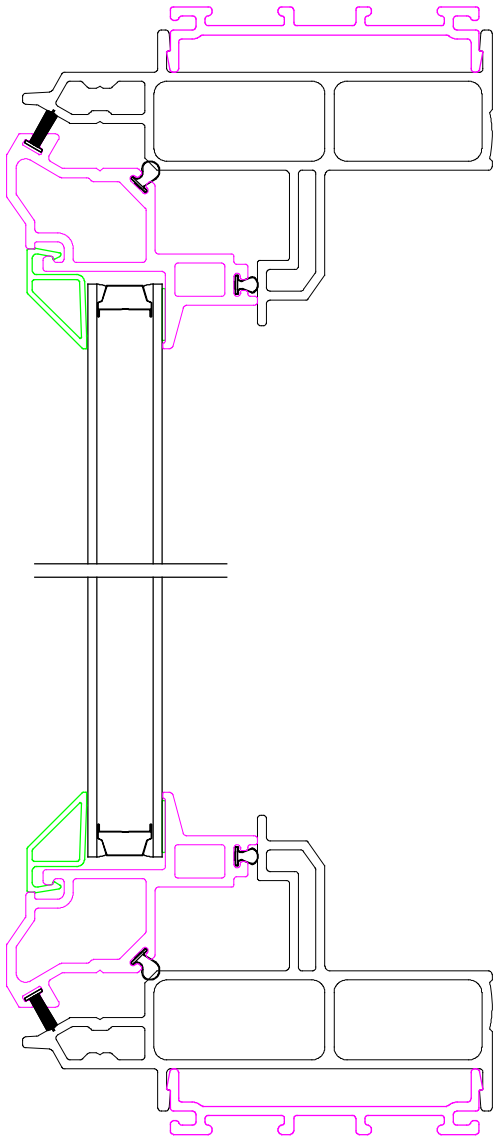
Casement BOM

| 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 |

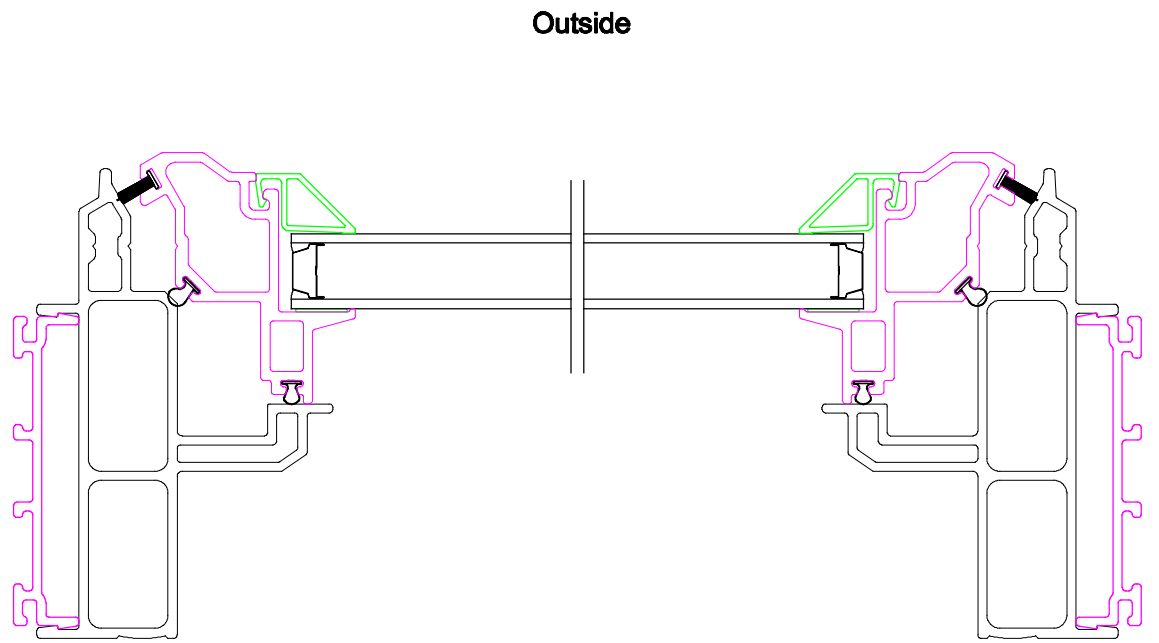
TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B2516.01 VERIFIED DATE: 9/9/11

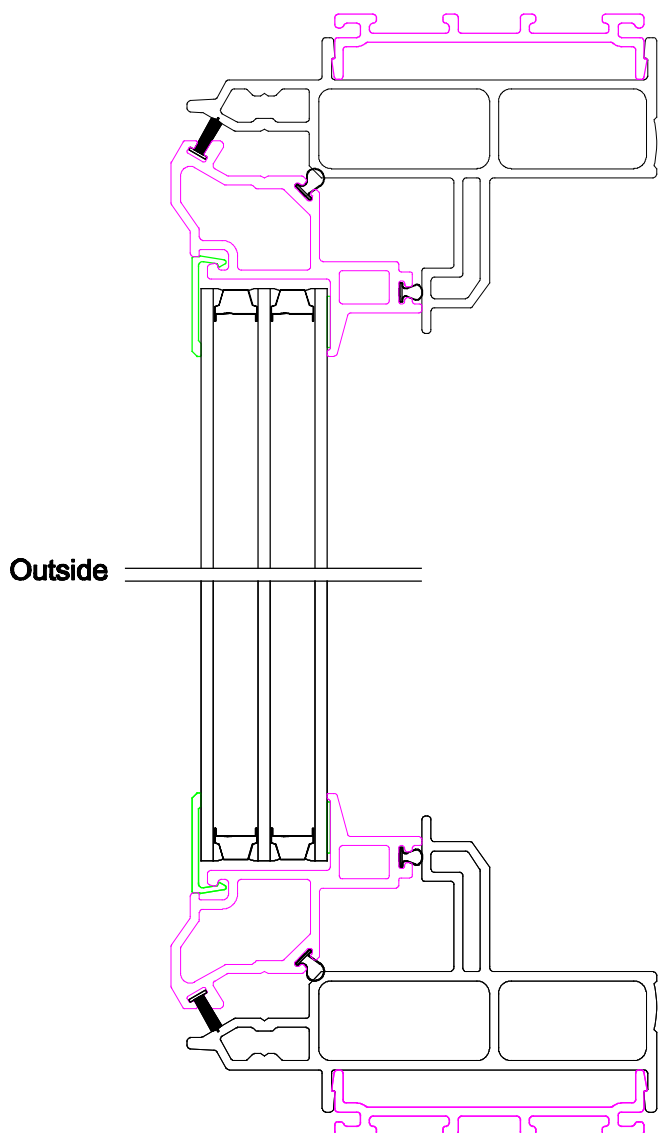
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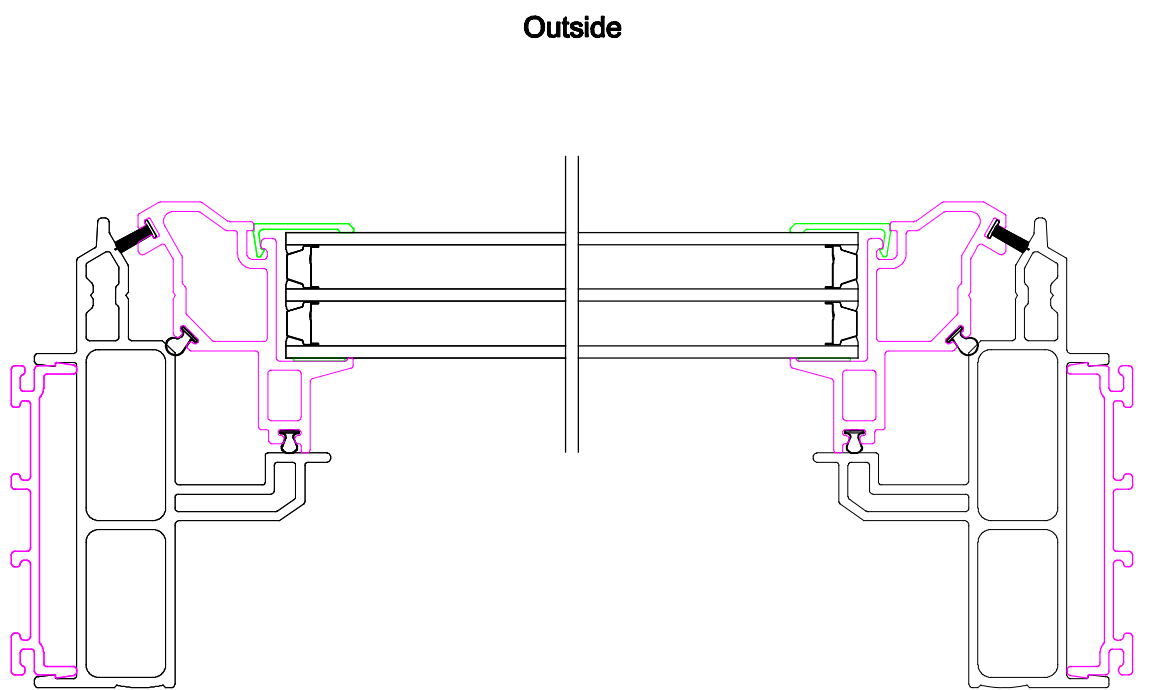
PMI Fiberglass Casement Window End View



PMI Fiberglass Casement Window Top View



PMI Fiberglass Casement Window End View

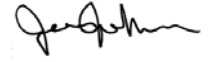


PMI Fiberglass Casement Window Top View

TEST SAMPLE COMPLIES WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 ATI Report No. B2516.01 VERIFIED DATE: 9/9/11
 REVIEWED BY: Shelley Dineman

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

ATI Report No. B2516.02 VERIFIED DATE: 03/19/12



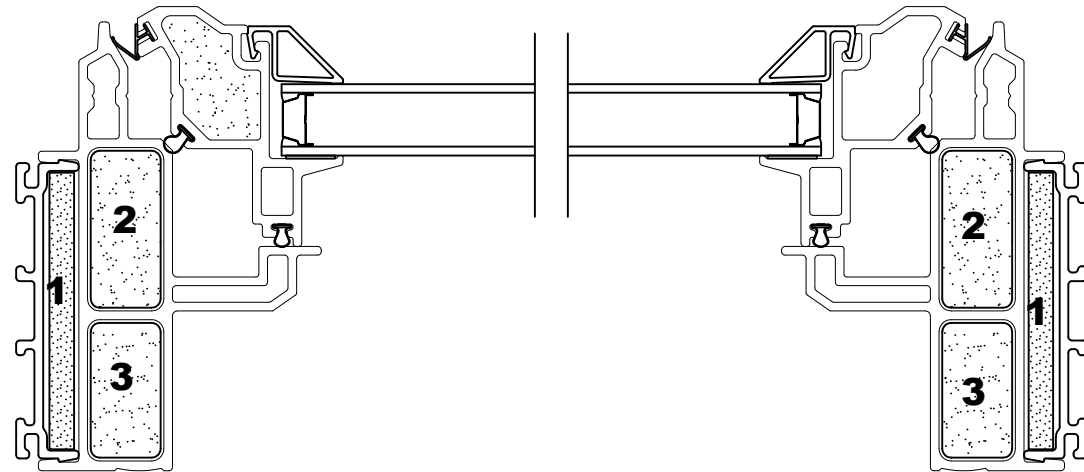
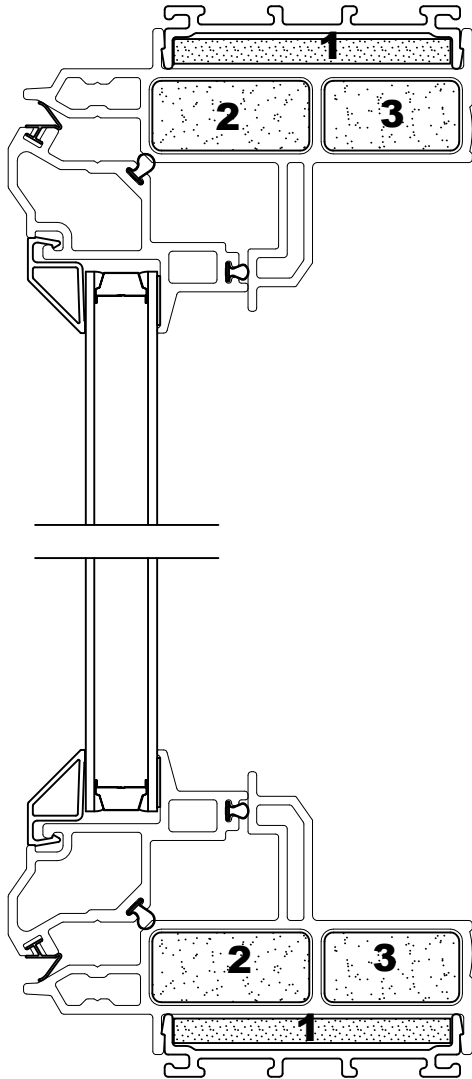
REVIEWED BY: _____

PMI Fiberglass Casement Window

Foam-Filled Options

Outside

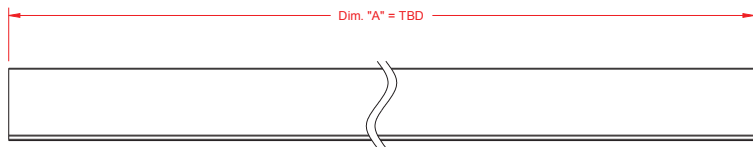
Outside



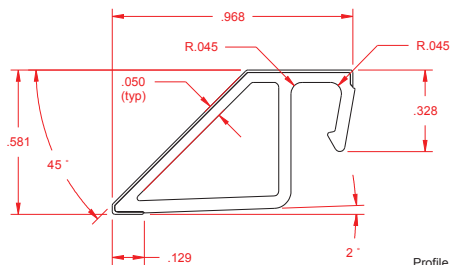
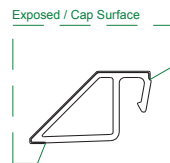
PMI Fiberglass Casement Window Top View

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

- 1 Cap**
- 2 Outer Frame Hollow**
- 3 Inner Frame Hollow**



Trim Detail
Scale: 1x



Profile Detail
Scale: 2x

Customer Approval

Sign name on line above Date

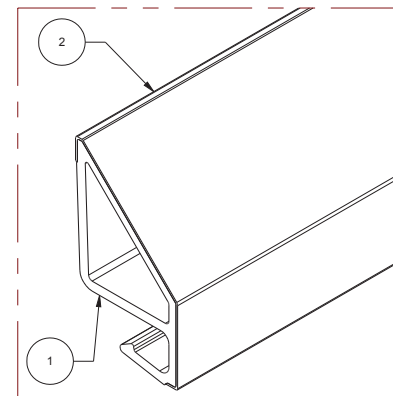
Print name on line above

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

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

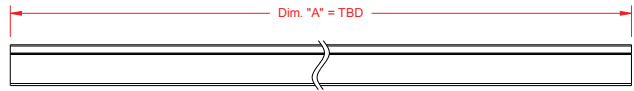
ATI Report No. B2516.01 VERIFIED DATE: 9/9/11

REVIEWED BY: Stethen Suneman

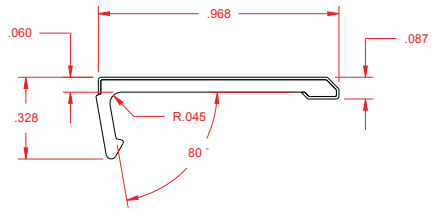
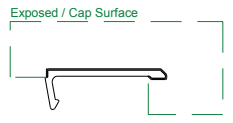


| Item # | PMI Part # | Part Name | Cost Center | Rev. | Comment |
|--------|------------|-----------------------|---|------|----------------------------------|
| 1 | P0136 | Glazing Bead .726 | Area: .116", Outer Perim: 3.201", Inner Perim: 1.781" | .01 | |
| 2 | | Glazing Bead Cap .726 | Area: .0139",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

| | | | |
|--|--------------------------------|-------------------|--|
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| | PMI Engineering | 01.26.2011 | |
| | CHECKED | | |
| | QA | | |
| MFG | | | |
| APPROVED | | | |
| 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 | |



Trim Detail
Scale: 1x

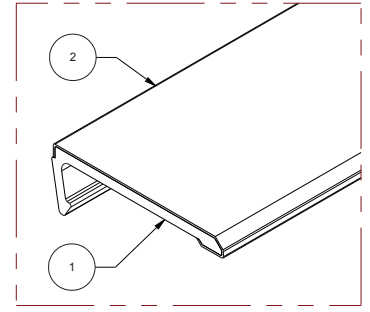


Profile Detail
Scale: 2x

Customer Approval

Sign name on line above Date

Print name on line above



| REVISIONS | | | | |
|-----------|-----|-------------|------|----------|
| ZONE | REV | DESCRIPTION | DATE | APPROVED |

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

ATI Report No. B2516.01 VERIFIED DATE: 9/9/11

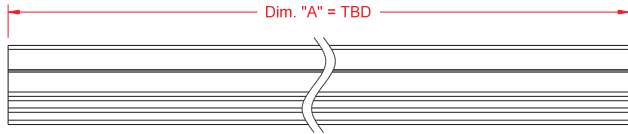
REVIEWED BY: *Debbie Beneman*

| 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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| | 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 | | | |

REVISIONS

| ZONE | REV | DESCRIPTION | DATE | APPROVED |
|------|-----|-------------|------------|----------|
| | .01 | Final draft | 11.17.2010 | |



Trim Detail
Scale: 1x

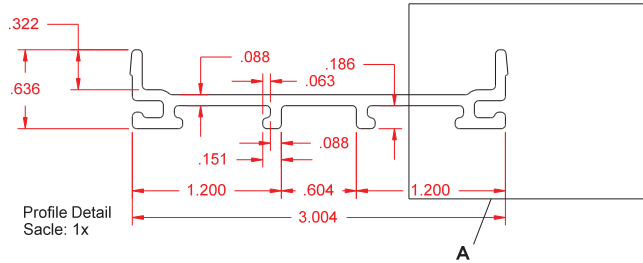


Customer Approval

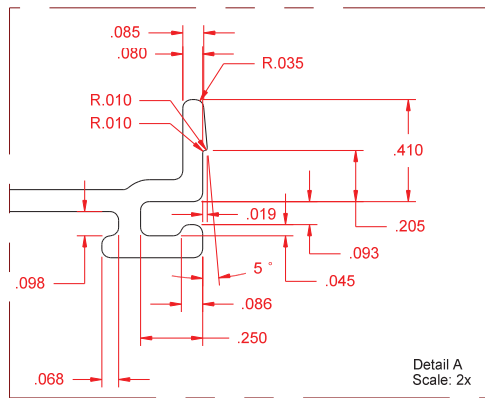
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Date

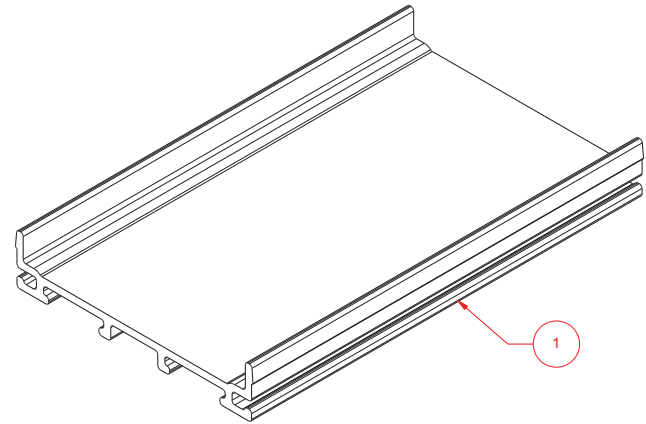
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Profile Detail
Scale: 1x



Detail A
Scale: 2x

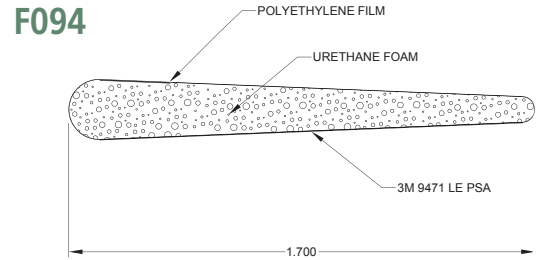


| Item # | Part Name | Cost Center | Revision | Comment |
|--|-----------------------|--|--------------------|--|
| 1 | Frame Cap | Area: .462, Perimeter: 10.201 | | |
| Note: Industry Standard Tolerances Unless Otherwise Specified. | | DRAWN PMI Engineering | DATE 11.17.2010 | <p>Proformance Manufacturing, Inc 750 North County Line Road Lone Rock, WI 53556 www.pmi-windows.com 608.583.7200 608.583.7060 Fax</p> |
| | | CHECKED | | |
| | | QA | | |
| | | MFG | | |
| | | APPROVED | | |
| 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 |

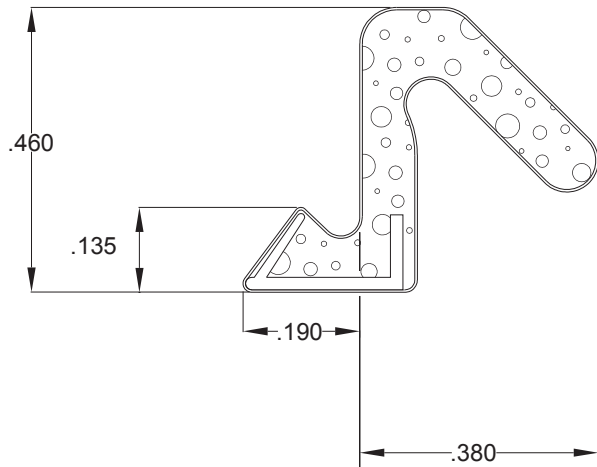
TEST SAMPLE COMPLIES WITH THESE DETAILS.
ANY DEVIATION IS NOTED.

ATI Report No. B2516.01 VERIFIED DATE: 9/9/11

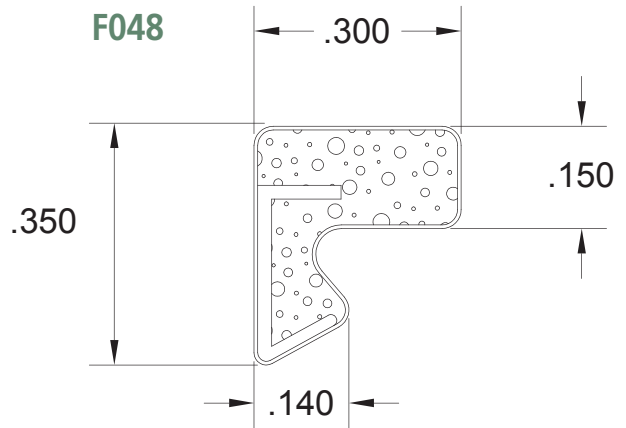
REVIEWED BY: Shelley Duneman



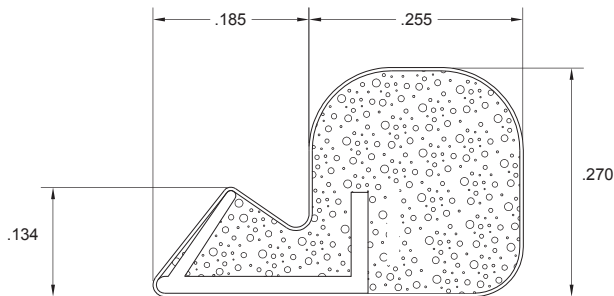
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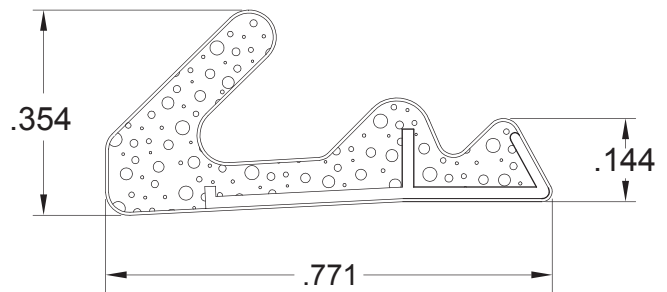
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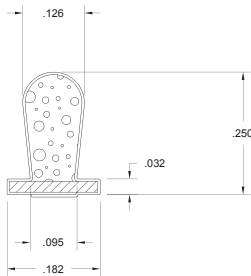
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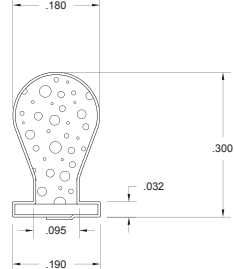
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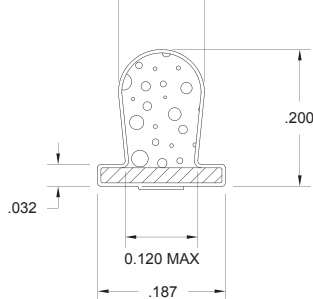
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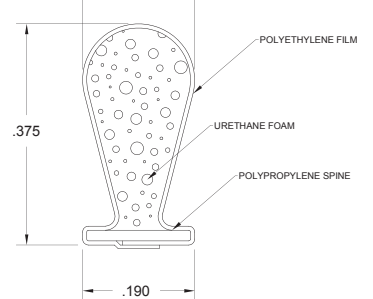
F202



F246



F375



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REVIEWED BY: *Deetha Dinerman*

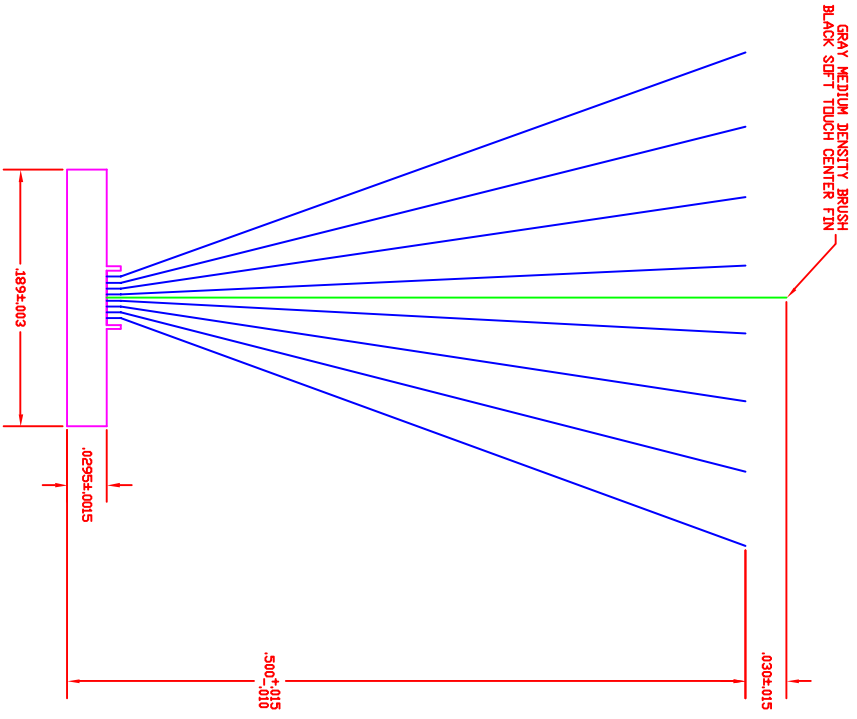


2



1

| REV | DESCRIPTION | ECR # |
|-----|-------------|-------|
| | | |



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REVIEWED BY: *Shethu Srineman*

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

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SCALE: DO NOT SCALE DRAWING

SHEET OF

2



1

B



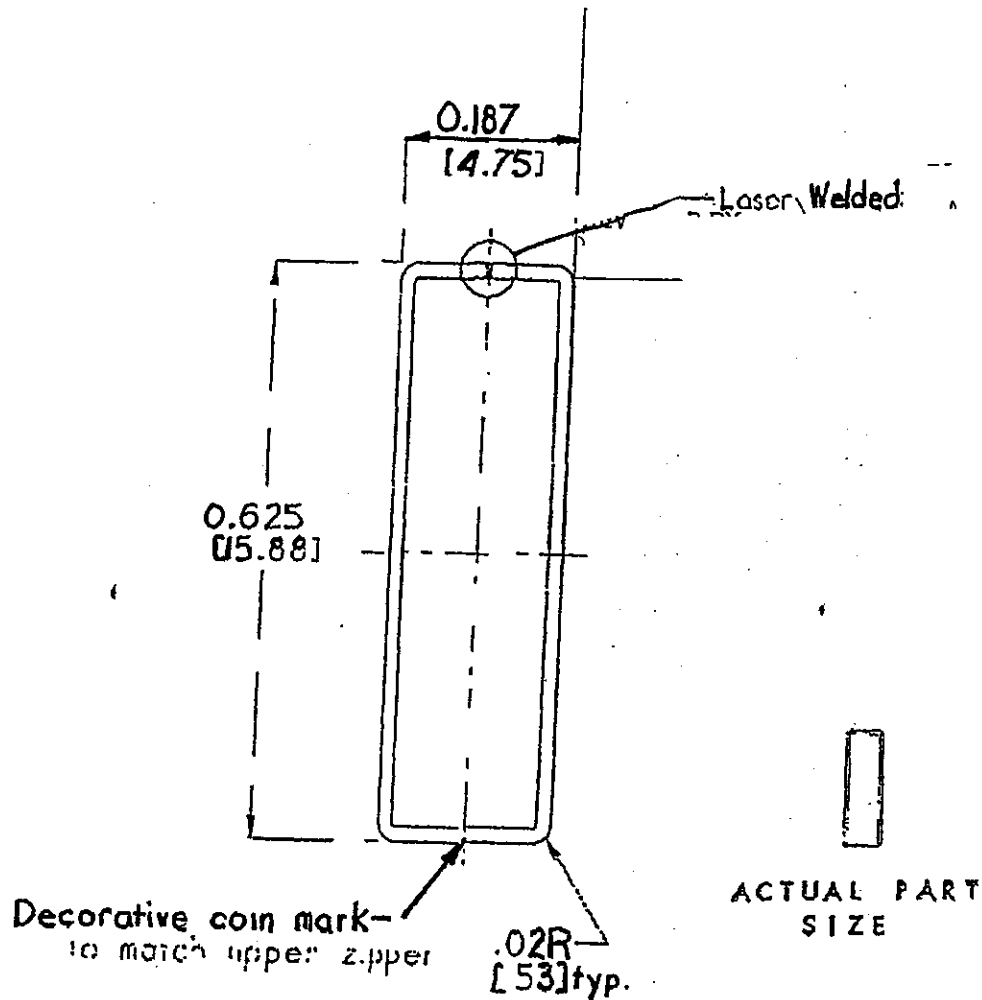
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A

A

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



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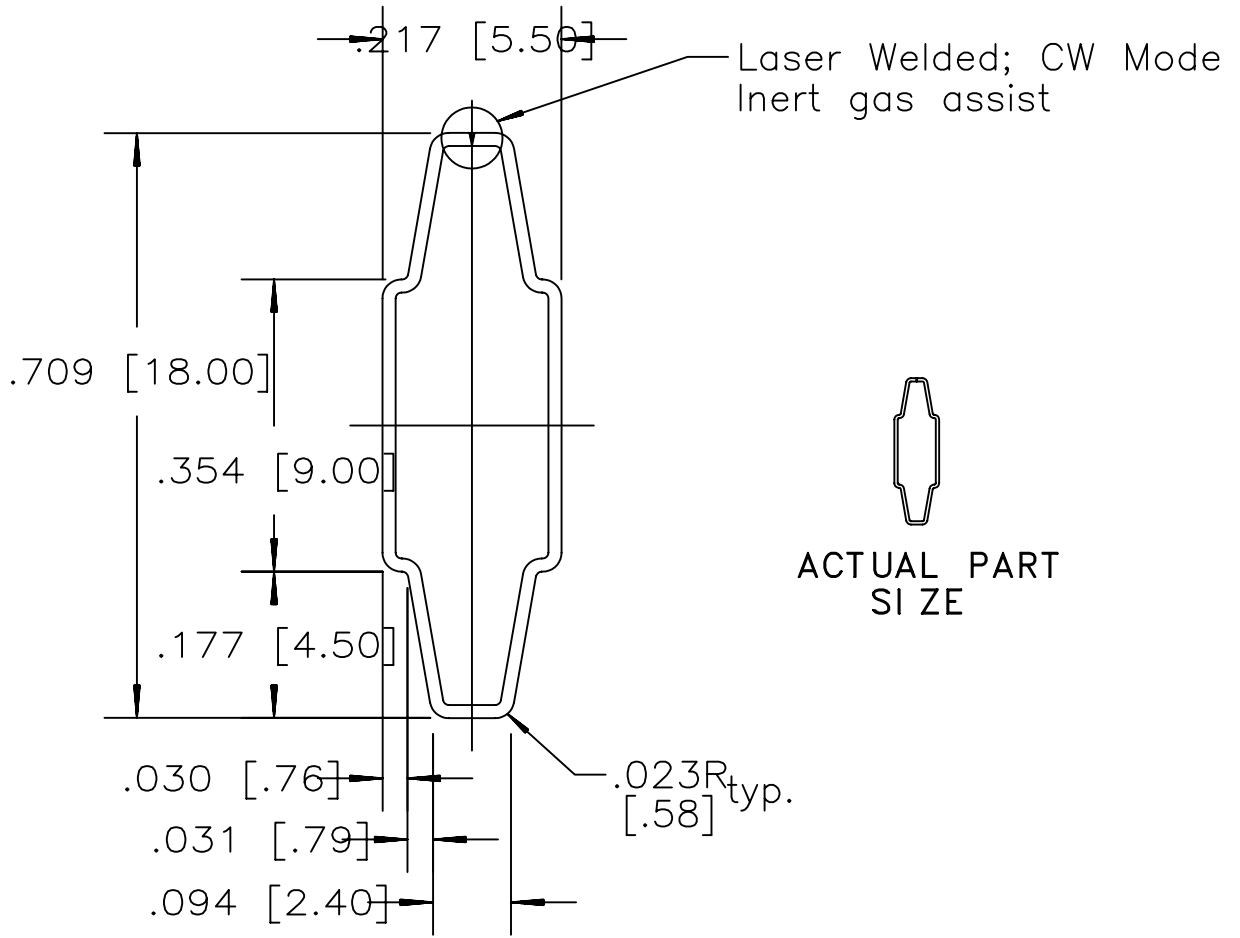
ATI Report No. B2516.01 VERIFIED DATE: 9/9/11

REVIEWED BY: Heather Dunman

FILENAME: 316X56Z

| | | | |
|---|-----------------|--|----------------|
| 3/20/97 | Initial Release | | GRM |
| DATE | SYM. | REVISION | AUTH. DKN. CK. |
| | | INFORMATION SHOWN ON THIS PRINT IS PROPRIETARY. THIS DRAWING IS NOT TO BE REPRODUCED EITHER WHOLLY OR IN PART WITHOUT THE EXPRESS PERMISSION OF ALLMETAL INC. | |
| TOLERANCES EXCEPT AS NOTED DECIMAL INCHES .XX .XXX .XXXX ± .01 .005 .0002 DECIMAL MM .XX .XX ± .13 .06 ANGULAR ± 1° | | TITLE 3/16 x 5/8 MBZ (Muntin Bar - Zippered) DRN. BY G. Matthews CK. BY APPR. BY S.O. NO. | |
| .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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REVIEWED BY:

Keith Beneman

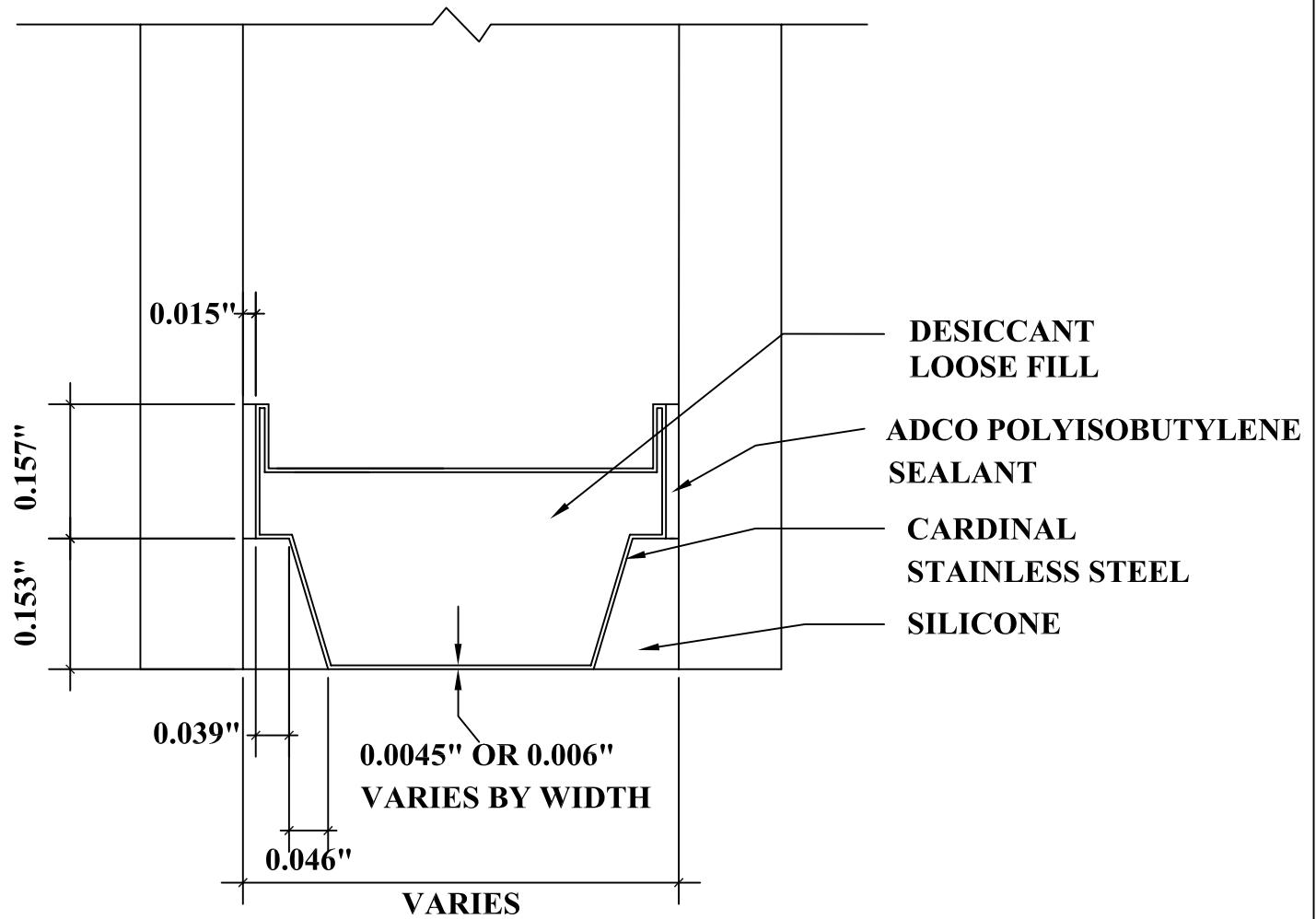
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|---------|------|--|-------|------|-----|
| 4/17/97 | | Weld note changed, Title block changed | | | GRM |
| 12/9/92 | | Initial Release | | | GRM |
| DATE | SYM. | REVISION | AUTH. | DRN. | CK. |



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| | | | |
|--|---|--|----------------------------|
| TOLERANCES EXCEPT AS NOTED | TITLE 5.5 x 18mm Contour Muntin Bar (CMB) | | DRN. BY <i>G. Matthews</i> |
| DECIMAL INCHES .XX .XXX .XXXX ± .01 .005 .0002 | MATL. .016" [.41mm] 3105 Aluminum | FINISH FULL RANGE (MILL, ANOD., PAINTED) | CK. BY |
| DECIMAL MM .XX .XXX ± .13 .06 | SCALE 4:1 | DATE 4/17/97 | APPR. BY |
| ANGULAR ± 1° | DWG. NO. 1020301010XX255 | S.O. NO. | |

FILENAME:CMB5518J



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

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ATI Report No. B2516.01 VERIFIED DATE: 9/9/11

REVIEWED BY:

Heather Dunman