



## **AAMA 507-07 THERMAL PERFORMANCE REPORT**

**Rendered to:**

**UNITED STATES ALUMINUM**

**SERIES/MODEL: 8200 Horizontal Slider**

**TYPE: Horizontal Slider**

**Report No: A5501.01-116-45**  
**Report Date: 12/02/10**



## AAMA 507-07 THERMAL PERFORMANCE REPORT

Rendered to:

UNITED STATES ALUMINUM  
200 Singleton Drive  
Waxahachie, Texas 75165

Report No: A5501.01-116-45  
Report Date: 12/02/10  
Simulation Date: 12/02/10

### Project Summary:

Architectural Testing, Inc. (ATI) was contracted by United States Aluminum to provide U-Factor and Solar Heat Gain Coefficient thermal performance ratings on the 8200 Horizontal Slider - Horizontal Slider. The thermal performance ratings were determined in accordance with AAMA 507-07, *Standard Practice for Determining the Thermal Performance Characteristics of Fenestration Systems Installed in Commercial Building*.

### Reference Documents:

AAMA 507-07, *Standard Practice for Determining the Thermal Performance Characteristics of Fenestration Systems Installed in Commercial Buildings*

NFRC 100-2010, *Procedure for Determining Fenestration Product U-Factors*

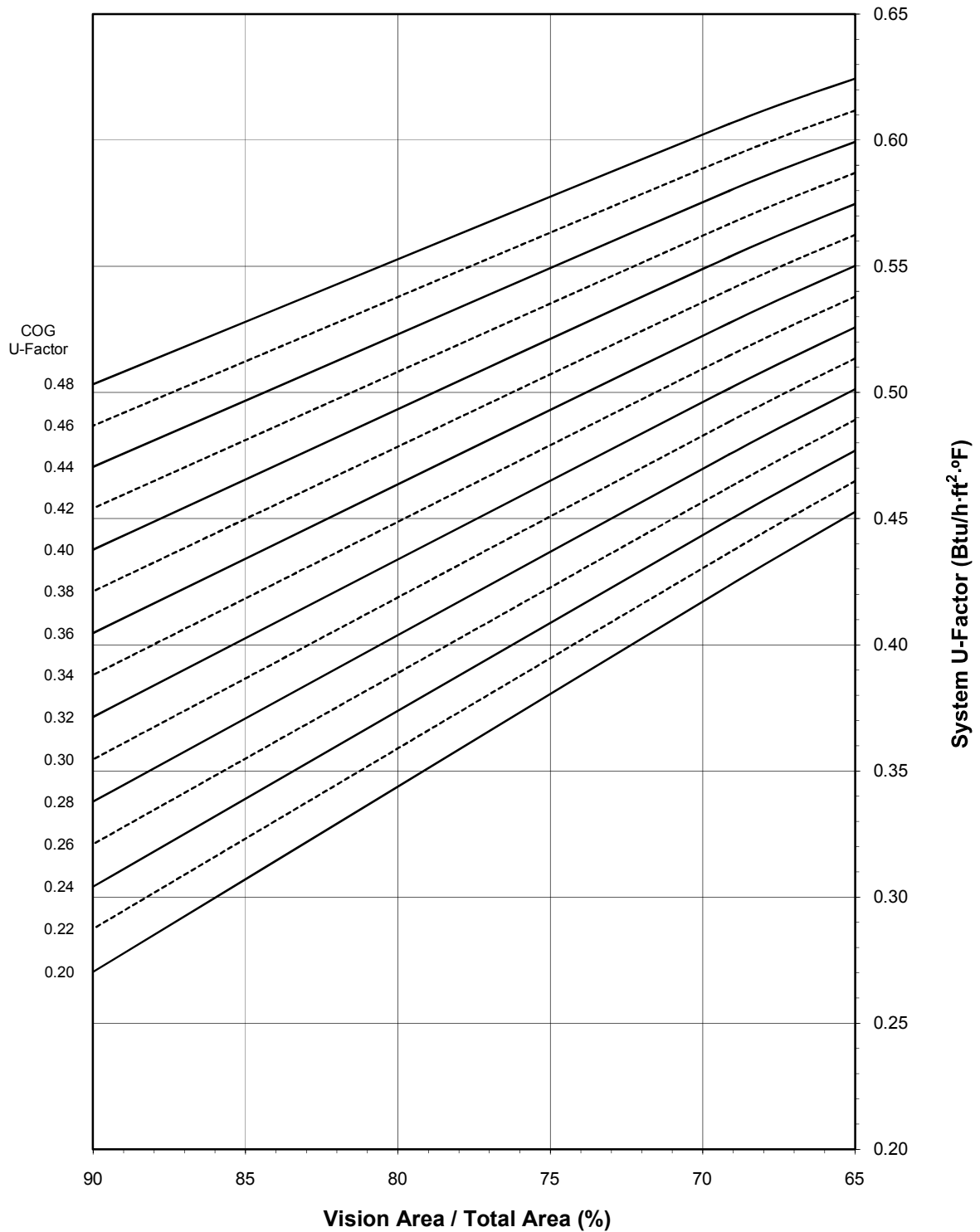
NFRC 200-2010, *Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*

### Simulation Specimen Description:

|                           |                                                                 |
|---------------------------|-----------------------------------------------------------------|
| <b>Series/Model:</b>      | 8200 Horizontal Slider                                          |
| <b>Type:</b>              | Horizontal Slider                                               |
| <b>Frame Material:</b>    | Thermally Broken Aluminum Framing System                        |
| <b>Specimen Size:</b>     | 1500mm wide by 1200mm high (59-1/16" by 47-1/4")                |
| <b>Configuration:</b>     | Two vision lites - OX                                           |
| <b>Drawing Reference:</b> | United States Aluminum Drawing: 8200HS-001(1-4) dated: 08/15/10 |

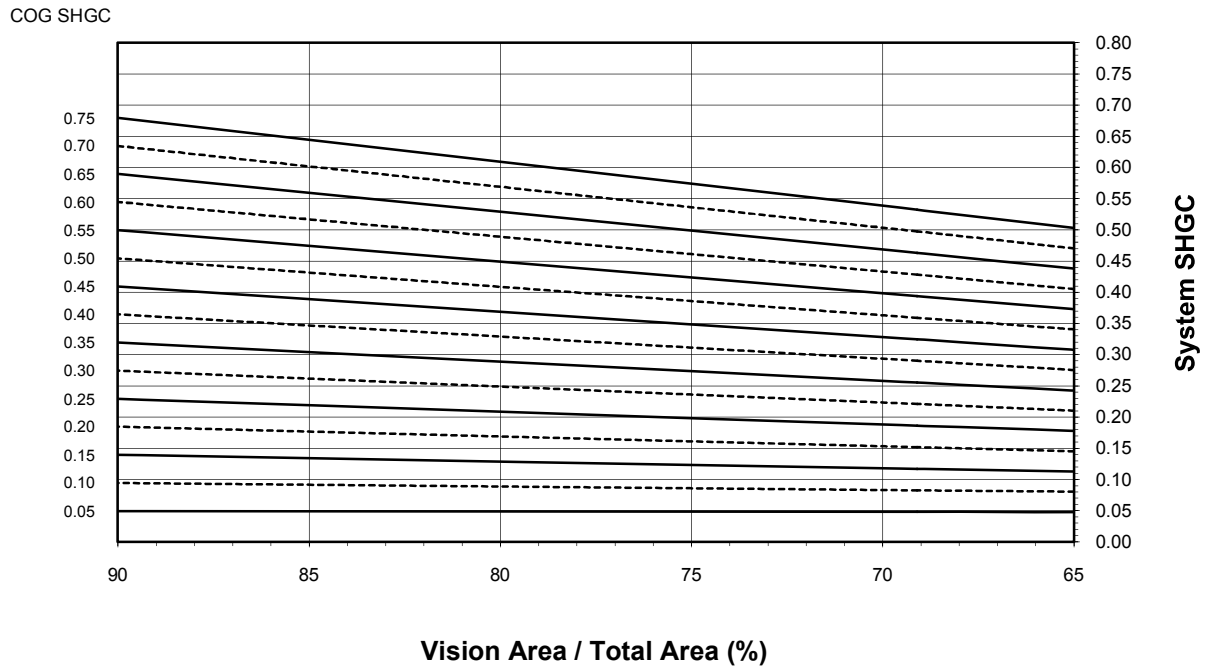
**United States Aluminum**  
**8200 Horizontal Slider - Horizontal Slider**

**System U-Factor vs. Percentage of Vision Area**

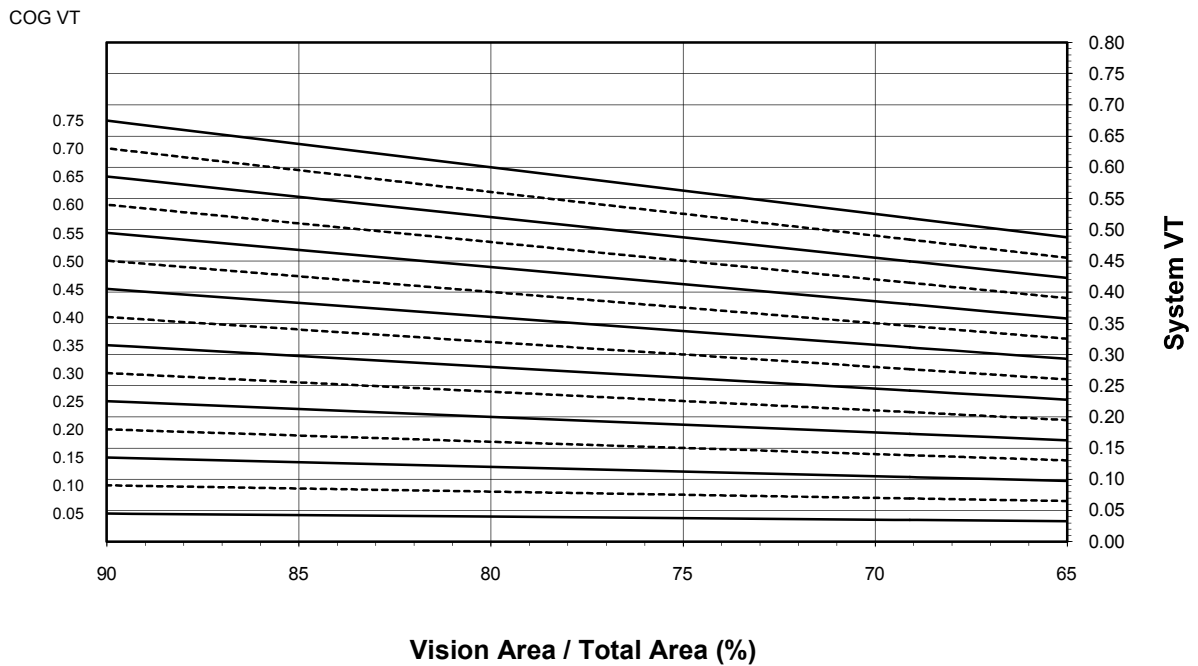


**United States Aluminum  
8200 Horizontal Slider - Horizontal Slider**

**System SHGC vs. Percentage of Vision Area**



**System VT vs. Percentage of Vision Area**



**United States Aluminum  
8200 Horizontal Slider - Horizontal Slider**

**Size Specific U-Factor Matrix\***

| <b>Glazing Option</b> | <b>Center of Glass U-Factor</b> | <b>Overall U-Factor</b> |
|-----------------------|---------------------------------|-------------------------|
| 1                     | 0.48                            | 0.61                    |
| 2                     | 0.46                            | 0.59                    |
| 3                     | 0.44                            | 0.58                    |
| 4                     | 0.42                            | 0.57                    |
| 5                     | 0.40                            | 0.55                    |
| 6                     | 0.38                            | 0.54                    |
| 7                     | 0.36                            | 0.53                    |
| 8                     | 0.34                            | 0.51                    |
| 9                     | 0.32                            | 0.50                    |
| 10                    | 0.30                            | 0.49                    |
| 11                    | 0.28                            | 0.48                    |
| 12                    | 0.26                            | 0.46                    |
| 13                    | 0.24                            | 0.45                    |
| 14                    | 0.22                            | 0.44                    |
| 15                    | 0.20                            | 0.42                    |

**Size Specific SHGC Matrix\***

| <b>Center of Glass SHGC</b> | <b>Overall SHGC</b> |
|-----------------------------|---------------------|
| 0.75                        | 0.53                |
| 0.70                        | 0.50                |
| 0.65                        | 0.46                |
| 0.60                        | 0.43                |
| 0.55                        | 0.39                |
| 0.50                        | 0.36                |
| 0.45                        | 0.32                |
| 0.40                        | 0.29                |
| 0.35                        | 0.26                |
| 0.30                        | 0.22                |
| 0.25                        | 0.19                |
| 0.20                        | 0.15                |
| 0.15                        | 0.12                |
| 0.10                        | 0.08                |
| 0.05                        | 0.05                |

**Size Specific VT Matrix\***

| <b>Center of Glass VT</b> | <b>Overall VT</b> |
|---------------------------|-------------------|
| 0.75                      | 0.52              |
| 0.70                      | 0.48              |
| 0.65                      | 0.45              |
| 0.60                      | 0.41              |
| 0.55                      | 0.38              |
| 0.50                      | 0.35              |
| 0.45                      | 0.31              |
| 0.40                      | 0.28              |
| 0.35                      | 0.24              |
| 0.30                      | 0.21              |
| 0.25                      | 0.17              |
| 0.20                      | 0.14              |
| 0.15                      | 0.10              |
| 0.10                      | 0.07              |
| 0.05                      | 0.03              |

\*Size Specific U-Factor, SHGC, and VT Matrices are based on the standard Horizontal Slider specimen size of 1500mm wide by 1200mm high (59-1/16" by 47-1/4"). This represents 69.1% Vision Area / Total Area.

Vision Area Data

| Option No. | COG U-Factor | COG Temperature | Cross Section | Frame Height | Frame U-Factor | Edge U-Factor | Total Product U-Factor |                        |                          |
|------------|--------------|-----------------|---------------|--------------|----------------|---------------|------------------------|------------------------|--------------------------|
|            |              |                 |               |              |                |               | 65%<br>Vision Area     | NFRC<br>100-2010       | 90%<br>Vision Area       |
|            |              |                 |               |              |                |               | 51.38"<br>by<br>41.10" | 59.06"<br>by<br>47.24" | 193.50"<br>by<br>154.80" |
| 1          | 0.48         | 43.7            | Ext. Head     | 3.2810       | 0.8613         | 0.5429        | 0.6244                 | 0.6064                 | 0.5033                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6931         | 0.4939        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9345         | 0.5415        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6988         | 0.4863        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.1035         | 0.4649        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.9000         | 0.4631        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0301         | 0.5133        |                        |                        |                          |
| 2          | 0.46         | 44.8            | Ext. Head     | 3.2810       | 0.8611         | 0.5284        | 0.6118                 | 0.5930                 | 0.4869                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6911         | 0.4781        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9341         | 0.5270        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6974         | 0.4705        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0957         | 0.4490        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8972         | 0.4475        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0302         | 0.4990        |                        |                        |                          |
| 3          | 0.44         | 45.8            | Ext. Head     | 3.2810       | 0.8609         | 0.5140        | 0.5994                 | 0.5799                 | 0.4705                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6893         | 0.4624        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9340         | 0.5125        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6962         | 0.4546        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0916         | 0.4334        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8949         | 0.4318        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0303         | 0.4847        |                        |                        |                          |
| 4          | 0.42         | 46.8            | Ext. Head     | 3.2810       | 0.8607         | 0.4997        | 0.5871                 | 0.5668                 | 0.4541                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6875         | 0.4468        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9339         | 0.4982        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6950         | 0.4389        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0873         | 0.4178        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8927         | 0.4164        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0305         | 0.4706        |                        |                        |                          |
| 5          | 0.40         | 47.9            | Ext. Head     | 3.2810       | 0.8606         | 0.4854        | 0.5747                 | 0.5537                 | 0.4377                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6857         | 0.4313        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9338         | 0.4839        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6938         | 0.4233        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0833         | 0.4023        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8904         | 0.4010        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0307         | 0.4565        |                        |                        |                          |

Vision Area Data

| Option No. | COG U-Factor | COG Temperature | Cross Section | Frame Height | Frame U-Factor | Edge U-Factor | Total Product U-Factor |                        |                          |
|------------|--------------|-----------------|---------------|--------------|----------------|---------------|------------------------|------------------------|--------------------------|
|            |              |                 |               |              |                |               | 65%<br>Vision Area     | NFRC<br>100-2010       | 90%<br>Vision Area       |
|            |              |                 |               |              |                |               | 51.38"<br>by<br>41.10" | 59.06"<br>by<br>47.24" | 193.50"<br>by<br>154.80" |
| 6          | 0.38         | 48.9            | Ext. Head     | 3.2810       | 0.8604         | 0.4712        | 0.5625                 | 0.5406                 | 0.4212                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6840         | 0.4159        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9337         | 0.4698        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6926         | 0.4079        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0793         | 0.3870        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8883         | 0.3858        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0308         | 0.4425        |                        |                        |                          |
| 7          | 0.36         | 50.0            | Ext. Head     | 3.2810       | 0.8603         | 0.4570        | 0.5502                 | 0.5275                 | 0.4046                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6822         | 0.4005        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9336         | 0.4556        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6915         | 0.3924        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0753         | 0.3716        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8861         | 0.3706        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0310         | 0.4285        |                        |                        |                          |
| 8          | 0.34         | 51.0            | Ext. Head     | 3.2810       | 0.8601         | 0.4431        | 0.5380                 | 0.5145                 | 0.3880                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6806         | 0.3854        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9336         | 0.4416        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6903         | 0.3772        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0715         | 0.3565        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8840         | 0.3556        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0312         | 0.4147        |                        |                        |                          |
| 9          | 0.32         | 52.0            | Ext. Head     | 3.2810       | 0.8600         | 0.4290        | 0.5258                 | 0.5015                 | 0.3714                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6789         | 0.3701        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9335         | 0.4275        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6892         | 0.3618        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0677         | 0.3411        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8819         | 0.3405        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0314         | 0.4007        |                        |                        |                          |
| 10         | 0.30         | 53.1            | Ext. Head     | 3.2810       | 0.8564         | 0.4150        | 0.5135                 | 0.4884                 | 0.3546                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6773         | 0.3551        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9334         | 0.4136        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6881         | 0.3468        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0641         | 0.3261        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8799         | 0.3256        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0317         | 0.3870        |                        |                        |                          |

Vision Area Data

| Option No. | COG U-Factor | COG Temperature | Cross Section | Frame Height | Frame U-Factor | Edge U-Factor | Total Product U-Factor |                        |                          |
|------------|--------------|-----------------|---------------|--------------|----------------|---------------|------------------------|------------------------|--------------------------|
|            |              |                 |               |              |                |               | 65%<br>Vision Area     | NFRC<br>100-2010       | 90%<br>Vision Area       |
|            |              |                 |               |              |                |               | 51.38"<br>by<br>41.10" | 59.06"<br>by<br>47.24" | 193.50"<br>by<br>154.80" |
| 11         | 0.28         | 54.2            | Ext. Head     | 3.2810       | 0.8563         | 0.4010        | 0.5013                 | 0.4754                 | 0.3378                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6757         | 0.3400        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9334         | 0.3996        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6870         | 0.3316        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0604         | 0.3110        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8779         | 0.3106        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0319         | 0.3732        |                        |                        |                          |
| 12         | 0.26         | 55.2            | Ext. Head     | 3.2810       | 0.8561         | 0.3871        | 0.4892                 | 0.4624                 | 0.3210                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6741         | 0.3250        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9333         | 0.3858        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6860         | 0.3165        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0568         | 0.2960        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8759         | 0.2958        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0322         | 0.3594        |                        |                        |                          |
| 13         | 0.24         | 56.3            | Ext. Head     | 3.2810       | 0.8560         | 0.3732        | 0.4770                 | 0.4494                 | 0.3042                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6725         | 0.3101        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9332         | 0.3719        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6849         | 0.3016        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0523         | 0.2810        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8739         | 0.2810        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0325         | 0.3457        |                        |                        |                          |
| 14         | 0.22         | 57.3            | Ext. Head     | 3.2810       | 0.8559         | 0.3595        | 0.4649                 | 0.4364                 | 0.2874                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6708         | 0.2953        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9332         | 0.3582        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6839         | 0.2867        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0489         | 0.2662        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8720         | 0.2663        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0327         | 0.3321        |                        |                        |                          |
| 15         | 0.20         | 58.4            | Ext. Head     | 3.2810       | 0.8558         | 0.3457        | 0.4526                 | 0.4234                 | 0.2704                   |
|            |              |                 | Int. Head     | 3.2810       | 0.6693         | 0.2805        |                        |                        |                          |
|            |              |                 | Ext. Sill     | 5.9040       | 0.9331         | 0.3444        |                        |                        |                          |
|            |              |                 | Int. Sill     | 5.9040       | 0.6806         | 0.2714        |                        |                        |                          |
|            |              |                 | Mtg. Stile    | 3.3838       | 1.0456         | 0.2514        |                        |                        |                          |
|            |              |                 | Int. Jamb     | 2.8870       | 0.8701         | 0.2517        |                        |                        |                          |
|            |              |                 | Ext. Jamb     | 2.1010       | 1.0330         | 0.3185        |                        |                        |                          |

Detailed drawings, datasheets, representative samples of test specimens, 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 by Architectural Testing 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 named herein and relates only to the specimen(s) 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: Jason A. Mitzel

Jason Mitzel

Simulation Technician

REVIEWED BY:



Digitally Signed by: Kevin Louder

Kevin S. Louder

Project Engineer

JAM:jam

A5501.01-116-45

Attachments (pages): This report is complete only when all attachments are included.

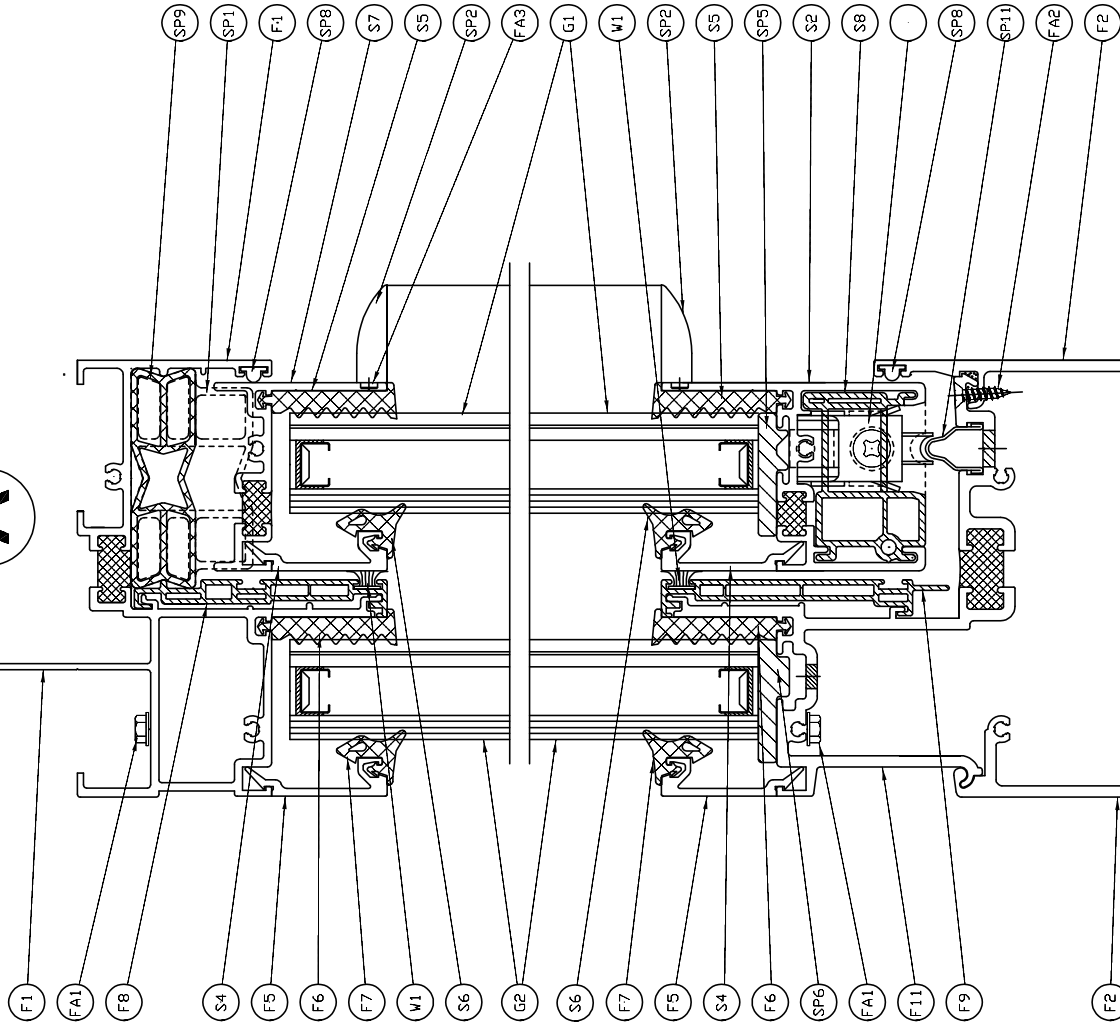
Appendix A: Drawings and Bills of Material (26)

### Revision Log

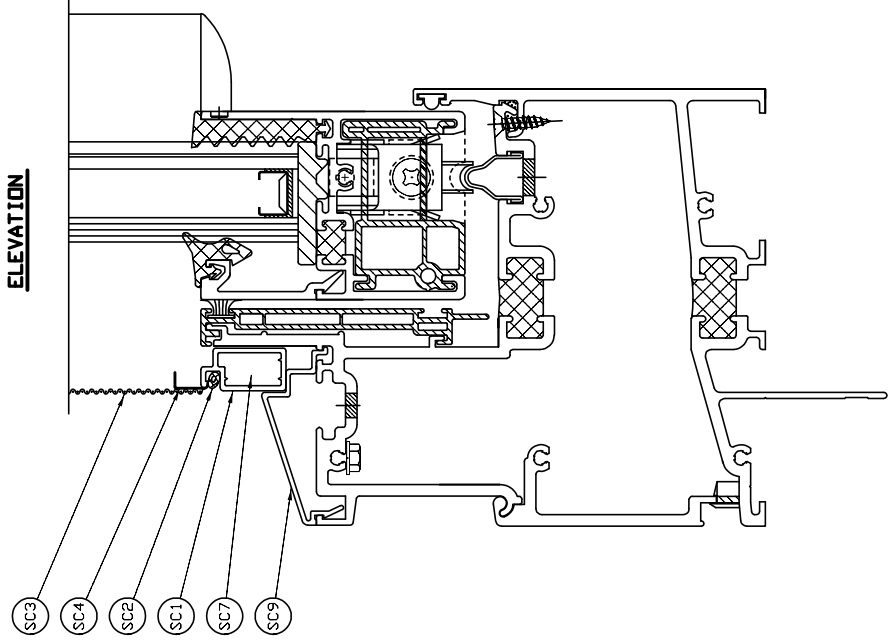
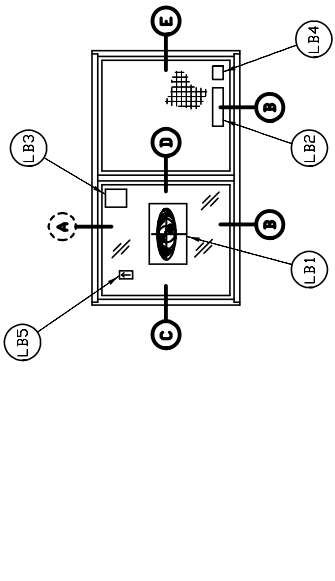
| <b><u>Rev. #</u></b> | <b><u>Date</u></b> | <b><u>Page(s)</u></b> | <b><u>Revision(s)</u></b> |
|----------------------|--------------------|-----------------------|---------------------------|
| .01 R0               | 12/2/2010          | All                   | Original Report Issue     |

All drawings and Bills of Material used in simulating this product are enclosed in this Appendix.

A

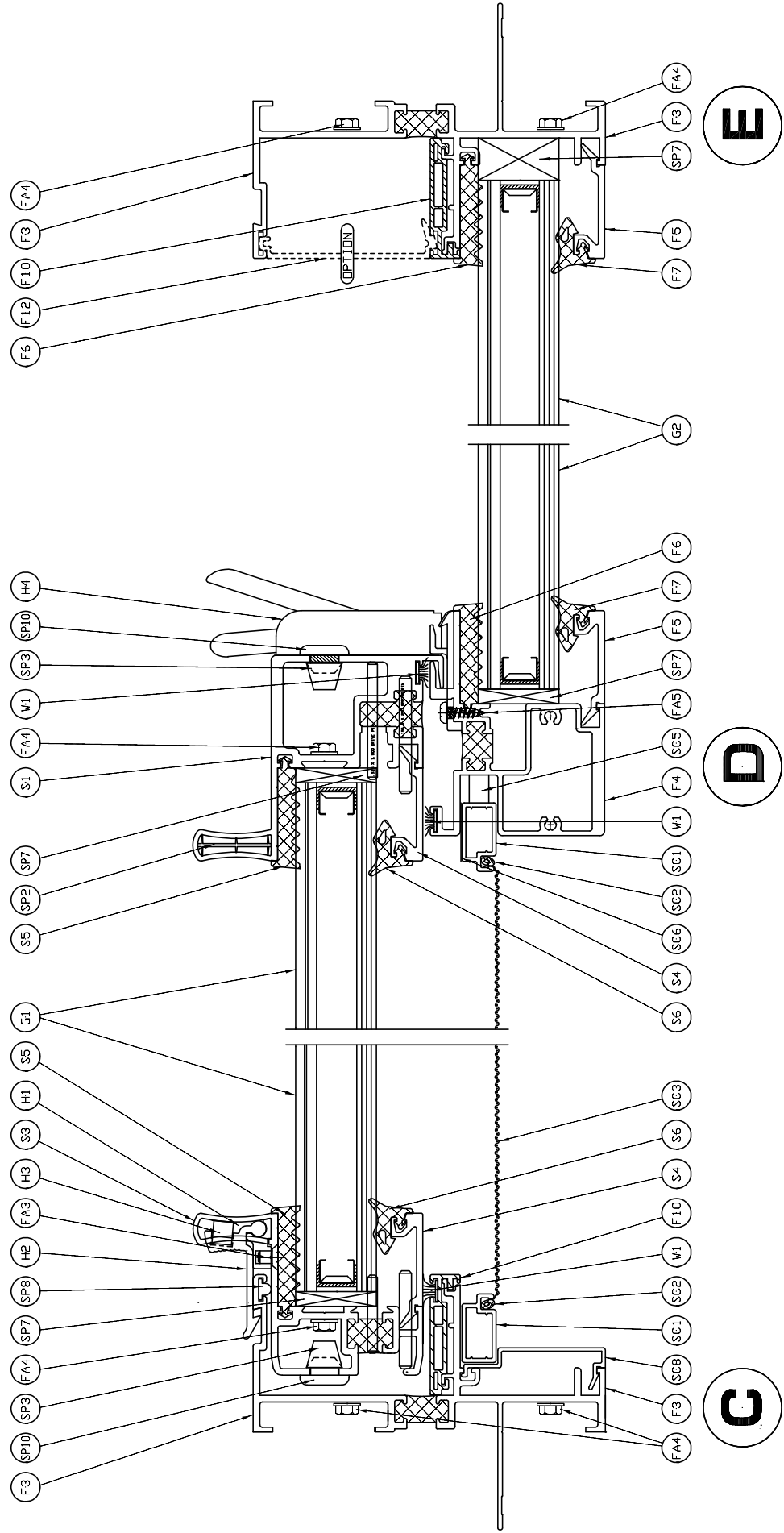


**ELEVATION**



B

|                           |  |                               |  |
|---------------------------|--|-------------------------------|--|
| U.S. ALUMINUM CORPORATION |  |                               |  |
| WILLIE C.                 |  | HORIZONTAL WINDOW             |  |
| 08/15/10                  |  | LAYOUT (XD)                   |  |
| FULL SIZE                 |  | (SERIES 8200 HS. OPER. DRGS.) |  |
|                           |  | 8200HS-001                    |  |
|                           |  | 3 of 4                        |  |



|                           |  |                                    |  |
|---------------------------|--|------------------------------------|--|
| U.S. ALUMINUM CORPORATION |  |                                    |  |
| WILLIE C.                 |  | HORIZONTAL WINDOW                  |  |
| 08/15/10                  |  | LAYOUT                             |  |
| FULL SIZE                 |  | (SERIES 8200)<br>(HS, OPER. DRGS.) |  |
| 8200HS-001                |  | 4 of 4                             |  |



BILL OF MATERIALS FOR 8200 SERIES HORIZONTAL SLIDE WINDOW

| ITEM # | EXTRUSION #  | PART NO     | DESCRIPTION                                                        | COMMENTS                                                   | VENDOR                 | VENDOR PART NUMBER | QTY.. | FINISHES                     |                              |
|--------|--------------|-------------|--------------------------------------------------------------------|------------------------------------------------------------|------------------------|--------------------|-------|------------------------------|------------------------------|
| SP1    | SMALL PARTS  |             | VENT STOP                                                          |                                                            | PETERSON MOLD          |                    | 2     | CLASS 1                      | CLEAR                        |
| SP2    |              | WH803       | SASH PULL END CAP                                                  |                                                            | PETERSON MOLD          |                    | 4     | MEDIUM GRAY (NOTE 2)         | BRONZE                       |
| SP3    |              | SP083       | TOP BUTTON PLUG                                                    |                                                            |                        |                    |       | MEDIUM GRAY (NOTE 2)         | BLACK                        |
| SP4    |              | WH276       | WEEP HOLE COVER                                                    |                                                            |                        |                    | A/R   | BLACK                        | BLACK                        |
| SP5    |              |             | SASH SETTING BLOCK                                                 |                                                            | ASTRO EJECTION MOLDING |                    | 2     | MEDIUM GRAY (NOTE 2)         | BLACK                        |
| SP6    |              |             | FIXED SETTING BLOCK                                                |                                                            | TREMCO                 | TX18060E           | 2     | BLACK                        |                              |
| SP7    |              |             | EDGE BLOCK                                                         |                                                            | TREMCO                 | TX18059E           | 2     | BLACK                        |                              |
| SP8    |              | R1125       | PVC GUIDE                                                          |                                                            |                        |                    | 4     | MEDIUM GRAY (NOTE 2)         | BLACK                        |
| SP9    |              | WH852       | ANT-LIFT                                                           |                                                            |                        |                    |       |                              |                              |
| SP10   |              | SP084       | BOTTOM BUTTON PLUG                                                 |                                                            |                        |                    |       |                              |                              |
| SP11   |              |             | STEEL TRACK                                                        |                                                            | NDR STAR               | NS589              | 1     |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
| W1     | WEATHERSTRIP | W-027       | .270 x .250 TRI-FIN                                                | USED AT JAMBS (2), SILL (1), MULLION (1) AND INTERLOCK (1) | ULTRA FAB              |                    | A/R   | GRAY                         | BLACK                        |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
| G1     | GLASS        | GL103115129 | 1.032 INSULATED BLAST GLASS (.250 ± 1/2" ± 1/8" ± .030 PVB ± 1/8") | VENT GLASS                                                 |                        |                    | 1     |                              |                              |
| G2     |              | GL103115429 | 1.032 INSULATED BLAST GLASS (.250 ± 1/2" ± 1/8" ± .030 PVB ± 1/8") | FIXED GLASS                                                |                        |                    | 1     |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
| FA1    | FASTENERS    | ST212       | #8 x 1-1/4" PHIL HEX WASHER HD SMS A SS                            | MULLION (4)                                                |                        |                    | 4     |                              |                              |
| FA2    |              |             | #6 x 1/2" PHIL FLAT HD SMS SS                                      | SILL INSERT                                                |                        |                    | 2     |                              |                              |
| FA3    |              | MS121       | #8-32 x 1/4" PHIL FLAT HD UNDERCUT SMS SS                          | LATCH HOUSING (2)                                          |                        |                    | 2     |                              |                              |
| FA4    |              | ST196(42)   | #8 x 1" PHIL HEX WASHER HD SMS TYPE AB SS                          | FRAME (8) TOP RAIL (4) BOTTOM RAIL (8)                     |                        |                    | 20    |                              |                              |
| FA5    |              |             | #6 x 1/2" PHIL PAN HD SMS SS "A"                                   |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
| H1     | HARDWARE     | SH857       | LATCH HOUSING                                                      |                                                            | KENMAR/FABCO           |                    | 2     | SATIN NICKEL                 | SATIN NICKEL                 |
| H2     |              | SH858       | SASH RELEASE LEVER                                                 |                                                            | KENMAR/FABCO           |                    | 2     | SATIN NICKEL WITH CLEAR COAT | SATIN NICKEL WITH CLEAR COAT |
| H3     |              | WH829       | SS LATCH SPRING                                                    |                                                            | KELLY TOOL & DIE       |                    | 2     |                              |                              |
| H4     |              | WH354       | LOCK ASSEMBLY                                                      |                                                            | ULTRA                  |                    | 1     |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
|        |              |             |                                                                    |                                                            |                        |                    |       |                              |                              |
| LB1    | LABEL        | LU801       | USAC LOGO WITH INSTRUCTIONS                                        |                                                            | USAC PRINTER           |                    | 1     |                              |                              |
| LB2    |              | LU901       | AAMA LABEL                                                         | AAMA CERT. + SECURITY TAB + NFRC TAP                       | ALI                    |                    | 1     |                              |                              |
| LB3    |              | LU911       | NFRC TEMPORARY LABEL                                               |                                                            | USAC/SC                |                    | 1     |                              |                              |
| LB4    |              | LU921       | NFRC PERMIT LABEL                                                  |                                                            | USAC PRINTER           |                    | 1     |                              |                              |
| LB5    |              | LB006       | THIS SIDE UP LABEL                                                 |                                                            | USAC PRINTER           |                    | 1     |                              |                              |

NOTE:

1. ALL PARTS MUST BE U.S. MADE.
2. ALL NYLON MOLDED PARTS TO MATCH WITH CLEAR ANODIZING TO BE GR21 (PRESSOUT CHIP IS C58K756N) FROM:

COLOR SCIENCE  
2320 E CALLEJERO PLACE  
SANTA ANA, CA 92707-3000  
714/434-1033

UNITED STATES ALUMINUM CORP.

BILL OF MATERIALS  
FOR 8200 SERIES HS  
(SERIES 8200HS)

WILLIE G.  
08/18/10

8200HS-001  
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