



AAMA 507-12 THERMAL PERFORMANCE REPORT

Rendered to:

US ALUMINUM INC., DIVISION OF CR LAURENCE CO., INC.

SERIES/MODEL: 3000 Sliding Glass Door (1" Dual Glazed)

TYPE: Sliding Glass Door

Report No: C3896.02-116-45
Report Date: 08/20/13



AAMA 507-12 THERMAL PERFORMANCE REPORT

Rendered to:

US ALUMINUM INC., DIVISION OF CR LAURENCE CO., INC.
200 Singleton Drive
Waxahachie, Texas 75165

Report No: C3896.02-116-45
Report Date: 08/20/13
Simulation Date: 02/19/13

Project Summary:

Architectural Testing, Inc. was contracted by US Aluminum Inc., Division of CR Laurence Co., Inc. to provide U-Factor and Solar Heat Gain Coefficient thermal performance ratings on the 3000 Sliding Glass Door (1" Dual Glazed) Sliding Glass Door. The thermal performance ratings were determined in accordance with AAMA 507-12, Standard Practice for Determining the Thermal Performance Characteristics of Fenestration Systems Installed in Commercial

Reference Documents:

AAMA 507-12, 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*

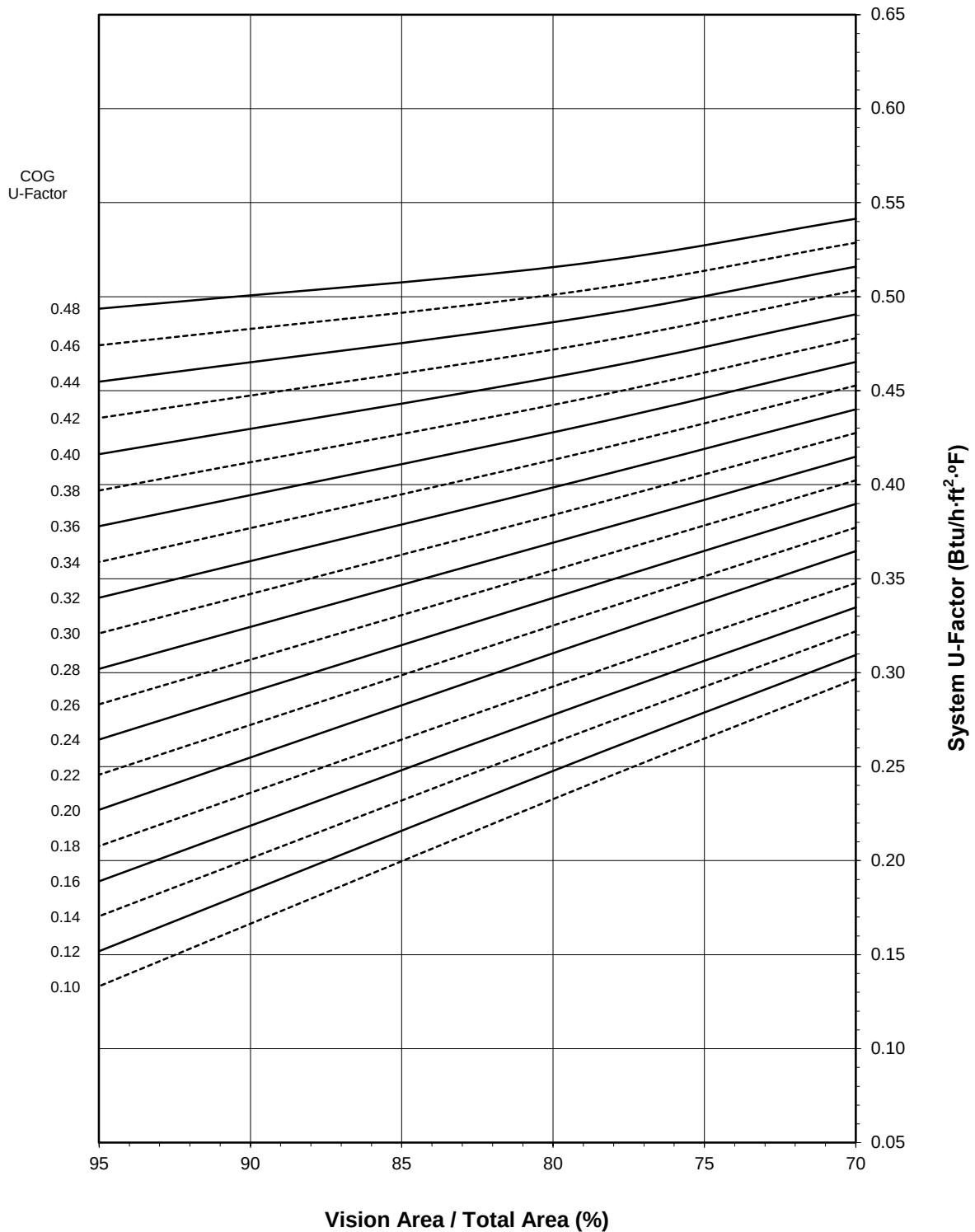
Simulation Specimen Description:

Series/Model:	3000 Sliding Glass Door (1" Dual Glazed)
Type:	Sliding Glass Door
Frame Material:	Aluminum Thermally Broken Framing System
Material Finish:	Painted Aluminum
Specimen Size:	2000mm wide by 2000mm high (78-3/4" by 78-3/4")
Configuration:	Two vision lites separated by one intermediate vertical
Drawing Reference:	US Aluminum Drawings mu2012-018-01 thru -04, dated 11/07/12

1200A Scotsville Road
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Rochester, NY 14624
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US Aluminum Inc., Division of CR Laurence Co., Inc.
3000 Sliding Glass Door (1" Dual Glazed) - Sliding Glass Door

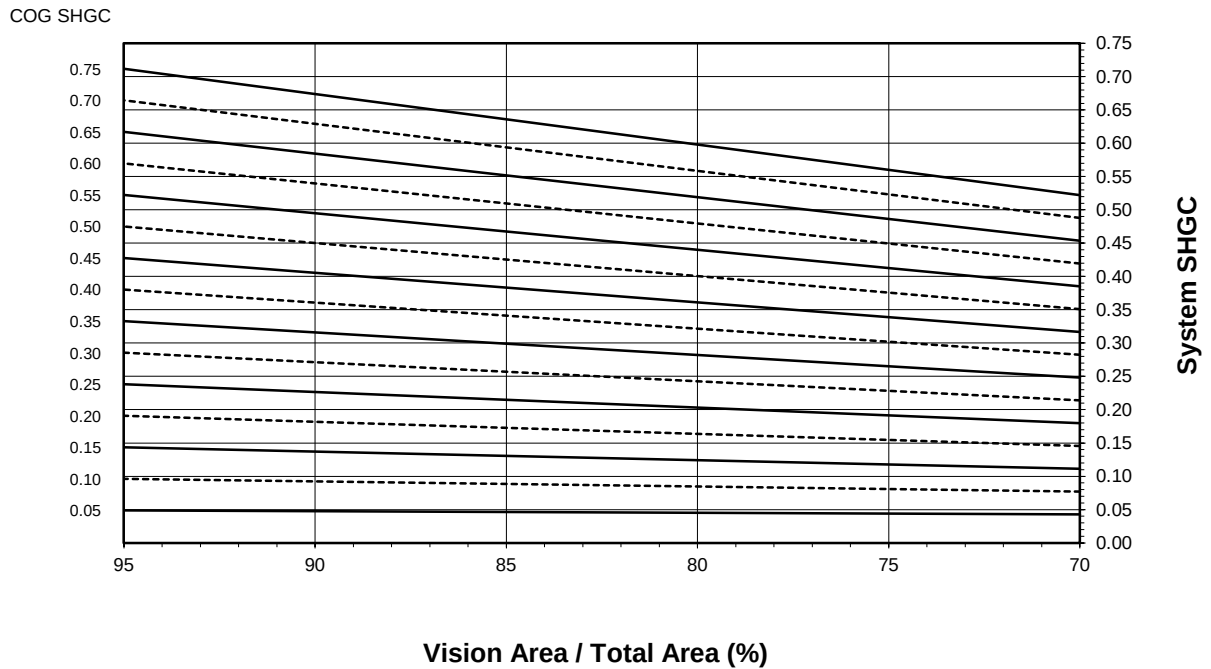
System U-Factor vs. Percentage of Vision Area



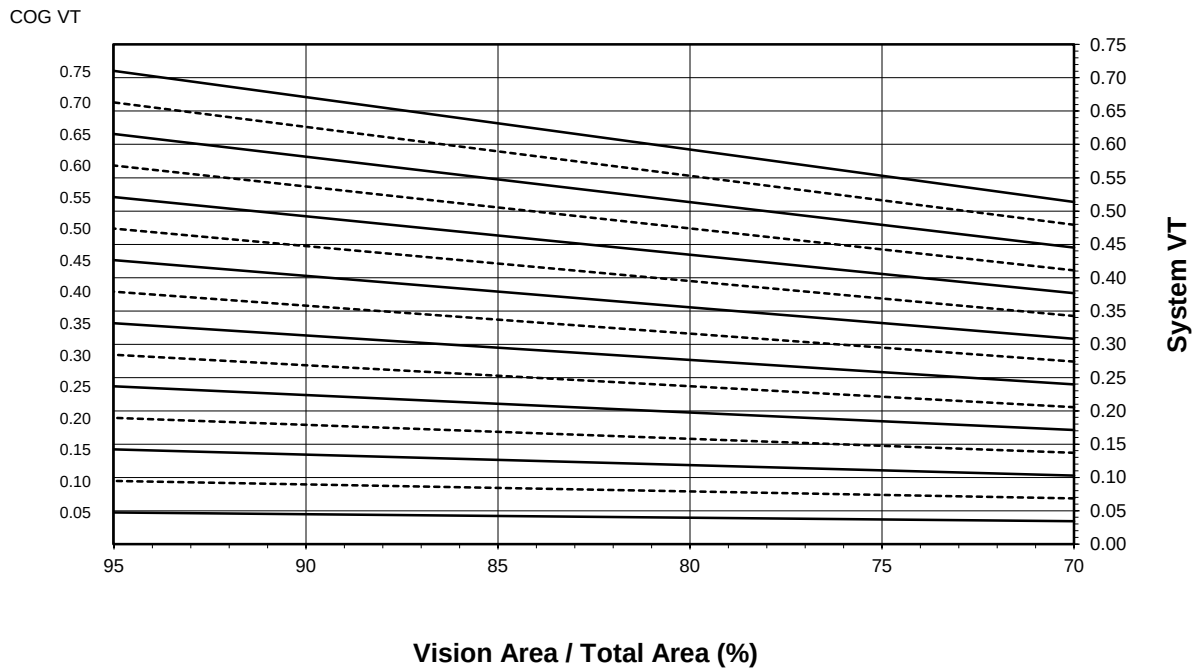
Note: 1 inch Overall - Dual Glazed Glass (0.48-0.20 COG) with Aluminum Spacer, Dual Glazed Glass with Heat Mirror (0.18-0.10 COG) with Aluminum Spacer

US Aluminum Inc., Division of CR Laurence Co., Inc.
3000 Sliding Glass Door (1" Dual Glazed) - Sliding Glass Door

System SHGC vs. Percentage of Vision Area



System VT vs. Percentage of Vision Area



US Aluminum Inc., Division of CR Laurence Co., Inc.
3000 Sliding Glass Door (1" Dual Glazed) - Sliding Glass Door

Size Specific U-Factor Matrix*

Glazing Option	Center of Glass U-Factor	Overall U-Factor
1	0.48	0.52
2	0.46	0.50
3	0.44	0.49
4	0.42	0.47
5	0.40	0.46
6	0.38	0.44
7	0.36	0.43
8	0.34	0.41
9	0.32	0.40
10	0.30	0.38
11	0.28	0.37
12	0.26	0.36
13	0.24	0.34
14	0.22	0.33
15	0.20	0.31
16	0.18	0.29
17	0.16	0.28
18	0.14	0.26
19	0.12	0.25
20	0.10	0.23

Note: 1 inch Overall - Dual Glazed Glass (0.48-0.20 COG) with Aluminum Spacer, Dual Glazed Glass with Heat Mirror (0.18-0.10 COG) with Aluminum Spacer

**US Aluminum Inc., Division of CR Laurence Co., Inc.
3000 Sliding Glass Door (1" Dual Glazed) - Sliding Glass Door**

Size Specific SHGC Matrix*

Center of Glass SHGC	Overall SHGC
0.75	0.60
0.70	0.56
0.65	0.52
0.60	0.48
0.55	0.44
0.50	0.40
0.45	0.36
0.40	0.32
0.35	0.28
0.30	0.24
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.08
0.05	0.05

Size Specific VT Matrix*

Center of Glass VT	Overall VT
0.75	0.59
0.70	0.55
0.65	0.51
0.60	0.47
0.55	0.43
0.50	0.39
0.45	0.35
0.40	0.31
0.35	0.28
0.30	0.24
0.25	0.20
0.20	0.16
0.15	0.12
0.10	0.08
0.05	0.04

*Size Specific U-Factor, SHGC, and VT Matrices are based on the standard Sliding Glass Door specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4"). This represents 79.7% 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		
							70% Vision Area	NFRC 100-2010	95% Vision Area
							51.63" by 51.63"	78.74" by 78.74"	332.68" by 332.68"
1	0.48	43.7	Ext. Head	3.2324	0.6288	0.5361	0.5414	0.5162	0.4936
			Int. Head	3.2322	0.6759	0.5361			
			Ext. Jamb	2.3769	0.6000	0.5361			
			Int. Jamb	4.1756	0.6395	0.5361			
			Mtg. Rail	3.1026	0.8519	0.5361			
			Ext. Sill	4.9140	0.5652	0.5361			
			Int. Sill	4.9140	0.6121	0.5361			
2	0.46	44.8	Ext. Head	3.2324	0.6281	0.5212	0.5287	0.5016	0.4742
			Int. Head	3.2322	0.6747	0.5212			
			Ext. Jamb	2.3769	0.5993	0.5212			
			Int. Jamb	4.1756	0.6384	0.5212			
			Mtg. Rail	3.1026	0.8503	0.5212			
			Ext. Sill	4.9140	0.5645	0.5212			
			Int. Sill	4.9140	0.6112	0.5212			
3	0.44	45.8	Ext. Head	3.2324	0.6274	0.5063	0.5160	0.4871	0.4548
			Int. Head	3.2322	0.6734	0.5063			
			Ext. Jamb	2.3769	0.5985	0.5063			
			Int. Jamb	4.1756	0.6374	0.5063			
			Mtg. Rail	3.1026	0.8487	0.5063			
			Ext. Sill	4.9140	0.5639	0.5063			
			Int. Sill	4.9140	0.6102	0.5063			
4	0.42	46.8	Ext. Head	3.2324	0.6268	0.4918	0.5033	0.4726	0.4355
			Int. Head	3.2322	0.6722	0.4918			
			Ext. Jamb	2.3769	0.5978	0.4918			
			Int. Jamb	4.1756	0.6364	0.4918			
			Mtg. Rail	3.1026	0.8472	0.4918			
			Ext. Sill	4.9140	0.5632	0.4918			
			Int. Sill	4.9140	0.6093	0.4918			
5	0.40	47.9	Ext. Head	3.2324	0.6261	0.4769	0.4906	0.4580	0.4162
			Int. Head	3.2322	0.6710	0.4769			
			Ext. Jamb	2.3769	0.5971	0.4769			
			Int. Jamb	4.1756	0.6354	0.4769			
			Mtg. Rail	3.1026	0.8457	0.4769			
			Ext. Sill	4.9140	0.5626	0.4769			
			Int. Sill	4.9140	0.6084	0.4769			
6	0.38	48.9	Ext. Head	3.2324	0.6255	0.4625	0.4779	0.4433	0.3969
			Int. Head	3.2322	0.6698	0.4625			
			Ext. Jamb	2.3769	0.5964	0.4625			
			Int. Jamb	4.1756	0.6344	0.4625			
			Mtg. Rail	3.1026	0.8442	0.4625			
			Ext. Sill	4.9140	0.5620	0.4625			
			Int. Sill	4.9140	0.6075	0.4625			

Vision Area Data

Option No.	COG U-Factor	COG Temperature	Cross Section	Frame Height	Frame U-Factor	Edge U-Factor	Total Product U-Factor		
							70% Vision Area	NFRC 100-2010	95% Vision Area
							51.63" by 51.63"	78.74" by 78.74"	332.68" by 332.68"
7	0.36	50.0	Ext. Head	3.2324	0.6248	0.4478	0.4653	0.4288	0.3779
			Int. Head	3.2322	0.6686	0.4478			
			Ext. Jamb	2.3769	0.5957	0.4478			
			Int. Jamb	4.1756	0.6334	0.4478			
			Mtg. Rail	3.1026	0.8427	0.4478			
			Ext. Sill	4.9140	0.5613	0.4478			
			Int. Sill	4.9140	0.6065	0.4478			
8	0.34	51.0	Ext. Head	3.2324	0.6243	0.4336	0.4527	0.4142	0.3589
			Int. Head	3.2322	0.6675	0.4336			
			Ext. Jamb	2.3769	0.5950	0.4336			
			Int. Jamb	4.1756	0.6325	0.4336			
			Mtg. Rail	3.1026	0.8416	0.4336			
			Ext. Sill	4.9140	0.5608	0.4336			
			Int. Sill	4.9140	0.6057	0.4336			
9	0.32	52.0	Ext. Head	3.2324	0.6237	0.4191	0.4401	0.3996	0.3399
			Int. Head	3.2322	0.6664	0.4191			
			Ext. Jamb	2.3769	0.5944	0.4191			
			Int. Jamb	4.1756	0.6316	0.4191			
			Mtg. Rail	3.1026	0.8403	0.4191			
			Ext. Sill	4.9140	0.5602	0.4191			
			Int. Sill	4.9140	0.6049	0.4191			
10	0.30	53.1	Ext. Head	3.2324	0.6231	0.4049	0.4275	0.3850	0.3209
			Int. Head	3.2322	0.6653	0.4049			
			Ext. Jamb	2.3769	0.5938	0.4049			
			Int. Jamb	4.1756	0.6306	0.4049			
			Mtg. Rail	3.1026	0.8389	0.4049			
			Ext. Sill	4.9140	0.5596	0.4049			
			Int. Sill	4.9140	0.6041	0.4049			
11	0.28	54.2	Ext. Head	3.2324	0.6225	0.3907	0.4149	0.3704	0.3020
			Int. Head	3.2322	0.6642	0.3907			
			Ext. Jamb	2.3769	0.5931	0.3907			
			Int. Jamb	4.1756	0.6297	0.3907			
			Mtg. Rail	3.1026	0.8377	0.3907			
			Ext. Sill	4.9140	0.5591	0.3907			
			Int. Sill	4.9140	0.6032	0.3907			
12	0.26	55.2	Ext. Head	3.2324	0.6219	0.3765	0.4023	0.3557	0.2832
			Int. Head	3.2322	0.6632	0.3765			
			Ext. Jamb	2.3769	0.5925	0.3765			
			Int. Jamb	4.1756	0.6288	0.3765			
			Mtg. Rail	3.1026	0.8364	0.3765			
			Ext. Sill	4.9140	0.5585	0.3765			
			Int. Sill	4.9140	0.6024	0.3765			

Vision Area Data

Option No.	COG U-Factor	COG Temperature	Cross Section	Frame Height	Frame U-Factor	Edge U-Factor	Total Product U-Factor		
							70% Vision Area	NFRC 100-2010	95% Vision Area
							51.63" by 51.63"	78.74" by 78.74"	332.68" by 332.68"
13	0.24	56.3	Ext. Head	3.2324	0.6214	0.3624	0.3898	0.3411	0.2644
			Int. Head	3.2322	0.6621	0.3624			
			Ext. Jamb	2.3769	0.5919	0.3624			
			Int. Jamb	4.1756	0.6280	0.3624			
			Mtg. Rail	3.1026	0.8352	0.3624			
			Ext. Sill	4.9140	0.5580	0.3624			
			Int. Sill	4.9140	0.6016	0.3624			
14	0.22	57.3	Ext. Head	3.2324	0.6209	0.3482	0.3772	0.3265	0.2457
			Int. Head	3.2322	0.6611	0.3482			
			Ext. Jamb	2.3769	0.5914	0.3482			
			Int. Jamb	4.1756	0.6272	0.3482			
			Mtg. Rail	3.1026	0.8341	0.3482			
			Ext. Sill	4.9140	0.5575	0.3482			
			Int. Sill	4.9140	0.6009	0.3482			
15	0.20	58.4	Ext. Head	3.2324	0.6204	0.3342	0.3647	0.3118	0.2271
			Int. Head	3.2322	0.6601	0.3342			
			Ext. Jamb	2.3769	0.5909	0.3342			
			Int. Jamb	4.1756	0.6263	0.3342			
			Mtg. Rail	3.1026	0.8330	0.3342			
			Ext. Sill	4.9140	0.5570	0.3342			
			Int. Sill	4.9140	0.6001	0.3342			
16	0.18	59.5	Ext. Head	3.2324	0.6120	0.3138	0.3476	0.2941	0.2078
			Int. Head	3.2322	0.6501	0.3138			
			Ext. Jamb	2.3769	0.5814	0.3138			
			Int. Jamb	4.1756	0.6177	0.3138			
			Mtg. Rail	3.1026	0.8122	0.3138			
			Ext. Sill	4.9140	0.5501	0.3138			
			Int. Sill	4.9140	0.5921	0.3138			
17	0.16	60.6	Ext. Head	3.2324	0.6115	0.2997	0.3347	0.2791	0.1890
			Int. Head	3.2322	0.6490	0.2997			
			Ext. Jamb	2.3769	0.5779	0.2997			
			Int. Jamb	4.1756	0.6148	0.2997			
			Mtg. Rail	3.1026	0.8109	0.2997			
			Ext. Sill	4.9140	0.5495	0.2997			
			Int. Sill	4.9140	0.5913	0.2997			
18	0.14	61.7	Ext. Head	3.2324	0.6111	0.2845	0.3220	0.2643	0.1705
			Int. Head	3.2322	0.6484	0.2845			
			Ext. Jamb	2.3769	0.5775	0.2845			
			Int. Jamb	4.1756	0.6143	0.2845			
			Mtg. Rail	3.1026	0.8103	0.2845			
			Ext. Sill	4.9140	0.5491	0.2845			
			Int. Sill	4.9140	0.5908	0.2845			

Vision Area Data

19	0.12	62.8	Ext. Head	3.2324	0.6105	0.2703	0.3094	0.2495	0.1519
			Int. Head	3.2322	0.6474	0.2703			
			Ext. Jamb	2.3769	0.5769	0.2703			
			Int. Jamb	4.1756	0.6134	0.2703			
			Mtg. Rail	3.1026	0.8091	0.2703			
			Ext. Sill	4.9140	0.5485	0.2703			
			Int. Sill	4.9140	0.5900	0.2703			
20	0.10	63.9	Ext. Head	3.2324	0.6100	0.2561	0.2967	0.2345	0.1332
			Int. Head	3.2322	0.6464	0.2561			
			Ext. Jamb	2.3769	0.5764	0.2561			
			Int. Jamb	4.1756	0.6126	0.2561			
			Mtg. Rail	3.1026	0.8080	0.2561			
			Ext. Sill	4.9140	0.5460	0.2561			
			Int. Sill	4.9140	0.5892	0.2561			

Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period. The test record retention end date for this report is February 19, 2017.

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:

Gurminder Virk
Simulation Engineer

Kevin S. Louder
Project Engineer

GV:GV
C3896.02-116-45

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

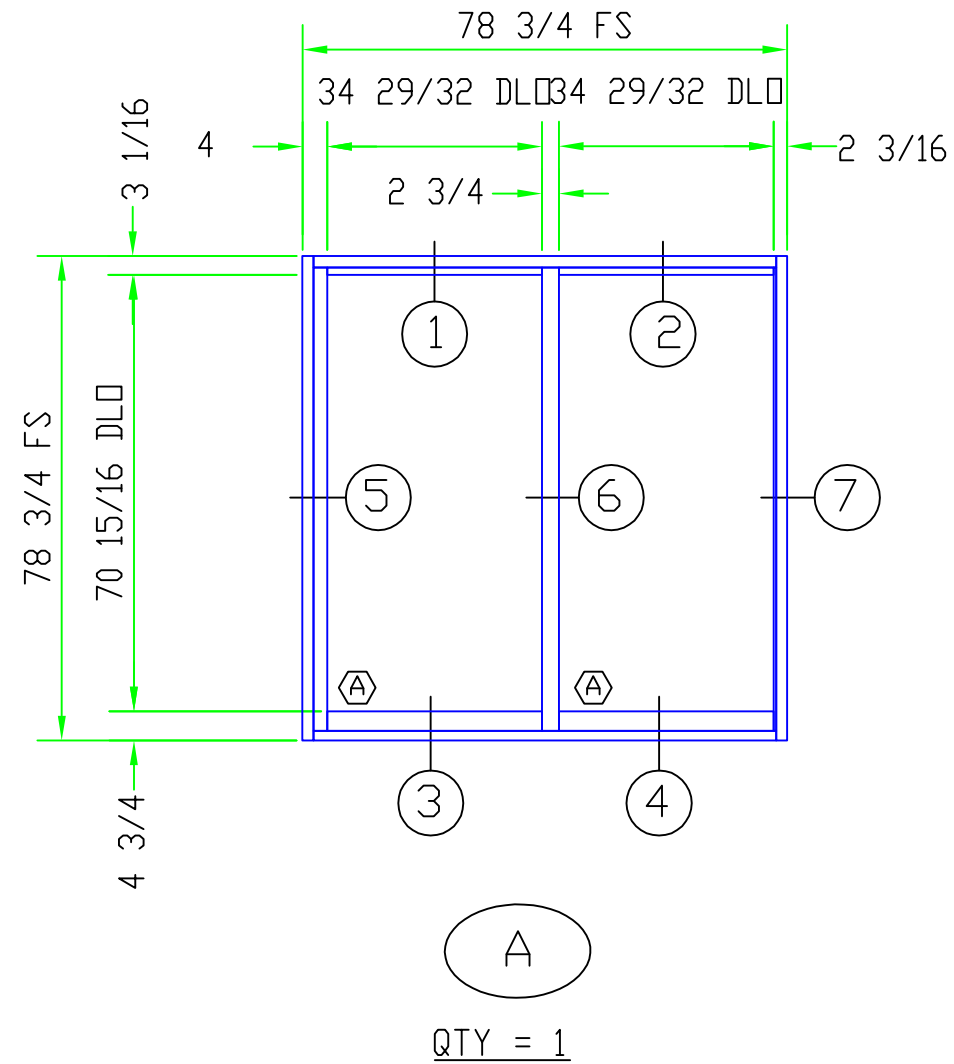
Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.02R0	08/20/13	All	Original Report Issued to US Aluminum Inc., Division of CR Laurence Co., Inc.

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

Appendix A

C3896.02-116-45



SYMBOL KEY			
SYMBOL	DESCRIPTION	QTY	COMMENTS
⬡	36.125 X 72.188	2	1 INS = INSULATED GLASS

				 2100 E. 38TH STREET PHONE: (323) 588-1281 VERNON, CA 90058 FAX: (323) 232-2523		
				DIVISION UNITED STATES ALUMINUM		
				DRWN BY: DCW	THERMAL_TEST_NFRC_AAMA_1503 SERIES_3000	DWG NO.
REV	REV_DESCRIPTION	DATE	XXX	DATE: 11.07.12		MU2012-018-01
SYM	REVISION	DATE	BY	SCALE: 3/8"=1"		



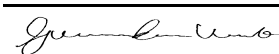
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C3896-116-45

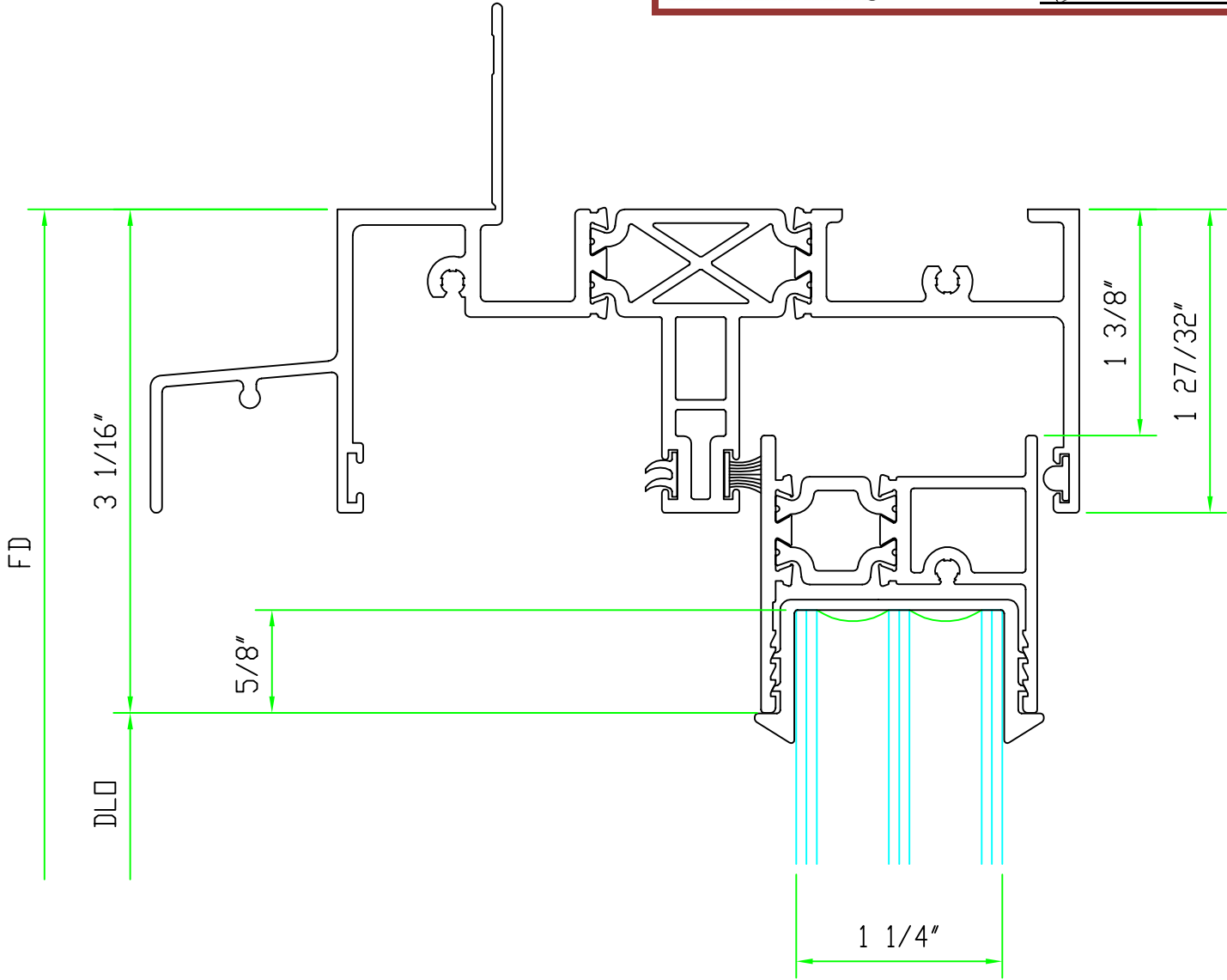
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08/20/13

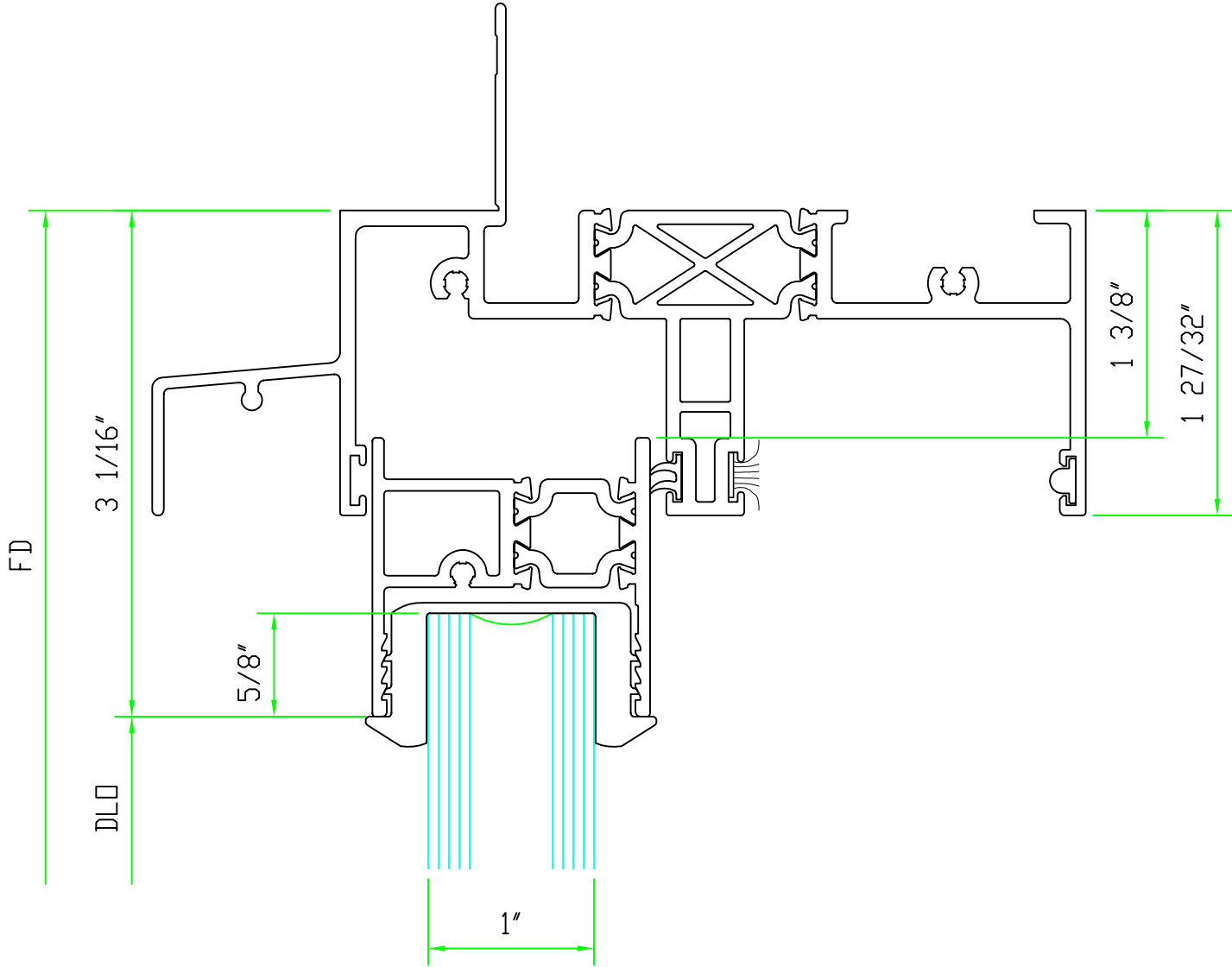
Verified by:



Architectural Testing



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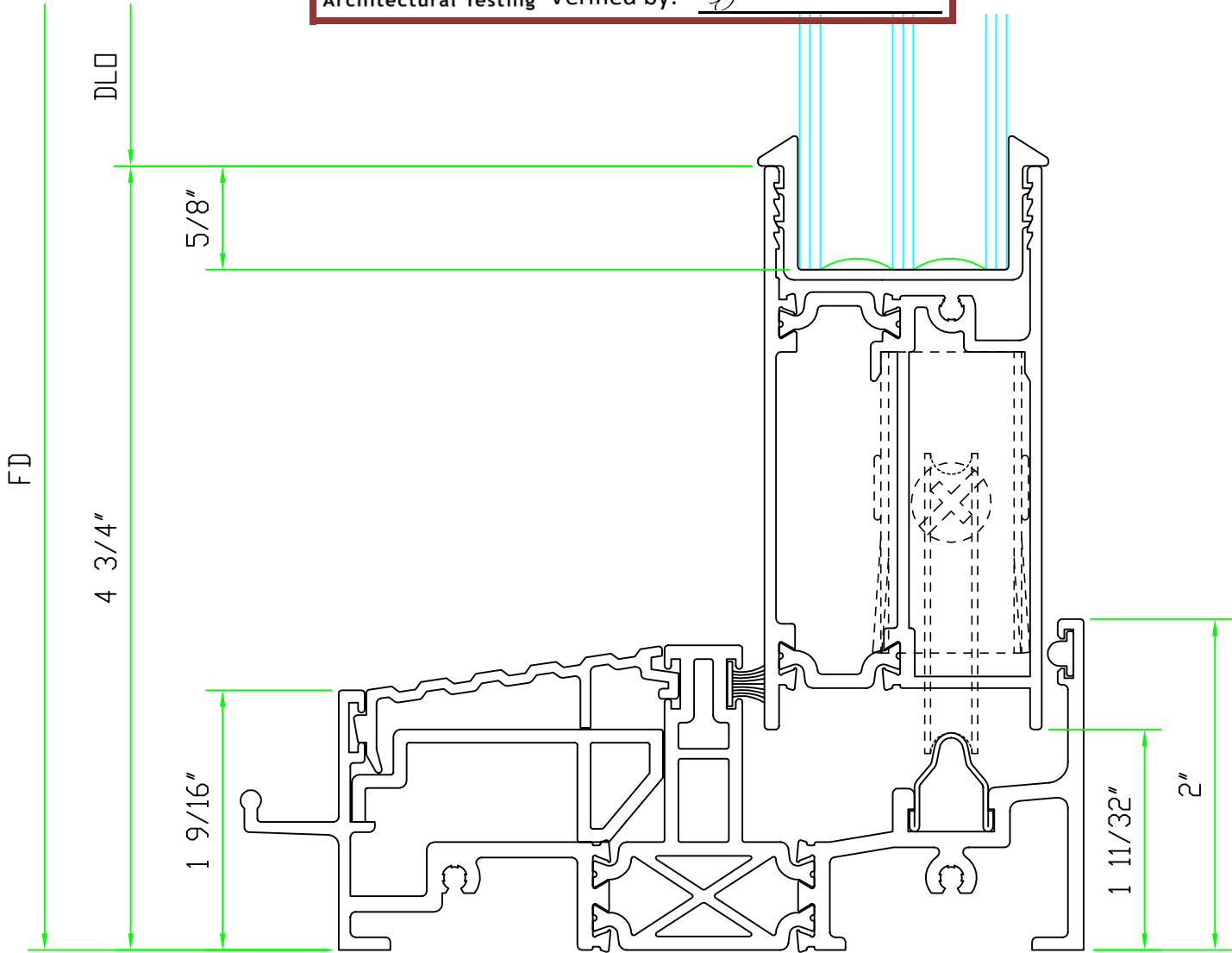


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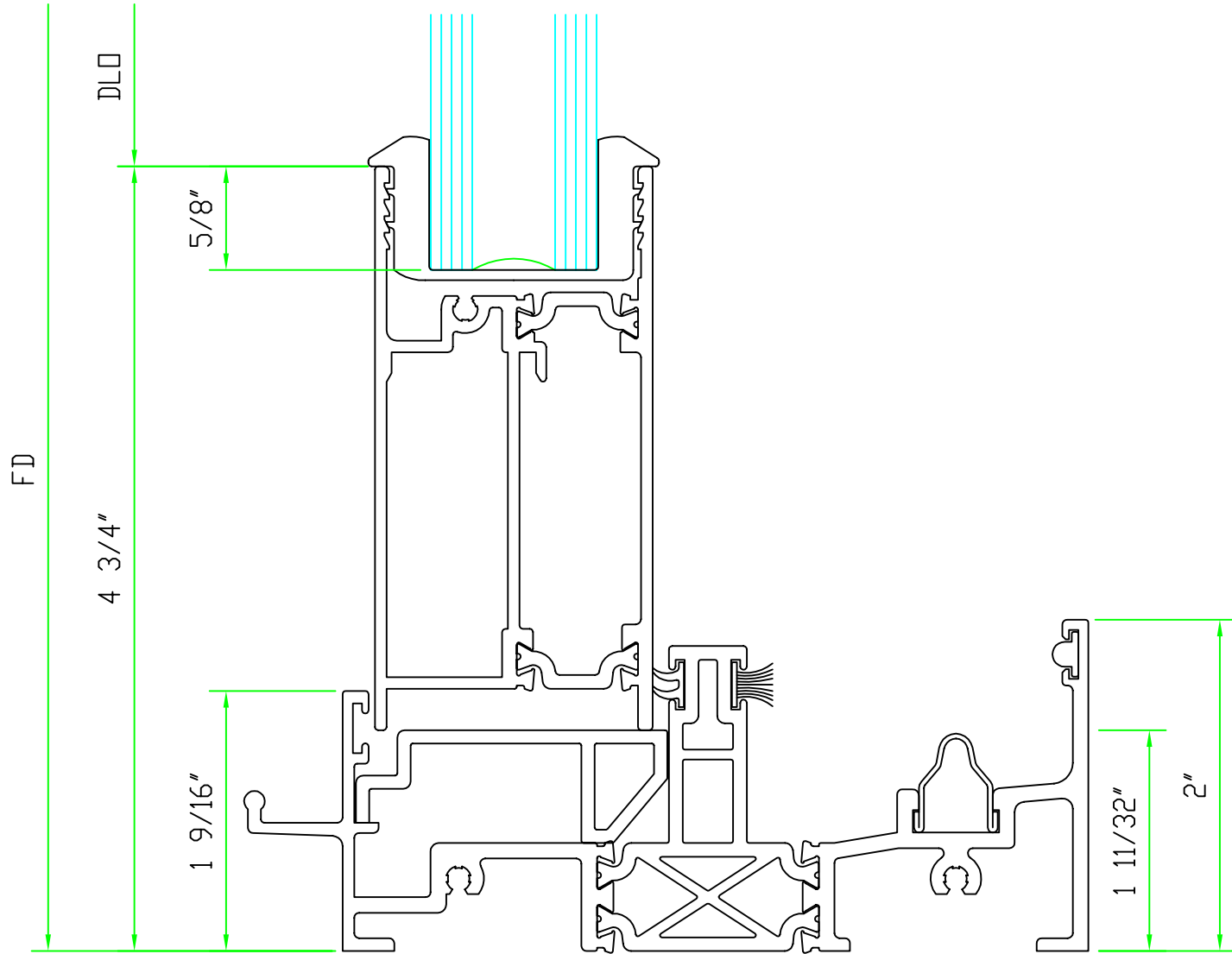
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SYM	REVISION	DATE	BY	SCALE: FULL		MU2012-018-02



Report #: C3896-116-45
Date: 08/20/13
Verified by: *[Signature]*



3



4

							2100 E. 38TH STREET PHONE: (323) 588-1281		VERNON, CA 90058 FAX: (323) 232-2523		
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				FULL							



Report #:

C3896-116-45

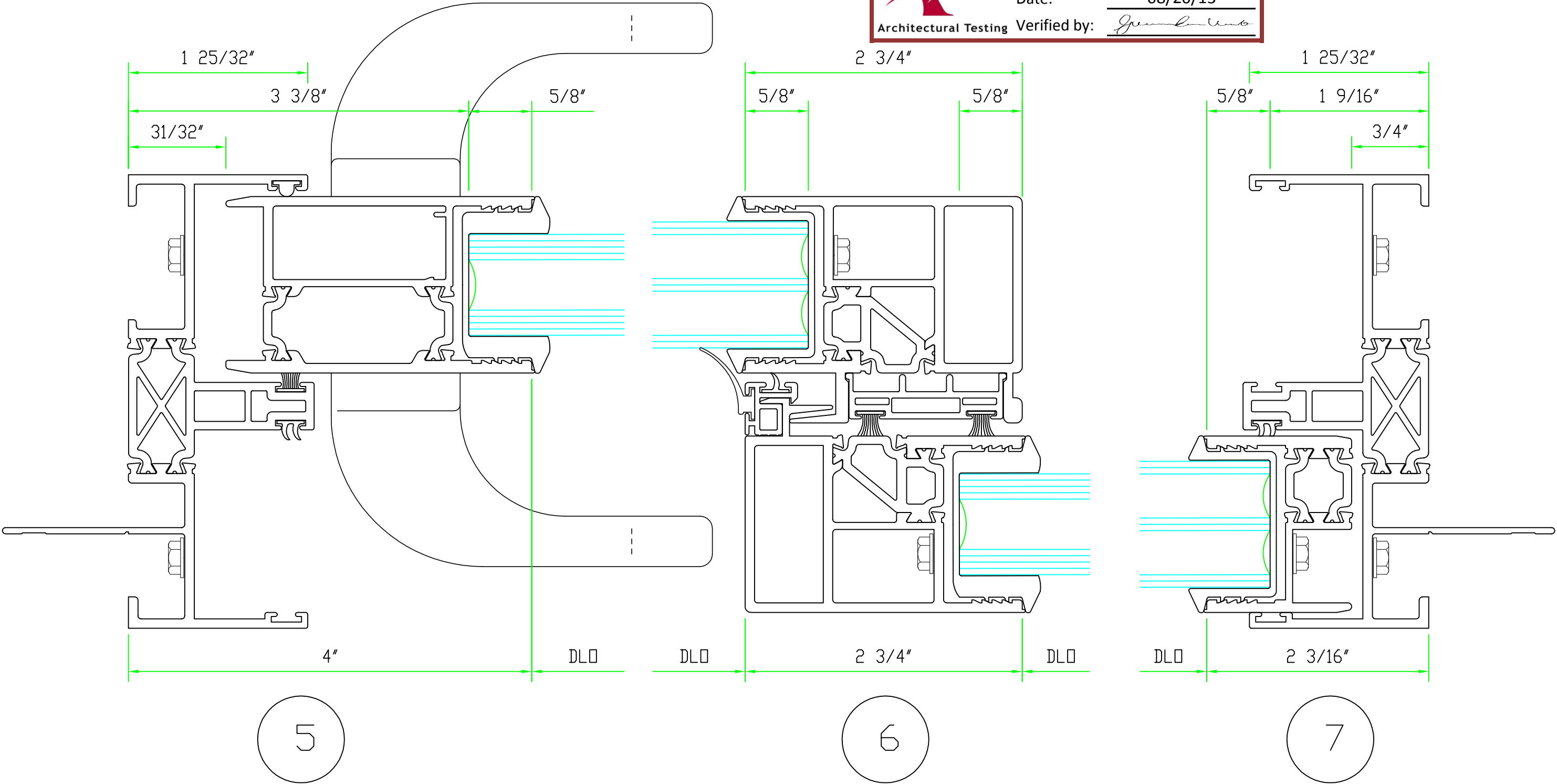
Date:

08/20/13

Verified by:



Architectural Testing



				 2100 E. 38TH STREET PHONE: (323) 588-1281 VERNON, CA 90058 FAX: (323) 232-2523		
				DIVISION UNITED STATES ALUMINUM		
				DRWN BY: DCW	THERMAL_TEST_NFRC_AAMA_1503 SERIES_3000	DWG NO.
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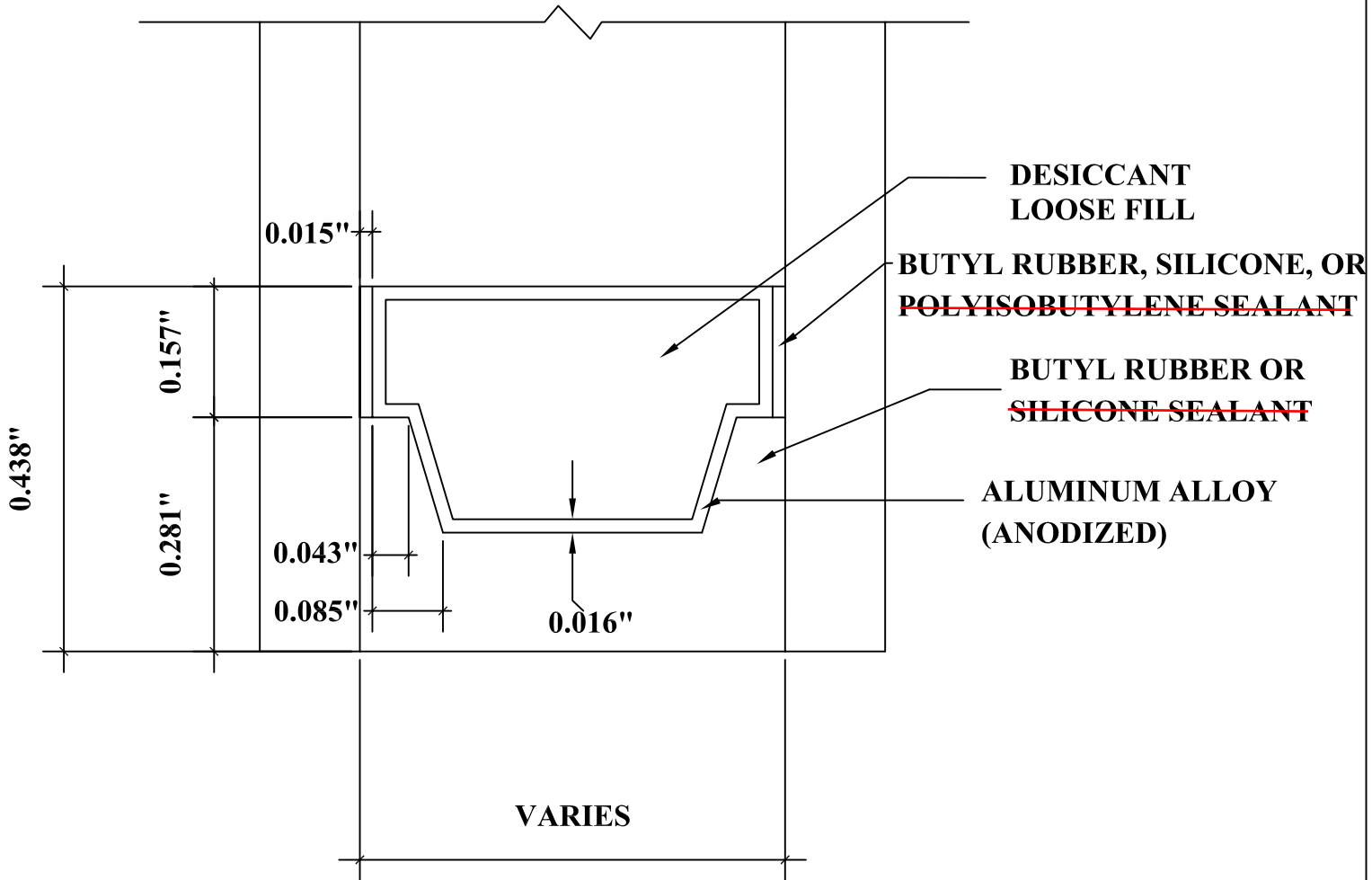


Architectural Testing

Report #: C3896-116-45

Date: 08/20/13

Verified by: *[Signature]*



DETAIL FOR THERMAL MODELING OF
ALUMINUM SPACER (A1-D)