Architectural Testing

AAMA 507-07 THERMAL PERFORMANCE REPORT

Rendered to:

TUBELITE, INC.

SERIES/MODEL: Tubelite Versa-Therm Glazed Wall System
TYPE: Glazed Wall System

Report No:	**89224.01-116-45**
Report Date:	**02/11/09**
Simulation Date:	**02/11/09**
Report Retention Date:	**02/11/13**

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Architectural Testing

AAMA 507-07 THERMAL PERFORMANCE REPORT

Rendered to:

TUBELITE, INC.
4878 Mackinaw Trail
Reed City, Michigan 49677

Report No:	89224.01-116-45
Report Date:	02/11/09
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Project Summary:

Architectural Testing, Inc. (ATI) was contracted by Tubelite, Inc. to provide U-Factor and Solar Heat Gain Coefficient thermal performance ratings on the Tubelite Versa-Therm Glazed Wall System Glazed Wall System. 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 100-2004, *Procedure for Determining Fenestration Product U-Factors*

NFRC 200-2004, *Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*

Simulation Specimen Description:

Series/Model:	Tubelite Versa-Therm Glazed Wall System
Type:	Glazed Wall System
Frame Material:	Aluminum (Non-thermally broken)
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:	Tubelite Drawing 390Vert6, dated 2008

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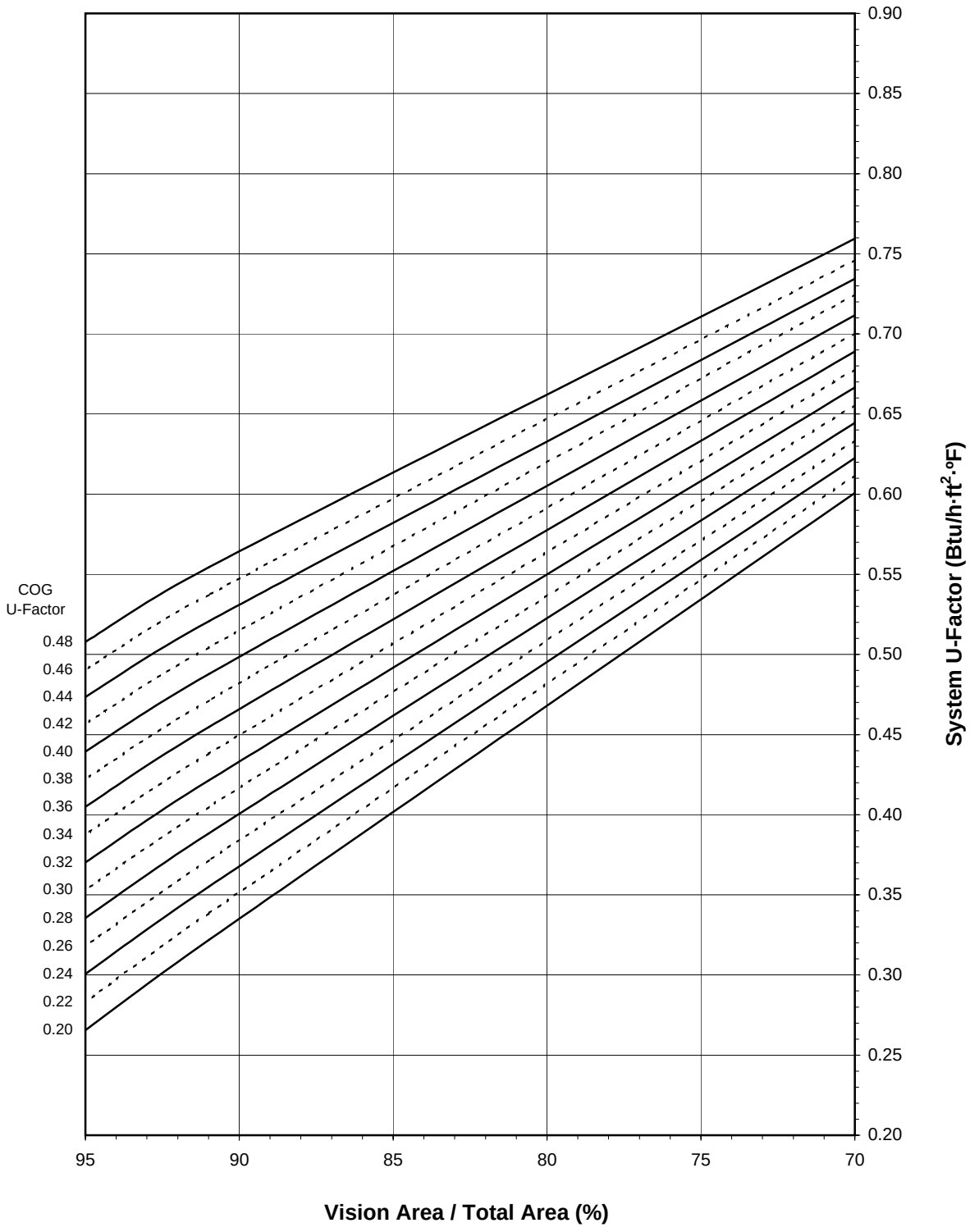
Tubelite, Inc.

Tubelite Versa-Therm Glazed Wall System - Glazed Wall System

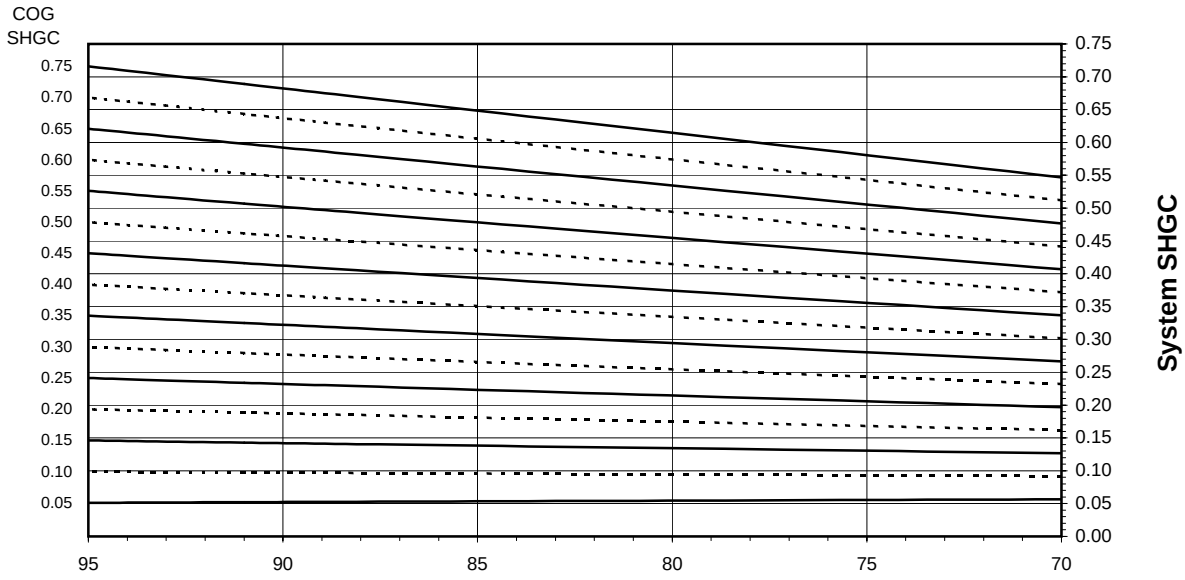
System U-Factor vs. Percentage of Vision Area



Tubelite, Inc.

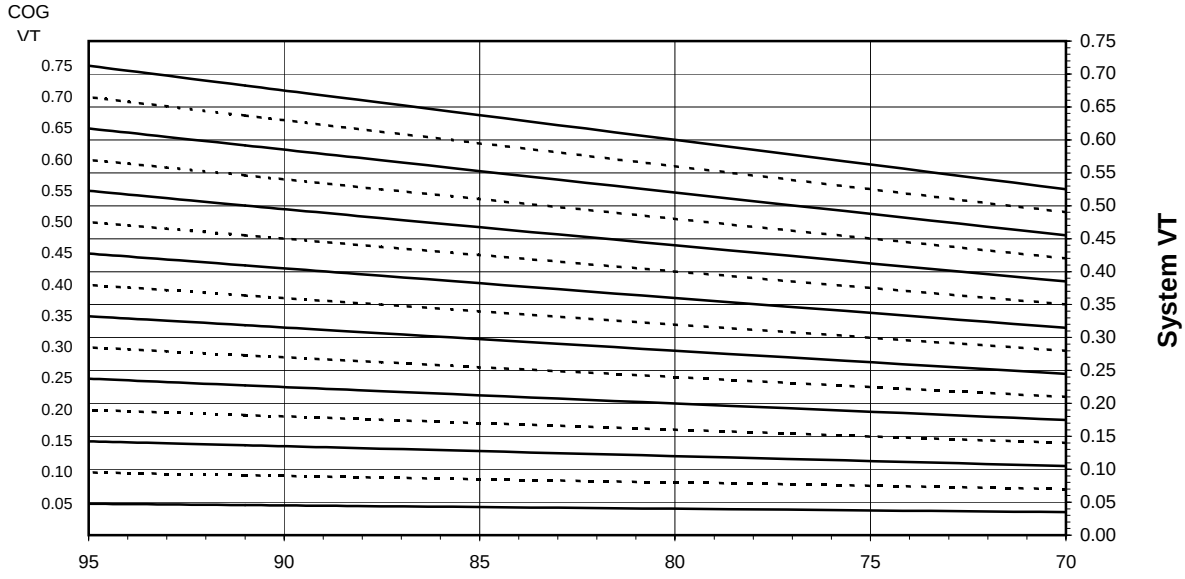
Tubelite Versa-Therm Glazed Wall System - Glazed Wall System

System SHGC vs. Percentage of Vision Area



Vision Area / Total Area (%)

System VT vs. Percentage of Vision Area



Vision Area / Total Area (%)

Tubelite, Inc.
Tubelite Versa-Therm Glazed Wall System - Glazed Wall System

Size Specific U-Factor Matrix*

Glazing Option	Center of Glass U-Factor	Overall U-Factor
1	0.48	0.55
2	0.46	0.54
3	0.44	0.52
4	0.42	0.50
5	0.40	0.49
6	0.38	0.47
7	0.36	0.45
8	0.34	0.44
9	0.32	0.42
10	0.30	0.40
11	0.28	0.39
12	0.26	0.37
13	0.24	0.36
14	0.22	0.34
15	0.20	0.32

Size Specific SHGC Matrix*

Center of Glass SHGC	Overall SHGC
0.75	0.69
0.70	0.64
0.65	0.60
0.60	0.55
0.55	0.51
0.50	0.46
0.45	0.42
0.40	0.37
0.35	0.32
0.30	0.28
0.25	0.23
0.20	0.19
0.15	0.14
0.10	0.10
0.05	0.05

Size Specific VT Matrix*

Center of Glass VT	Overall VT
0.75	0.68
0.70	0.64
0.65	0.59
0.60	0.55
0.55	0.50
0.50	0.45
0.45	0.41
0.40	0.36
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18
0.15	0.14
0.10	0.09
0.05	0.05

*Size Specific U-Factor, SHGC, and VT Matrices are based on the standard Glazed Wall System specimen size of 2000mm wide by 2000mm high (78-3/4" by 78-3/4"). This represents 91% 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 100-2004*	*95% Vision Area*
							22.23" by 22.23"	*78.74" by 78.74"*	*143.31" by 143.31"*
1	0.48	43.7	Head	1.7969	1.4759	0.4800	0.7595	0.5544	0.5079
			Vertical	1.8350	1.3070	0.4889			
			Sill	1.7969	1.4760	0.4801			
2	0.46	44.8	Head	1.7969	1.4751	0.4665	0.7460	0.5372	0.4905
			Vertical	1.8350	1.2917	0.4755			
			Sill	1.7969	1.4752	0.4666			
3	0.44	45.8	Head	1.7969	1.4754	0.4531	0.7345	0.5207	0.4735
			Vertical	1.8350	1.2895	0.4616			
			Sill	1.7969	1.4755	0.4532			
4	0.42	46.8	Head	1.7969	1.4757	0.4398	0.7247	0.5043	0.4568
			Vertical	1.8350	1.2873	0.4480			
			Sill	1.7969	1.4758	0.4400			
5	0.40	47.9	Head	1.7969	1.4761	0.4266	0.7116	0.4877	0.4394
			Vertical	1.8350	1.2853	0.4343			
			Sill	1.7969	1.4762	0.4267			
6	0.38	48.9	Head	1.7969	1.4765	0.4135	0.7003	0.4712	0.4222
			Vertical	1.8350	1.2833	0.4209			
			Sill	1.7969	1.4766	0.4137			
7	0.36	50.0	Head	1.7969	1.4769	0.4004	0.6890	0.4546	0.4050
			Vertical	1.8350	1.2815	0.4073			
			Sill	1.7969	1.4770	0.4005			
8	0.34	51.0	Head	1.7969	1.4774	0.3875	0.6778	0.4381	0.3877
			Vertical	1.8350	1.2797	0.3940			
			Sill	1.7969	1.4775	0.3876			
9	0.32	52.0	Head	1.7969	1.4779	0.3745	0.6667	0.4215	0.3704
			Vertical	1.8350	1.2780	0.3806			
			Sill	1.7969	1.4780	0.3746			
10	0.30	53.1	Head	1.7969	1.4784	0.3617	0.6556	0.4050	0.3531
			Vertical	1.8350	1.2764	0.3675			
			Sill	1.7969	1.4785	0.3618			
11	0.28	54.1	Head	1.7969	1.4790	0.3488	0.6446	0.3883	0.3356
			Vertical	1.8350	1.2748	0.3542			
			Sill	1.7969	1.4791	0.3489			
12	0.26	55.2	Head	1.7969	1.4796	0.3360	0.6335	0.3717	0.3181
			Vertical	1.8350	1.2734	0.3410			
			Sill	1.7969	1.4798	0.3361			
13	0.24	56.3	Head	1.7969	1.4803	0.3233	0.6226	0.3551	0.3007
			Vertical	1.8350	1.2721	0.3280			
			Sill	1.7969	1.4804	0.3234			
14	0.22	57.3	Head	1.7969	1.4809	0.3106	0.6117	0.3385	0.2832
			Vertical	1.8350	1.2707	0.3150			
			Sill	1.7969	1.4810	0.3108			
15	0.20	58.4	Head	1.7969	1.4816	0.2979	0.6008	0.3219	0.2657
			Vertical	1.8350	1.2695	0.3019			
			Sill	1.7969	1.4818	0.2981			

Detailed drawings, datasheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by ATI 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: Eric S. Leitner

Eric Leitner
Simulation Technician

REVIEWED BY:

Digitally Signed by: Kristen L. Livelsberger

Kristen L. Livelsberger
Senior Simulation Technician
Simulator In Responsible Charge

EL:EL
89224.01-116-45

Attachments (pages): This report is complete only when all attachments listed are included
Appendix A: Drawings and Bills of Material (4)

Revision Log

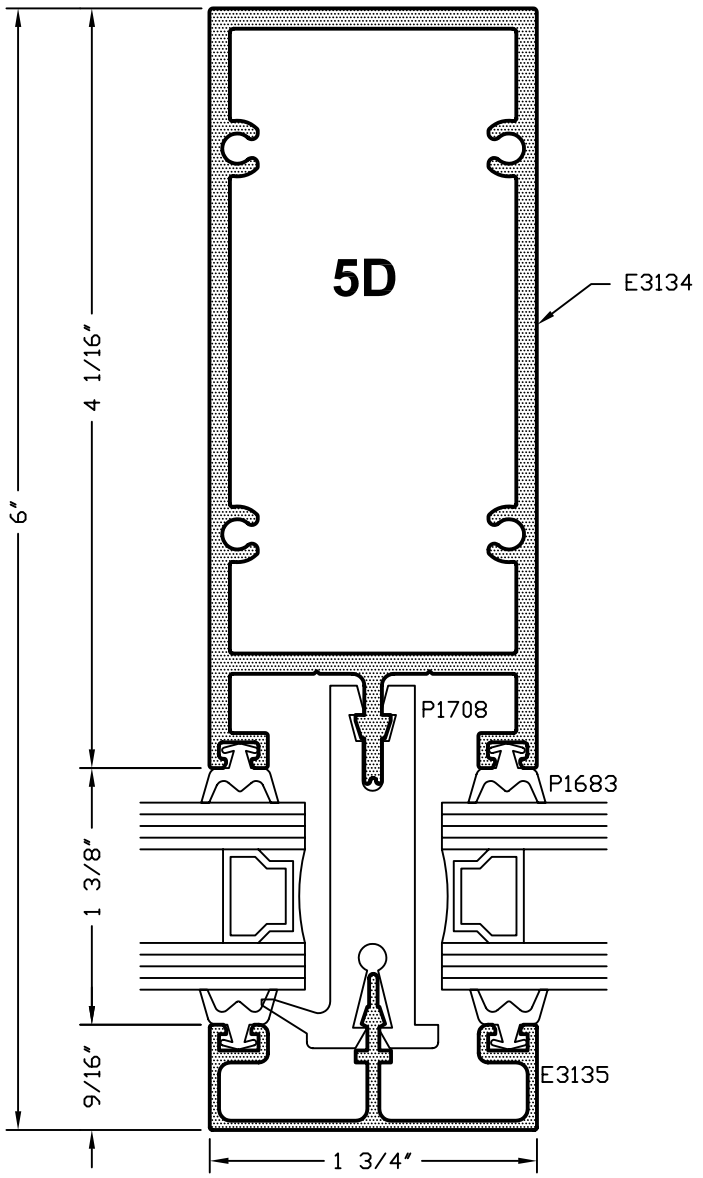
Rev. #	Date	Page(s)	Revision(s)
.01R0	2/11/2009	All	Original Report Issue

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

Appendix A

16.29
Versatherm
Two piece vertical

CAD DETAIL FILE NO.
390VERT6



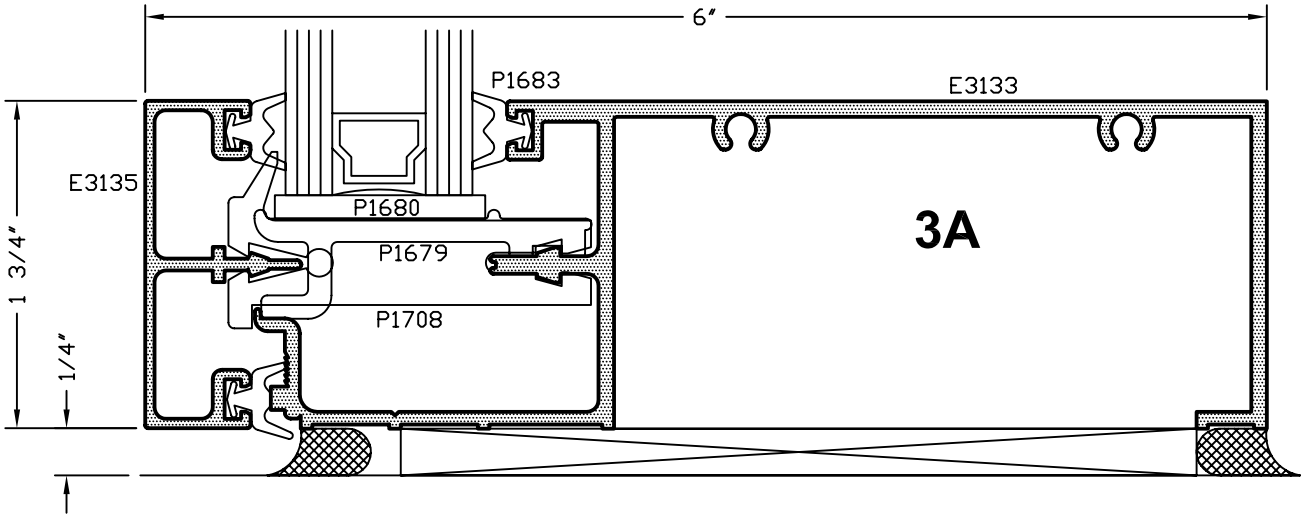
Architectural Testing, Inc.

Report # 89224

Date 2/11/2009

Simulator Eric Lutnes

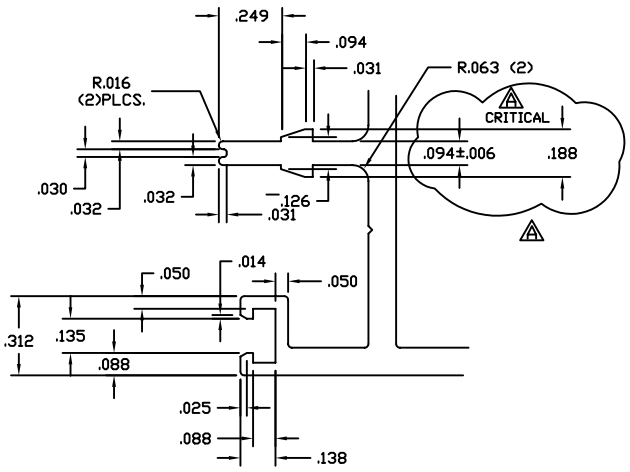
CAD DETAIL FILE NO.
390SILL6



*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

TUBELITE
STOREFRONT, CURTAINWALL & ENTRANCES
DEPENDABLE
2008

E3134



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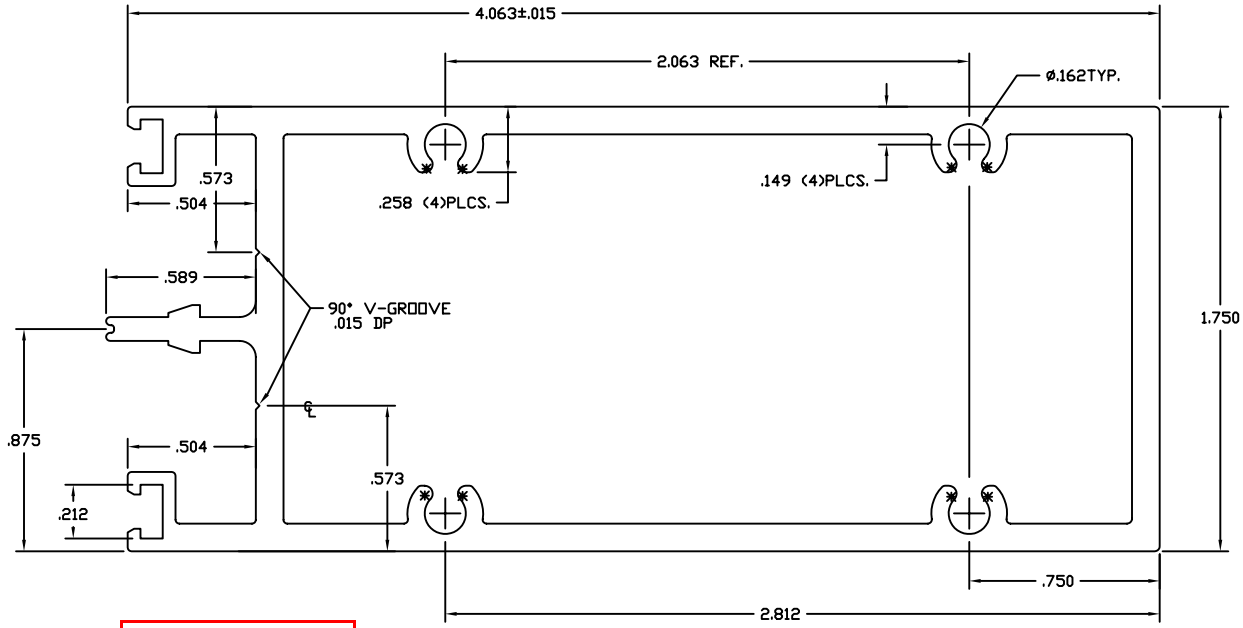

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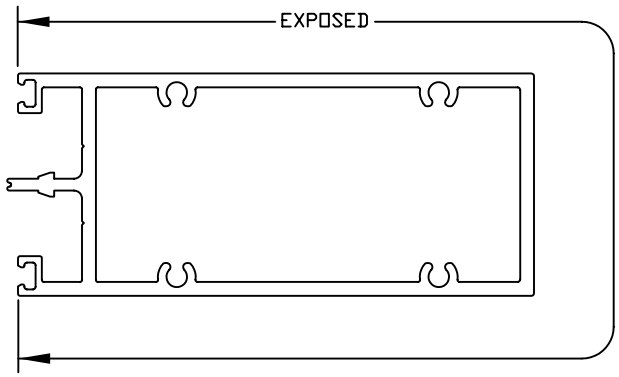


FULL SCALE

Architectural Testing, Inc.

Report # 89224

Date 2/11/2009

Simulator Eric Taylor

REV. .124 TO .094 CAT ⚠

ALUMINUM ASSOCIATION STANDARD TOLERANCES APPLY UNLESS NOTED

ALL UNSPECIFIED CORNERS .015R

✱ INDICATES .031 RADIUS

TUBELITE® DEPENDABLE

4878 MACKINAW TRAIL
REED CITY, MICHIGAN 49677

REV	DATE	DESCRIPTION	INTL
	8-28-91	RELEASE TO TOOLING	RW
	10-1-91	RELEASE TO PRODUCTION	RW
	10/9/98	REV TO DART/REL TO TOOLING	CAT

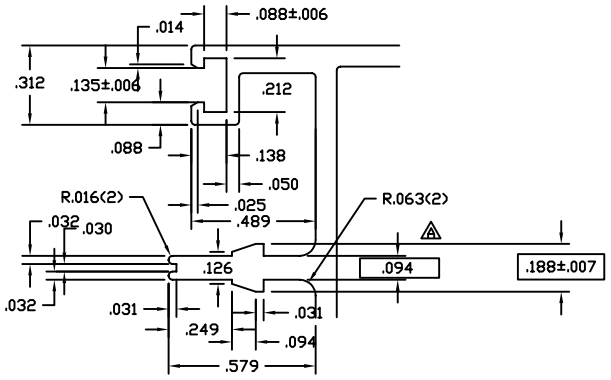
WALL THK.	.109	SECTION CLASS	H	MAT'L	6063-T5	RATIO	41:1
PERIMETER OUT (TOTAL)	15.406(27.449)			AREA	1.376	WGT/FT	1.618
FACTOR	18	CIRCLE SIZE	4.419			INFILL VOLUME	N/A

RXX	1.377	SXX	1.259	IXX	2.608	CXX	2.076
RYY	.713	SYY	.800	IYY	.700	CYY	.875

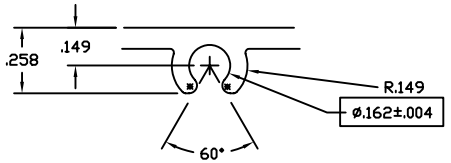
MULLION 1 3/4" X 4 1/16"
VERSATHERM

DRAWN BY	RW	DRWG DATE	08/28/91	APPV'D BY	DATE APPV'D
DWG SCALE	NOTED	PRODUCT CODE	390	E3134	REV

E3133

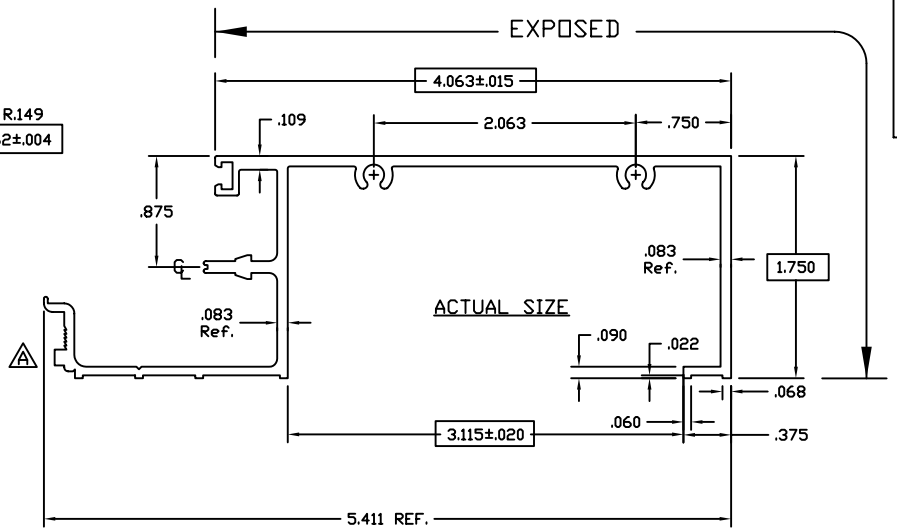


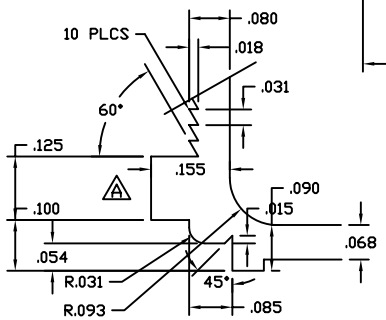
TWO TIMES SIZE



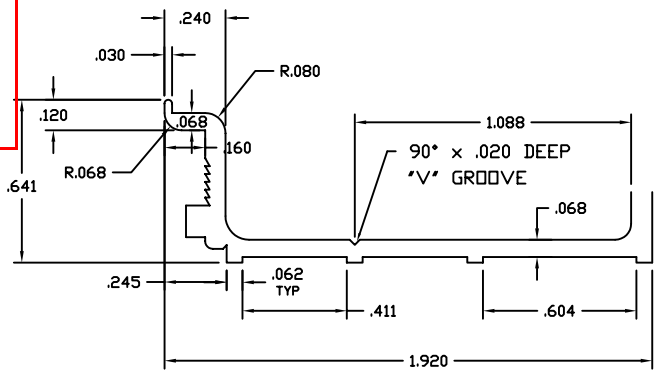
(2) PLCS

TWO TIMES SIZE





FOUR TIMES SIZE



TWO TIMES SIZE

USE WITH P-1708 T-BLOCK ONLY

Architectural Testing, Inc.

Report # 89224

Date 2/11/2009

Simulator

ALUMINUM ASSOCIATION STANDARD TOLERANCES APPLY UNLESS NOTED

ALL UNSPECIFIED CORNERS .015R

* INDICATES .031 RADIUS

TUBELITE DEPENDABLE

4878 MACKINAW TRAIL
REED CITY, MICHIGAN 49677

REV	DATE	DESCRIPTION	INTL
	08/28/91	ED-1444 RELEASE TO TOOLING	RW
	10/01/91	ED-1469 RELEASE TO PRODUCTION	RW
A	04/06/92	ED-1602 REVISE SHAPE	KMH

WALL THK. .083	SECTION CLASS S	MAT'L 6063-T5	RATIO 58:1
PERIMETER OUT (TOTAL) 24.009		AREA .946	WGT/FT 1.112
FACTOR 22	CIRCLE SIZE 5.576		INFILL VOLUME N/A

RXX 1.707	SXX .969	IXX 2.755	CXX 1.062
RYY .659	SYY .387	IYY .411	CYY 2.842

GUTTER 1 3/4" X 4 1/16"
VERSATHERM

DRAWN BY RW	DRVG DATE 08/28/91	APPV'D BY	DATE APPV'D	
DWG SCALE NOTED	PRODUCT CODE 390	E3133		REV

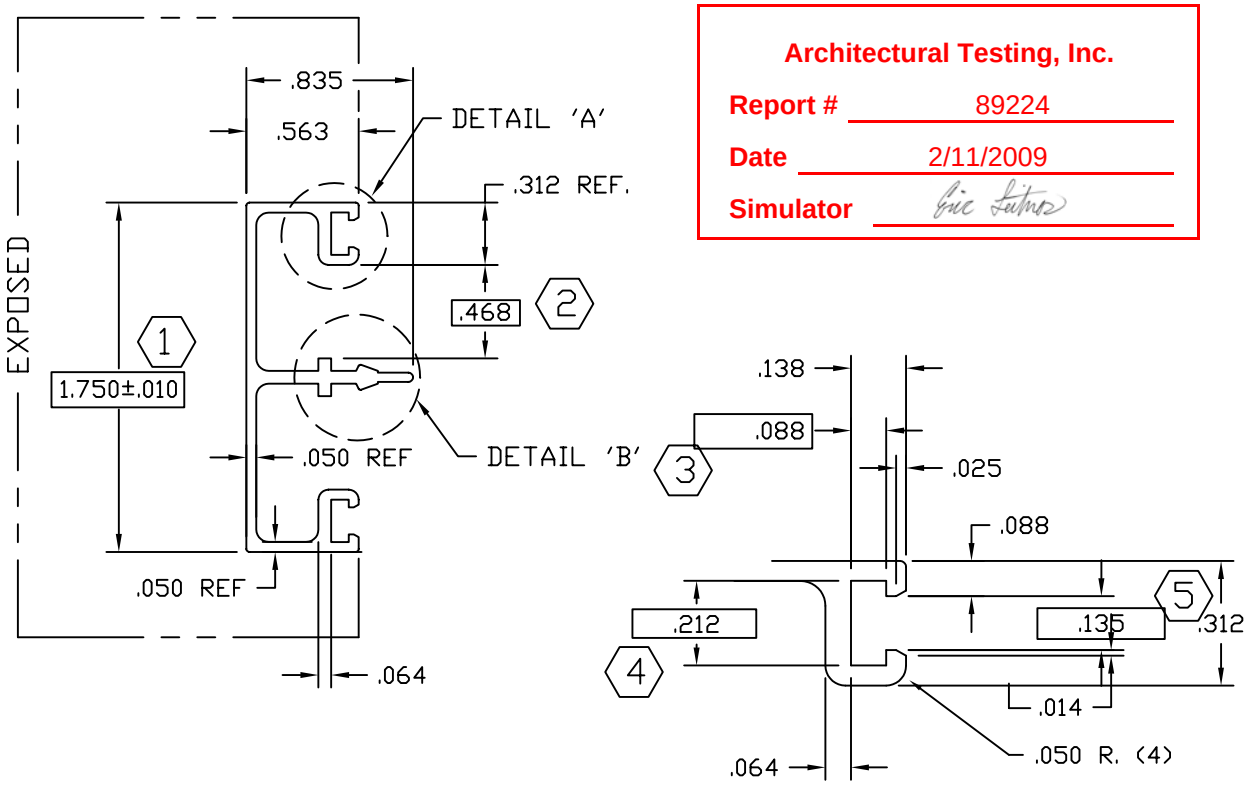
E3135 A

Architectural Testing, Inc.

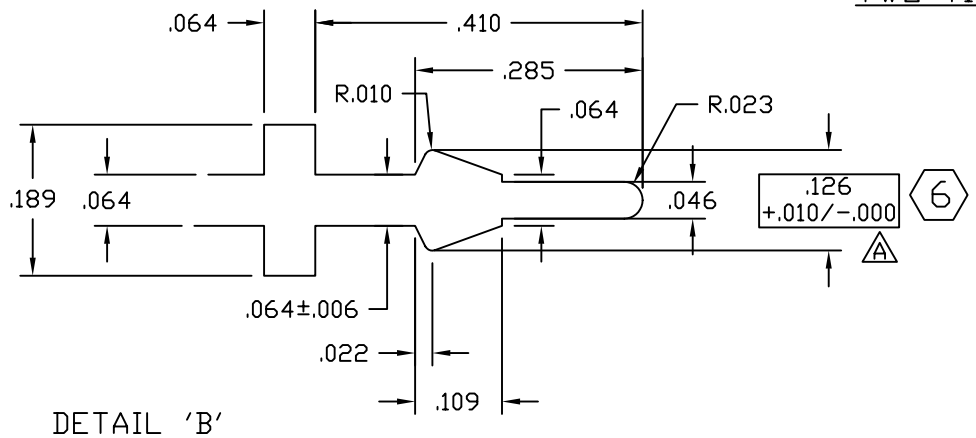
Report # 89224

Date 2/11/2009

Simulator Eric Lutes



DETAIL 'A'
TWO TIMES SIZE



DETAIL 'B'
FOUR TIMES SIZE

ALUMINUM ASSOCIATION STANDARD TOLERANCES APPLY UNLESS NOTED

ALL UNSPECIFIED CORNERS .015R

✳ INDICATES .031 RADIUS

TUBELITE®
DEPENDABLE

4878 MACKINAW TRAIL
REED CITY, MICHIGAN 49677

REV	DATE	DESCRIPTION	INTL
	8-28-91	RELEASE TO TOOLING	RW
	10-1-91	RELEASE TO PRODUCTION	RW
	8-12-93	WALL THICKNESS WAS .070	RW
A	8/13/07	.126 +.010/-.000 WAS +/-.006 - ADDED .010 RADII TO DART	LDO

WALL THK. .050	SECTION CLASS S	MAT'L 6063-T5	RATIO 217:1
PERIMETER OUT (TOTAL) 9.095		AREA .254	WGT/FT .299
FACTOR 31	CIRCLE SIZE 1.831		INFILL VOLUME N/A

RXX .217	SXX .046	IXX .012	CXX .574
RYY .580	SYY .098	IYY .086	CYY .875

FACE 1 3/4" X 9/16"
VERSATHERM

DRAWN BY RW	DRWG DATE 08/28/91	APPV'D BY	DATE APPV'D
DWG SCALE NOTED	PRODUCT CODE 390	E3135	REV A