

**AAMA 507-03 THERMAL PERFORMANCE REPORT**

**Rendered to:**

**TUBELITE, INC.**

**SERIES/MODEL: 14000 Outboard**

**TYPE: Glazed Wall System**

**Report No: 65915.01-116-45**  
**Report Date: 06/23/06**

## AAMA 507-03 THERMAL PERFORMANCE REPORT

Rendered to:

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

Report No: 65915.01-116-45  
Report Date: 06/23/06

### 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 14000 Outboard Glazed Wall System. The thermal performance ratings were determined in accordance with AAMA 507-03, *Standard Practice for Determining the Thermal Performance Characteristics of Fenestration Systems Installed in Commercial Building*.

### Reference Documents:

*AAMA 507-03, Standard Practice for Determining the Thermal Performance Characteristics of Fenestration Systems Installed in Commercial Buildings*

*NFRC 100-2001, Procedure for Determining Fenestration Product U-Factors*

*NFRC 200-2001, Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*

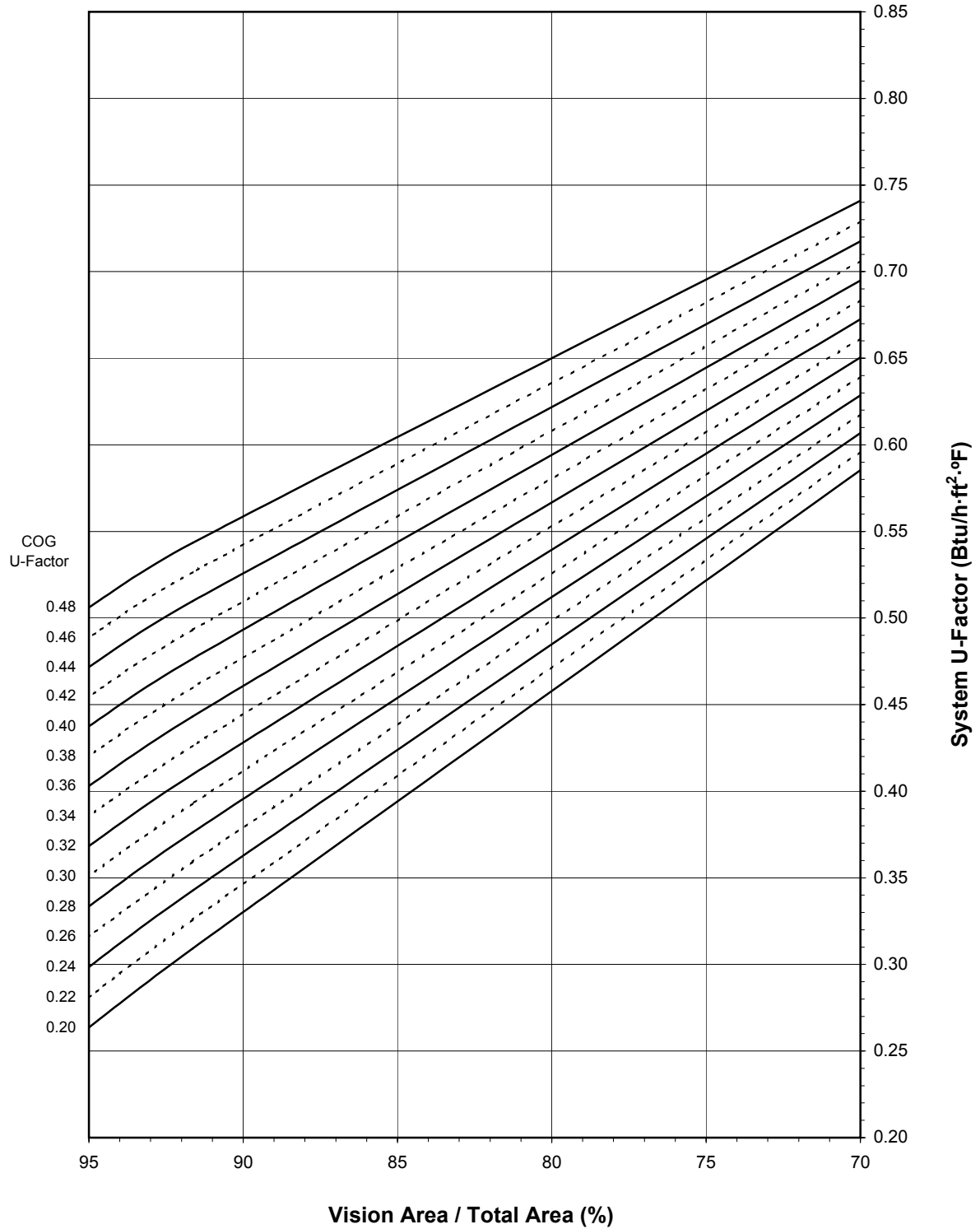
*NFRC Technical Interpretation TI-2003-12, Curtain Wall Simulation*

### Simulation Specimen Description:

<b>Series/Model:</b>	14000 Outboard
<b>Type:</b>	Glazed Wall System
<b>Frame Material:</b>	Thermally Broken Aluminum Framing System
<b>Specimen Size:</b>	2000mm wide by 2000mm high (78-3/4" by 78-3/4")
<b>Configuration:</b>	Two vision lites separated by one intermediate vertical
<b>Drawing Reference:</b>	Tubelite Drawing 14000 Outboard

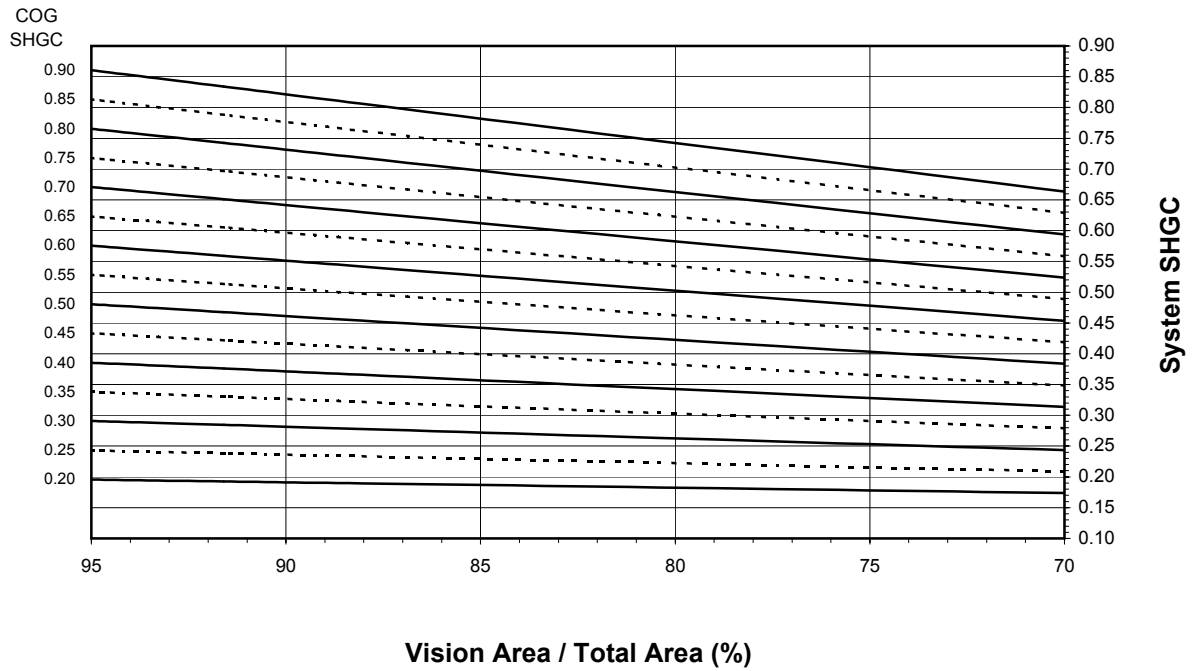
**Tubelite, Inc.**  
**14000 Outboard Glazed Wall System**

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

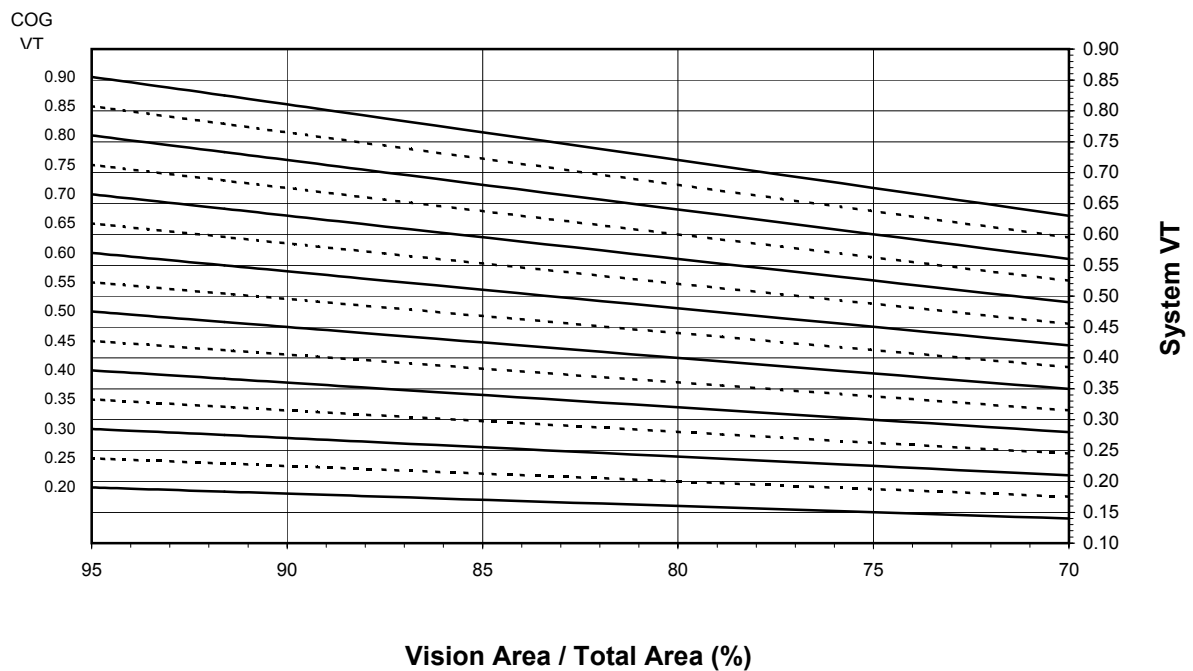


**Tubelite, Inc.**  
**14000 Outboard Glazed Wall System**

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



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



**Tubelite, Inc.**  
**14000 Outboard Glazed Wall System**

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

Glazing Option	Center of Glass U-Factor	Overall U-Factor
1	0.48	0.54
2	0.46	0.53
3	0.44	0.51
4	0.42	0.49
5	0.40	0.48
6	0.38	0.46
7	0.36	0.44
8	0.34	0.43
9	0.32	0.41
10	0.30	0.39
11	0.28	0.38
12	0.26	0.36
13	0.24	0.34
14	0.22	0.33
15	0.20	0.31

**Size Specific SHGC Matrix\***

Center of Glass SHGC	Overall SHGC
0.90	0.83
0.85	0.79
0.80	0.74
0.75	0.70
0.70	0.65
0.65	0.61
0.60	0.56
0.55	0.51
0.50	0.47
0.45	0.42
0.40	0.38
0.35	0.33
0.30	0.28
0.25	0.24
0.20	0.19

**Size Specific VT Matrix\***

Center of Glass VT	Overall VT
0.90	0.82
0.85	0.78
0.80	0.73
0.75	0.69
0.70	0.64
0.65	0.60
0.60	0.55
0.55	0.50
0.50	0.46
0.45	0.41
0.40	0.37
0.35	0.32
0.30	0.27
0.25	0.23
0.20	0.18

\*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 91.6% 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 100-2001	95% Vision Area
							20.77" by 20.77"	78.74" by 78.74"	132.68" by 132.68"
1	0.48	43.7	Head	1.1502	1.2543	0.4852	0.7409	0.5434	0.5061
			Vertical	2.2381	1.3635	0.4833			
			Sill	1.0877	1.3194	0.4778			
2	0.46	44.8	Head	1.1502	1.2516	0.4712	0.7289	0.5265	0.4889
			Vertical	2.2381	1.3603	0.4695			
			Sill	1.0877	1.3168	0.4639			
3	0.44	45.8	Head	1.1502	1.2502	0.4575	0.7175	0.5098	0.4717
			Vertical	2.2381	1.3592	0.4558			
			Sill	1.0877	1.3155	0.4501			
4	0.42	46.8	Head	1.1502	1.2488	0.4439	0.7062	0.4932	0.4547
			Vertical	2.2381	1.3580	0.4423			
			Sill	1.0877	1.3143	0.4364			
5	0.40	47.9	Head	1.1502	1.2475	0.4302	0.6949	0.4765	0.4376
			Vertical	2.2381	1.3569	0.4286			
			Sill	1.0877	1.3131	0.4226			
6	0.38	48.9	Head	1.1502	1.2463	0.4167	0.6837	0.4599	0.4203
			Vertical	2.2381	1.3559	0.4152			
			Sill	1.0877	1.3119	0.4091			
7	0.36	50.0	Head	1.1502	1.2451	0.4033	0.6725	0.4432	0.4031
			Vertical	2.2381	1.3549	0.4018			
			Sill	1.0877	1.3109	0.3956			
8	0.34	51.0	Head	1.1502	1.2441	0.3898	0.6614	0.4264	0.3857
			Vertical	2.2381	1.3541	0.3883			
			Sill	1.0877	1.3100	0.3821			
9	0.32	52.0	Head	1.1502	1.2430	0.3766	0.6504	0.4097	0.3684
			Vertical	2.2381	1.3532	0.3751			
			Sill	1.0877	1.3091	0.3688			
10	0.30	53.6	Head	1.1502	1.2420	0.3633	0.6394	0.3930	0.3511
			Vertical	2.2381	1.3525	0.3619			
			Sill	1.0877	1.3083	0.3555			
11	0.28	54.1	Head	1.1502	1.2411	0.3501	0.6285	0.3762	0.3336
			Vertical	2.2381	1.3518	0.3488			
			Sill	1.0877	1.3075	0.3422			
12	0.26	55.2	Head	1.1502	1.2403	0.3370	0.6177	0.3594	0.3160
			Vertical	2.2381	1.3511	0.3357			
			Sill	1.0877	1.3068	0.3290			
13	0.24	56.3	Head	1.1502	1.2395	0.3239	0.6068	0.3427	0.2986
			Vertical	2.2381	1.3506	0.3226			
			Sill	1.0877	1.3061	0.3159			
14	0.22	57.3	Head	1.1502	1.2387	0.3108	0.5961	0.3260	0.2811
			Vertical	2.2381	1.3501	0.3096			
			Sill	1.0877	1.3055	0.3028			
15	0.20	58.4	Head	1.1502	1.2381	0.2978	0.5853	0.3092	0.2635
			Vertical	2.2381	1.3497	0.2966			
			Sill	1.0877	1.3050	0.2897			

Detailed drawings, simulation data disks, and a copy of this report will be retained by ATI for a period of four years. The above results are the exclusive property of the client so named herein and are applicable to the sample simulated. This report does not constitute an opinion or endorsement by this laboratory. This report may not be reproduced except in full without the approval of ATI.

For ARCHITECTURAL TESTING, INC.:

SIMULATED BY:

REVIEWED BY:

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Kevin S. Louder  
Project Engineer

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Michael J. Thoman  
Director - Simulations and Thermal Testing  
Simulator In Responsible Charge

KSL:ksl  
65915.01-116-45

Attachments (pages):

Appendix A: Drawings and Bills of Material (1)

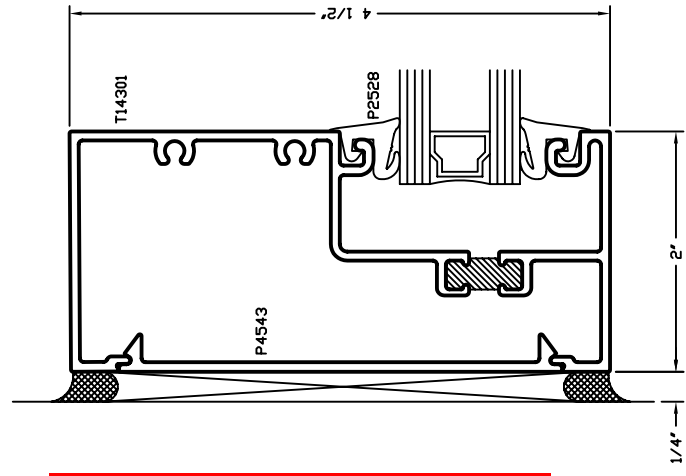
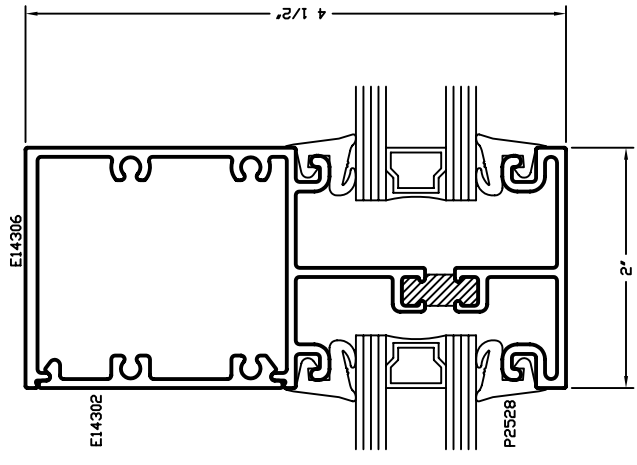
### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.01 R0	6/23/2006	All	Original Report Issue



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

**Appendix A**



**ATI**

Report # 65915

Date 6/22/06

Simulator *Ken Lamb*

