

AAMA 507-07 THERMAL PERFORMANCE REPORT
(Revised)

Rendered to:

TUBELITE, INC.

SERIES/MODEL: CVW3700
TYPE: Projecting (Awning - Single)

Report No:	A4280.01-116-45
Original Report Date:	10/15/10
Simulation Date:	10/15/10
Report Retention Date:	10/15/14
Revised Report Date:	10/20/10

AAMA 507-07 THERMAL PERFORMANCE REPORT

(Revised)

Rendered to:

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

Report No:	A4280.01-116-45
Original Report Date:	10/15/10
Simulation Date:	10/15/10
Report Retention Date:	10/15/14
Revised Report Date:	10/20/10

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 CVW3700 - Projecting (Awning - Single). 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*

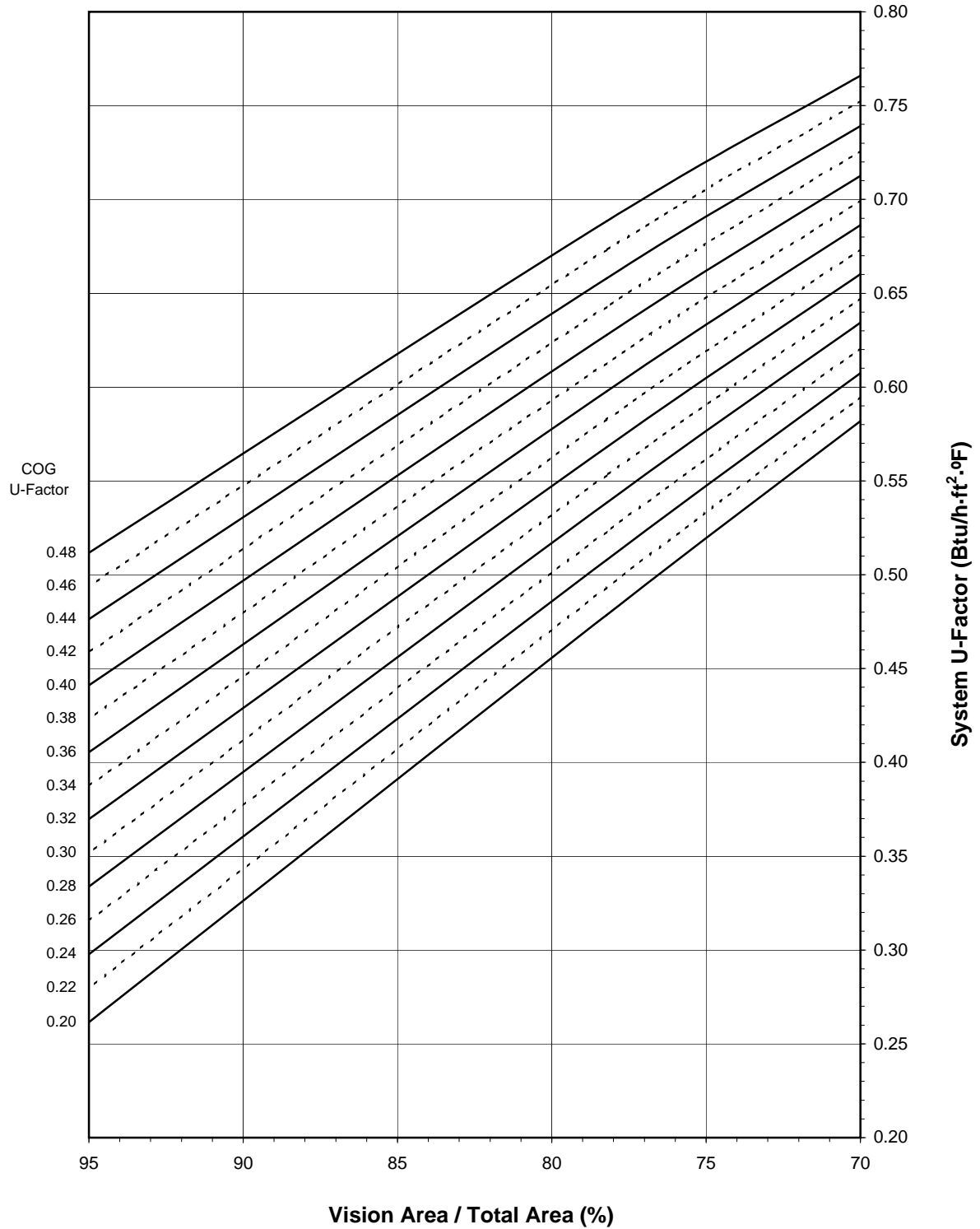
NFRC 200-2010, *Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*

Simulation Specimen Description:

Series/Model:	CVW3700
Type:	Projecting (Awning - Single)
Frame Material:	Aluminum Framing System
Specimen Size:	1500mm wide by 600mm high (59-1/16" by 23-5/8")
Configuration:	Single Vision Lite
Drawing Reference:	Tubelite Drawing T7960, dated 10/6/10

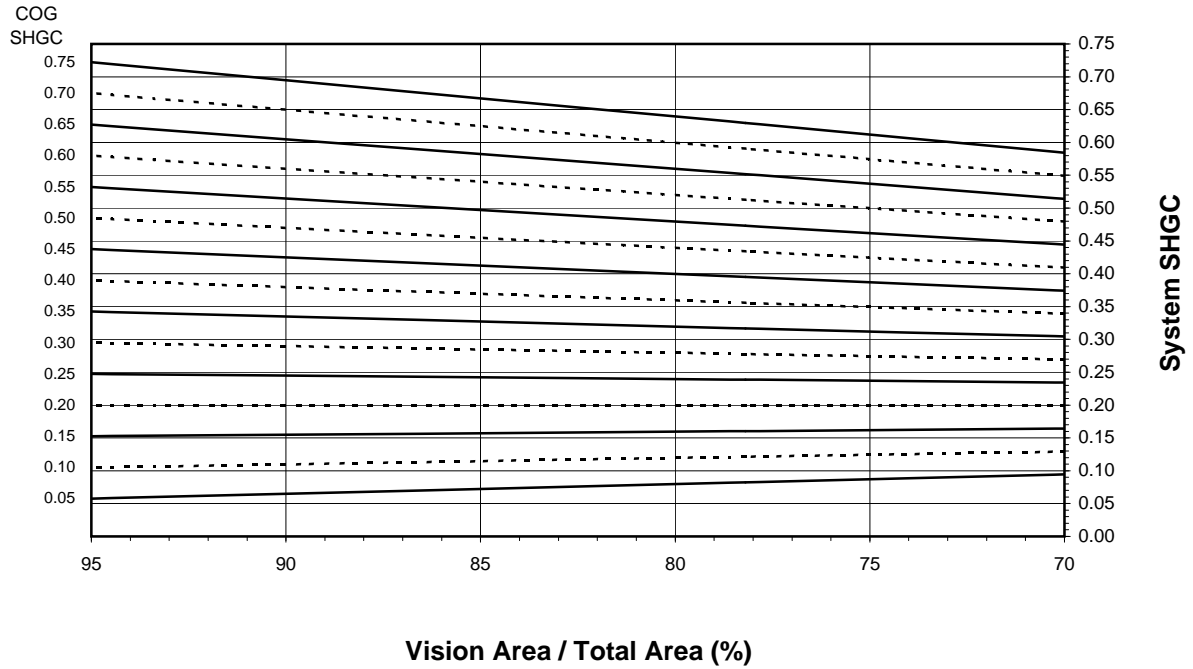
Tubelite, Inc.
CVW3700 - Projecting (Awning - Single)

System U-Factor vs. Percentage of Vision Area

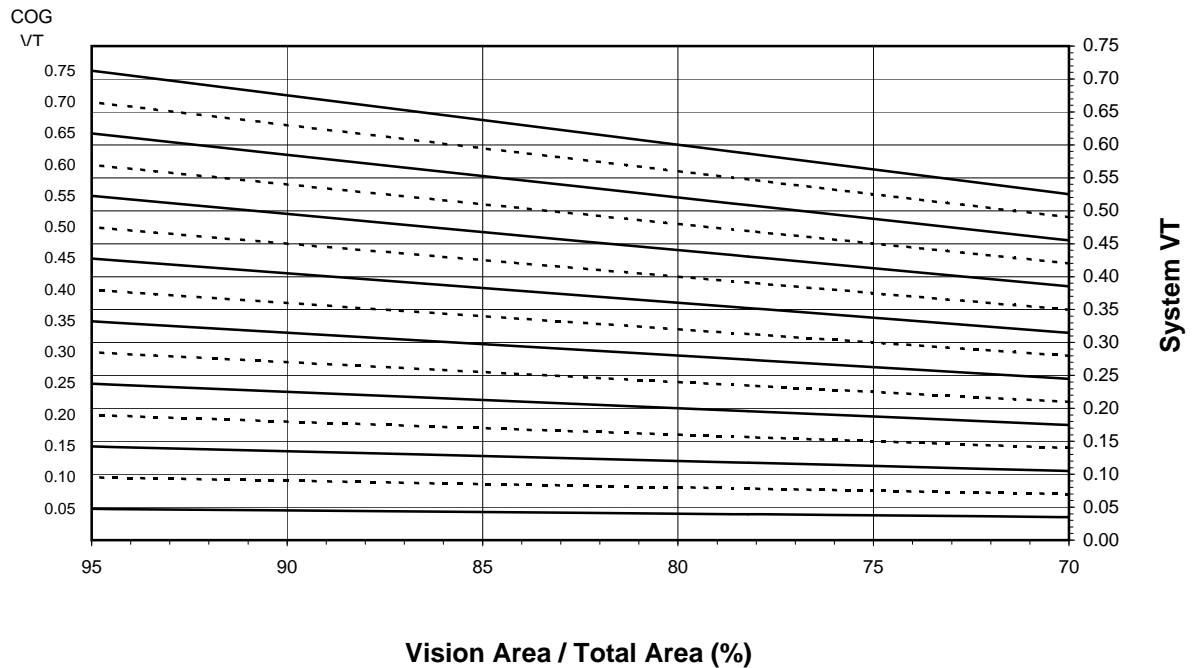


Tubelite, Inc.
CVW3700 - Projecting (Awning - Single)

System SHGC vs. Percentage of Vision Area



System VT vs. Percentage of Vision Area



Tubelite, Inc.
CVW3700 - Projecting (Awning - Single)

Size Specific U-Factor Matrix*

Glazing Option	Center of Glass U-Factor	Overall U-Factor
1	0.48	0.69
2	0.46	0.67
3	0.44	0.66
4	0.42	0.64
5	0.40	0.63
6	0.38	0.61
7	0.36	0.60
8	0.34	0.58
9	0.32	0.57
10	0.30	0.55
11	0.28	0.54
12	0.26	0.52
13	0.24	0.51
14	0.22	0.49
15	0.20	0.48

Size Specific SHGC Matrix*

Center of Glass SHGC	Overall SHGC
0.75	0.63
0.70	0.59
0.65	0.55
0.60	0.51
0.55	0.47
0.50	0.43
0.45	0.40
0.40	0.36
0.35	0.32
0.30	0.28
0.25	0.24
0.20	0.20
0.15	0.16
0.10	0.12
0.05	0.08

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	0.27
0.30	0.23
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 Projecting (Awning - Single) specimen size of 1500mm wide by 600mm high (59-1/16" by 23-5/8"). This represents 78.2% 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
							42.01" by 16.80"	59.06" by 23.62"	266.73" by 106.69"
1	0.48	43.7	Head	1.9270	1.4065	0.4806	0.7661	0.6883	0.5117
			R Jamb	1.9270	1.4302	0.4803			
			L Jamb	1.9270	1.4302	0.4803			
			Sill	1.9270	1.4064	0.4806			
2	0.46	44.8	Head	1.9270	1.4041	0.4658	0.7526	0.6731	0.4941
			R Jamb	1.9270	1.4278	0.4655			
			L Jamb	1.9270	1.4278	0.4655			
			Sill	1.9270	1.4041	0.4658			
3	0.44	45.8	Head	1.9270	1.4019	0.4510	0.7392	0.6579	0.4764
			R Jamb	1.9270	1.4257	0.4508			
			L Jamb	1.9270	1.4257	0.4508			
			Sill	1.9270	1.4019	0.4510			
4	0.42	46.8	Head	1.9270	1.3999	0.4364	0.7259	0.6428	0.4588
			R Jamb	1.9270	1.4237	0.4362			
			L Jamb	1.9270	1.4237	0.4362			
			Sill	1.9270	1.3998	0.4364			
5	0.40	47.9	Head	1.9270	1.3979	0.4219	0.7127	0.6277	0.4411
			R Jamb	1.9270	1.4217	0.4216			
			L Jamb	1.9270	1.4217	0.4216			
			Sill	1.9270	1.3978	0.4218			
6	0.38	48.9	Head	1.9270	1.3960	0.4074	0.6995	0.6127	0.4234
			R Jamb	1.9270	1.4198	0.4073			
			L Jamb	1.9270	1.4198	0.4073			
			Sill	1.9270	1.3959	0.4074			
7	0.36	50.0	Head	1.9270	1.3941	0.3929	0.6864	0.5977	0.4056
			R Jamb	1.9270	1.4179	0.3928			
			L Jamb	1.9270	1.4179	0.3928			
			Sill	1.9270	1.3940	0.3930			
8	0.34	51.0	Head	1.9270	1.3923	0.3786	0.6734	0.5828	0.3877
			R Jamb	1.9270	1.4161	0.3786			
			L Jamb	1.9270	1.4161	0.3786			
			Sill	1.9270	1.3922	0.3787			
9	0.32	52.0	Head	1.9270	1.3905	0.3642	0.6603	0.5679	0.3699
			R Jamb	1.9270	1.4144	0.3642			
			L Jamb	1.9270	1.4144	0.3642			
			Sill	1.9270	1.3903	0.3643			
10	0.30	53.1	Head	1.9270	1.3888	0.3501	0.6474	0.5531	0.3519
			R Jamb	1.9270	1.4127	0.3501			
			L Jamb	1.9270	1.4127	0.3501			
			Sill	1.9270	1.3886	0.3502			
11	0.28	54.2	Head	1.9270	1.3871	0.3358	0.6345	0.5383	0.3340
			R Jamb	1.9270	1.4111	0.3358			
			L Jamb	1.9270	1.4111	0.3358			
			Sill	1.9270	1.3869	0.3359			

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
							42.01" by 16.80"	59.06" by 23.62"	266.73" by 106.69"
12	0.26	55.2	Head	1.9270	1.3814	0.3216	0.6207	0.5229	0.3158
			R Jamb	1.9270	1.4095	0.3217			
			L Jamb	1.9270	1.4095	0.3217			
			Sill	1.9270	1.3814	0.3216			
13	0.24	56.3	Head	1.9270	1.3798	0.3075	0.6076	0.5079	0.2978
			R Jamb	1.9270	1.4042	0.3075			
			L Jamb	1.9270	1.4042	0.3075			
			Sill	1.9270	1.3799	0.3075			
14	0.22	57.3	Head	1.9270	1.3783	0.2934	0.5948	0.4932	0.2798
			R Jamb	1.9270	1.4027	0.2935			
			L Jamb	1.9270	1.4027	0.2935			
			Sill	1.9270	1.3783	0.2935			
15	0.20	58.4	Head	1.9270	1.3769	0.2794	0.5820	0.4785	0.2617
			R Jamb	1.9270	1.4013	0.2794			
			L Jamb	1.9270	1.4013	0.2794			
			Sill	1.9270	1.3767	0.2795			

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:

REVIEWED BY:

Kevin S. Louder
Project Engineer

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

KSL:KSL
A4280.01-116-45

Attachments (pages): This report is complete only when all attachments listed are included
Appendix A: Drawings and Bills of Material (6)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.01 R0	10/15/2010	All	Original Report Issue
.01 R1	10/20/2010	All	Corrected frame height



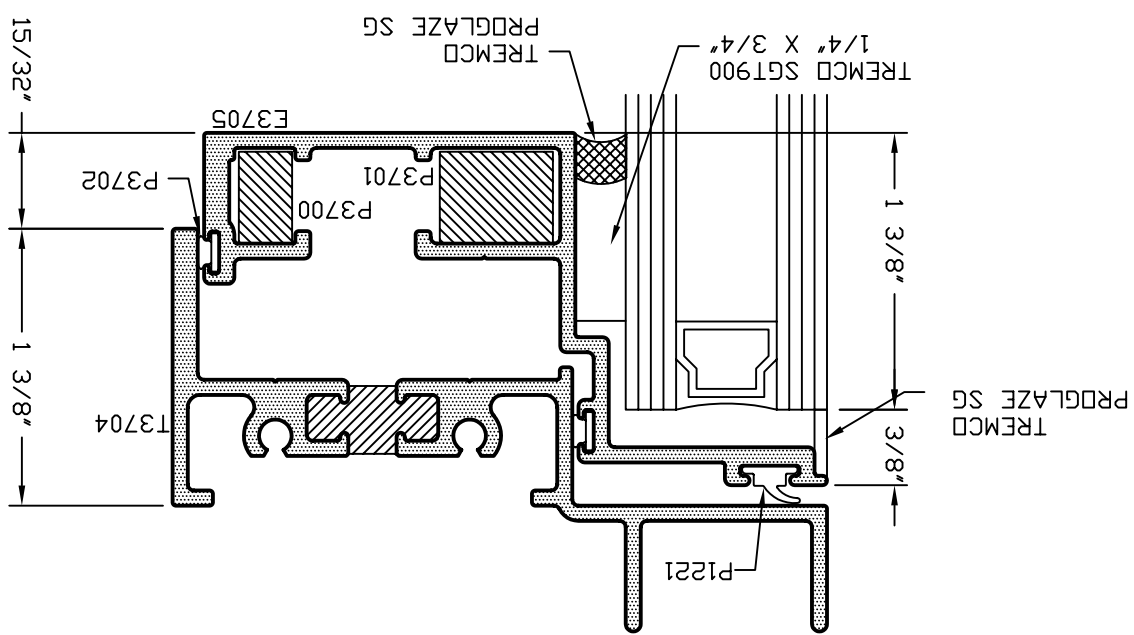
All drawings and Bills of Material used in simulating this product are enclosed in this Appendix.

TURBELITE®
 STOREFRONT, CURTAINWALL & ENTRANCES
 DEPENDABLE

SCALE 1"=1"	PRODUCT CODE 120	T960-1
DRAWN BY JEM	DATE 10/06/10	APPLY BY
REV	DATE	APPLY BY

CW3700 CASEMENT WINDOW
 THERMAL PERFORMANCE TEST
 HEAD DETAIL

ATI
 Report # A4280-116-45
 Date 10/15/10
 Simulator *Ken Lamb*



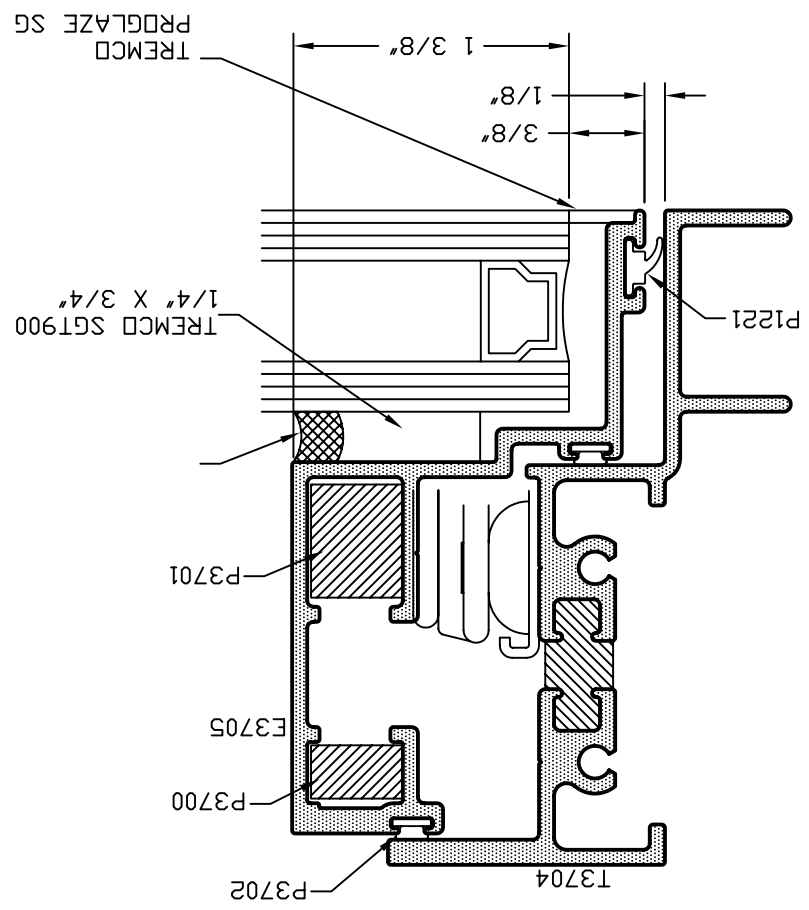
T960-1

TURBELITE®
 STOREFRONT, CURTAINWALL & ENTRANCES
 DEPENDABLE

SCALE 1"=1"	PRODUCT CODE 120	DRWG 1960-2
BY JEM	DATE 10/06/10	APPLY BY
REV	DATE	APPLY DATE

CW3700 CASEMENT WINDOW
 THERMAL PERFORMANCE TEST
 JAMB DETAIL

ATI
 Report # A4280-116-45
 Date 10/15/10
 Simulator *Ken Lamb*



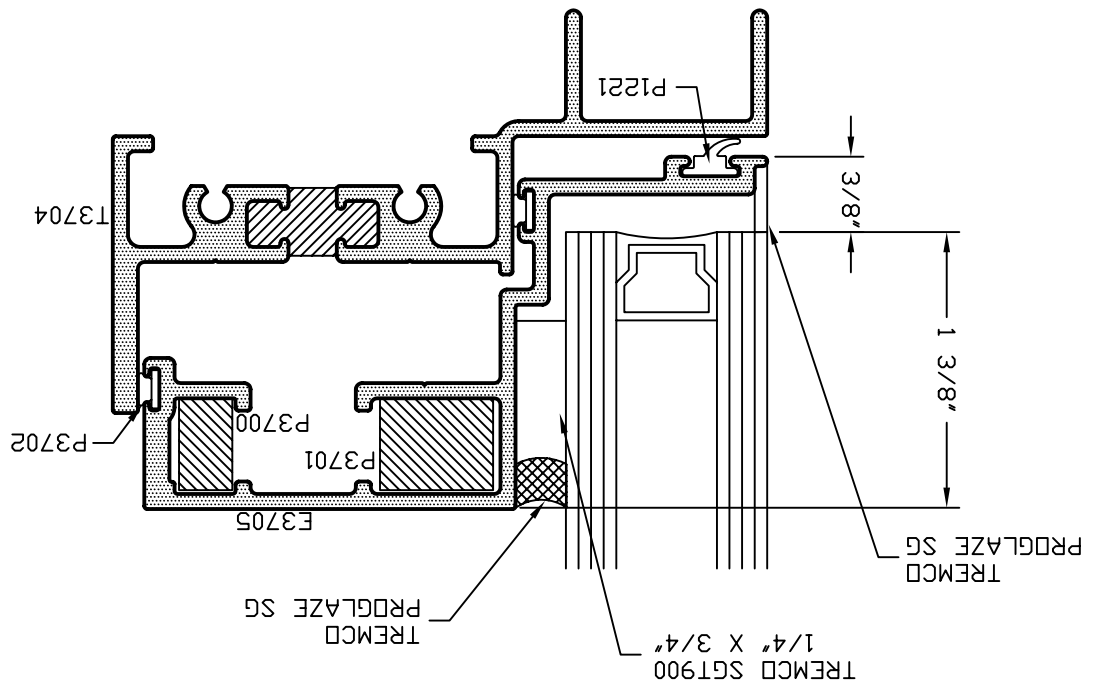
1960-2

TURBELITE®
 STOREFRONT, CURTAINWALL & ENTRANCES
 DEPENDABLE

REV	DATE	BY	SCALE 1"=1"
	10/06/10	JEM	PRODUCT 120
			T960-3

CW3700 CASEMENT WINDOW
 THERMAL PERFORMANCE TEST
 SILL DETAIL

ATI
 Report # A4280-116-45
 Date 10/15/10
 Simulator *Ken Lamb*



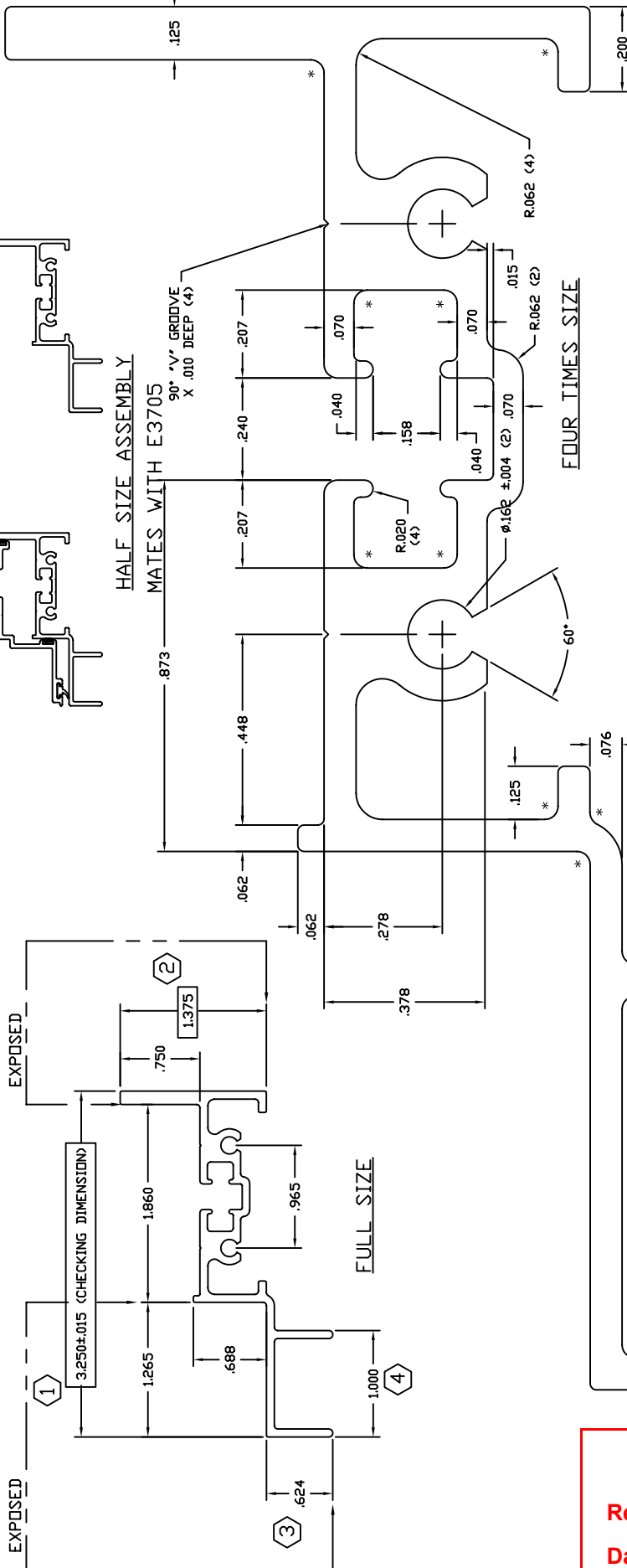
T960-3

E3704

A

WAS E904G02

E3705



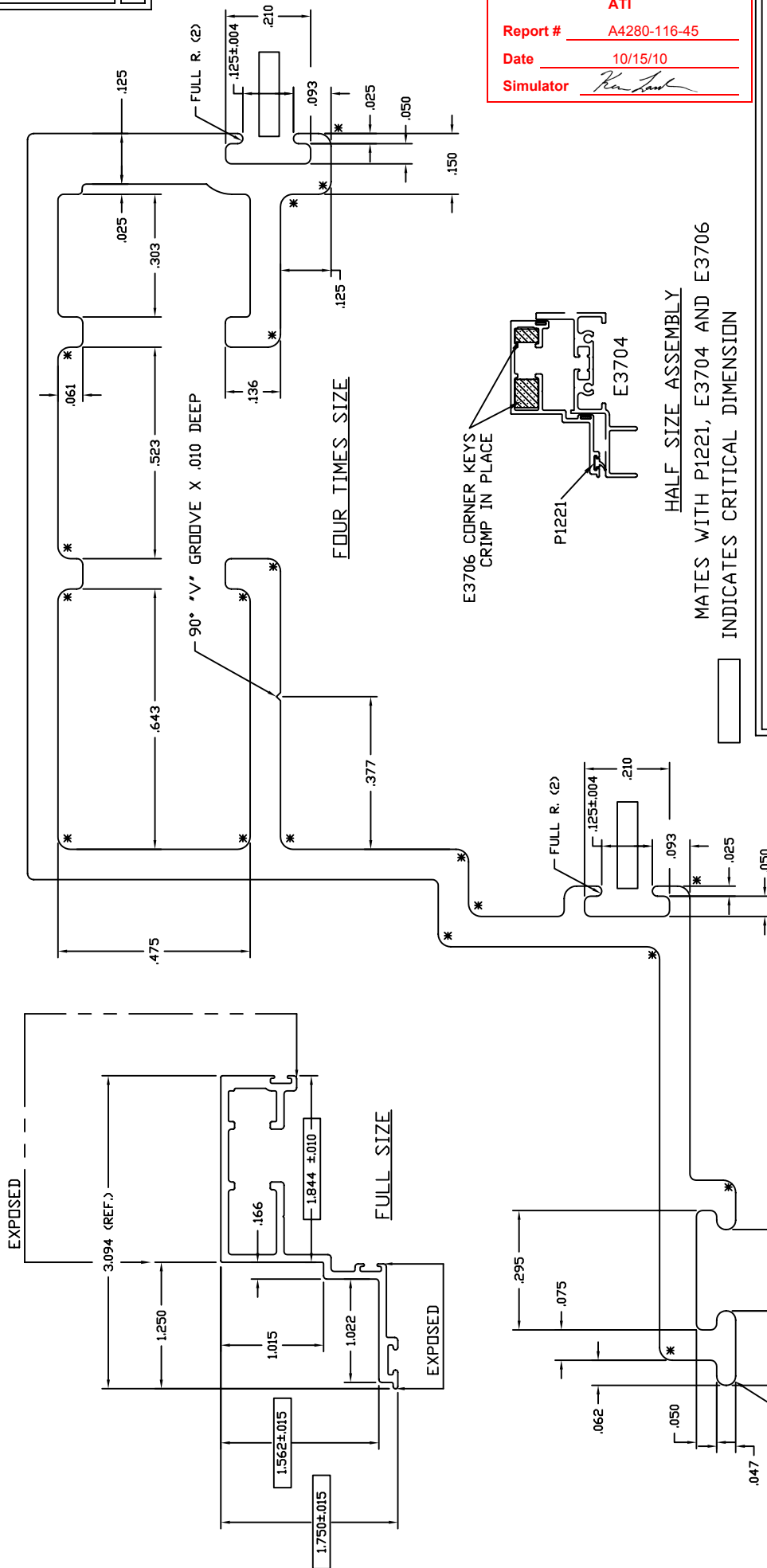
5 NOTE: SQUARENESS AND ANGULARITY CRITICAL
 USE CONTOUR GAUGE E3704

6 INDICATES CRITICAL DIMENSION

AZDGRADE AND FULLY DEBRIDGE

© 2006 TUBELITE INC. ALL RIGHTS RESERVED ALUMINUM ASSOCIATION STANDARD TOLERANCES APPLY UNLESS NOTED ALL UNSPECIFIED RADII .015 * INDICATES .031 RADIUS □ DENOTES CRITICAL DIMENSION ALL DIMS PROPERTY OF TUBELITE		TUBELITE ALUMINUM LANSING, MICHIGAN CORPORATION LANSING, MICHIGAN 48904		3056 WALKER BRIDGE, N.Y. SUITE G WALKER, MICHIGAN 49344	
WALL THICKNESS	SECTION S	MAT'L	6063-T5	RATIO	791
PERIMETER	16.274	AREA	.704	WGT/FT	.827
FACTOR	20	CIRCLE SIZE	3.796	INCHES	.1559
RXX	1.015	SXX	.372	IKX	.725
RYX	.404	SYX	.120	IYX	.115
				CYX	1.041
CONCEALED VENT FRAME 1 3/8" X 3 1/4" VENT WINDOWS					
BY	DATE	REV	DATE	APPLY'D	REV
	07/11/01		07/11/01		
DWG SCALE	NOTED	PRODUCT CODE	120	E3704	A

ATI
 Report # A4280-116-45
 Date 10/15/10
 Simulator *Ka Lark*



ATI

Report # A4280-116-45

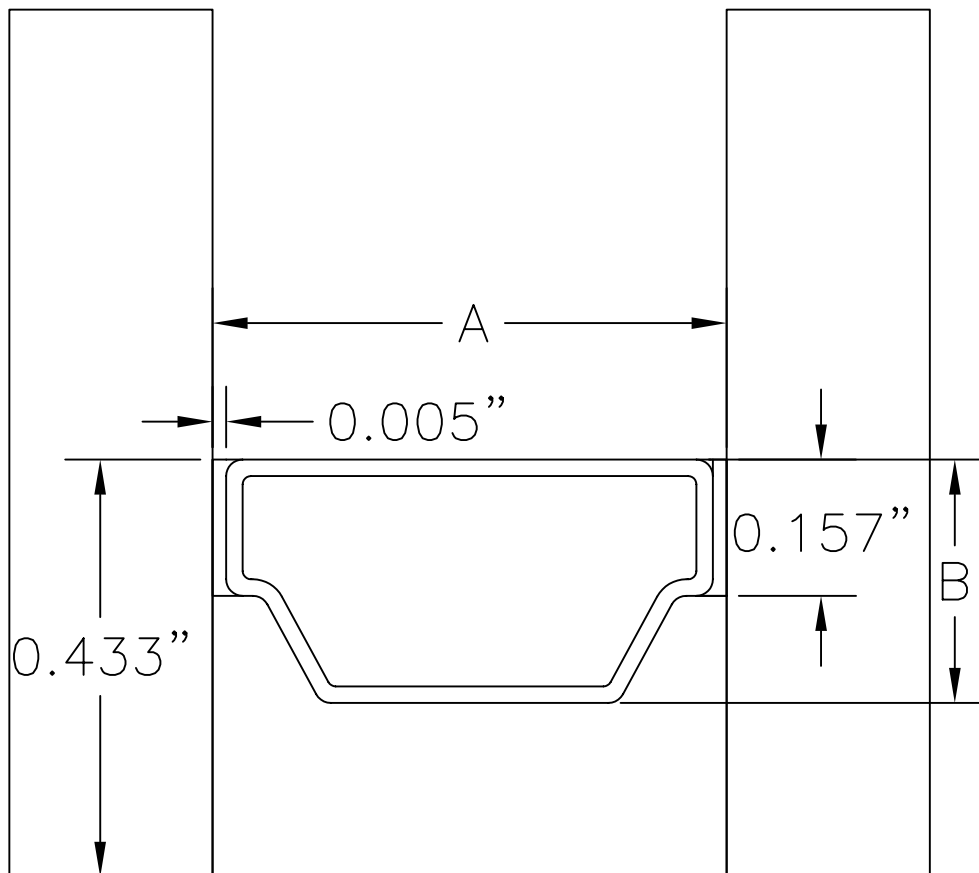
Date 10/15/10

Simulator *Ken Lamb*

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WALL THICKNESS	.075	SECTION S	MAT'L 6063-T5	RATIO	981
PERIMETER (OUT)	14.367	AREA	.563	WG/FT	.662
FACTOR	22	CIRCLE SIZE	3.540	INCH VALUE	.7837
RXX	.891	SXX	.258	IKX	.446
RYX	.597	SYX	.189	IYX	.200
				CYX	1.060
CONCEALED VENT SASH 1 3/4" X 3 3/32" VENT WINDOWS					
DRWN BY	SRD	DATE	07/11/01	APPR'D BY	APL/DB
DWG SCALE	NOTED	PRODUCT CODE	120	REV	E3705

HALF SIZE ASSEMBLY
MATES WITH P1221, E3704 AND E3706
INDICATES CRITICAL DIMENSION

Aluminum Spacer



Finish Anodized
Offset: None
Primary Sealant: Butyl Rubber
Secondary Sealant: Butyl Rubber
Material: Aluminum
Width (A): 0.500
Height (B): 0.295
Wall Thickness: 0.016

ATI
Report # A4280-116-45
Date 10/15/10
Simulator *Ken Lund*