Architectural Testing

NFRC U-FACTOR, SHGC / VT, CONDENSATION RESISTANCE COMPUTER SIMULATION REPORT

Rendered to:

EARTHWISE GROUP, L.L.C.

SERIES/MODEL: 143.191 Casement / Awning / Fixed

Baseline Product for Validation Testing

Series Model: ***143.191 Casement***

Unit Size: Width: 23.625" Height: 59"

Simulated U-Factor: 0.287

Glazing Information

Layer 1:	DS Cardinal LoE-172 (e=0.041,#2)
Gap 1:	0.500" Duraseal Spacer (A8-D) - 90% Argon Fill
Layer 2:	DS Clear
Gap 2:	
Layer 3:	

Reinforcement Option Description

Location	*Material*
Vertical Stiles	Aluminum

Report No.: 54092.03-116-45
Report Date: 04/25/05
Expiration Date: 04/21/09

130 Derry Court
York, PA 17402-9405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

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NFRC U-FACTOR, SHGC / VT, CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT

Rendered to:

EARTHWISE GROUP, L.L.C.
185 Union Avenue
Providence, Rhode Island 02909

Report No.:	54092.03-116-45
Simulation Date:	04/21/05
Report Date:	04/25/05
Expiration Date:	04/21/09

Project Summary: Architectural Testing, Inc. (ATI) was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

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*
NFRC 500-2004:	*Procedure for Determining Fenestration Product Condensation Resistance Values*

Software:

Frame and Edge Modeling:	THERM 5.2.14
Center-of-Glass Modeling:	WINDOW 5.2.17
Total Product Calculations:	WINDOW 5.2.17
Spectral Data Library:	14.1

Simulation Specimen Description:

Series/Model:	143.191		
Type:	Casement	Projecting (Awning)	Fixed
Frame Material:	Vinyl (VY)	Vinyl (VY)	Vinyl (VY)
Sash Material:	Vinyl (VY)	Vinyl (VY)	NA
Width:	600 mm	1500 mm	1200 mm
Height:	1500 mm	600 mm	1500 mm

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Technical Interpretations:

U-factor: None
SHGC: None

Modeling Assumptions:

U-factor:
1. The 3/16" X 9/16", 3/16" X 5/8", 3/16" X 3/4", 1/4" X 5/8" Rectangular Muntins, 5.5mm X 18mm, 8mm X 18mm, 8mm X 25mm, 0.313" X 0.725" Contour Muntins, 7/16" X 3/8" Square Muntin, 5.9mm X 7.95mm Brass Caming Muntins were grouped for simulation purposes. The 7/16" X 3/8" Square Muntin was the group leader.
2. Tempered glass is simulated as clear annealed per NFRC 100-2004.

SHGC:
1. Tempered glass is simulated as clear annealed per NFRC 200-2004.

Specialty Products Table: The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 5.2. The method gives overall product SHGC and VT indexed on center of glass properties.

143.191 Casement

	No Dividers	Dividers < 1"	Dividers >= 1"
$SHGC_0$	0.005	0.007	0.009
$SHGC_1$	0.731	0.665	0.603
VT_0	0.000	0.000	0.000
VT_1	0.726	0.658	0.594

143.191 Awning

	No Dividers	Dividers < 1"	Dividers >= 1"
$SHGC_0$	0.005	0.007	0.009
$SHGC_1$	0.731	0.665	0.603
VT_0	0.000	0.000	0.000
VT_1	0.726	0.658	0.594

Specialty Products Table (continued)

143.191 Fixed

	No Dividers	Dividers < 1"	Dividers >= 1"
$SHGC_0$	0.003	0.006	0.009
$SHGC_1$	0.824	0.741	0.661
VT_0	0.000	0.000	0.000
VT_1	0.821	0.734	0.653

$$SHGC_c = SHGC_0 + SHGC_c\ (SHGC_1 - SHGC_0)$$
$$VT_c = VT_0 + VT_c\ (VT_1 - VT_0)$$

Appendices: The following appendices contain material required by NFRC 100-2004, NFRC 200-2004, and NFRC 500-2004.

A. Drawings and Bills of Material used in simulation

Spacer Option Description

	Sealant		
Spacer Type	*Primary*	*Secondary*	*Dessicant*
PPG Intercept Spacer	Butyl Rubber	Butyl Rubber	Yes
Edgetech Super Spacer	Butyl Rubber	None	No
TruSeal DuraSeal Spacer	Butyl Rubber	Butyl Rubber	No
Aluminum Swiggle Spacer	Butyl Rubber	Butyl Rubber	No
Cardinal XL Edge Spacer	Silicone	PIB	Yes

Grid Option Description

Grid Size	*Grid Type*	*Casement*	*Awning*	*Fixed*
3/16" X 9/16"	Allmetal Rectangular Muntin	4H x 1V	1H x 4V	4H x 3V
3/16" X 5/8"	Allmetal Rectangular Muntin	4H x 1V	1H x 4V	4H x 3V
3/16" X 3/4"	Allmetal Rectangular Muntin	4H x 1V	1H x 4V	4H x 3V
1/4" X 5/8"	Allmetal Rectangular Muntin	4H x 1V	1H x 4V	4H x 3V
5.5mm X 18mm	Allmetal Contour Muntin	4H x 1V	1H x 4V	4H x 3V
8mm X 18mm	Allmetal Contour Muntin	4H x 1V	1H x 4V	4H x 3V
8mm X 25mm	Allmetal Contour Muntin	4H x 1V	1H x 4V	4H x 3V
0.313" X 0.725"	Allmetal Contour Muntin	4H x 1V	1H x 4V	4H x 3V
7/16" X 3/8"	Square Muntin	4H x 1V	1H x 4V	4H x 3V
5.9mm X 7.95mm	Brass Caming Muntin	4H x 1V	1H x 4V	4H x 3V

Reinforcement Option Description

Location	*Material*
None	

Gas Filling Technique Description

Fill Type	*Method*
90% Argon	Single Probe
95% Argon	Dual Probe
90% Krypton	Dual Probe

Edge-of-Glass Construction

Interior Condition	Foam tape between sash leg and glass
Exterior Condition	PVC glazing bead with flexible vinyl fin against glass

Weatherstripping

Type	*Qty.*	*Location*
Vinyl Bulb Gasket	3 rows	Sash

Finish

Interior Condition	White PVC
Exterior Condition	White PVC

Hardware *(If modeling is required, continuous items are listed below)*

Type	*Qty.*	*Location*
None		

Sealing Rules *(To prevent air infiltration)*

Tape was applied to all interior sash crack locations.

Architectural Testing

U-Factor / CR

143.191 Casement

		PPG Intercept Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
1	Clear / Clear - SS,DS - 3/4" IG	0.44	42	0.45	42
2	SS Clear / DS Clear - 3/4" IG	0.43	41	0.45	41
3	Clear / Clear - 5m - 3/4" IG	0.45	40	0.47	40
4	035 / Clear - SS,DS - 3/4" IG	0.31	53	0.33	53
5	035 / Clear - 5m - 3/4" IG	0.33	49	0.36	49
6	035 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	56	0.30	56
7	035 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	53	0.32	53
8	041 / Clear w/ 90% Argon - DS - 3/4" IG	0.28	55	0.30	55
9	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	53	0.32	53
10	027 / Clear - SS,DS - 3/4" IG	0.31	53	0.33	53
11	027 / Clear - 5m - 3/4" IG	0.33	49	0.36	49
12	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	56	0.29	56
13	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	53	0.32	53

Architectural Testing

U-Factor / CR

143.191 Casement

		Super Spacer			
		No Grids		Grids	
	Option Description	U-Factor	CR	U-Factor	CR
14	Clear / Clear - SS,DS - 3/4" IG	0.43	43	0.44	43
15	DS Clear / SS Clear - 3/4" IG	0.43	43	0.44	43
16	DS Clear / SS Clear w/ 90% Argon - 3/4" IG	0.41	45	0.42	45
17	Clear / Clear - 5m - 3/4" IG	0.44	41	0.46	41
18	204 / Clear - 5m - 3/4" IG	0.36	48	0.39	48
19	204 / Clear w/ 90% Argon - 5m - 3/4" IG	0.32	51	0.35	51
20	154 / Clear - DS - 3/4" IG	0.33	52	0.35	52
21	154 / Clear - 5m - 3/4" IG	0.35	49	0.38	49
22	154 / Clear w/ 95% Argon- DS - 3/4" IG	0.30	55	0.32	55
23	154 / Clear w/ 95% Argon - 5m - 3/4" IG	0.31	53	0.34	53
24	035 / Clear - SS,DS - 3/4" IG	0.30	55	0.32	55
25	035 / Clear - 5m - 3/4" IG	0.32	51	0.36	51
26	035 / Clear w/ 90% Argon- SS,DS - 3/4" IG	0.27	58	0.29	58
27	035 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	55	0.31	55
28	041 / Clear - SS,DS - 3/4" IG	0.31	55	0.32	55
29	041 / Clear - 5m - 3/4" IG	0.33	51	0.36	51
30	041 / Clear w/ 90% Argon- SS,DS - 3/4" IG	0.27	58	0.29	58
31	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	55	0.31	55
32	027 / Clear - SS,DS - 3/4" IG	0.30	55	0.32	55
33	027 / Clear - 5m - 3/4" IG	0.32	51	0.35	51
34	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	59	0.28	59
35	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	55	0.31	55
36	027 / 027 w/ 90% Argon - SS,DS - 3/4" IG	0.27	59	0.28	59

Architectural Testing

U-Factor / CR

143.191 Casement

		Duraseal Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
37	Clear / Clear - SS,DS - 3/4" IG	0.43	43	0.44	43
38	Clear / Clear - 5m - 3/4" IG	0.45	41	0.46	41
39	044 / Clear - SS,DS - 3/4" IG	0.31	54	0.33	54
40	044 / Clear - 5m - 3/4" IG	0.33	51	0.36	51
41	044 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	57	0.29	57
42	044 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	55	0.32	55
43	041 / Clear - SS,DS - 3/4" IG	0.31	54	0.33	54
44	041 / Clear - 5m - 3/4" IG	0.33	51	0.36	51
45	041 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	57	0.29	57
46	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	55	0.32	55
47	027 / Clear w/ 90% Argon - DS - 3/4" IG	0.27	57	0.29	57
48	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	55	0.31	55

		Aluminum Swiggle Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
49	Clear / Clear - SS,DS - 3/4" IG	0.43	43	0.45	43
50	041 / Clear - SS,DS - 3/4" IG	0.31	54	0.33	54
51	041 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	57	0.28	57
52	027 / Clear - SS,DS - 3/4" IG	0.31	54	0.32	54
53	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	57	0.29	57

Architectural Testing

U-Factor / CR

143.191 Casement

		Cardinal XL Edge Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
54	Clear / Clear - DS - 3/4" IG	0.43	42	0.45	42
55	Clear / Clear - 5m - 3/4" IG	0.45	41	0.46	41
56	041 / Clear w/ 90% Argon - DS - 3/4" IG	0.28	56	0.30	56
57	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	54	0.32	54

		Triple Glazed Super Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
58	Clear / Clear / Clear - SS - 3/4" IG	0.37	49	-	-
59	027 / Clear / Clear - SS - 3/4" IG	0.32	54	-	-
60	027 / Clear / Clear w/ 90% Argon - SS - 3/4" IG	0.28	58	-	-
61	027 / 027 / Clear - SS - 3/4" IG	0.28	58	-	-
62	027 / 027 / Clear w/ 90% Argon - SS - 3/4" IG	0.24	62	-	-

Notes :

1. All options available with bronze and grey tints on exterior surface.
2. "5m" stands for 3/16" glass thickness
3. Low-E's used:
   - 0.035 = PPG Solarban 60
   - 0.041 = Cardinal E172
   - 0.027 = Guardian RLE 71/38
   - 0.204 = AFG Comfort E2
   - 0.154 = LOF Advantage
   - 0.044 = Guardian PPII

Architectural Testing

U-Factor / CR

143.191 Awning

		PPG Intercept Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
1	Clear / Clear - SS,DS - 3/4" IG	0.44	42	0.45	42
2	SS Clear / DS Clear - 3/4" IG	0.44	41	0.45	41
3	Clear / Clear - 5m - 3/4" IG	0.45	40	0.47	40
4	035 / Clear - SS,DS - 3/4" IG	0.31	52	0.33	52
5	035 / Clear - 5m - 3/4" IG	0.33	48	0.36	48
6	035 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	55	0.29	55
7	035 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	52	0.32	52
8	041 / Clear w/ 90% Argon - DS - 3/4" IG	0.28	54	0.30	54
9	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	52	0.32	52
10	027 / Clear - SS,DS - 3/4" IG	0.31	52	0.32	52
11	027 / Clear - 5m - 3/4" IG	0.33	48	0.36	48
12	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	56	0.29	56
13	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	52	0.31	52

Architectural Testing

U-Factor / CR

143.191 Awning

		Super Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
14	Clear / Clear - SS,DS - 3/4" IG	0.43	43	0.44	43
15	DS Clear / SS Clear - 3/4" IG	0.43	43	0.44	43
16	DS Clear / SS Clear w/ 90% Argon - 3/4" IG	0.41	45	0.42	45
17	Clear / Clear - 5m - 3/4" IG	0.45	41	0.46	41
18	204 / Clear - 5m - 3/4" IG	0.36	47	0.38	47
19	204 / Clear w/ 90% Argon - 5m - 3/4" IG	0.32	51	0.34	50
20	154 / Clear - DS - 3/4" IG	0.33	51	0.35	51
21	154 / Clear - 5m - 3/4" IG	0.35	48	0.37	48
22	154 / Clear w/ 95% Argon- DS - 3/4" IG	0.30	54	0.32	54
23	154 / Clear w/ 95% Argon - 5m - 3/4" IG	0.31	52	0.33	51
24	035 / Clear - SS,DS - 3/4" IG	0.30	53	0.32	53
25	035 / Clear - 5m - 3/4" IG	0.32	50	0.35	50
26	035 / Clear w/ 90% Argon- SS,DS - 3/4" IG	0.27	57	0.28	57
27	035 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.31	54
28	041 / Clear - SS,DS - 3/4" IG	0.31	53	0.32	53
29	041 / Clear - 5m - 3/4" IG	0.33	50	0.35	50
30	041 / Clear w/ 90% Argon- SS,DS - 3/4" IG	0.27	57	0.28	57
31	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.31	54
32	027 / Clear - SS,DS - 3/4" IG	0.30	53	0.31	53
33	027 / Clear - 5m - 3/4" IG	0.32	50	0.35	50
34	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	57	0.28	57
35	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.31	54
36	027 / 027 w/ 90% Argon - SS,DS - 3/4" IG	0.26	58	0.27	58

Architectural Testing

U-Factor / CR

143.191 Awning

		Duraseal Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
37	Clear / Clear - SS,DS - 3/4" IG	0.44	42	0.44	42
38	Clear / Clear - 5m - 3/4" IG	0.45	41	0.46	41
39	044 / Clear - SS,DS - 3/4" IG	0.31	53	0.32	53
40	044 / Clear - 5m - 3/4" IG	0.33	50	0.35	50
41	044 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	56	0.29	56
42	044 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	54	0.31	53
43	041 / Clear - SS,DS - 3/4" IG	0.31	53	0.32	53
44	041 / Clear - 5m - 3/4" IG	0.33	50	0.35	50
45	041 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	56	0.29	56
46	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	54	0.31	53
47	027 / Clear w/ 90% Argon - DS - 3/4" IG	0.27	56	0.29	56
48	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.31	54

		Aluminum Swiggle Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
49	Clear / Clear - SS,DS - 3/4" IG	0.44	43	0.44	43
50	041 / Clear - SS,DS - 3/4" IG	0.32	53	0.32	53
51	041 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	56	0.29	56
52	027 / Clear - SS,DS - 3/4" IG	0.31	53	0.32	53
53	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.28	57	0.29	56

Architectural Testing

U-Factor / CR

143.191 Awning

		Cardinal XL Edge Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
54	Clear / Clear - DS - 3/4" IG	0.43	42	0.45	42
55	Clear / Clear - 5m - 3/4" IG	0.45	40	0.46	40
56	041 / Clear w/ 90% Argon - DS - 3/4" IG	0.27	55	0.29	55
57	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.29	53	0.31	53

		Triple Glazed Super Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
58	Clear / Clear / Clear - SS - 3/4" IG	0.37	50	-	-
59	027 / Clear / Clear - SS - 3/4" IG	0.32	56	-	-
60	027 / Clear / Clear w/ 90% Argon - SS - 3/4" IG	0.28	60	-	-
61	027 / 027 / Clear - SS - 3/4" IG	0.28	59	-	-
62	027 / 027 / Clear w/ 90% Argon - SS - 3/4" IG	0.24	63	-	-

Notes :

1. All options available with bronze and grey tints on exterior surface.
2. "5m" stands for 3/16" glass thickness
3. Low-E's used:
   - 0.035 = PPG Solarban 60
   - 0.041 = Cardinal E172
   - 0.027 = Guardian RLE 71/38
   - 0.204 = AFG Comfort E2
   - 0.154 = LOF Advantage
   - 0.044 = Guardian PPII

Architectural Testing

U-Factor / CR

143.191 Fixed

		PPG Intercept Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
1	Clear / Clear - SS,DS - 3/4" IG	0.45	42	0.46	42
2	SS Clear / DS Clear - 3/4" IG	0.45	41	0.47	41
3	Clear / Clear - 5m - 3/4" IG	0.46	40	0.49	40
4	035 / Clear - SS,DS - 3/4" IG	0.31	53	0.33	53
5	035 / Clear - 5m - 3/4" IG	0.33	49	0.37	49
6	035 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	56	0.29	56
7	035 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	52	0.32	52
8	041 / Clear w/ 90% Argon - DS - 3/4" IG	0.27	55	0.30	55
9	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	52	0.32	52
10	027 / Clear - SS,DS - 3/4" IG	0.30	53	0.33	53
11	027 / Clear - 5m - 3/4" IG	0.32	49	0.37	49
12	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	56	0.29	56
13	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	53	0.32	53

Architectural Testing

U-Factor / CR

143.191 Fixed

		Super Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
14	Clear / Clear - SS,DS - 3/4" IG	0.44	43	0.46	43
15	DS Clear / SS Clear - 3/4" IG	0.44	43	0.46	43
16	DS Clear / SS Clear w/ 90% Argon - 3/4" IG	0.42	45	0.44	45
17	Clear / Clear - 5m - 3/4" IG	0.46	41	0.48	41
18	204 / Clear - 5m - 3/4" IG	0.36	48	0.40	48
19	204 / Clear w/ 90% Argon - 5m - 3/4" IG	0.32	51	0.35	51
20	154 / Clear - DS - 3/4" IG	0.33	51	0.36	51
21	154 / Clear - 5m - 3/4" IG	0.35	48	0.39	48
22	154 / Clear w/ 95% Argon- DS - 3/4" IG	0.30	55	0.32	55
23	154 / Clear w/ 95% Argon - 5m - 3/4" IG	0.31	52	0.34	52
24	035 / Clear - SS,DS - 3/4" IG	0.30	55	0.32	55
25	035 / Clear - 5m - 3/4" IG	0.32	51	0.36	51
26	035 / Clear w/ 90% Argon- SS,DS - 3/4" IG	0.26	58	0.28	58
27	035 / Clear w/ 90% Argon - 5m - 3/4" IG	0.27	55	0.31	55
28	041 / Clear - SS,DS - 3/4" IG	0.30	55	0.32	55
29	041 / Clear - 5m - 3/4" IG	0.32	51	0.36	51
30	041 / Clear w/ 90% Argon- SS,DS - 3/4" IG	0.27	58	0.28	58
31	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.31	54
32	027 / Clear - SS,DS - 3/4" IG	0.30	55	0.32	55
33	027 / Clear - 5m - 3/4" IG	0.32	51	0.36	51
34	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.26	58	0.28	58
35	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.27	55	0.31	55
36	027 / 027 w/ 90% Argon - SS,DS - 3/4" IG	0.26	59	0.27	59

Architectural Testing

U-Factor / CR

143.191 Fixed

		Duraseal Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
37	Clear / Clear - SS,DS - 3/4" IG	0.45	43	0.46	43
38	Clear / Clear - 5m - 3/4" IG	0.46	41	0.48	41
39	044 / Clear - SS,DS - 3/4" IG	0.31	54	0.33	54
40	044 / Clear - 5m - 3/4" IG	0.33	50	0.37	50
41	044 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	57	0.29	57
42	044 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.32	54
43	041 / Clear - SS,DS - 3/4" IG	0.31	54	0.33	54
44	041 / Clear - 5m - 3/4" IG	0.32	50	0.37	50
45	041 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	57	0.29	57
46	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.32	54
47	027 / Clear w/ 90% Argon - DS - 3/4" IG	0.26	57	0.29	57
48	027 / Clear w/ 90% Argon - 5m - 3/4" IG	0.27	55	0.31	55

		Aluminum Swiggle Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
49	Clear / Clear - SS,DS - 3/4" IG	0.45	42	0.46	42
50	041 / Clear - SS,DS - 3/4" IG	0.31	53	0.33	53
51	041 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	57	0.29	57
52	027 / Clear - SS,DS - 3/4" IG	0.30	54	0.32	54
53	027 / Clear w/ 90% Argon - SS,DS - 3/4" IG	0.27	57	0.28	57

Architectural Testing

U-Factor / CR

143.191 Fixed

		Cardinal XL Edge Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
54	Clear / Clear - DS - 3/4" IG	0.44	42	0.47	42
55	Clear / Clear - 5m - 3/4" IG	0.46	41	0.48	41
56	041 / Clear w/ 90% Argon - DS - 3/4" IG	0.27	56	0.29	56
57	041 / Clear w/ 90% Argon - 5m - 3/4" IG	0.28	54	0.32	54

		Triple Glazed Super Spacer			
		No Grids		*Grids*	
	Option Description	**U-Factor**	**CR**	**U-Factor**	**CR**
58	Clear / Clear / Clear - SS - 3/4" IG	0.37	50	-	-
59	027 / Clear / Clear - SS - 3/4" IG	0.32	55	-	-
60	027 / Clear / Clear w/ 90% Argon - SS - 3/4" IG	0.27	59	-	-
61	027 / 027 / Clear - SS - 3/4" IG	0.28	59	-	-
62	027 / 027 / Clear w/ 90% Argon - SS - 3/4" IG	0.23	62	-	-

Notes :

1. All options available with bronze and grey tints on exterior surface.
2. "5m" stands for 3/16" glass thickness
3. Low-E's used:
   - 0.035 = PPG Solarban 60
   - 0.041 = Cardinal E172
   - 0.027 = Guardian RLE 71/38
   - 0.204 = AFG Comfort E2
   - 0.154 = LOF Advantage
   - 0.044 = Guardian PPII

Architectural Testing

SHGC/VT

143.191 Casement

	Option Description	SHGC			VT		
		No Grids	<1	>1	No Grids	<1	>1
1	Clear / Clear - SS,DS	0.58	0.52	0.48	0.60	0.54	0.49
2	Solar Bronze / Clear - SS,DS	0.46	0.42	0.38	0.44	0.40	0.36
3	Solar Gray / Clear - SS,DS	0.43	0.39	0.35	0.40	0.36	0.32
4	Clear / Clear - 5m	0.56	0.51	0.46	0.58	0.53	0.48
5	Solar Bronze / Clear - 5m	0.41	0.37	0.34	0.38	0.35	0.31
6	Solar Gray / Clear - 5m	0.37	0.34	0.31	0.33	0.30	0.27
7	035 / Clear - SS,DS	0.29	0.26	0.24	0.52	0.48	0.43
8	Clear / 035 - SS,DS	0.34	0.31	0.28	0.52	0.48	0.43
9	Solar Bronze / 035 - SS,DS	0.28	0.25	0.23	0.39	0.35	0.32
10	Solar Gray / 035 - SS,DS	0.26	0.24	0.22	0.35	0.32	0.29
11	035 / Clear - 5m	0.29	0.26	0.24	0.52	0.47	0.42
12	Clear / 035 - 5m	0.33	0.30	0.28	0.52	0.47	0.42
13	Solar Bronze / 035 - 5m	0.25	0.23	0.21	0.34	0.31	0.28
14	Solar Gray / 035 - 5m	0.23	0.21	0.20	0.29	0.26	0.24
15	041 / Clear - SS,DS	0.31	0.28	0.26	0.52	0.47	0.43
16	Clear / 041 - SS,DS	0.36	0.33	0.30	0.52	0.47	0.43
17	Solar Bronze / 041 - SS,DS	0.29	0.27	0.24	0.39	0.35	0.32
18	Solar Gray / 041 - SS,DS	0.27	0.25	0.23	0.35	0.32	0.28
19	041 / Clear - 5m	0.30	0.28	0.25	0.51	0.47	0.42
20	Clear / 041 - 5m	0.35	0.32	0.29	0.51	0.47	0.42
21	Solar Bronze / 041 - 5m	0.26	0.24	0.22	0.34	0.30	0.27
22	Solar Gray / 041 - 5m	0.24	0.22	0.20	0.29	0.26	0.24
23	027 / Clear - SS,DS	0.29	0.26	0.24	0.52	0.47	0.42
24	Clear / 027 - SS,DS	0.35	0.32	0.29	0.52	0.47	0.42
25	Solar Bronze - 027 - SS,DS	0.28	0.26	0.24	0.38	0.35	0.31
26	Solar Gray / 027 - SS,DS	0.26	0.24	0.22	0.34	0.31	0.28
27	027 / Clear - 5m	0.29	0.26	0.24	0.51	0.46	0.41
28	Clear / 027 - 5m	0.34	0.31	0.29	0.51	0.46	0.41
29	Solar Bronze / 027 - 5m	0.26	0.24	0.22	0.33	0.30	0.27
30	Solar Gray / 027 - 5m	0.24	0.22	0.20	0.28	0.26	0.23

Architectural Testing

SHGC/VT

143.191 Casement

	Option Description	SHGC			VT		
		No Grids	<1	>1	No Grids	<1	>1
31	204 / Clear - 5m	0.47	0.43	0.39	0.54	0.49	0.44
32	Clear / 204 - 5m	0.52	0.47	0.43	0.54	0.49	0.44
33	Solar Bronze / 204 - 5m	0.37	0.34	0.31	0.35	0.32	0.29
34	Solar Gray / 204 - 5m	0.34	0.31	0.28	0.30	0.28	0.25
35	154 / Clear - SS,DS	0.48	0.43	0.40	0.54	0.49	0.44
36	Clear / 154 - SS.DS	0.52	0.48	0.43	0.54	0.49	0.44
37	Solar Bronze / 154 - SS,DS	0.42	0.38	0.35	0.40	0.37	0.33
38	Solar Gray / 154 - SS,DS	0.38	0.35	0.32	0.36	0.33	0.30
39	154 / Clear - 5m	0.46	0.42	0.38	0.54	0.49	0.44
40	Clear / 154 - 5m	0.50	0.45	0.41	0.54	0.49	0.44
41	Solar Bronze / 154 - 5m	0.37	0.34	0.31	0.35	0.32	0.29
42	Solar Gray / 154 - 5m	0.33	0.30	0.28	0.30	0.28	0.25
43	044 / Clear - SS,DS	0.30	0.28	0.25	0.50	0.45	0.41
44	Clear / 044 - SS,DS	0.35	0.32	0.29	0.50	0.45	0.41
45	Solar Bronze - 044 - SS,DS	0.28	0.26	0.24	0.37	0.34	0.30
46	Solar Gray / 044 - SS,DS	0.26	0.24	0.22	0.33	0.30	0.27
47	044 / Clear - 5m	0.30	0.27	0.25	0.49	0.45	0.40
48	Clear / 044 - 5m	0.34	0.31	0.28	0.49	0.45	0.40
49	Solar Bronze / 044 - 5m	0.26	0.23	0.21	0.32	0.29	0.26
50	Solar Gray / 044 - 5m	0.24	0.22	0.20	0.28	0.25	0.23
51	Clear / Clear / Clear - SS	0.52	0.48	0.43	0.55	0.50	0.45
52	027 / Clear / Clear - SS	0.27	0.25	0.23	0.47	0.43	0.39
53	027 / 027 / Clear - SS	0.24	0.22	0.20	0.41	0.37	0.33

Notes :

1. "5m" stands for 3/16" glass thickness
3. Low-E's used:

    0.035 = PPG Solarban 60
    0.041 = Cardinal E172
    0.027 = Guardian RLE 71/38
    0.204 = AFG Comfort E2
    0.154 = LOF Advantage
    0.044 = Guardian PPII

Architectural Testing

SHGC/VT

143.191 Awning

	Option Description	SHGC			VT		
		No Grids	<1	>1	No Grids	<1	>1
1	Clear / Clear - SS,DS	0.58	0.52	0.48	0.60	0.54	0.49
2	Solar Bronze / Clear - SS,DS	0.46	0.42	0.38	0.44	0.40	0.36
3	Solar Gray / Clear - SS,DS	0.43	0.39	0.35	0.40	0.36	0.32
4	Clear / Clear - 5m	0.55	0.51	0.46	0.58	0.53	0.48
5	Solar Bronze / Clear - 5m	0.41	0.37	0.34	0.38	0.35	0.31
6	Solar Gray / Clear - 5m	0.37	0.34	0.31	0.33	0.30	0.27
7	035 / Clear - SS,DS	0.29	0.26	0.24	0.52	0.48	0.43
8	Clear / 035 - SS,DS	0.34	0.31	0.28	0.52	0.48	0.43
9	Solar Bronze / 035 - SS,DS	0.27	0.25	0.23	0.39	0.35	0.32
10	Solar Gray / 035 - SS,DS	0.26	0.24	0.22	0.35	0.32	0.29
11	035 / Clear - 5m	0.29	0.26	0.24	0.52	0.47	0.42
12	Clear / 035 - 5m	0.33	0.30	0.28	0.52	0.47	0.42
13	Solar Bronze / 035 - 5m	0.25	0.23	0.21	0.34	0.31	0.28
14	Solar Gray / 035 - 5m	0.23	0.21	0.19	0.29	0.26	0.24
15	041 / Clear - SS,DS	0.31	0.28	0.26	0.52	0.47	0.43
16	Clear / 041 - SS,DS	0.36	0.33	0.30	0.52	0.47	0.43
17	Solar Bronze / 041 - SS,DS	0.29	0.27	0.24	0.39	0.35	0.32
18	Solar Gray / 041 - SS,DS	0.27	0.25	0.23	0.35	0.32	0.28
19	041 / Clear - 5m	0.30	0.28	0.25	0.51	0.47	0.42
20	Clear / 041 - 5m	0.35	0.32	0.29	0.51	0.47	0.42
21	Solar Bronze / 041 - 5m	0.26	0.24	0.22	0.34	0.30	0.27
22	Solar Gray / 041 - 5m	0.24	0.22	0.20	0.29	0.26	0.24
23	027 / Clear - SS,DS	0.29	0.26	0.24	0.52	0.47	0.42
24	Clear / 027 - SS,DS	0.35	0.32	0.29	0.52	0.47	0.42
25	Solar Bronze - 027 - SS,DS	0.28	0.26	0.24	0.38	0.35	0.31
26	Solar Gray / 027 - SS,DS	0.26	0.24	0.22	0.34	0.31	0.28
27	027 / Clear - 5m	0.29	0.26	0.24	0.51	0.46	0.41
28	Clear / 027 - 5m	0.34	0.31	0.29	0.51	0.46	0.41
29	Solar Bronze / 027 - 5m	0.26	0.24	0.22	0.33	0.30	0.27
30	Solar Gray / 027 - 5m	0.24	0.22	0.20	0.28	0.26	0.23

Architectural Testing

SHGC/VT

143.191 Awning

	Option Description	SHGC			VT		
		No Grids	<1	>1	No Grids	<1	>1
31	204 / Clear - 5m	0.47	0.43	0.39	0.54	0.49	0.44
32	Clear / 204 - 5m	0.52	0.47	0.43	0.54	0.49	0.44
33	Solar Bronze / 204 - 5m	0.37	0.34	0.31	0.35	0.32	0.29
34	Solar Gray / 204 - 5m	0.34	0.31	0.28	0.30	0.28	0.25
35	154 / Clear - SS,DS	0.48	0.43	0.39	0.54	0.49	0.44
36	Clear / 154 - SS.DS	0.52	0.48	0.43	0.54	0.49	0.44
37	Solar Bronze / 154 - SS,DS	0.42	0.38	0.35	0.40	0.37	0.33
38	Solar Gray / 154 - SS,DS	0.38	0.35	0.32	0.36	0.33	0.30
39	154 / Clear - 5m	0.46	0.42	0.38	0.54	0.49	0.44
40	Clear / 154 - 5m	0.50	0.45	0.41	0.54	0.49	0.44
41	Solar Bronze / 154 - 5m	0.37	0.34	0.31	0.35	0.32	0.29
42	Solar Gray / 154 - 5m	0.33	0.30	0.28	0.30	0.28	0.25
43	044 / Clear - SS,DS	0.30	0.28	0.25	0.50	0.45	0.41
44	Clear / 044 - SS,DS	0.35	0.32	0.29	0.50	0.45	0.41
45	Solar Bronze - 044 - SS,DS	0.28	0.26	0.24	0.37	0.34	0.30
46	Solar Gray / 044 - SS,DS	0.26	0.24	0.22	0.33	0.30	0.27
47	044 / Clear - 5m	0.30	0.27	0.25	0.49	0.45	0.40
48	Clear / 044 - 5m	0.34	0.31	0.28	0.49	0.45	0.40
49	Solar Bronze / 044 - 5m	0.26	0.23	0.21	0.32	0.29	0.26
50	Solar Gray / 044 - 5m	0.23	0.22	0.20	0.28	0.25	0.23
51	Clear / Clear / Clear - SS	0.52	0.48	0.43	0.55	0.50	0.45
52	027 / Clear / Clear - SS	0.27	0.25	0.23	0.47	0.43	0.39
53	027 / 027 / Clear - SS	0.23	0.22	0.20	0.41	0.37	0.33

Notes :

1. "5m" stands for 3/16" glass thickness
3. Low-E's used:

0.035 = PPG Solarban 60
0.041 = Cardinal E172
0.027 = Guardian RLE 71/38
0.204 = AFG Comfort E2
0.154 = LOF Advantage
0.044 = Guardian PPII

Architectural Testing

SHGC/VT

143.191 Fixed

	Option Description	SHGC			VT		
		No Grids	<1	>1	No Grids	<1	>1
1	Clear / Clear - SS,DS	0.65	0.58	0.52	0.67	0.60	0.54
2	Solar Bronze / Clear - SS,DS	0.52	0.47	0.42	0.50	0.45	0.40
3	Solar Gray / Clear - SS,DS	0.48	0.43	0.39	0.45	0.40	0.36
4	Clear / Clear - 5m	0.63	0.56	0.50	0.66	0.59	0.53
5	Solar Bronze / Clear - 5m	0.46	0.42	0.37	0.43	0.39	0.34
6	Solar Gray / Clear - 5m	0.42	0.38	0.34	0.37	0.33	0.30
7	035 / Clear - SS,DS	0.32	0.29	0.26	0.59	0.53	0.47
8	Clear / 035 - SS,DS	0.38	0.35	0.31	0.59	0.53	0.47
9	Solar Bronze / 035 - SS,DS	0.31	0.28	0.25	0.44	0.39	0.35
10	Solar Gray / 035 - SS,DS	0.29	0.26	0.24	0.40	0.36	0.32
11	035 / Clear - 5m	0.32	0.29	0.26	0.58	0.52	0.46
12	Clear / 035 - 5m	0.37	0.34	0.30	0.58	0.52	0.46
13	Solar Bronze / 035 - 5m	0.28	0.26	0.23	0.38	0.34	0.30
14	Solar Gray / 035 - 5m	0.26	0.24	0.21	0.33	0.30	0.26
15	041 / Clear - SS,DS	0.34	0.31	0.28	0.59	0.53	0.47
16	Clear / 041 - SS,DS	0.41	0.37	0.33	0.59	0.53	0.47
17	Solar Bronze / 041 - SS,DS	0.33	0.30	0.27	0.44	0.39	0.35
18	Solar Gray / 041 - SS,DS	0.31	0.28	0.25	0.39	0.35	0.31
19	041 / Clear - 5m	0.34	0.31	0.28	0.58	0.52	0.46
20	Clear / 041 - 5m	0.40	0.36	0.32	0.58	0.52	0.46
21	Solar Bronze / 041 - 5m	0.30	0.27	0.24	0.38	0.34	0.30
22	Solar Gray / 041 - 5m	0.27	0.25	0.22	0.33	0.29	0.26
23	027 / Clear - SS,DS	0.32	0.29	0.26	0.58	0.52	0.46
24	Clear / 027 - SS,DS	0.40	0.36	0.32	0.58	0.52	0.46
25	Solar Bronze - 027 - SS,DS	0.32	0.29	0.26	0.43	0.39	0.34
26	Solar Gray / 027 - SS,DS	0.30	0.27	0.24	0.39	0.35	0.31
27	027 / Clear - 5m	0.32	0.29	0.26	0.57	0.51	0.46
28	Clear / 027 - 5m	0.39	0.35	0.31	0.57	0.51	0.46
29	Solar Bronze / 027 - 5m	0.29	0.26	0.24	0.37	0.33	0.30
30	Solar Gray / 027 - 5m	0.27	0.24	0.22	0.32	0.29	0.26

Architectural Testing

SHGC/VT

143.191 Fixed

	Option Description	SHGC			VT		
		No Grids	<1	>1	No Grids	<1	>1
31	204 / Clear - 5m	0.53	0.47	0.42	0.61	0.55	0.49
32	Clear / 204 - 5m	0.58	0.53	0.47	0.61	0.55	0.49
33	Solar Bronze / 204 - 5m	0.42	0.38	0.34	0.40	0.36	0.32
34	Solar Gray / 204 - 5m	0.38	0.34	0.31	0.34	0.31	0.27
35	154 / Clear - SS,DS	0.54	0.48	0.43	0.61	0.55	0.49
36	Clear / 154 - SS.DS	0.59	0.53	0.47	0.61	0.55	0.49
37	Solar Bronze / 154 - SS,DS	0.47	0.42	0.38	0.46	0.41	0.36
38	Solar Gray / 154 - SS,DS	0.43	0.39	0.35	0.41	0.37	0.33
39	154 / Clear - 5m	0.52	0.47	0.42	0.61	0.54	0.48
40	Clear / 154 - 5m	0.56	0.50	0.45	0.61	0.54	0.48
41	Solar Bronze / 154 - 5m	0.42	0.37	0.34	0.40	0.36	0.32
42	Solar Gray / 154 - 5m	0.37	0.34	0.30	0.34	0.31	0.27
43	044 / Clear - SS,DS	0.34	0.31	0.28	0.57	0.51	0.45
44	Clear / 044 - SS,DS	0.39	0.35	0.32	0.57	0.51	0.45
45	Solar Bronze - 044 - SS,DS	0.32	0.29	0.26	0.42	0.37	0.33
46	Solar Gray / 044 - SS,DS	0.29	0.27	0.24	0.38	0.34	0.30
47	044 / Clear - 5m	0.34	0.30	0.27	0.56	0.50	0.44
48	Clear / 044 - 5m	0.38	0.34	0.31	0.56	0.50	0.44
49	Solar Bronze / 044 - 5m	0.29	0.26	0.23	0.36	0.32	0.29
50	Solar Gray / 044 - 5m	0.26	0.24	0.22	0.31	0.28	0.25
51	Clear / Clear / Clear - SS	0.59	0.53	0.48	0.62	0.56	0.50
52	027 / Clear / Clear - SS	0.31	0.28	0.25	0.54	0.48	0.43
53	027 / 027 / Clear - SS	0.26	0.24	0.22	0.46	0.41	0.37

Notes :

1. "5m" stands for 3/16" glass thickness
3. Low-E's used:

0.035 = PPG Solarban 60
0.041 = Cardinal E172
0.027 = Guardian RLE 71/38
0.204 = AFG Comfort E2
0.154 = LOF Advantage
0.044 = Guardian PPII

This report is reissued in the name of Earthwise Group, L.L.C. through written authorization of Dayton Technologies to whom the original report was rendered. The original Dayton Report No. is 54092.01-116-45.

This simulation method does not include procedures to determine the Condensation Resistance due to either air movement through the specimen or solar radiation effects. As a consequence, the Condensation Resistance results obtained do not reflect performance which may be expected from field installations because they do not account for solar radiation, air leakage effects, and the thermal bridge effects that may occur due to the specific design and construction of the fenestration system opening. Therefore, it should be recognized that the Condensation Resistance results obtained from this simulation method are for controlled laboratory conditions and should only be used for fenestration product comparisons and as input to condensation resistance performance analyses, which also include solar, air leakage and thermal bridge effects.

Ratings included in this report are for submittal to an NFRC-licensed IA for certification purposes and are not meant to be used for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) are to be used for labeling purposes.

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For ARCHITECTURAL TESTING, INC.:

SIMULATED BY:

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Eric Leitner
Simulation Technician

REVIEWED BY:

Digitally Signed for: Michael J. Thoman by Samantha S. Rudler

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

EL:ssr
54092.03-116-45

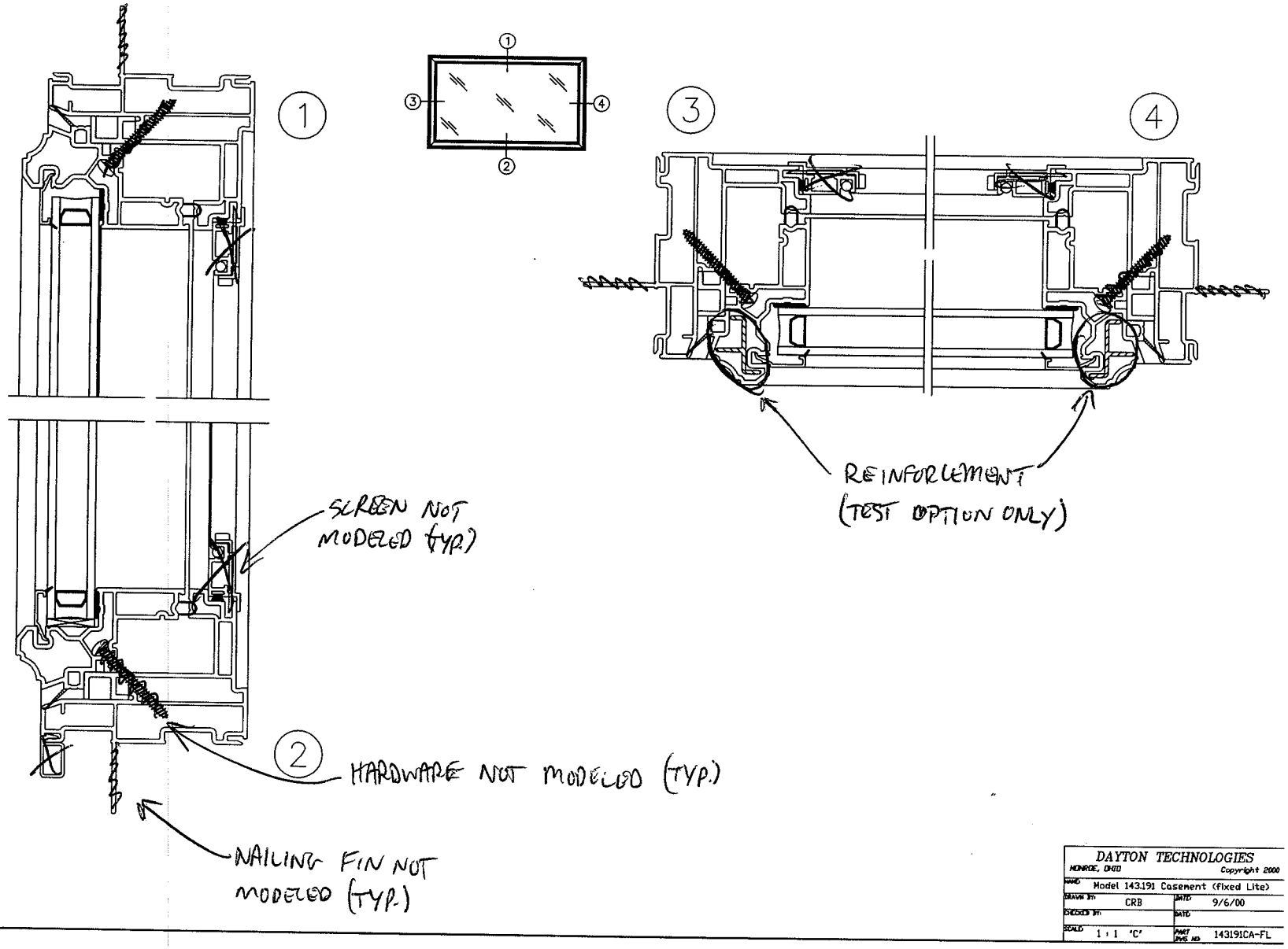
Attachments (pages):
Appendix A: Drawings and Bills of Material (18)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	4/25/2005	All	Reissue .01 report to Earthwise with only their glazing options

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

APPENDIX A



DAYTON TECHNOLOGIES		
MONROE, OHIO		Copyright 2000
NAME	Model 143.191 Casement (fixed Lite)	
DRAWN BY	CRB	DATE 9/6/00
CHECKED BY		DATE
SCALE	1 : 1 'C'	PART DWG NO 143191CA-FL

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092

Date 4/22/05 Tech ES

143.191 CA_FIXED LITE - BILL OF MATERIALS

ITEM NO.	DESCRIPTION	QUANTITY	PART NO.	FAB DWG. NO	SOURCE
1	HEAD	1	P8052 ✓	P8052F07	A
2	SILL	1	P8052	P8052F07	A
3	LOCK JAMB	2	P8052	P8052F07	A
4	OPTIONAL CENTERBAR	1	P5739	P5739F01	A
5	TOP RAIL	1	P5491 ✓	P5491F07	A
6	BOTTOM RAIL	1	P5491	P5491F08	A
7	KEEPER STILE	1	P5491	P5491F07	A
8	HINGE STILE	1	P5491	P5491F07	A
9	GLAZING BEAD	4	P8127 ✓	P8127F01	A
10	OPTIONAL "J" ACCESSORY	4	P8287	P8287F01	A
11	SASH REINFORCEMENT	As Req'd	10500006 ✓	10500006F01	OOO
12	FRAME REINFORCEMENT	OPT.	10202004	10202004F01	OOO
13	CENTERBAR REINFORCEMENT	As Req'd	10300028		OOO
14	3/4" INSULATED GLASS	1			R
15	GLAZING TAPE	AS REQ'D	V982 (3/8" WIDE)		EE
16	SETTING BLOCKS	AS REQ'D	1/8" x 3/4"		W
17	(REFER TO IG SUPPLIER GUIDELINES)				
18					
19	SCREEN ASSEMBLY	1	TBD	TBD	TBD
20					
21	FIXED LITE SPACER	4	P1200	P120001	A
22					
23					
24					
25					
26					

Rev	Date	Description	By

DAYTON TECHNOLOGIES
MONROE, OH

NAME:	143191CA_FIXED LITE
DWN BY:	CRB 9/6/2000
CHKD BY:	
DWG NO:	143191CA_FL

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 540092
Date 4/22/05 Tech ESL

UNLESS OTHERWISE NOTED THE FOLLOWING TOLERANCES APPLY

.001 – .100	±.005	1.001 – 1.500	±.020
.101 – .500	±.010	1.501 – 2.000	±.025
.501 – 1.000	±.015	2.001 – & UP	±.030

UNSPECIFIED ANGLES ±1° – WOODGRAIN SURFACES ADD .007" ——— = EXPOSED SURFACE ——— = WOODGRAIN SURFACE

COLOR o WH X DS o EB o EW X OTH CREME WHITE #205

PART WT. (LBS/FT)	RIGID	CAP	FLEX	ALUM	STEEL	TOTAL
	.701	---	---	---	---	.701

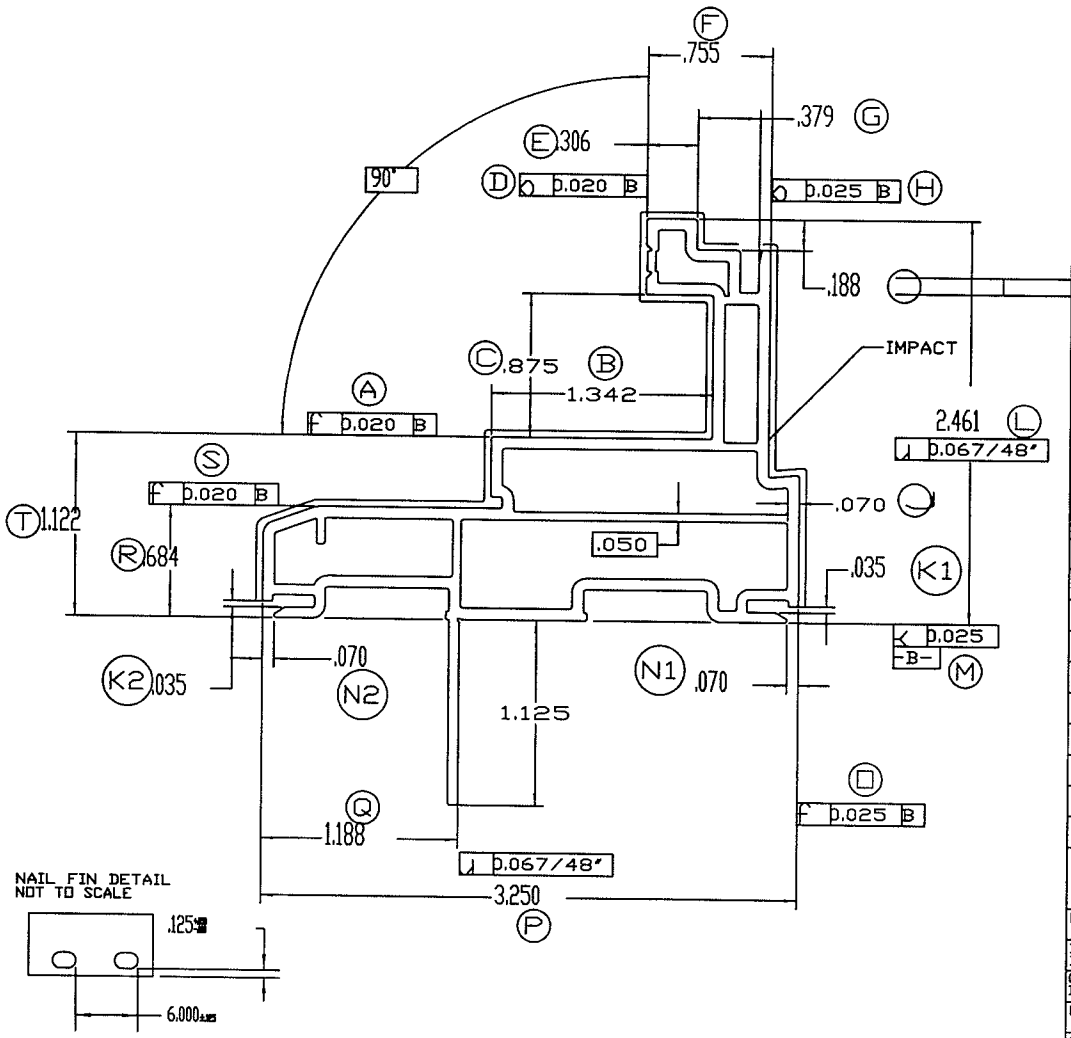
PROFILE: P8052

REVISIONS

REV	DESCRIPTION	DATE	ENG.
B	---	---	---

FITS WITH: P8052, P5491

IMPACT AREA: NOTED



NAIL FIN DETAIL
NOT TO SCALE

CONTROL DIMENSIONS

DIM	METH	MIN	ENG	MAX	DIM	METH	MIN	ENG	MAX
A	V	⏥.020 B			U				
B	V	1.323	1.343	1.363	V				
C	V	.860	.875	.890	W				
D	V	⌀.020 B			X				
E	V	.296	.306	.316	Y				
F	V	.740	.755	.770	Z				
G	V	.369	.379	.389	AA				
H	V	⌀.025 B			BB				
I	V	.168	.188	.208	CC				
J	V	.060	.070	.080	DD				
K2	V	.025	.035	.045	EE				
L	V	2.436	2.461	2.486	FF				
M	V	⌀.025			GG				
N2	V	.050	.070	.090	HH				
O	V	⌀.025 B			II				
P	V	3.225	3.250	3.275	JJ				
Q	V	1.168	1.188	1.208	KK				
R	V	.669	.684	.709	LL				
S	V	⏥.020 B			MM				
T	V	1.102	1.122	1.142	NN				

Dayton TECHNOLOGIES
A MEMBER OF THE MAGNATECH GROUP

351 N. GARVER RD.
MONROE, OHIO 45050

NAME:	MAIN FRAME - CA		
DRAWN BY:	CRB	DATE:	8/28/00
CHECKED BY:		DATE:	
FILENAME:	/pd/ug/profiles/p8052.prt		
SCALE:	1 : 1	DWG NO:	p8052.prtA

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092
Date 4/22/05 Tech BL

UNLESS OTHERWISE NOTED THE FOLLOWING TOLERANCES APPLY

.001 – .100	±.005	1.001 – 1.500	±.020
.101 – .500	±.010	1.501 – 2.000	±.025
.501 – 1.000	±.015	2.001 – & UP	±.030

UNSPECIFIED ANGLES ±1° – WOODGRAIN SURFACES ADD .007"

– – – – = EXPOSED SURFACE –·—·– = WOODGRAIN SURFACE

COLOR ☒ WH ☒ DS ☐ EB ☐ EW ☒ OTH PEARL WHITE (290)

PART WT. (LBS/FT)	RIGID	CAP	FLEX	ALUM	STEEL	TOTAL
	.453	---	.018	---	---	.469

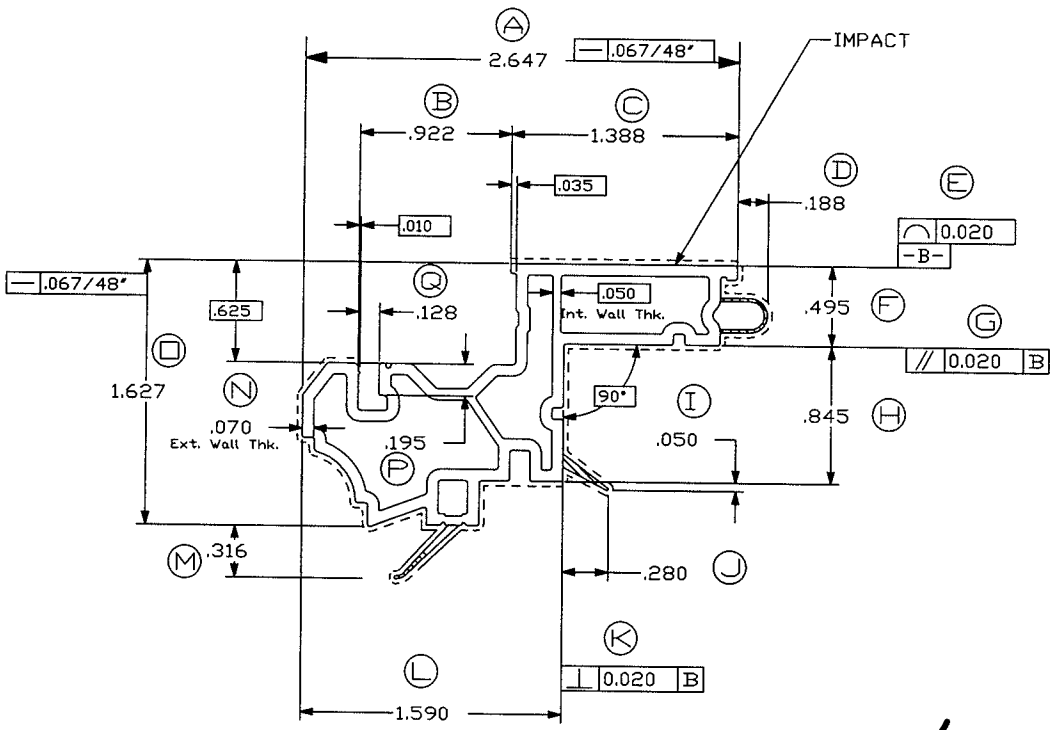
PROFILE: P5491

REVISIONS

REV	DESCRIPTION	DATE	ENG.
⊟	----	---	---

FITS WITH: 8127, 5491, 8056

IMPACT AREA: NOTED



CONTROL DIMENSIONS

DIM	METH	MIN	ENG	MAX	DIM	METH	MIN	ENG	MAX
A	V	2.622	2.647	2.672	U				
B	V	.907	.922	.937	V				
C	V	1.373	1.388	1.403	W				
D	V	.178	.188	.198	X				
E	V	⌒ 0.020			Y				
F	V	.485	.495	.505	Z				
G	V	// .020 B			AA				
H	V	.835	.845	.855	BB				
I	V	P5484DP-1			CC				
J	V	P5484DP-1			DD				
K	V	⊥ .020 B			EE				
L	V	1.565	1.590	1.615	FF				
M	V	P5484DP-1			GG				
N	V	.060	.070	.080	HH				
O	V	1.602	1.627	1.652	II				
P	V	.185	.195	.205	JJ				
Q	V	.118	.128	.138	KK				
R					LL				
S					MM				
T					NN				

Dayton TECHNOLOGIES
A MEMBER OF THE DECEUNINCK GROUP

351 N. GARVER RD.
MONROE, OHIO 45050

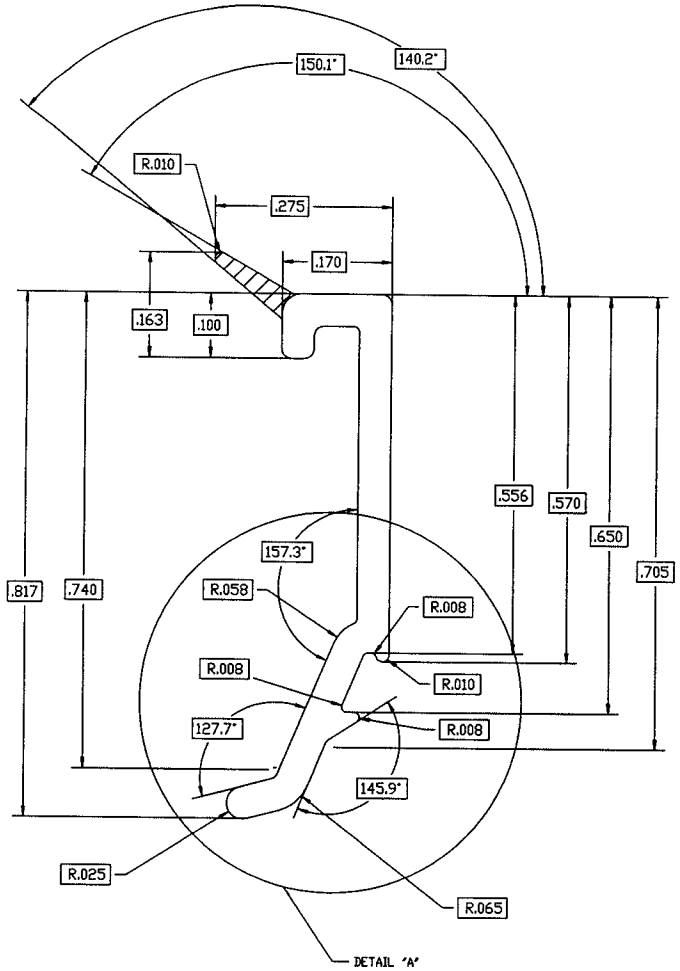
NAME:	MAIN SASH – CA		
DRAWN BY:	CRB	DATE:	7/19/00
CHECKED BY:		DATE:	
FILENAME:	/pd/ug/profiles/p5491.prt		
SCALE:	1 : 1	DWG NO:	p5491.prt A

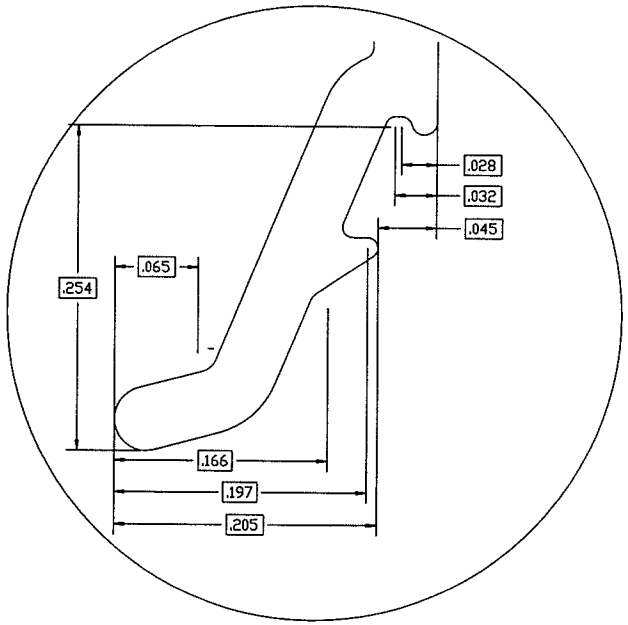
Architectural Testing

Test samples complies with these details.
Deviations are noted.

Report# 54092
Date 4/22/05 Tech ES

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.





DETAIL 'A'
SCALE 16:1

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092

Date 4/22/05 Tech 31

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOL ON ANGLE ± 1°
2 PL ± .01 3 PL ± .005
INTERPRET DIM AND TOL PER
ASME Y14.5M - 1994
THIRD ANGLE PROJECTION

DESIGN BY:	ASD, PGM
DATE:	90/10/19
DRAWN BY:	CRB
DATE:	02/12/02
AUTH:	
DATE:	
FILENAME:	Hpd/cad/parts/8127/10008127_SH3

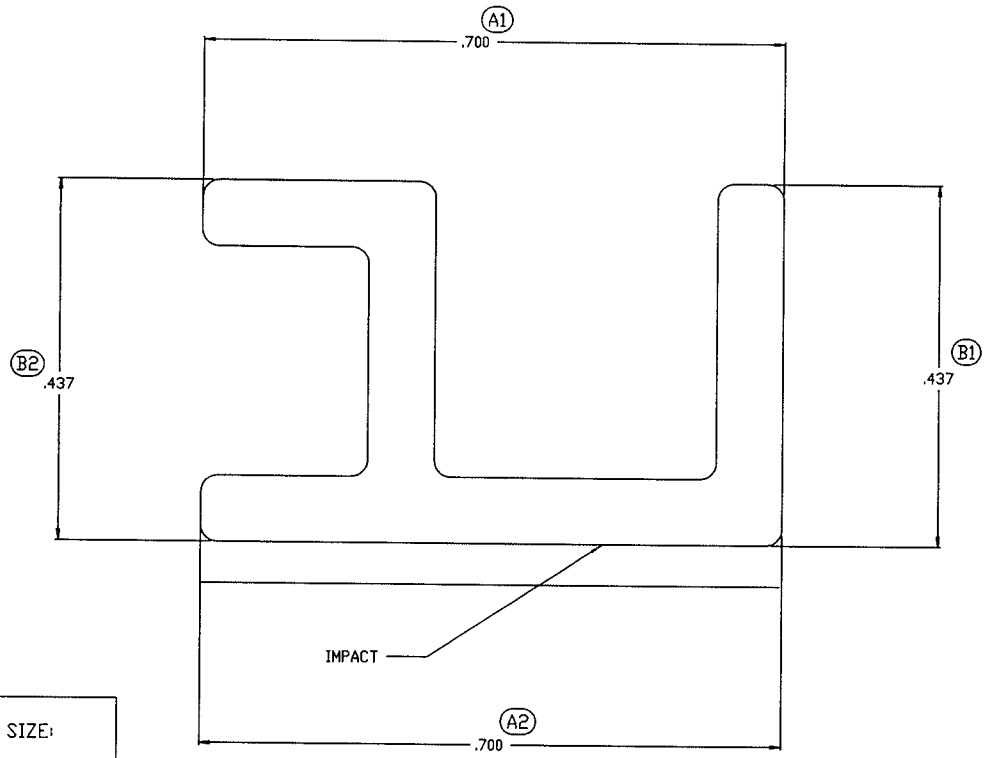
Dayton TECHNOLOGIES | deceuninck NORTH AMERICA

NAME: GLAZING BEAD

C	DWG. NO: 10008127	REV: -
SCALE: 8 : 1	WEIGHT: LBS/FT: ----	SHEET: 3

UNLESS OTHERWISE NOTED THE FOLLOWING TOLERANCES APPLY
.001 - .100 ± .005 1.001 - 1.500 ± .020
.101 - .500 ± .010 1.501 - 2.000 ± .025
.501 - 1.000 ± .015 2.001 - & UP ± .030
UNSPECIFIED ANGLES ± 1° - WOODGRAIN SURFACES ADD .007

—— = EXPOSED SURFACE —— = WOODGRAIN SURFACE



ACTUAL SIZE:

REV.	DATE	DESCRIPTION	BY
A	9/28/95	NEW TITLE BLOCK	CRB

FITS WITH: N/A

BOV CLASS: B IMPACT AREA: NOTED

CONTROL DIMENSIONS

DIM	METH	MIN	ENG	MAX	DIM	METH	MIN	ENG	MAX
A	C-D	.670	.700	.730	X				
B	C-D	.422	.437	.452	Y				
C					Z				
D					AA				
E					BB				
F					CC				
G					DD				
H					EE				
I					FF				
J					GG				
K					HH				
L					II				
M					JJ				
N					KK				
O					LL				
P					MM				
Q					NN				
R					OO				
S					PP				
T					QQ				
U					RR				
V					SS				
W					TT				

	Rigid:	Cap:	Flex:	Alum:	Total
Part Wt. (Lbs/Ft)	.081	----	----	----	.081
	----	----	----	----	----

DAYTON TECHNOLOGIES
AN ALCOA COMPANY
MONROE, OHIO

NAME: CASEMENT PICTURE WINDOW SPACER

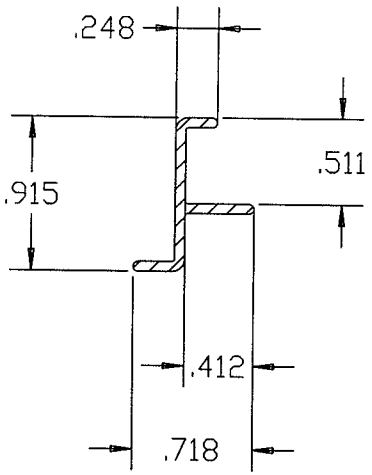
DRAWN BY:	MTC	DATE:	2/14/90
CHECKED BY:		DATE:	
SCALE:	8 : 1 "B"	COLOR:	☐WH ☐DS ☐LB ☐EV ☐OTH
CUST. PART NO.	1200	PART DWG. NO.	P1200-A

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 540912

Date 4/22/05 Tech LBL



NOTES:
1. This print contains proprietary information. Do not copy without express written consent of DAYTON TECHNOLOGIES.
2. DAYTON TECHNOLOGIES reserves the right to change specifications.

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092

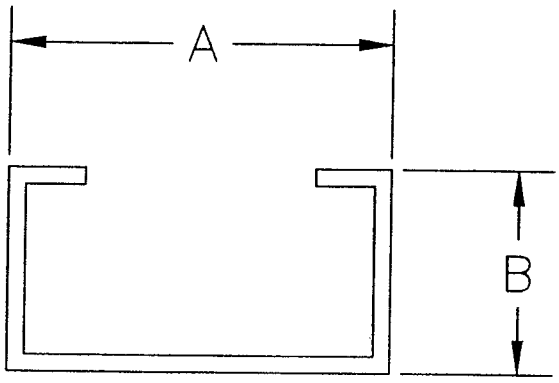
Date 4/22/05 Tech EJL

				AREA:	.102 Sq. In.		
				WEIGHT	.122 Lb / Ft.		
A	2/16/00	Corrected Scale	RH	Standard Commercial Tolerances Apply Unless Otherwise Noted			
Rev.	Date	Description	By				

DAYTON TECHNOLOGIES
MONROE, OHIO

NAME: 10500006	
DWN BY: RH	DWG NO: 10500006-A
AUTH:	AUTH. DATE:
DATE: 12/1/99	SCALE: 1 : 1 "A"
PART NO: 10500006	DIE NO: -----

SPACER



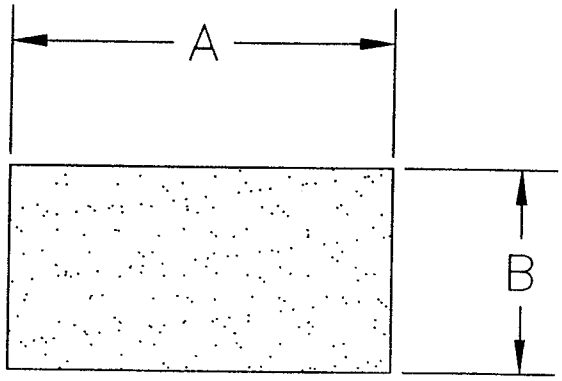
...aterial: STEEL
Width (A): 0.512", 0.45", 0.325"
Height (B): 0.300"
Wall Thickness: 0.010"

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092
Date 4/22/05 Tech ESL

SPACER



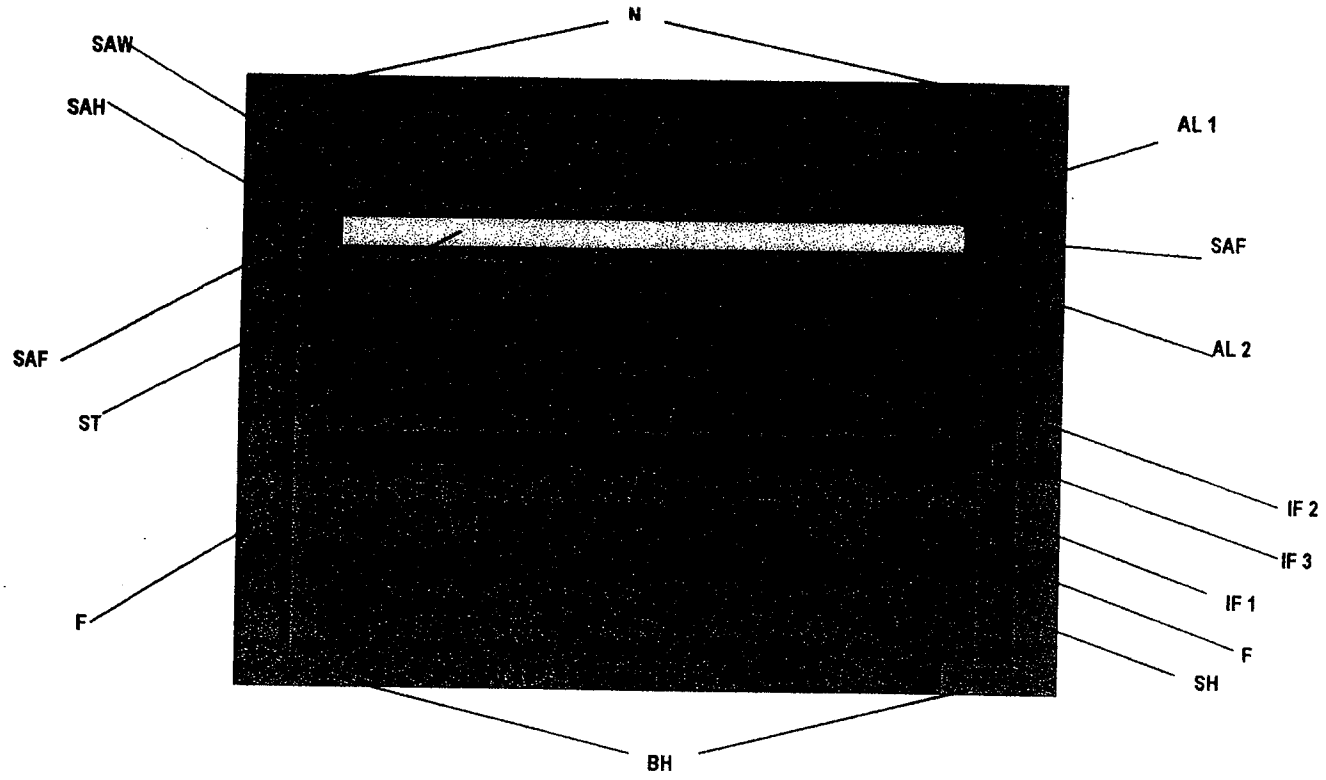
Material: SILICONE FOAM
Width (A): 0.563, 0.500, 0.375
Height (B): 0.188
Wall Thickness: N/A

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092
Date 4/22/05 Tech ESL

Legend



	Description	Material and Conductivity Imp	SI
N	71X	Butyl 1.603 Btu in/hr ft^2 °F	0.231 W/m/°C
BH	71X	Butyl 1.603 Btu in/hr ft^2 °F	0.231 W/m/°C
TL	71X	Butyl 1.603 Btu in/hr ft^2 °F	0.231 W/m/°C
SAW	Moisture vapour barrier	Default polyethylene	Default polyethylene
SAH	Moisture vapour barrier	Default polyethylene	Default polyethylene
ST	Stiffener	Polypropylene 1.53 Btu in/hr ft^2 °F	0.221 W/m/°C
SH	Shim	Default aluminum	Default aluminum
AL 1 2	Adhesive	Butyl 1.603 Btu in/hr ft^2 °F	0.231 W/m/°C
AC 1 3 4	**Default cavity**	**Default cavity**	
AC 2	**still air**	**still air – default conductivity**	**default still air***
SAF	Adhesive	Butyl 1.603 Btu in/hr ft^2 °F	0.231 W/m/°C
IF 1 2 3	Adhesive	Butyl 1.603 Btu in/hr ft^2 °F	0.231 W/m/°C
F	Adhesive	Butyl 1.603 Btu in/hr ft^2 °F	0.231 W/m/°C

*** Corrected from previous version**

If there are questions regarding this document please call

Rich Warren
Technical Service
TruSeal Technologies
416 438 1858
888 257 7610

Architectural Testing

Test sample complies with these details.
Deviations noted.

Report# 54092

Date 4/22/05 Tech. CBC

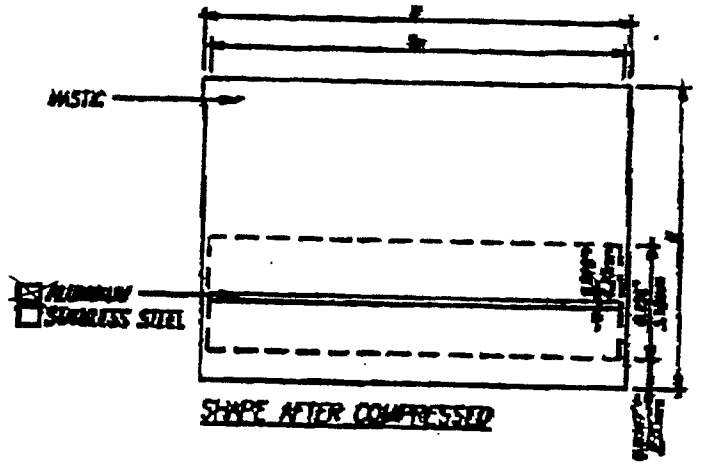
Airspace	PROD. CODE	Imperial				Metric			
		Decimal Airspace	Qty	W	H	Decimal Airspace	Qty	W	H
3/16	188	0.188	1.173	0.188-0.217	0.281-0.3	4.80	4.38	4.80-5.51	7.38-7.62
15/64	238	0.234	0.219	0.236-0.265	0.281-0	5.90	5.64	5.94-6.65	7.38-7.62
1/4	258	0.250	0.235	0.250-0.279	0.283-0	6.40	6.07	6.35-7.06	7.18-7.42
5/16	318	0.313	0.298	0.313-0.342	0.283-0	7.90	7.56	7.95-8.66	7.18-7.42
11/32	348	0.344	0.329	0.344-0.37	0.283-0	8.70	8.35	8.73-9.43	7.18-7.42
3/8	378	0.375	0.360	0.375-0.404	0.283-0	9.50	9.14	9.53-10.25	7.18-7.42
13/32	418	0.406	0.407	0.406-0.435	0.283-0	10.30	10.34	10.31-11.05	7.18-7.42
7/16	438	0.438	0.423	0.438-0.467	0.283-0	11.10	10.73	11.12-11.86	7.18-7.42
15/32	478	0.469	0.454	0.469-0.498	0.283-0	11.90	11.53	11.91-12.65	7.18-7.42
31/64	498	0.484	0.469	0.489-0.513	0.283-0	12.30	11.93	12.19-12.93	7.18-7.42
1/2	518	0.500	0.485	0.505-0.531	0.283-0	12.70	12.32	12.70-13.48	7.18-7.42
17/32	538	0.531	0.515	0.531-0.560	0.281-0	13.50	13.09	13.48-14.22	7.38-7.62
9/16	568	0.563	0.548	0.563-0.592	0.281-0	14.30	13.91	14.30-15.04	7.38-7.62
37/64	578	0.578	0.563	0.588-0.618	0.281-0	14.68	14.24	14.47-15.21	7.38-7.62
5/8	618	0.625	0.610	0.625-0.654	0.281-0	15.90	15.48	15.88-16.61	7.38-7.62
11/16	668	0.688	0.673	0.688-0.717	0.281-0	17.50	17.09	17.48-18.21	7.38-7.62
13/16	818	0.813	0.798	0.813-0.842	0.281-0	20.65	20.28	20.65-21.39	7.38-7.62
This Usage:									

Architectural Testing

Test sample complies with these details. Deviations noted.

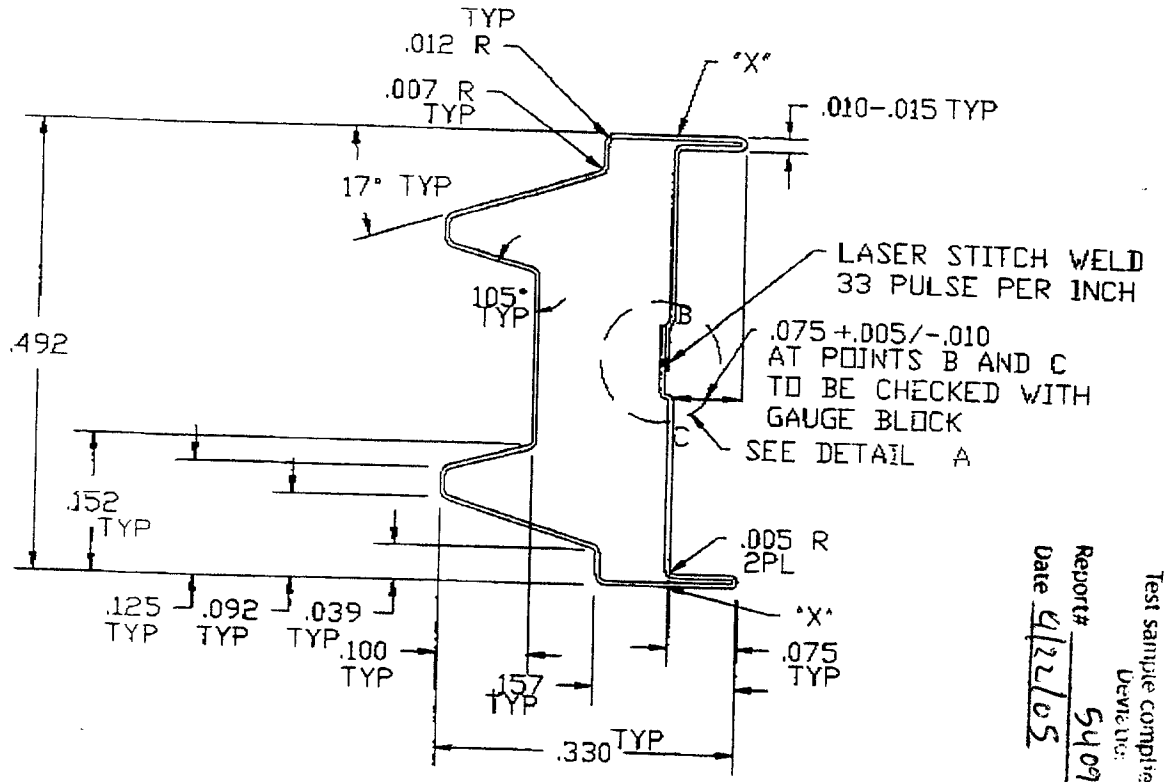
Report# 54092

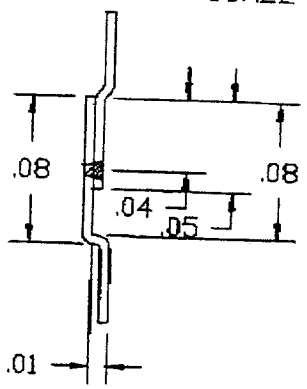
Date 4/22/05 Tech BK



SHAPE AFTER COMPRESSED

TRUSEAL Technologies	PROJECT NAME: SPACER LIBRARY FOR SIMULATORS	DRAWING TITLE: SWIGGLE SINGLE SEAL	DRAWN BY: E.A.E.	DATE: 29 SEPT 00
			CHECKED BY: M.H.	SCALE: N.T.S.
				PROJECT NO.: TRUOOSW
				DRAWING NO.: 1





NOTE:

1. MATERIAL: 201 STAINLESS STEEL, .0050 +/-.00025 WALL THICKNE ANNEALED TEMPER, 1 CBA FINISH.
2. LASER STITCH WELD 33 PULSE PER INCH, NO EXTERIOR FLASH, NO THROUGH BURNS.
3. SURFACES LABELED "X" MUST BE PARALLEL TO EACH OTHER.
4. SPACER MUST BE CLEAN AND FREE OF DIRT AND OILS.

Architectural Testing

Test sample complies with these details.
Deviations noted.

Report# 54092
Date 4/22/05 Tech EBL

REV.	DATE	DESCRIPTION	BY
C	12/9/93	REDRAWN	WAZ
B	3/12/93	P/N WAS 30-130	WAZ
A	2/8/93	P/N WAS 1210 SST U-BACK	WAZ
—	1/10/91	RELEASED	WAZ

CARDINAL IG

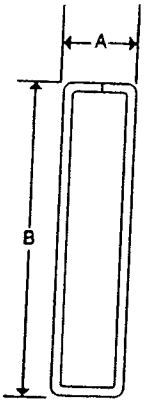
TITLE: 13.0mm SST U SPACER
SCALE: 5X | DATE: 1/10/91 | DRAWN BY: SC | APPROV
TOLERANCES: XXX=+/-.005
PART: 33-130

ALLMETAL

ıntin Bar

Painted, Mill Finish and Anodized Aluminum

TOLERANCE
A, ±.005 .127mm
B, ±.005 .127mm



FRACTIONAL
DECIMAL IN INCHES

Size	A	B
3/16x1/2	.187	.500
3/16x9/16	.187	.551
3/16x5/8	.187	.630
* 3/16x.610	.187	.610
3/16x3/4	.187	.775
3/16x13/16	.187	.801
3/16x1	.187	1.000
1/4x5/16	.235	.313
1/4x9/16	.235	.562
1/4x5/8	.235	.625
1/4x3/4	.235	.765
1/4x1	.235	1.000
3/8x5/8	.325	.625
3/8x3/4	.325	.750
3/8x7/8	.325	.875
3/8x1	.325	1.000
1/2x3/4	.500	.750
1/2x1/2	.500	.500
1/2x1	.500	1.000
7/16x3/8	.425	.375
7/16x5/8	.438	.625
7/16x1	.438	1.000
5/8x5/8	.625	.625

* Available in Tutone

The seller hereby expressly disclaims all warranties either expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose. Products are sold "As Is" and on the condition that the purchasers shall make their own tests to determine the merchantability of such products and their fitness for any particular purpose. The liability of ALLMETAL, INC. for special, indirect or consequential damages for injury to a property for any reason or for any other loss resulting from a product defect or failure shall be limited to the purchase price of the product.

SPECIAL NOTICE
Cleaning and Handling of Muntin Bar

We recommend muntin bar to be wiped clean before installation into an insulating glass unit. A household grade liquid cleaner may be used for this purpose.

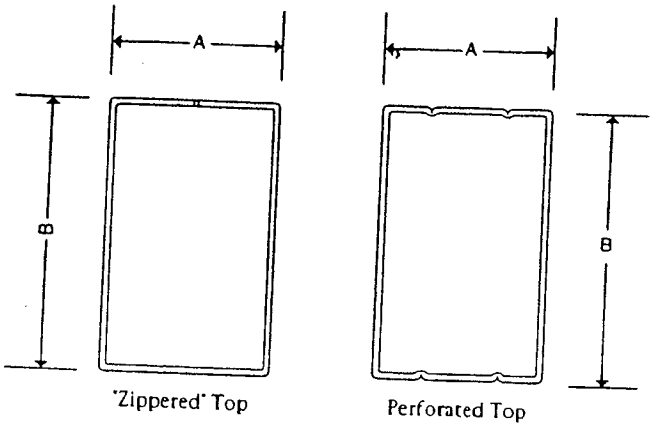
To avoid breakdown of painted surfaces, do not use M.E.K., Triethane, Alcohol or like substances for the cleaning of painted muntin bar.

When machining and processing muntin bar in your plant, keep saw tables and work areas free of saw cut filings to avoid scratching the painted surfaces.

M ıtin Bar-ZT & PT – Laser-Welded

Mill Finish and Anodized Aluminum

TOLERANCE



FRACTIONAL
DECIMAL IN INCHES

Size	A	B
.187 x .500	.187	.500
.187 x .625	.187	.625
.187 x .750	.187	.750
.187 x 1.00	.187	1.00
.235 x .500	.235	.500
.235 x .625	.235	.625
.235 x 1.00	.235	1.00
.250 x .750	.250	.750
.312 x .500	.312	.500
.312 x .625	.312	.625
.325 x .500	.325	.500
.325 x .625	.325	.625
.325 x .750	.325	.750
.325 x .875	.325	.875
.325 x 1.00	.325	1.00
.375 x .500	.375	.500
.375 x .625	.375	.625
.437 x .500	.437	.500
.500 x .500	.500	.500
.437 x .625	.437	.625
.625 x .625	.625	.625

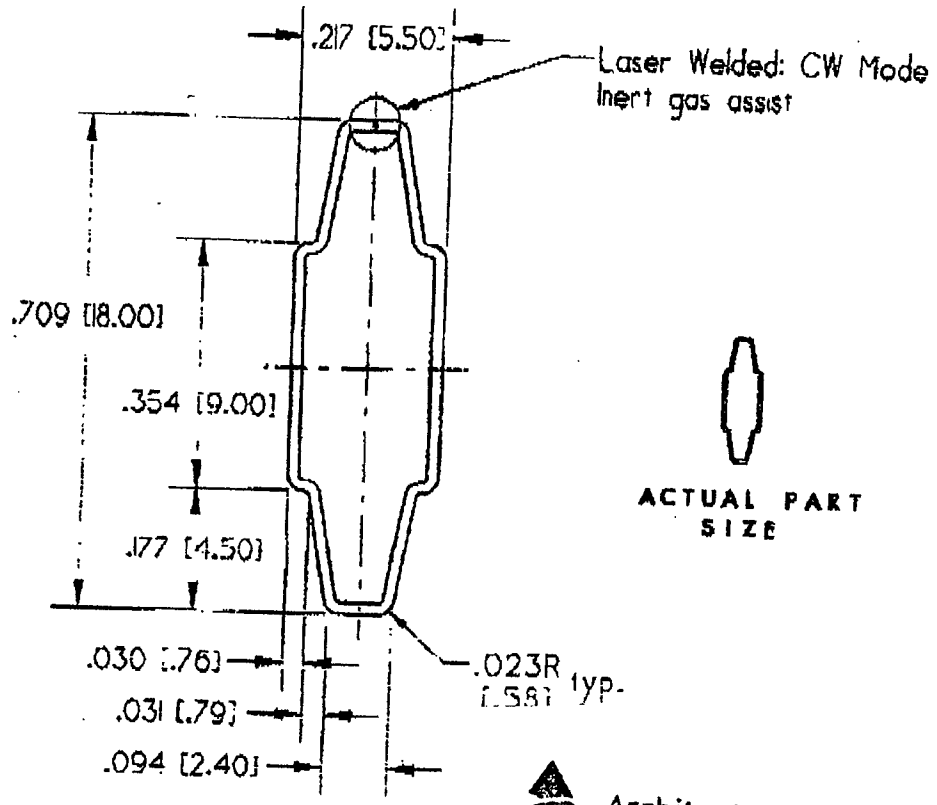
Muntin B

Architectural Testing

Test sample complies with these details.
Deviations noted.

Report# 54092
Date 4/22/05 Tech [illegible]

NOTE: ALL DIMENSIONS IN [ ] BRACKETS ARE MM UNLESS NOTED



ACTUAL PART SIZE

Architectural Testing

Test sample [illegible] these details.
[illegible] ted.

Report# 54092

Date 4/22/05 Tech ESL

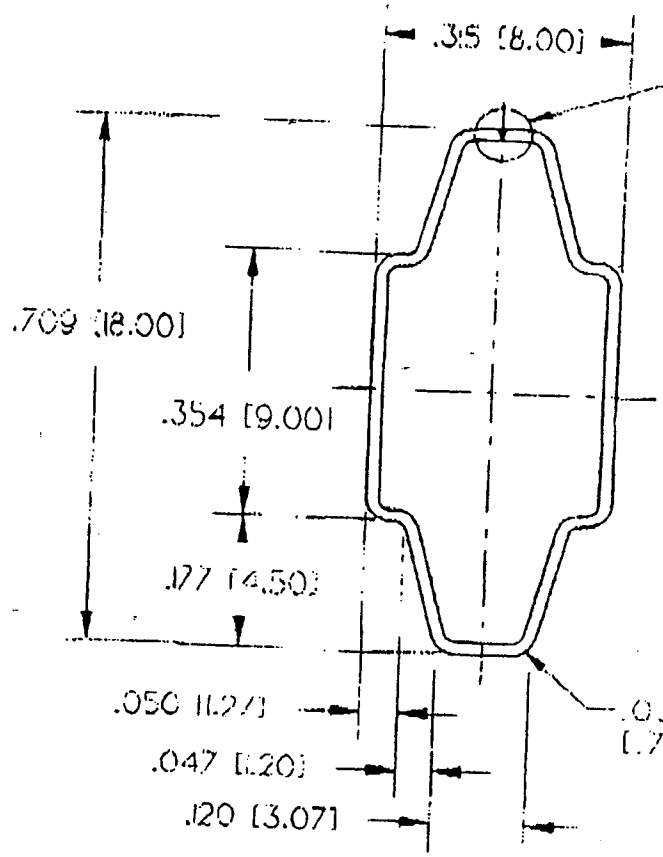
DATE	SYM.	REVISION	AUTH.	DRN.	CK.
4/17/97		Weld note changed. Title block changed		GRM	
12/9/92		Initial Release		GRM	

ALLMETAL

TOLERANCES EXCEPT AS NOTED DECIMAL INCHES .XX ±.01 .XXX ±.005 .XXXX ±.0002 DECIMAL MM .XX ±.13 .XXX ±.06 ANGULAR ± °	TITLE: 5.5 x 18mm Contour Muntin Bar (CMB)		DRN. BY G. Matthews CK. BY APPR. BY S.O. NO.
	MATL. .016" [.41mm] 3105 Aluminum	FINISH FULL RANGE (MILL, ANOD., PAINTED)	
	SCALE 4:1	DATE 4/17/97	DWG. NO. 10203010I0XX255

FILENAME:CMB5518J

NOTE: ALL DIMENSIONS IN [ ] BRACKETS ARE MM UNLESS NOTED



ACTUAL PART SIZE

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092

Date 4/22/05 Tech 132

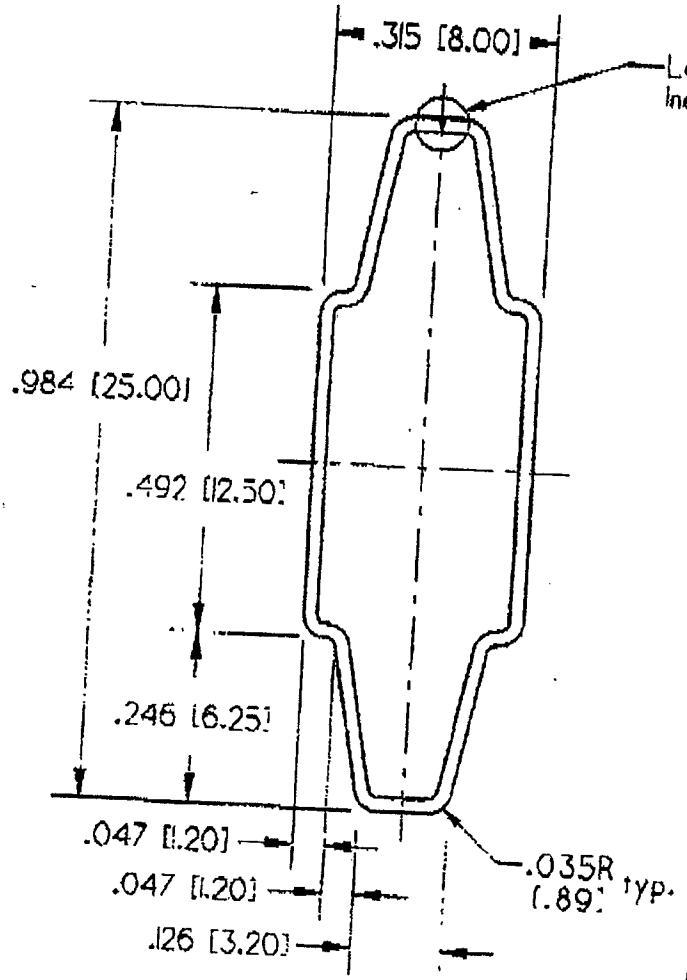
DATE	SYM.	
4/17/97		Weld note changed. T
12/9/97		Initial Release

ALLMETAL

TOLERANCES EXCEPT AS NOTED	TITLE	DRN. BY G. Matthews
DECIMAL INCHES .XX .XXX .XXXX ± .01 .005 .0002	8 x 18mm Contour Muntin Bar (CMB)	CK. BY
DECIMAL MM .XX .XXX ± .13 .06	MATL. .016" [.41mm] 3105 Aluminum	APPR. BY
ANGULAR ± 1°	FINISH FULL RANGE (MILL, ANOD., PAINTED)	S.O. NO.
	SCALE 4:1 / DATE 4/17/97 / DWG. NO. 1020301010XX280	

FILENAME: CMB818J

NOTE: ALL DIMENSIONS IN [ ] BRACKETS ARE MM UNLESS NOTED



ACTUAL PART SIZE

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092

Date 4/22/05 Tech GC

DATE	SYM.	REVISION	AUTH.	DRN.	CK.
4/17/97		Weld note changed. Title block changed		GRM	
4/1/95		Gauge changed from .016 to .020		GRM	
12/9/92		Initial Release		GRM	

ALLMETAL

TOLERANCES EXCEPT AS NOTED
DECIMAL INCHES .XX ±.01 .XXX ±.005 .XXXX ±.0002
DECIMAL MM .XX ±.13 .XXX ±.05
ANGULAR ±1°

TITLE: 8 x 25mm Contour Muntin Bar (CMB)

MATL. .020" [.51mm] 3105 Aluminum

FINISH FULL RANGE (MILL, ANOD., PAINTED)

SCALE 4:1

DATE 4/17/97

DWG. NO. 10203010I0XX380

DRN. BY G. Matthews

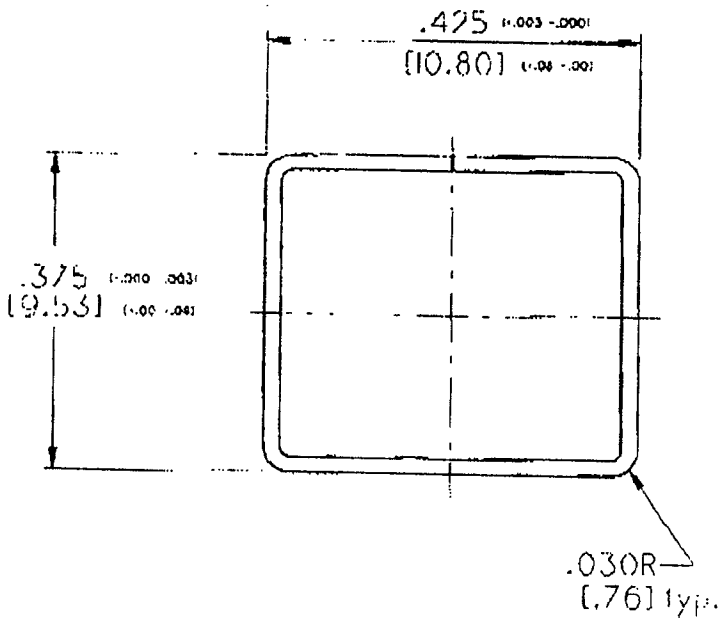
CK. BY

APPR. BY

S.O. NO.

FILENAME:CMB825J

NOTE: ALL DIMENSIONS IN [] BRACKETS ARE MM UNLESS NOTED



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092

Date 4/22/05 Tech CBC

ACTUAL PART SIZE

FILENAME: \MB\0185\716X38

DATE	SYM.	REVISION	AUTH.	DRN.	CK

ALLMETAL

TOLERANCES
EXCEPT AS NOTED

DECIMAL INCHES
.XX .XXX .XXXX
± .01 .005 .0002

DECIMAL MM
.XX .XXX
± .13 .06

ANGULAR
± 1°

TITLE: 7/16 x 3/8 MB (Muntin Bar)

MATL.: .0185 [.47mm] 3105-H24 Aluminum

FINISH: ALL BUT ANODIZED

DRN. BY: G. Matthews

CK. BY:

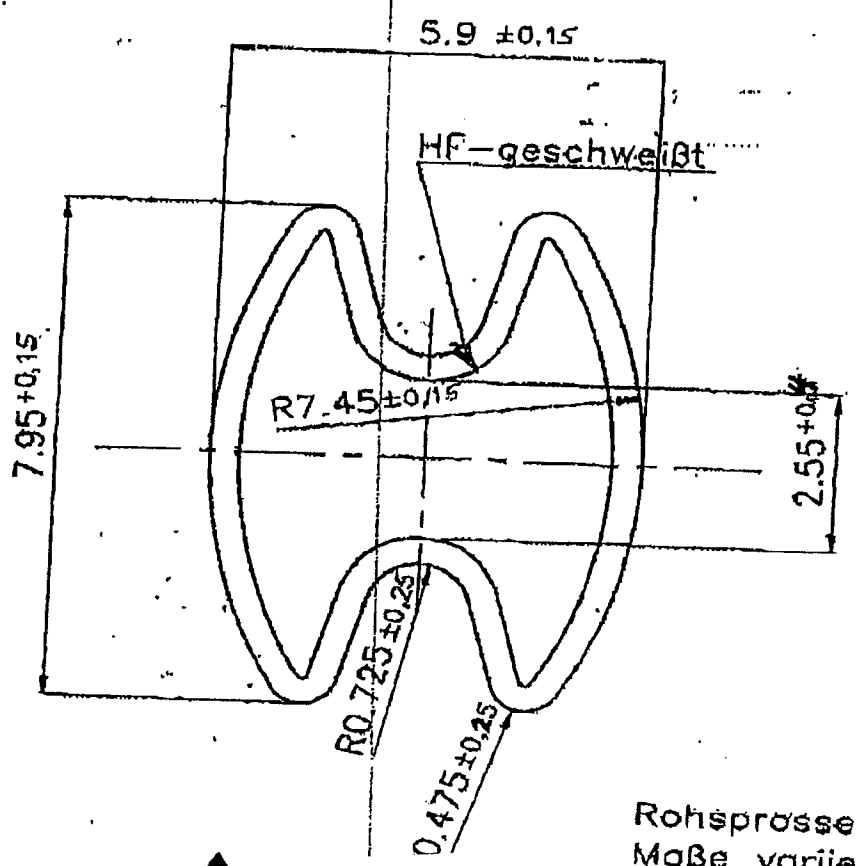
APPR. BY:

S.O. NO.:

SCALE: 5:1

DATE: 11/15/01

DWG. NO.: 1020108018XX124



Rohsprosse! Maße variieren je nach Oberflächenbehandlung

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 54092

Date 4/22/05 Tech CS

Verteiler: BTL
GM
Produkti
AV

M1

Ä-Nr.	Art der Änderung	Datum	Nam
1	Höhe u. Breite geändert	04.07.96	Höf

Werkstoff: Bd 0,4 +0,04 −0,03 Al 99,85–ähnlich EN 1085/WN wahlweise EN AW–3003

1996	Tag	Name
Bearb.	24.01.	Höfinghoff
Gepr.		

Helmut Lingemann GmbH & Co. Aluminium-Preß- und Walzwerk Am Deckersbäuschen 62 42111 Wuppertal

Maßstab: 10:1

Benennung: Einbausprosse, geschweißt

Maße ohne Tol.-Angabe DIN 7168-m

Zeichnungsnummer: KP 8x1,5G

Profil-Nr. KP8|0x1,5G Ä1

Ersetzt durch:

Nr. 1