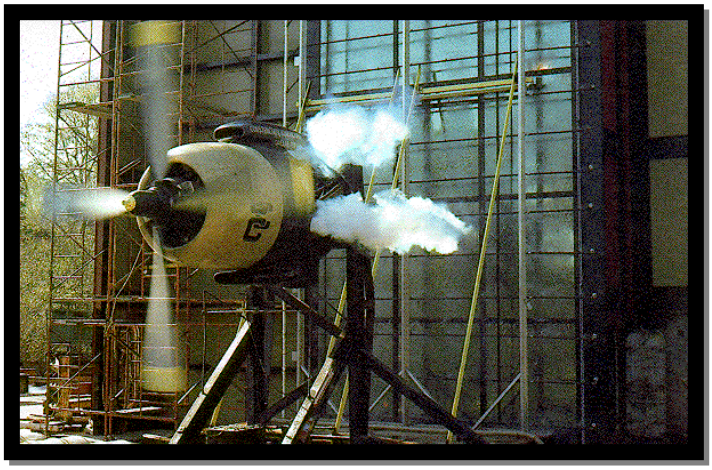
CONSTRUCTION CONSULTING LABORATORY



AAMA/WDMA/CSA 101/I.S.2/A440-17 Performance Test Report

Product/Type: PVC Single Hung Window
Series Model: 2700 Single Hung

Report: CCL 22-138.e (r*)
Revised Date: January 8, 2025

Prepared for:

MASTER WINDOW SYSTEMS
507 Nifda Drive SE
Atlanta, GA 30339

Product Type:	PVC Single Hung Window	**Test Date:**	05-24-22
Series / Model:	2700 Single Hung	**Revised:**	1-8-25 (metric typos / PG change
Specifications:	AAMA/WDMA/CSA 101/I.S.2/A440-17 North American Fenestration Standard / Specification for Windows, doors, and skylights		

Test /Title	Specimen 1 (NC) Note 1 Performance Summary	Specimen 2 (RR) Note 1 Performance Summary
Product Designator	LC-PG 25 1219 x 1981 (48 x 78)-H	LC-PG 25 1219 x 1981 (48 x 78)-H
Operating Force/ Open	55 N (12.5 Lbs.)	
Operating Force/ Close	28.9 N (6.5 Lbs.)	
Latching Devices	Unlock / 5.33 N (1.2 Lbs.	
Air Infiltration 1.57	.55 L/s•m^2(0.11 cfm/ft^2)	
Water Resistance	180 Pa (3.76 Psf) *	
Design Pressure	+/- 1200 Pa (25.06 Psf)	+/- 1200 Pa (25.06 Psf)
150% Design Pressure	+/- 1800 Pa (37.59 Psf)	+/- 1800 Pa (37.59 Psf)

*With and without exterior screen

Note 1: NC designates new construction, RR designates Replacement window

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APPENDIX:

APPENDIX A: 2700 Single Hung PVC Single Hung Window Drawings

Refer to specimen drawings in **Appendix A**. This report is not complete unless these drawing are stamped and initialed by **CCL** as illustrated below.

Drawing	Part #	Date	Stamped as Illustrated
Assembly / BOM	3 sheets	12-8-17	
NC Assembly	9230S017	09-08-11	
RR Assembly	9280S017	09-29-11	
Frame Head (NC-RR)	9213	09-27-11	
Frame Jamb (NC-RR)	9213F	07-30-13	
Frame Sill (NC)	9232B	09-28-17	
Frame Sill (RR)	9282F	09-14-18	
Fixed Interlock rail	9257	09-27-11	
Interlock/ Reinforcement	9252	09-08-11	
Sash top rail / meeting rail	9006	10-21-13	
Sash reinforcement (TR)	9071	03-17-06	
Handle / Lift rail	9005	10-21-13	
Sash lock rail	9006	11-19-14	
Glazing Bead	9216	10-07-11	
Glazing Bead	716A	06-20-13	

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Carrollton, Texas 75006
Phone (972) 242-0556
Report# 22-138 , Date 07-29-22
Reviewed BY EA

1. PROJECT DATA

Project	Test Completed	Test Location
AAMA Performance Testing	May 22, 2022	CCL – Carrollton, Texas
Witnessed by	**All or Partial Viewing**	
Chelsea Building Products	Scott Cyphert	
Construction Consulting Laboratory	Edsson Alarcon	Wesley Wilson

2. SUMMARY

Series	Product Type	Test Size	*Positive DP*	Negative DP
2700	Single Hung Window	4'-0" x 6'-6"	1200 pa (25.06 Psf)	1200 pa (25.06 Psf)

3. TEST SPECIMEN

Product Type:	PVC Hung Window, **Product Drawings, Appendix A**
Series Model:	2700 Single Hung
Specification:	AAMA/WDMA/CSA 101/I.S.2/A440-17 -LC-PG 25 / 1219 x 1981 (48 x 78)-H
Frame Size:	1219 x 1981 mm (4'-0" x 6'-6")
Fixed DLO	1106 x 905 mm (43 9/16" x 35 5/8")
Sash Size:	1162 x 973.1 mm (45 ¾" x 38 5/16")
Sash DLO	1092.2 x 904.8 mm (43" x 35 5/8")
Configuration:	O/X

Weather Stripping: 4.75 mm (0.187") backing pile weather-strip with integral plastic fin: One (1) row 8.89 mm (0.350" thickness) at the exterior face fixed interlock and one (1) row at the interior face of sash interlock. One (1) row 7.36 mm (0.290") thickness at exterior face of sash stiles, one (1) row at lateral face at sash stiles, and one (1) interior face of sill exterior leg. One (1) row 9.52 mm (0.375") thickness foam filled bulb at bottom of sash bottom rail.

Weep Arrangement: Top of sill at each end, in-line with sash pocket left open for drainage. Exterior face of frame sill drained through a 12.7 x 3.17 mm (1/2" x 1/8") weep slot with weep gate spaced 57.15 mm (2 ¼") from each end. 3.17 x 4.76 mm (1/8" x 3/16") oval weep in glass pocket or interlock and sash bottom rail spaced 82.55 mm (3 ¼") from each end.

Glass: 19.05 mm (3/4") Overall thickness Sealed Insulating Glass (SIG): Two (2) pieces, 2.38 mm (3/32") annealed glass with 14.28 mm (9/16") butyl air spacer.

Hardware: Plastic composite sweep lock located 177.8 mm (7") on center from each end of sash top rail attached with two (2), #6 x 19.05 mm (3/4") PH screws per lock. Locks engage a plastic composite keeper at fixed interlock attached with two (2) #6 x 19.05 mm (3/4") PH screws per keeper. Two (2) constant force tandem coil balance with balance shoe at each frame jamb support each sash for operation. Plastic composite tilt latch at each end of sash top rail with metallic pivot shoe at each end of sash bottom rail.

Reinforcement: Standard reinforcement, Extruded hollow aluminum part # 9071 at sash top rail. Extruded solid aluminum part# 9252 at fixed interlock

Glazing: Fixed lite is interior glazed with silicone sealant at exterior and PVC glazing bead part# 9216 at interior. Sash is exterior glazed, with silicone sealant at the interior and P glazing bead part# 716A at the exterior. Glass is heel bed at lower corners approximately 6" in direction

Sealant: See Glazing, see Installation

Test Buck Test fixture / buck included a nominal 50.8 x 101.6 mm (2" x 4") SPF lumber perimeter frame wrapped with a nominal 50.8 x 254 mm (2" x 10") SPF lumber perimeter frame The Max RO of the 2" x 4" buck was the specimen frame dimension plus 6.35 mm (¼"). The frame was sealed to the buck with silicone sealant.

Installation Features **NC window**: Installed from the exterior with the window mounting flange set in silicone and secured to the test buck with #8 x 63.5 mm (2 ½") washer head screws spaced 76.2 mm (3") from each end and on 304.8 mm (12") centers.

RR window: Installed from the interior side and anchored through the lateral face of the frame jamb and head into the buck with #8 x 63.5 mm (2 ½") washer head wood screws spaced 76.2 mm (3") from each end and on approximate 304.8 mm (12") centers. Sill set in silicone and no fasteners were used.

Other Features Frame and sash corners are mitered and welded. Fixed interlock attached at each side to frame jambs with one (1) #8 x 3 truss head screw.

4. PERFORMANCE RESULTS
New Construction (NC) Window

Test	Title of Test	Test Method		Measured	Allowed
9.3.1	Operating Force Break away			35.59 N (8.0 lbs.)	230 N (51.71 lbs.)
	Open			55 N (12.5 lbs.)	180 N (40.47 lbs.)
	Close			28.9 N (6.5 lbs.)	180 N (40.47 lbs.)
9.3.1.3	Latching Devices			5.33 N (1.2 lbs.)	100 N (22.48 lbs.)
9.3.2	Air Infiltration	ASTM E 283		.55 L/s•m ^{2}	1.5 L/s•m ^{2}
	@ 75 Pa (1.57 Psf)			(0.11 cfm/ft ^{2})	(0.30 cfm/ft ^{2})
Test results reported at the request of the manufacture.					
9.3.3	Water Resistance	ASTM E 547		(With and without screen)	
	180 Pa (3.76 Psf)			No Leakage	No Leakage
9.3.4.2	Deflections @ Interlock	ASTM E 330		Span 11161 mm (45.75")	
	1200 Pa (25.06 Psf) Positive		Max	15.49 mm (0.610)	Reported
	1200 Pa (25.06 Psf) Negative		Max	15.74 mm (0.620")	Reported
9.3.4.3	Uniform Load Structural	ASTM E 330			
	@ 1800 Pa (37.59 Psf) Positive			No Damage	No Damage
	-Permanent Set			1.27 mm (.050")	4.64 mm (.183")
	@ 1800 Pa (37.59 Psf) Negative			No Damage	No Damage
	-Permanent Set			1.6 mm (.063")	4.64 mm (.183")
2-mil plastic used to seal against air loss during uniform loading. The plastic sheeting did not influence the structural performance of the test specimen					
9.3.5	Forced Entry Resistance	ASTM F 588-07			
	Grade 10			No Entry	No Entry
9.3.6.3	Deglazing Test				
	Rails @ 311 N (70 lbs.)			Pass	Movement <10%
	Stiles @ 222 N (50 lbs.)			Pass	Movement <10%
9.3.6.2	Thermoplastic Corner Weld Test	A440-17		Pass	Not extend down weld line

Replacement (RR) Window

For air, water and secondary tests see NC test results

9.3.4.2	Deflections @ Interlock	ASTM E 330		Span 11161 mm (45.75")	
	1200 Pa (25.06 Psf) Positive		Max	15.11 mm (0.595)	Reported
	1200 Pa (25.06 Psf) Negative		Max	15.88 mm (0.625")	Reported
9.3.4.3	Uniform Load Structural	ASTM E 330			
	@ 1800 Pa (37.59 Psf) Positive			No Damage	No Damage
	-Permanent Set			1.60 mm (.063")	4.64 mm (.183")
	@ 1800 Pa (37.59 Psf) Negative			No Damage	No Damage
	-Permanent Set			1.6 mm (.063")	4.64 mm (.183")

2-mil plastic used to seal against air loss during uniform loading. The plastic sheeting did not influence the structural performance of the test specimen

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and were compared to the test sample submitted. These records will be retained at **CCL** for a period of four years. The above results were obtained by using the designated test methods indicating compliance with the above specification

5. DISCLAIMER

This report does not constitute certification of this product, which may only be granted by the program administrator.

CONSTRUCTION CONSULTING LABORATORY

EDSSON ALARCON
QUALITY CONTROL MANAGER
SIGNED ELECTRONICALLY

WESLEY WILSON
LABORATORY MANAGER
SIGNED ELECTRONICALLY

APPENDIX

PRODUCT DRAWINGS

Drawing	Part #	Date	Stamped as Illustrated
Assembly / BOM	3 sheets	12-8-17	
NC Assembly	9230S017	09-08-11	
RR Assembly	9280S017	09-29-11	
Frame Head / Jamb (NC)	9213	09-27-11	
Frame Head /Jamb (RR)	9213F	04-05-16	
Frame Sill (NC)	9232B	09-28-17	
Frame Sill (RR)	9282F	09-14-18	
Fixed Interlock/ Meeting rail	9257	09-27-11	
Interlock/ Reinforcement	9252	09-08-11	
Sash top rail / meeting rail	9006	10-21-13	
Sash top rail reinforcement	9071	03-17-06	
Handle / Lift rail	9005	10-21-13	
Sash lock rail	9006	11-19-14	
Glazing Bead	9216	10-07-11	
Glazing Bead	716A	06-20-13	

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Report#22-138, Date 07-29-22
Reviewed BY EA

BILL OF MATERIALS
Model 9230-SH-T000
New Construction Single Hung
Revised December 8, 2017

ITEM	DESCRIPTION	CBP PART#	QTY	MATERIAL/SOURCE	NOTES
1	Head	9213	1	CBP	2
2	Sill	9232M	1	CBP	2
3	Jamb	9213	2	CBP	2
4	Bottom Handle Rail	9005	1	CBP	2
5	Lock Rail	9006	1	CBP	2
6	Meeting Rail	9257	1	CBP	2
7	Stile	9008	2	CBP	2
8	Glazing Bead (Fixed Lite)	9216	4	CBP	2
9	Glazing Bead (Vent Lite)	716A	4	CBP	2
10	Sash Stop	9263B	2	CBP	2
11	Aluminum Stiffener – Lock Rail	9071	1	Keymark	1
12	Aluminum Stiffener – Meeting Rail	9252	1	Keymark	1
13	Pass-thru Clip		2	Four-Jaks #VCP028	1
14	Tilt Latch L.H.		1	Ashland Sightline Classic .318 Nose - .075 Stile Snap	1,2
15	Tilt Latch R.H.		1	Ashland Sightline Classic .318 Nose - .075 Stile Snap	1,2
16	Coil Balance (Constant Force)		2	Amesbury BSI Omega	1
17	Pivot Bar		2	BSI #501071	1
18	Silicone Glazing Sealant		AR	Pecora #895	1
19	Glazing Block (3/4" x 3/4" x 1/8")		AR	Tremco	1
20	Weep Cover		2	Vision #1230	1,2
21	Lock		1	Vision #671-00	2,3
22	Keeper		1	Vision #9316-00	2,3
SCREWS (#410 Stainless Steel or Zinc Plated)					
23	Pass-thru Clip		8	#6 x 1" PH Flat HD Type AB, SMS	
24	Balance		2	#6 x 7/8" PH Flat HD, Type AB, SMS	
25	Pivot Bar		4	#6 x 1/2" PH Truss HD Type AB, SMS	
26	Keeper (Composite Rebar)		2	#6 x 3/4" PH Pan HD,Type A, 410 SS "Vyn-L-Hold Screw"	2,3
27	Lock (Composite Rebar)		2	#6 x 3/4" PH Flat HD, Serrated Thread, AFC Industries #SPAX61-CW	2,3
28	Stiffener (Composite Rebar)		AR	#6 x 1/2" PH Flat HD,Type A, 410 SS "Vyn-L-Hold Screw"	
WEATHERSTRIPPING					
29	Center Fin Pile (Lock Rail, Meeting Rail)		AR	.187 x .220	
30	Center Fin Pile (Stile & Sill)		AR	.187 x .270	

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WEATHERSTRIPPING (cont.)					
31	Bottom Seal (Bottom Rail)		1	Amesbury #32692	2
OPTIONAL					
32	Drip Cap	9239/ 9239M	AR	CBP	2
33	Drip Cap (J Removed)	9236	AR	CBP	2
34	Transom Clip	727	AR	CBP	2
35	1/2" Mullion Clip	749	AR	CBP	2
36	Drywall Receptor	722	AR	CBP	2
37	Jamb Extension Clip	723	AR	CBP	2
38	3/4" Wood Return	738	AR	CBP	2
39	Block & Tackle Balance Cover	748	2	CBP	2
40	Structural Mullion	803	AR	CBP	2
41	Screen Clip	9218	AR	CBP	2
42	Trim Kit	9269	AR	CBP	2
43	Composite Stiffener – Stile	9078	AR	CBP	1
44	Aluminum Stiffener – Stile	9074	AR	Keymark	1
45	Composite Stiffener – Lock Rail	9078	1	CBP	1
46	Composite Stiffener – Meeting Rail	9262	1	CBP	1
47	Steel Stiffener – Lock Rail	9042	1	Elliot Manufacturing	1
48	Steel Stiffener – Meeting Rail		1	Elliot Manufacturing	1
49	Steel Stiffener – Stile	9041	AR	Elliot Manufacturing	1
50	Non-removable Meeeting Rail Screw		4	#6 x 2" PH Pan HD Type AB, SMS	
51	Keeper Screw (Alum or Steel Rebar)		AR	#6 x 3/4" PH Flat HD TEK (Self-drilling)	2,3
52	Lock Screw (Alum or Steel Rebar)		AR	#6 x 3/4" PH Flat HD TEK (Self-drilling)	2,3
53	Stiffener Screw (Alum or Steel Rebar)		AR	#6 x 1/2" PH Flat HD TEK (Self-drilling)	
54	Tilt Latch L.H.		1	Lawrence Industries Bullet .318 Nose - .075 Stile Snap	1,2
55	Tilt Latch R.H.		1	Lawrence Industries Bullet .318 Nose - .075 Stile Snap	1,2
56	Glazing Tape (1/16" x 3/8")		AR	Lamatek HGT	1
57	Balance - Hook Mount Inverted Block & Tackle (Hidden)		2	Caldwell #77IP	1
58	Pivot Bar		2	Caldwell #15B202	1
59	Balance (Constant Force)		2	Four-JAKS Constant Force	1
60	Pivot Bar (Constant Force)		2	Four-JAKS #S-PB254	1
61	Lock		1	Lawrence Industries #2802 Requires fab tooling change	2,3
62	Keeper		1	Lawrence Industries #2600-402 Requires fab tooling change	2,3
63	Weep Cover		2	Gaer #98-03-00-00	1,2
64	Vent Latch		2	Vision #1760	1,2
65	Window Operation Limiting Device		2	Vision #1761	1,2
66	Screen Frame		AR	3/8"	2

New Construction
Single Hung

NOTES:
1 = Or Approved Equivalent
2 = Specify color (White, Beige, Brown)
3 = For windows over 32" double amount used

No.	Revision	By	Date	Checked By	Approved By
5	Added Vision lock & keeper as standard WO#17292	BLG	12/08/17		
4	Added Lawrence lock & keeper as standard	BLG	09/27/16		
3	Revised Truth lock part # from A09000425	DW	9-28-12		
2	Revised pivot bar screw, sill & stile pile height, bottom seal no.	EAS	07-05-12		
1	BOM Created	EAS	11-30-11		

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Report# 22-138 , Date 07-29-22
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BILL OF MATERIALS
Model 9280-SH-T000 BV
Replacement Single Hung
Revised September 30, 2022

ITEM	DESCRIPTION	CBP PART#	QTY	MATERIAL/SOURCE	NOTES
1	Head	9213F	1	CBP	2
2	Sill	9282M	1	CBP	2
3	Jamb	9213F	2	CBP	2
4	Bottom Handle Rail	9005	1	CBP	2
5	Lock Rail	9006	1	CBP	2
6	Meeting Rail	9257	1	CBP	2
7	Stile	9008	2	CBP	2
8	3/4" Glazing Bead (Fixed Lite)	9216	4	CBP	2
9	3/4" Glazing Bead (Vent Lite)	716A	4	CBP	2
10	Sash Stop	9263B	2	CBP	2
11	Aluminum Stiffener – Lock Rail	9071	1	Keymark	1
12	Aluminum Stiffener – Meeting Rail	9252	1	Keymark	1
13	Pass-thru Clip		2	Four-Jaks #VCP028	1
14	Tilt Latch L.H.		1	Ashland Sightline Classic .318 Nose - .075 Stile Snap	1,2
15	Tilt Latch R.H.		1	Ashland Sightline Classic .318 Nose - .075 Stile Snap	1,2
16	Coil Balance (Constant Force)		2	Amesbury BSI Omega	1
17	Pivot Bar		2	BSI #501071	1
18	Silicone Glazing Sealant		AR	Pecora #895	1
19	Glazing Block (3/4" x 3/4" x 1/8")		AR	Tremco	1
20	Weep Cover		2	Vision #1230	1,2
21	Lock		1	Vision #671-00	2,3
22	Keeper		1	Vision #9316-00	2,3
	SCREWS (#410 Stainless Steel or Zinc Plated)				
23	Installation		4	#8 x 2-1/2" PH Pan HD Type AB, SMS	
24	Pass-thru Clip		8	#6 x 1" PH Flat HD Type AB, SMS	
25	Balance		2	#6 x 7/8" PH Flat HD, Type AB, SMS	
26	Pivot Bar		4	#6 x 1/2" PH Truss HD Type AB, SMS	
27	Keeper (Composite Rebar)		2	#6 x 3/4" PH Pan HD,Type A, 410 SS "Vyn-L-Hold Screw"	2,3
28	Lock (Composite Rebar)		2	#6 x 3/4" PH Flat HD, Serrated Thread, AFC Industries #SPAX61-CW	2,3
29	Stiffener (Composite Rebar)		AR	#6 x 1/2" PH Flat HD,Type A, 410 SS "Vyn-L-Hold Screw"	
	WEATHERSTRIPPING				
30	Center Fin Pile (Lock Rail, Meeting Rail)		AR	.187 x .220	

WEATHERSTRIPPING (cont.)					
31	Center Fin Pile (Stile)		AR	.187 x .270	
32	Center Fin Pile (Sill)		AR	.187 x .270	
33	Bottom Seal (Bottom Rail)		1	Amesbury #32692	2
OPTIONAL					
34	Head Expander	750	1	CBP	2
35	Transom Clip	727	AR	CBP	2
36	1/2" Mullion Clip	749	AR	CBP	2
37	Sill Riser	765/765M	1	CBP	2
38	2-Piece Sill Riser Male	988	1	CBP	2
39	2-Piece Sill Riser Female	989	1	CBP	2
40	Block & Tackle Balance Cover	748	2	CBP	2
41	Structural Mullion	803	AR	CBP	2
42	Screen Clip	9218	AR	CBP	2
43	Composite Stiffener – Stile	9078	AR	CBP	1
44	Composite Stiffener – Lock Rail	9078	1	CBP	1
45	Composite Stiffener – Meeting Rail	9262	1	CBP	1
46	Aluminum Stiffener – Stile	9074	AR	Keymark	1
47	Steel Stiffener – Lock Rail	9042	1	Elliot Manufacturing	1
48	Steel Stiffener – Meeting Rail		1	Elliot Manufacturing	1
49	Steel Stiffener – Stile	9041	AR	Elliot Manufacturing	1
50	Non-removable Meeting Rail Screw		4	#6 x 2" PH Pan HD Type AB, SMS	
51	Keeper Screw (Alum or Steel Rebar)		AR	#6 x 3/4" PH Flat HD TEK (Self-drilling)	2,3
52	Lock Screw (Alum or Steel Rebar)		AR	#6 x 3/4" PH Flat HD TEK (Self-drilling)	2,3
53	Stiffener Screw (Alum or Steel Rebar)		AR	#6 x 1/2" PH Flat HD TEK (Self-drilling)	
54	Tilt Latch L.H.		1	Lawrence Industries Bullet .318 Nose - .075 Stile Snap	1,2
55	Tilt Latch R.H.		1	Lawrence Industries Bullet .318 Nose - .075 Stile Snap	1,2
56	Glazing Tape (1/16" x 3/8")		AR	Lamatek HGT	1
57	Balance - Hook Mount Inverted Block & Tackle (Hidden)		2	Caldwell #77IP	1
58	Pivot Bar		2	Caldwell #15B202	1
59	Balance (Constant Force)		2	Four-JAKS Constant Force	1
60	Pivot Bar (Constant Force)		2	Four-JAKS #S-PB254	1
61	Lock		1	Lawrence Industries #2802 Requires fab tooling change	2,3
62	Keeper		1	Lawrence Industries #2600-402 Requires fab tooling change	2,3

63	Weep Cover		2	Gaer #98-03-00-00	1,2
64	Vent Latch		2	Vision #1760	1,2
65	Window Operation Limiting Device		2	Vision #1761	1,2

OPTIONAL (cont.)					
66	Screen Frame		AR	3/8"	2

NOTES:
1 = Or Approved Equivalent
2 = Specify color (White, Beige, Brown)
3 = For windows over 32" double amount used

No.	Revision	By	Date	Checked By	Approved By
4	Added Vision lock & keeper as standard WO#17292	BLG	12/08/17		
3	Added Lawrence lock & keeper as standard	BLG	09/27/16		
2	Revised pivot bar screw, sill & stile pile height, bottom seal no.	EAS	07-05-12		
1	BOM Created	EAS	11-30-11		

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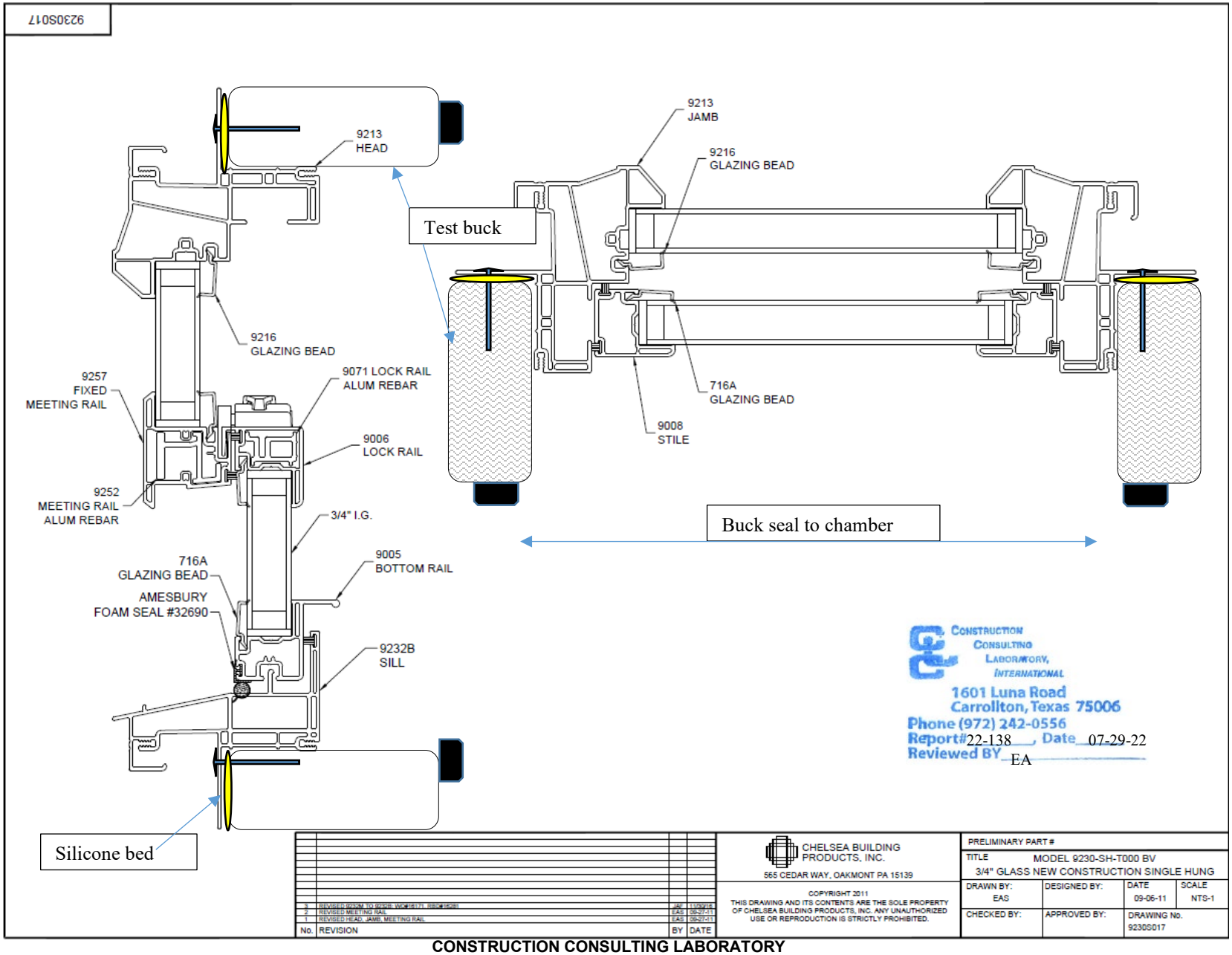

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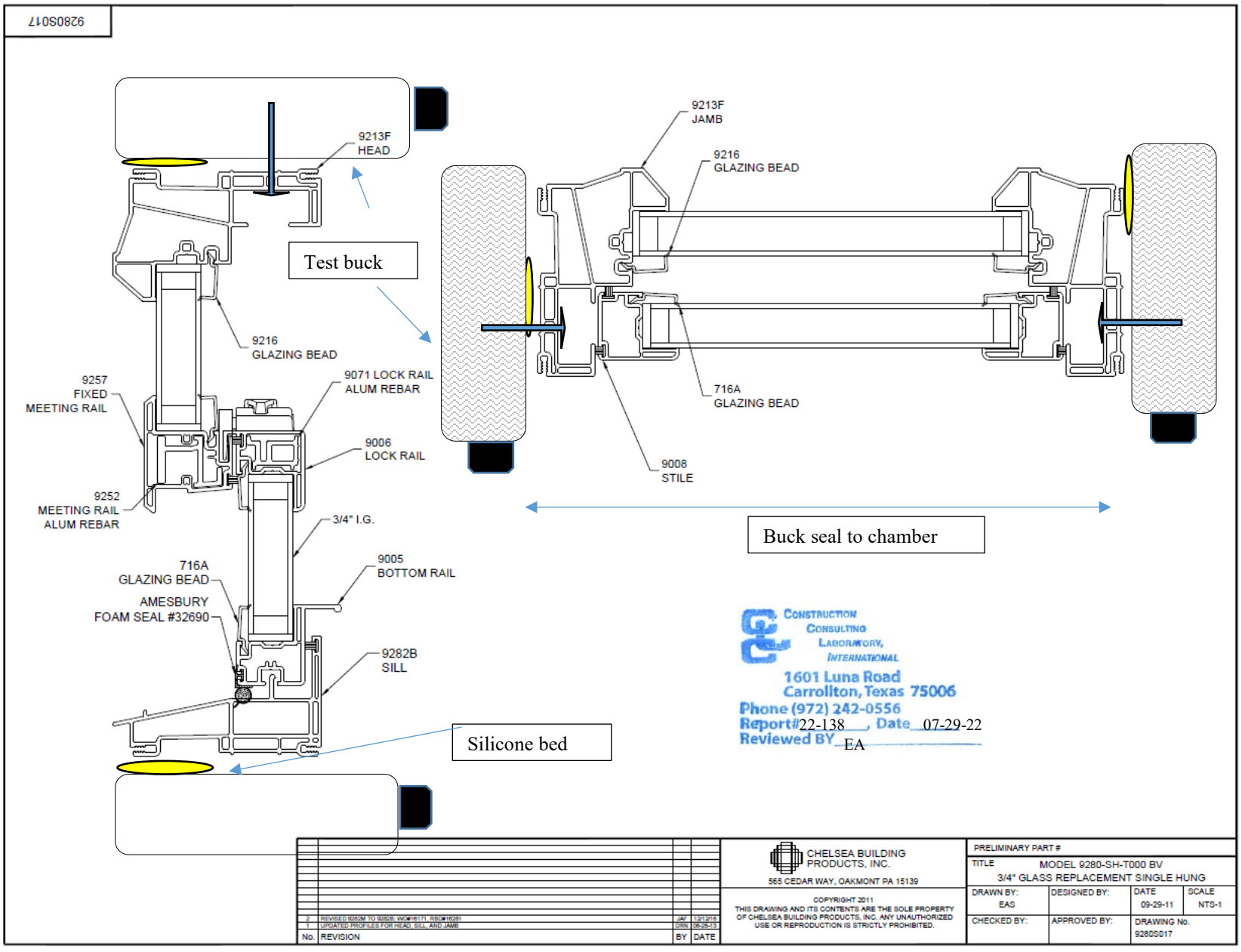
9280S017
9213F HEAD
Test buck
9216 GLAZING BEAD
9257 FIXED MEETING RAIL
9071 LOCK RAIL ALUM REBAR
9006 LOCK RAIL
9252 MEETING RAIL ALUM REBAR
3/4" I.G.
716A GLAZING BEAD
AMESBURY FOAM SEAL #32690
9005 BOTTOM RAIL
9282B SILL
Silicone bed
9213F JAMB
9216 GLAZING BEAD
716A GLAZING BEAD
9008 STILE
Buck seal to chamber
CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 22-138 Date 07-29-22
Reviewed BY EA
No. REVISION BY DATE
2 REVISED 9280M TO 9282B. WO#18171. RBD#18281 JAF 12/12/16
1 UPDATED PROFILES FOR HEAD, SILL, AND JAMB DRN 06-25-13
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PRELIMINARY PART #
TITLE MODEL 9280-SH-T000 BV
3/4" GLASS REPLACEMENT SINGLE HUNG
DRAWN BY: EAS
DESIGNED BY:
DATE 09-29-11
SCALE NTS-1
CHECKED BY:
APPROVED BY:
DRAWING No. 9280S017

CONSTRUCTION CONSULTING LABORATORY

AAMA/WDA/DMA/CSA 101/I.S.2/A440-17 PERFORMANCE TESTING

CLIENT: MASTER WINDOW SYSTEMS

REPORT: CCL 22-138.e (r*)
DATE: AUGUST 26, 2022
PROJECT: 2700 SINGLE HUNG

QC PRINT NUMBER: 9213QC	DRAWN BY: EAS	CHECKED BY:	APPROVED BY:	DEVELOP	INPROCESS	PRODUCTION

PART NAME:	DESCRIPTION:	SUPPLIER/PLANT:
9213	SINGLE HUNG JAMB	CHELSEA BUILDING PRODUCTS

ILLUSTRATION OF PART AND CONTROL POINTS

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NOTES:
1. MATERIAL = RIGID P.V.C.
2. FLEXIBLE P.V.C. =
3. EXTERIOR COATING =
4. LAMINATE =
5. THINNER INTERIOR WALLS =
6. WALL THICKNESS = .062 ±.006
7. RADIUS = .020 R
8. LOCATION FOR IMPACT TEST
9. ANGULARITY =
10. PERPENDICULARITY =
11. PARALLELISM =
12. FLATNESS =
13. SPECIFICATION LENGTH TO ±3/8"
14. ANGULARITY TO BE ± 1°
15. PROFILE MUST MEET Q-303 PER AAMA SPECIFICATIONS
16. PROFILE MUST MEET Q-304 PER AAMA SPECIFICATIONS
17. PROFILE MUST MEET Q-901 PER AAMA SPECIFICATIONS
18. PROFILE MUST MEET Q-902 IMPACT RESISTANCE PER AAMA SPECIFICATIONS
19. MAX BOW .046in PER 3ft LENGTH
20. INTERNAL WALL THICKNESS ±.010 UNLESS OTHERWISE SPECIFIED

WEATHERSTRIP SPECIFICATION

POSITION	SIZE	WEATHERSTRIP TYPE

FUNCTIONAL CHECK

VISION PASS-THRU CLIP #VCP02

9216 GLAZING BEAD (3/4" GLASS

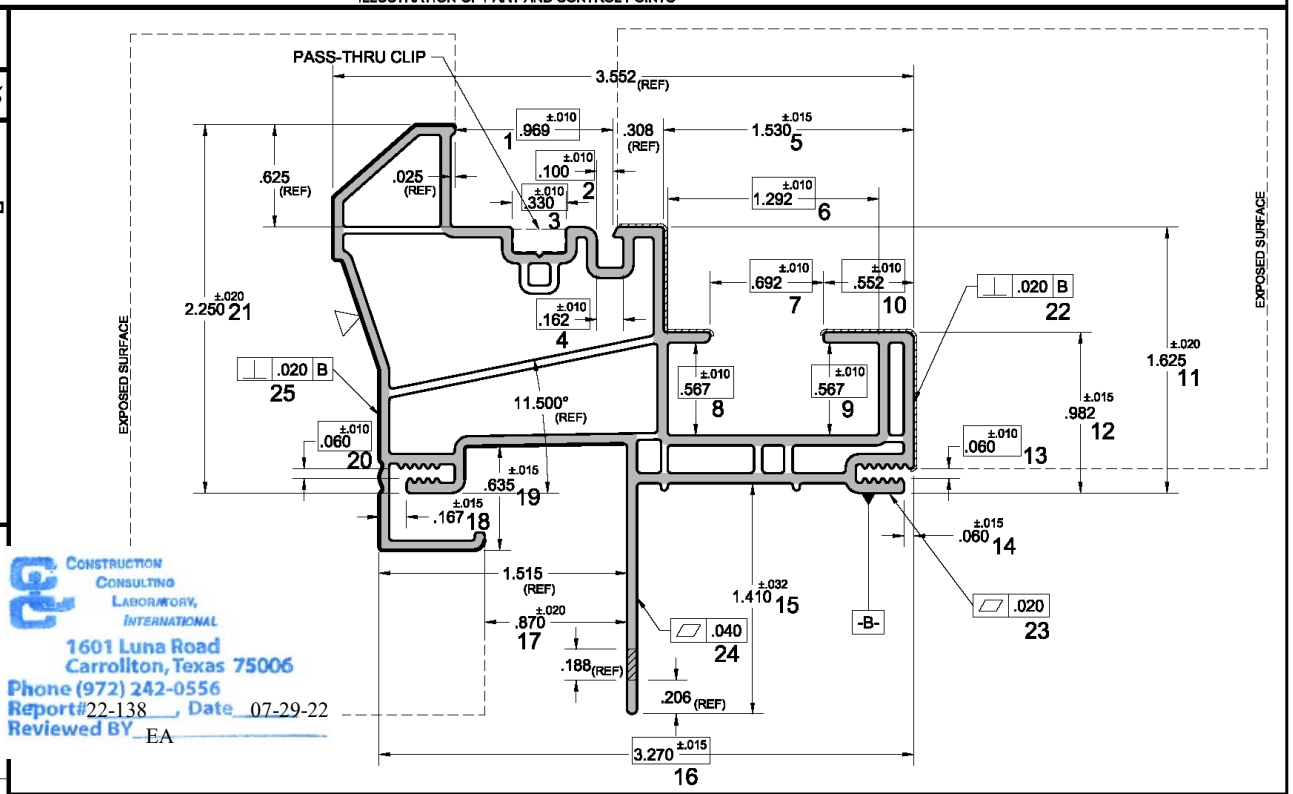
9016 GLAZING BEAD (7/8" GLASS)

727 MULLION CLIP

9263A SASH STOP

723 JAMB EXTENSION CLIP (INTERIOR POCKET ONLY)

DRAWN DATE: 09-27-11



CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report#22-138 , Date 07-29-22
Reviewed BY EA

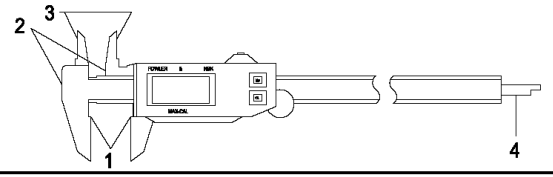
NO.	REVISION	BY	DATE
4	REVISED DIMS & TOLS; WO#13153	EAS	07-30-13
3	REVISED DIMS & TOLS; WO#13136	EAS	07-15-13
2	FUNC CHECK SASH STOP WAS 2763	EAS	12-13-11
1	ADDED CRIT DIMS	EAS	09-30-11

CUSTOMER LENGTH	CHELSEA CUT LENGTH	TOLERANCE

Use the caliper diagram as your guide to measure the following control points.
Measure the following control points using #1 on the caliper diagram:
Measure the following control points using #2 on the caliper diagram:
Measure the following control points using #3 on the caliper diagram:
Measure the following control points using #4 on the caliper diagram:

Frequency of sampling: Process Specialist- 3 samples per shift recorded every 4 hours.
Auditor- 1 sample per shift recorded 1 hour after shift start.

IF ANY CONTROL POINTS ARE NOT IN SPEC.
CORRECTIVE ACTION REQUIRED



QC PRINT NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DEVELOP	INPROCESS	PRODUCTION
9213FQC	EAS					

PART NAME:	DESCRIPTION:	SUPPLIER/PLANT:
9213F	SINGLE HUNG JAMB	CHELSEA BUILDING PRODUCTS

ILLUSTRATION OF PART AND CONTROL POINTS

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NOTES:
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5. THINNER INTERIOR WALLS =
6. WALL THICKNESS = .062 ±.006
7. RADIUS = .020 R
8. LOCATION FOR IMPACT TEST
9. ANGULARITY =
10. PERPENDICULARITY =
11. PARALLELISM =
12. FLATNESS =
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20. INTERNAL WALL THICKNESS ±.010 UNLESS OTHERWISE SPECIFIED

WEATHERSTRIP SPECIFICATION

POSITION	SIZE	WEATHERSTRIP TYPE

FUNCTIONAL CHECK

VISION PASS-THRU CLIP #VCP

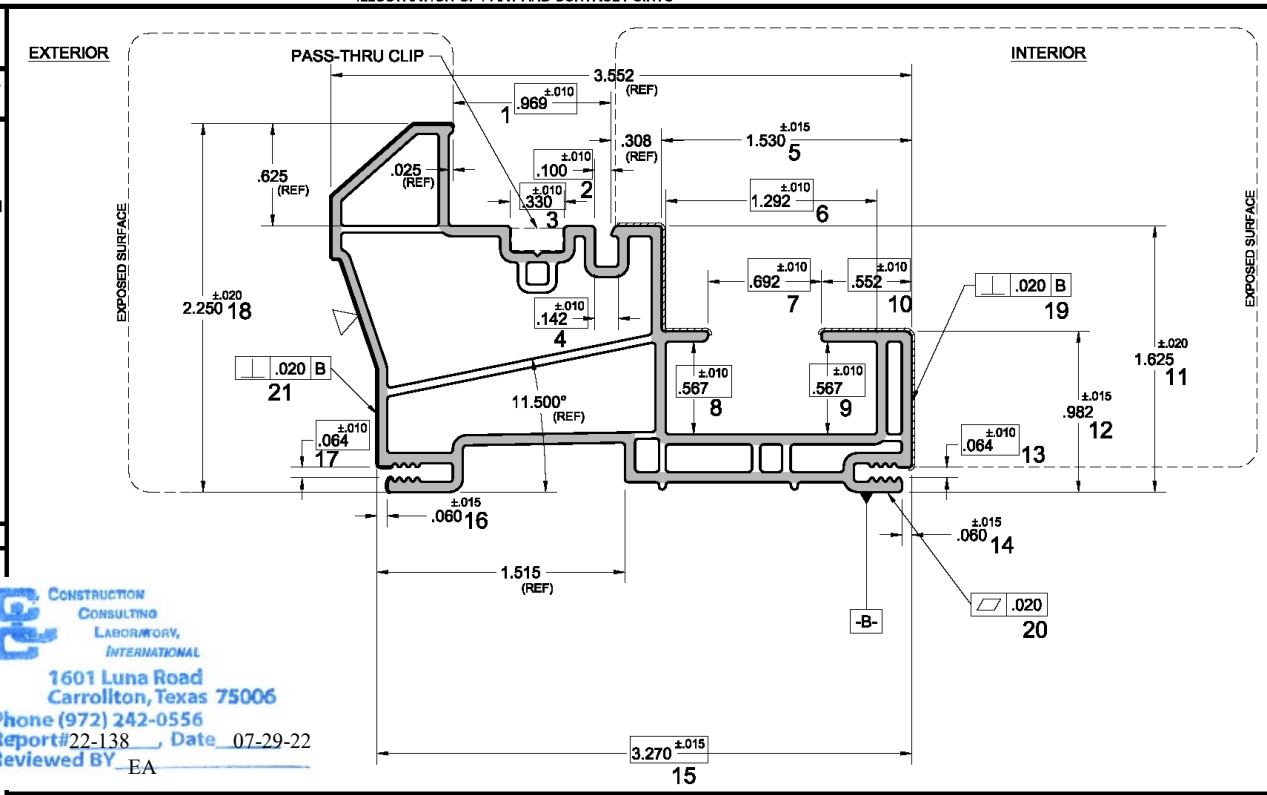
9216 GLAZING BEAD (3/4" GLA

9016 GLAZING BEAD (7/8" GLA

727 MULLION CLIP

9263A SASH STOP

DRAWN DATE: 09-27-11



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1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report#22-138 , Date 07-29-22
Reviewed BY EA

NO.	REVISION	BY	DATE
4	REVISED DIMS & TOLS, WO #13153	EAS	07-30-13
3	REVISED TO DEDICATED TOOL, REVISED DIMS AND TOLS, WO#13126	EAS	06-21-13
2	ADDED J-CHANNEL REMOVAL NOTE	EAS	01-28-13
1	FUNC CHECK SASH STOP WAS 2763	EAS	12-13-11

CUSTOMER LENGTH	CHELSEA CUT LENGTH	TOLERANCE

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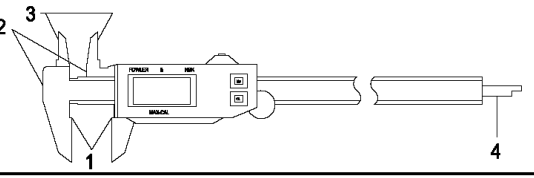
Auditor- 1 sample per shift recorded 1 hour after shift start.

IF ANY CONTROL POINTS ARE NOT IN SPEC.
CORRECTIVE ACTION REQUIRED



PART NAME:	DESCRIPTION:	DRAWN BY:	DRAWN DATE:	APPROVED BY:
9232B	DOUBLE HUNG SILL	EAS	04-05-16	

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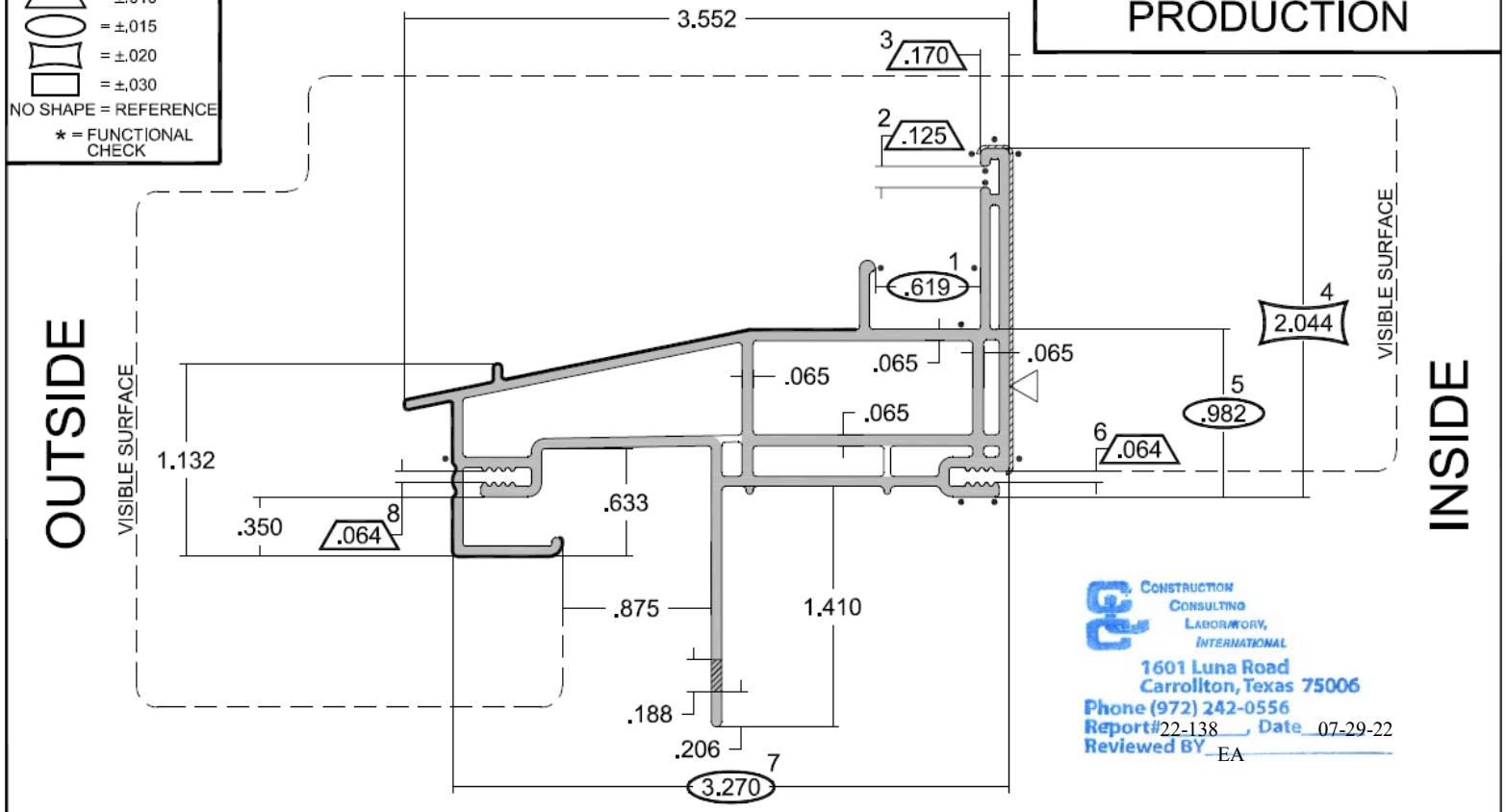
CHELSEA BUILDING PRODUCTS, INC.
a member of ridout group
565 CEDAR WAY, OAKMONT PA 15139
Tel. 412-826-6077, Fax 412-826-0113
www.chelseabuildingproducts.com

= ±.010
= ±.015
= ±.020
= ±.030
NO SHAPE = REFERENCE
* = FUNCTIONAL CHECK

PRODUCTION



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1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 22-138 , Date 07-29-22
Reviewed BY EA

NO.	REVISION	BY	DATE
4	ADDED GAUGE CHECK TO AUDIT SHEET; WO#17226	EAS	09-28-17
3	PART NUMBER WAS 9232MA; WO#16171, RBD#16281	JAF	11/10/16
2	MOVED INTERNAL WALLS PER CUSTOMER REQUEST	EAS	04-18-16
1	PART CREATED; WO#16069	EAS	04-05-16

1. MATERIAL = RIGID P.V.C.
2. FLEXIBLE P.V.C. =
3. EXTERIOR COVERAGE =
4. LAMINATE =
5. THINNER INTERIOR WALLS =
6. WALL THICKNESS = ± 10%
7. LOCATION FOR IMPACT TEST
8. SPECIFICATION LENGTH TO -0 +3/4"
9. MAX BOW ,046In PER 3ft LENGTH
10. NOMINAL WALLS .060

PART NAME:	DESCRIPTION:	DRAWN BY:	DRAWN DATE:	APPROVED BY:
9282B	REPLACEMENT DOUBLE HUNG SILL	EAS	04-05-16	

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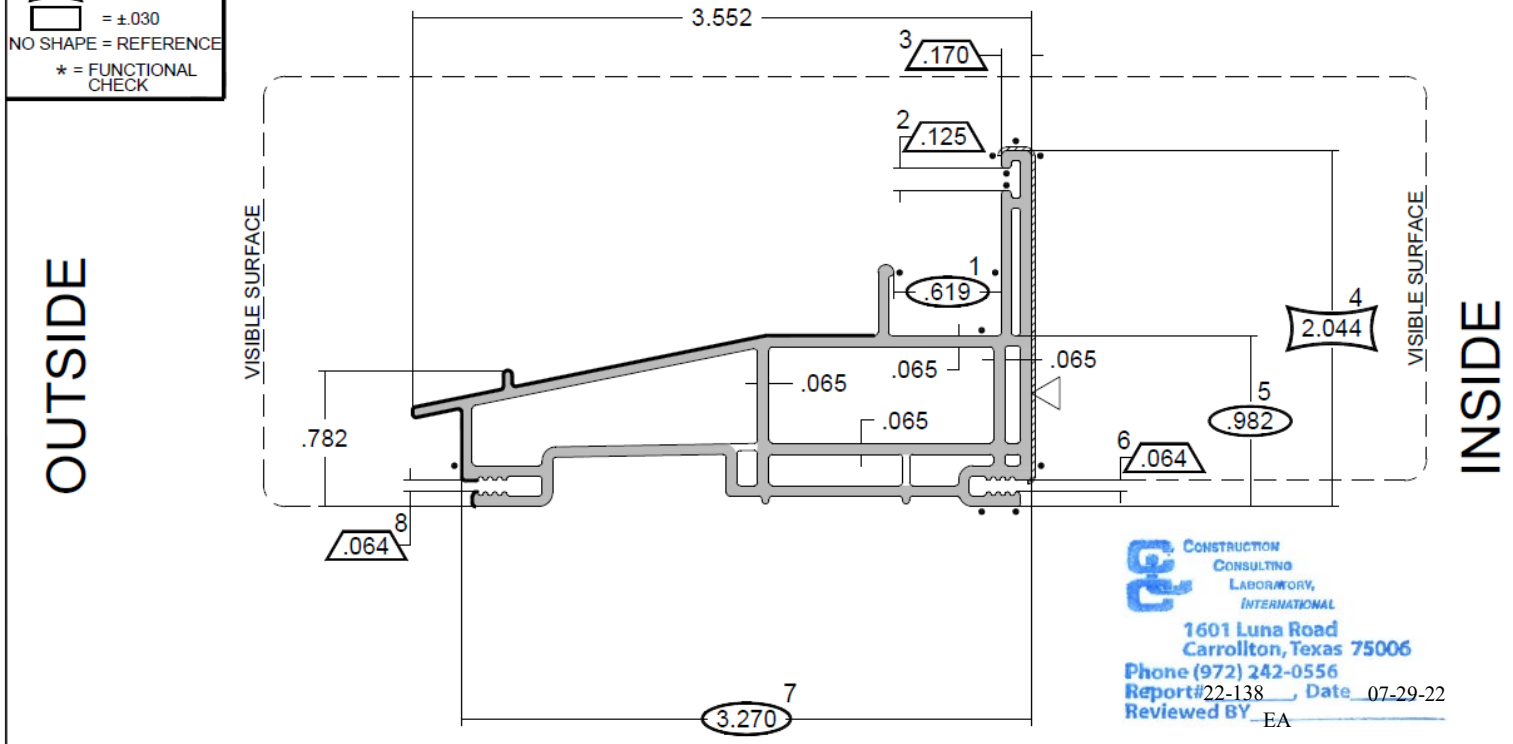
www.chelseabuildingproducts.com

= ±.010
= ±.015
= ±.020
= ±.030
NO SHAPE = REFERENCE
* = FUNCTIONAL CHECK

PRODUCTION



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1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 22-138 , Date 07-29-22
Reviewed BY EA

NO.	REVISION	BY	DATE
5	ADDED 9282B GAUGE TO GAUGE NUMBER BOX; WO#18186	BLG	09/14/18
4	ADDED GAUGE CHECK TO AUDIT SHEET; WO#17226	EAS	09-28-17
3	PART NUMBER WAS 9282MA; WO#16171, RBD#16281	JAF	11/10/16
2	MOVED INTERNAL WALLS PER CUSTOMER REQUEST	EAS	04-28-16
1	PART CREATED; WO#16069	EAS	04-05-16

1. MATERIAL = RIGID P.V.C.
2. FLEXIBLE P.V.C. =
3. EXTERIOR COVERAGE =
4. LAMINATE =
5. THINNER INTERIOR WALLS =
6. WALL THICKNESS = ±10%
7. LOCATION FOR IMPACT TEST
8. SPECIFICATION LENGTH TO -0 +3/4"
9. MAX BOW .046in PER 3ft LENGTH
10. NOMINAL WALLS .060

CONSTRUCTION CONSULTING LABORATORY
AAMA/WDA/DMA/CSA 101/I.S.2/A440-17 PERFORMANCE TESTING
CLIENT: MASTER WINDOW SYSTEMS

REPORT: CCL 22-138.e (r*)
DATE: AUGUST 26, 2022
PROJECT: 2700 SINGLE HUNG

QC PRINT NUMBER: 9257QC	DRAWN BY: EAS	CHECKED BY:	APPROVED BY:	DEVELOP	INPROCESS	PRODUCTION

PART NAME:	DESCRIPTION:	SUPPLIER/PLANT:
9257	FIXED MEETING RAIL	CHELSEA BUILDING PRODUCTS

ILLUSTRATION OF PART AND CONTROL POINTS

CHELSEA BUILDING PRODUCTS, INC.
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NOTES:
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5. THINNER INTERIOR WALLS =
6. WALL THICKNESS = .062 ±.006
7. RADIUS = .020 R
8. LOCATION FOR IMPACT TEST
9. ANGULARITY =
10. PERPENDICULARITY =
11. PARALLELISM =
12. FLATNESS =
13. SPECIFICATION LENGTH TO ±3/8"
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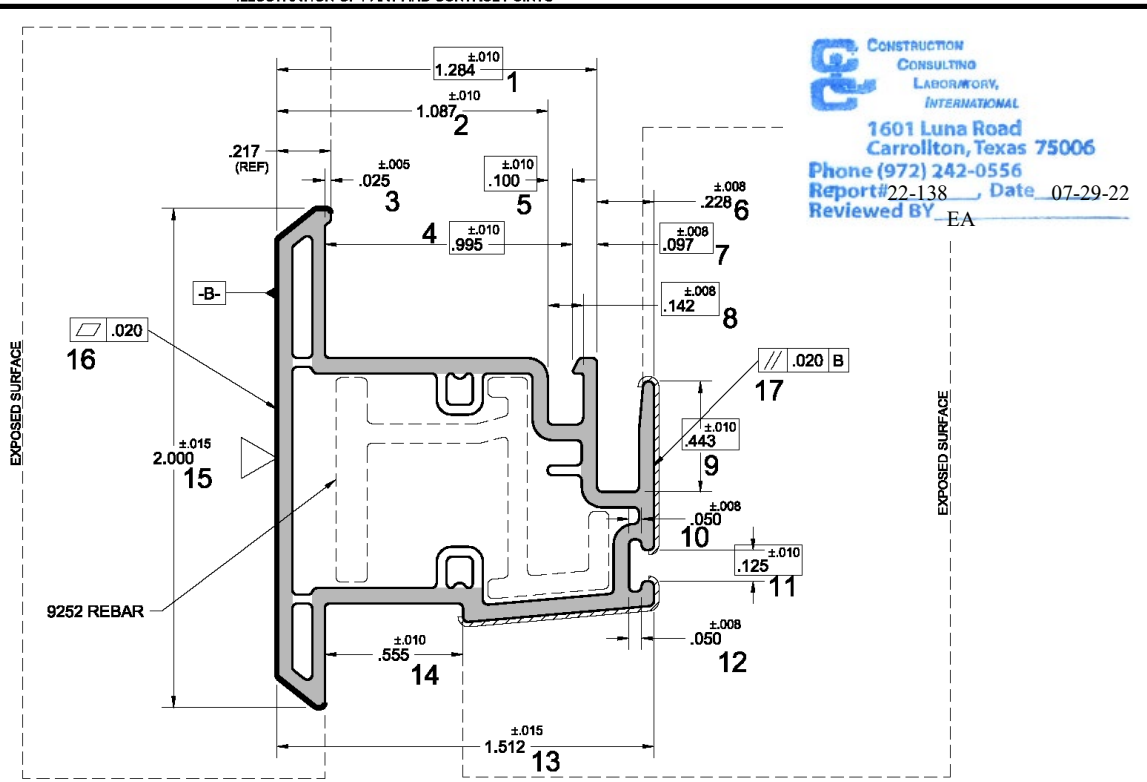
17. PROFILE MUST MEET Q-901 PER AAMA SPECIFICATIONS
18. PROFILE MUST MEET Q-902 IMPACT RESISTANCE PER AAMA SPECIFICATIONS
19. MAX BOW .046in PER 3ft LENGTH
20. INTERNAL WALL THICKNESS ±.010 UNLESS OTHERWISE SPECIFIED

WEATHERSTRIP SPECIFICATION

POSITION	SIZE	WEATHERSTRIP TYPE

FUNCTIONAL CHECK
9216 GLAZING BEAD (3/4" GLASS)
9016 GLAZING BEAD (7/8" GLASS)
716A GLAZING BEAD (7/8" GLASS)
* 9252 ALUMINUM REBAR

DRAWN DATE: 09-27-11



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Phone (972) 242-0556
Report# 22-138 , Date 07-29-22
Reviewed BY EA

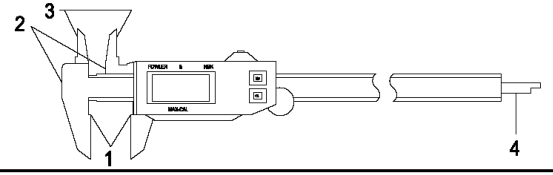
NO.	REVISION	BY	DATE
2	REVISED SCREWBOSS SIZE	EAS	09-29-11
1	ADDED SCREWBOSS NUBS; ADDED CRIT DIMS; DIM 1.512 TOL WAS ±.018	EAS	09-29-11

CUSTOMER LENGTH	CHELSEA CUT LENGTH	TOLERANCE

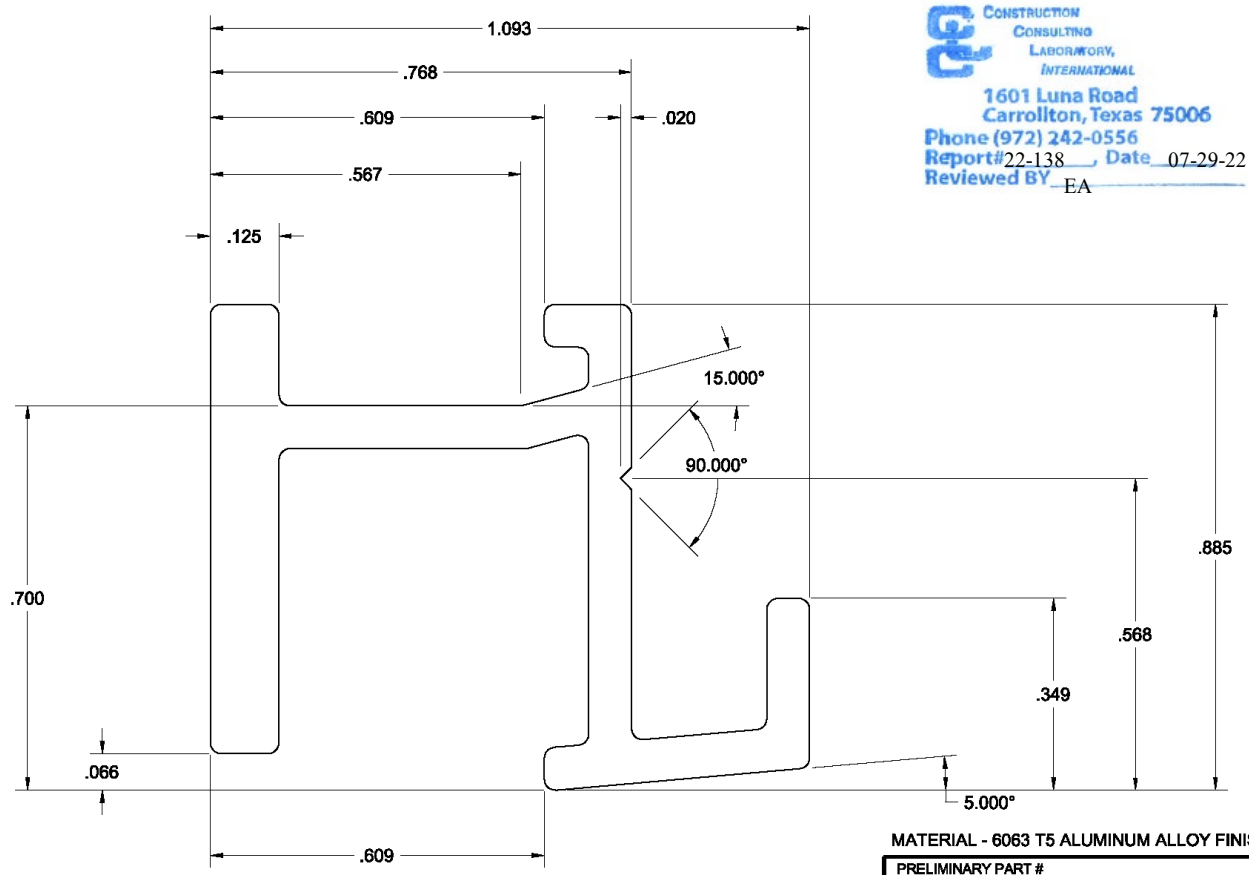
Use the caliper diagram as your guide to measure the following control points.
Measure the following control points using #1 on the caliper diagram:
Measure the following control points using #2 on the caliper diagram:
Measure the following control points using #3 on the caliper diagram:
Measure the following control points using #4 on the caliper diagram:

Frequency of sampling: Process Specialist- 3 samples per shift recorded every 4 hours.
Auditor- 1 sample per shift recorded 1 hour after shift start.

IF ANY CONTROL POINTS ARE NOT IN SPEC.
CORRECTIVE ACTION REQUIRED



9252



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1601 Luna Road
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Phone (972) 242-0556
Report#22-138, Date 07-29-22
Reviewed BY EA

MATERIAL - 6063 T5 ALUMINUM ALLOY FINISH - MILL

PRELIMINARY PART #

UNLESS OTHERWISE SPECIFIED

MATERIAL	ALUMINUM	WALLS	.078
EXTERIOR COATING		RADII	.020 R
FLEXIBLE P.V.C.		ANGULARITY	±1°
TOTAL AREA	.2708		
STANDARD WT/FT	.3185		

No.	REVISION	BY	DATE
1	ADDED NOTCH	EAS	11-04-11

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TITLE
ALUMINUM REBAR FOR 9257 MEETING RAIL

DRAWN BY:	DESIGNED BY:	DATE	SCALE
EAS	EAS	09-06-11	NTS-1
CHECKED BY:	APPROVED BY:	DRAWING No.	
		9252	

CONSTRUCTION CONSULTING LABORATORY
AAMA/WDA/DMA/CSA 101/I.S.2/A440-17 PERFORMANCE TESTING
CLIENT: MASTER WINDOW SYSTEMS

REPORT: CCL 22-138.e (r*)
DATE: AUGUST 26, 2022
PROJECT: 2700 SINGLE HUNG

QC PRINT NUMBER: 9006qc	DRAWN BY: EAS	CHECKED BY:	APPROVED BY:	DEVELOP	INPROCESS	PRODUCTION

PART NAME:	DESCRIPTION:	SUPPLIER/PLANT:
9006	LOCK RAIL/STILE	CHELSEA BUILDING PRODUCTS

ILLUSTRATION OF PART AND CONTROL POINTS

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NOTES:
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2. FLEXIBLE P.V.C. =
3. EXTERIOR COATING =
4. LAMINATE =
5. THINNER INTERIOR WALLS =
6. WALL THICKNESS = .060 ±.006
7. RADIUS = .020
8. LOCATION FOR IMPACT TEST
9. ANGULARITY =
10. PERPENDICULARITY =
11. PARALLELISM =
12. FLATNESS =
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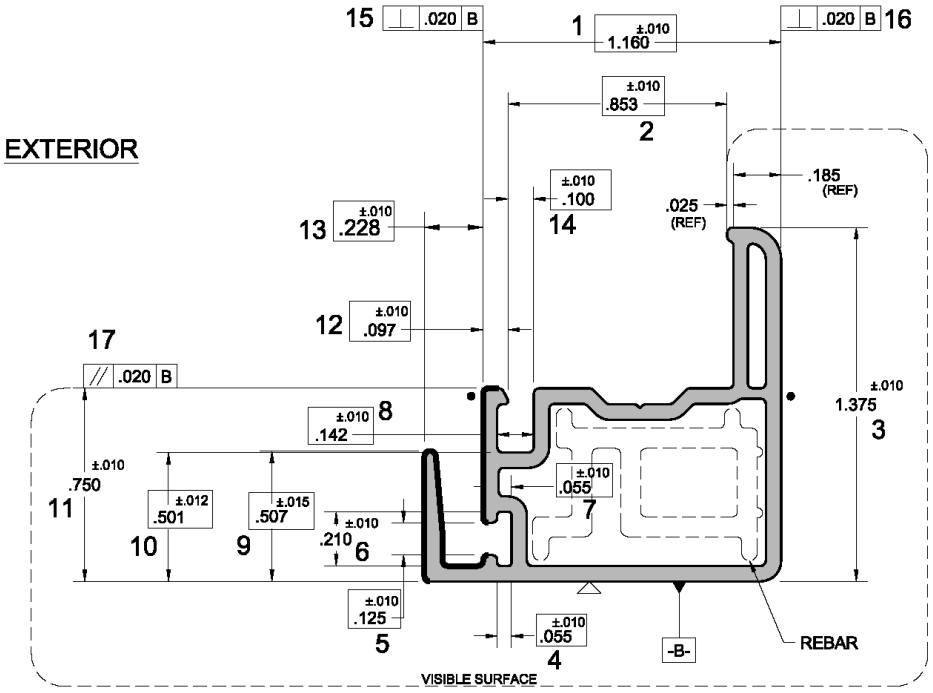
18. PROFILE MUST MEET Q-902 IMPACT RESISTANCE PER AAMA SPECIFICATIONS
19. MAX BOW .046in PER 3ft LENGTH
20. INTERNAL WALL THICKNESS ±.010 UNLESS OTHERWISE SPECIFIED

WEATHERSTRIP SPECIFICATION

POSITION	SIZE	WEATHERSTRIP TYPE

FUNCTIONAL CHECK
WOOLPILE (.187 BACK)
716A GLAZING BEAD
3/4" GLASS BLOCK
9078 COMPOSITE REBAR
9071 ALUMINUM REBAR
9042 STEEL REBAR
DRAWN DATE: 06-25-03



NOTE: REBAR USED IN EVERY WINDOW! REBAR MUST SLIDE FREELY

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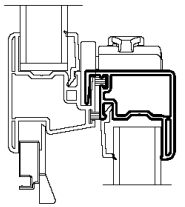
Phone (972) 242-0556
Report#22-138, Date 07-29-22
Reviewed BY EA



INTERLOCK DETAIL
SCALE = .25X

NO.	REVISION	BY	DATE
7	ADDED DIM .501 (#10), WO#13188	BLG	10/21/13
6	REVISED FOR NEW TOOL, REVISED DIMS AND TOLS, WO#13141	EAS	07-16-13
5	MADE DIM 15 CRITICAL; WO#1293	JPP	05-13-11
4	UPDATED DIM 4 TO MATCH TOP HALF	JPP	05-07-09
3	.878 DIM WAS .853 TO NUB; ADDED .100 DIM; .050 DIMS WERE ±.010; RENUMBERED	EAS	06-11-07
2	REVISED TOLS ON 12,13	JPP	02-02-05

CUSTOMER LENGTH	CHELSEA CUT LENGTH	TOLERANCE

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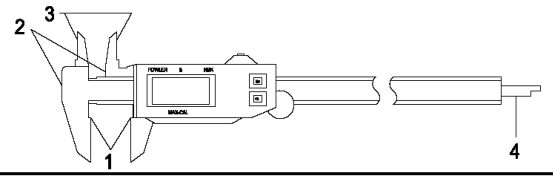
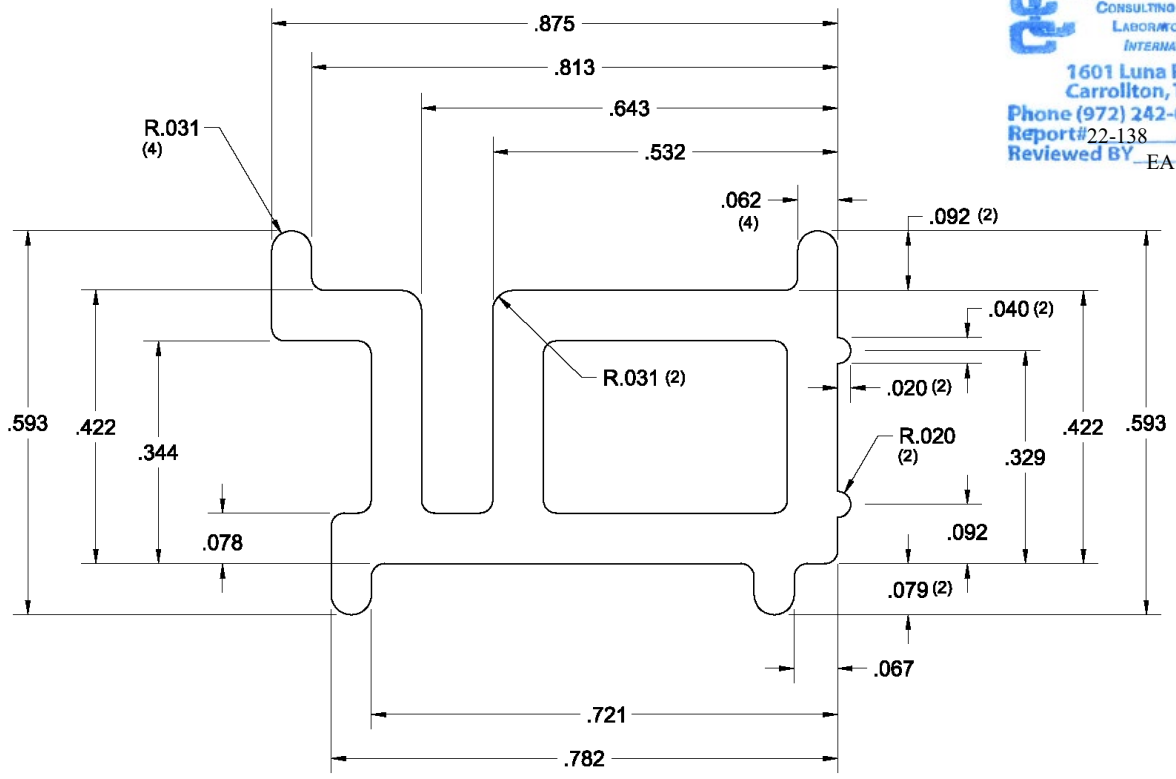
Frequency of sampling: Process Specialist- 3 samples per shift recorded every 4 hours.
Auditor- 1 sample per shift recorded 1 hour after shift start.

IF ANY CONTROL POINTS ARE NOT IN SPEC.
CORRECTIVE ACTION REQUIRED



9071



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1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 22-138 Date 07-29-22
Reviewed BY EA

MATERIAL: 6063 T5 ALUMINUM	
USE DECO LOCK #677206	
PRELIMINARY PART #	
UNLESS OTHERWISE SPECIFIED	
MATERIAL	ALUMINUM
EXTERIOR COATING	
FLEXIBLE P.V.C.	
TOTAL AREA	.2041
STANDARD WT/FT	.2400
WALLS	.078
RADII	.020 R
ANGULARITY	±1°

No.	REVISION	BY	DATE

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TITLE: ALUMINUM LOCK RAIL STIFFENER

DRAWN BY:	DESIGNED BY:	DATE	SCALE
BLG	BLG	03/17/06	NTS-1
CHECKED BY:	APPROVED BY:	DRAWING No.	
		9071	

CONSTRUCTION CONSULTING LABORATORY
AAMA/WDA/DMA/CSA 101/I.S.2/A440-17 PERFORMANCE TESTING
CLIENT: MASTER WINDOW SYSTEMS

REPORT: CCL 22-138.e (r*)
DATE: AUGUST 26, 2022
PROJECT: 2700 SINGLE HUNG

QC PRINT NUMBER: 9005qc	DRAWN BY: JPP	CHECKED BY:	APPROVED BY:	DEVELOP	INPROCESS	PRODUCTION
PART NAME: 9005	DESCRIPTION: HANDLE RAIL	SUPPLIER/PLANT: CHELSEA BUILDING PRODUCTS				

ILLUSTRATION OF PART AND CONTROL POINTS

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NOTES:
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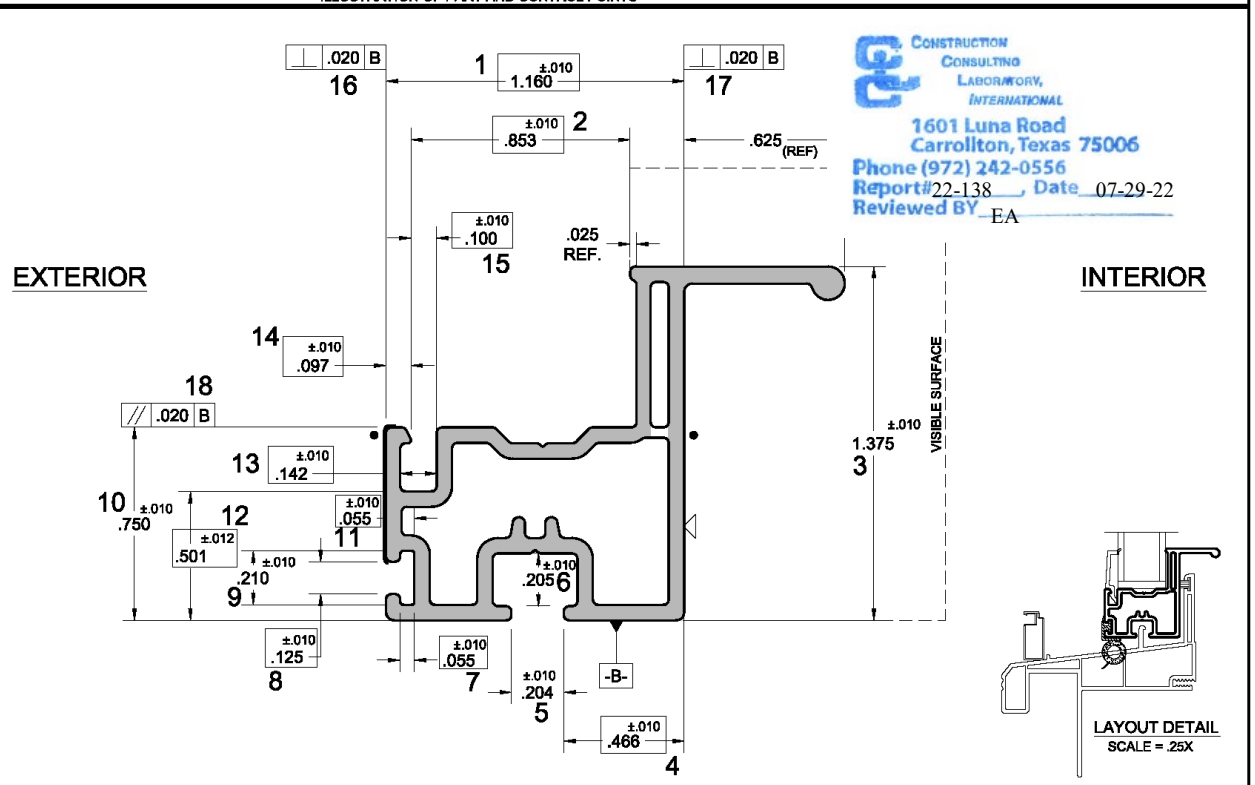
6. WALL THICKNESS = .060 ±.006
7. RADIUS = .020
8. LOCATION FOR IMPACT TEST
9. ANGULARITY =
10. PERPENDICULARITY =
11. PARALLELISM =
12. FLATNESS =
13. SPECIFICATION LENGTH TO ±3/8"
14. ANGULARITY TO BE ± 1°
15. PROFILE MUST MEET Q-303 PER AAMA SPECIFICATIONS
16. PROFILE MUST MEET Q-304 PER AAMA SPECIFICATIONS
17. PROFILE MUST MEET Q-901 PER AAMA SPECIFICATIONS
18. PROFILE MUST MEET Q-902 IMPACT RESISTANCE PER AAMA SPECIFICATIONS
19. MAX BOW .046in PER 3ft LENGTH
20. INTERNAL WALL THICKNESS ±.010 UNLESS OTHERWISE SPECIFIED

WEATHERSTRIP SPECIFICATION

POSITION	SIZE	WEATHERSTRIP TYPE

FUNCTIONAL CHECK
.187 WOOLPILE
716A GLAZING BEAD
3/4" GLASS BLOCK
BSI PIVOT BAR
AMESBURY #32692 SASH SEAL

DRAWN DATE: 06-25-03



Construction Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 22-138 , Date 07-29-22
Reviewed BY EA

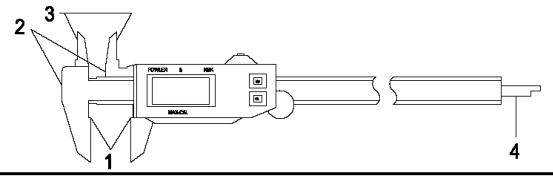
NO.	REVISION	BY	DATE
10	ADDED DIM .501 (#14) & UPDATED TO NEW TOLERANCE STANDARDS, WO#13188	BLG	10/21/13
9	REVISED FOR NEW TOOL, REVISED DIMS AND TOLS, WO#13147	EAS	07-31-13
8	REVISED FUNCTIONAL CHECK AMESBURY SASH SEAL NO.	EAS	07-05-12
7	MADE DIM 16 CRITICAL; WO#1293	JPP	05-13-11
6	ADDED .020 R	JPP	02-14-11
5	.878 DIM WAS .853 TO NUB; ADDED .100 DIM; .050 DIMS WERE ±.010; RENUMBERED	EAS	06-11-07

CUSTOMER LENGTH	CHELSEA CUT LENGTH	TOLERANCE

Use the caliper diagram as your guide to measure the following control points.
Measure the following control points using #1 on the caliper diagram:
Measure the following control points using #2 on the caliper diagram:
Measure the following control points using #3 on the caliper diagram:
Measure the following control points using #4 on the caliper diagram:

Frequency of sampling: Process Specialist- 3 samples per shift recorded every 4 hours.
Auditor- 1 sample per shift recorded 1 hour after shift start.

IF ANY CONTROL POINTS ARE NOT IN SPEC.
CORRECTIVE ACTION REQUIRED



QC PRINT NUMBER: 9216QC	DRAWN BY: EAS	CHECKED BY:	APPROVED BY:	DEVELOP	INPROCESS	PRODUCTION

PART NAME:	DESCRIPTION:	SUPPLIER/PLANT:
9216	GLAZING BEAD	CHELSEA BUILDING PRODUCTS

ILLUSTRATION OF PART AND CONTROL POINTS

CHELSEA BUILDING PRODUCTS, INC.
565 CEDAR WAY, OAKMONT PA 15139

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NOTES:
1. MATERIAL = RIGID P.V.C.
2. FLEXIBLE P.V.C. =
3. EXTERIOR COATING =
4. LAMINATE =
5. THINNER INTERIOR WALLS =
6. WALL THICKNESS = .045 ±.005
7. RADIUS = .010
8. LOCATION FOR IMPACT TEST
9. ANGULARITY =
10. PERPENDICULARITY =
11. PARALLELISM =
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WEATHERSTRIP SPECIFICATION

POSITION	SIZE	WEATHERSTRIP TYPE

FUNCTIONAL CHECK
705 LIFT RAIL
706 LOCK RAIL
707 KEEPER RAIL
9210 SH HEAD/PW FRAME
9213 SH JAMB

DRAWN DATE: 10-07-11

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
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Report# 22-138, Date 07-29-22
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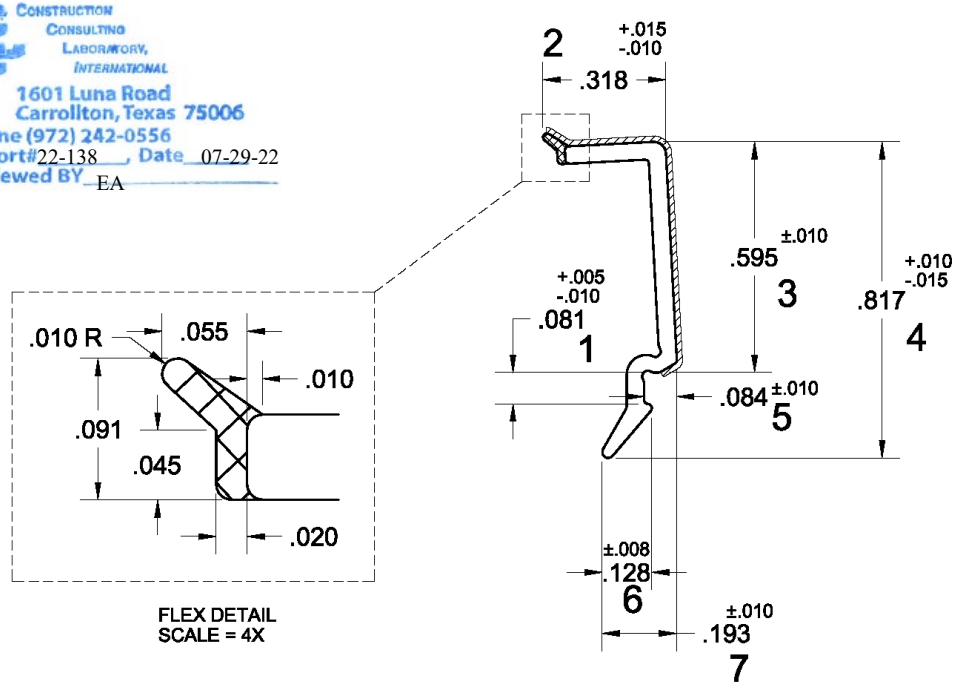

FLEX DETAIL
SCALE = 4X

NO.	REVISION	BY	DATE

CUSTOMER LENGTH	CHELSEA CUT LENGTH	TOLERANCE

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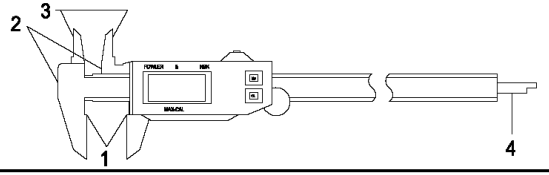

QC PRINT NUMBER: 716AQC	DRAWN BY: EAS	CHECKED BY:	APPROVED BY:	DEVELOP	INPROCESS	PRODUCTION

PART NAME:	DESCRIPTION:	SUPPLIER/PLANT:
716A	GLAZING BEAD	CHELSEA BUILDING PRODUCTS

ILLUSTRATION OF PART AND CONTROL POINTS

CHELSEA BUILDING PRODUCTS, INC.
565 CEDAR WAY, OAKMONT PA 15139

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WEATHERSTRIP SPECIFICATION

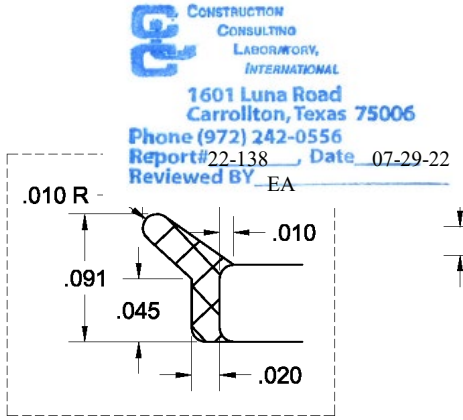
POSITION	SIZE	WEATHERSTRIP TYPE

FUNCTIONAL CHECK
705 LIFT RAIL
706 LOCK RAIL
707 KEEPER RAIL

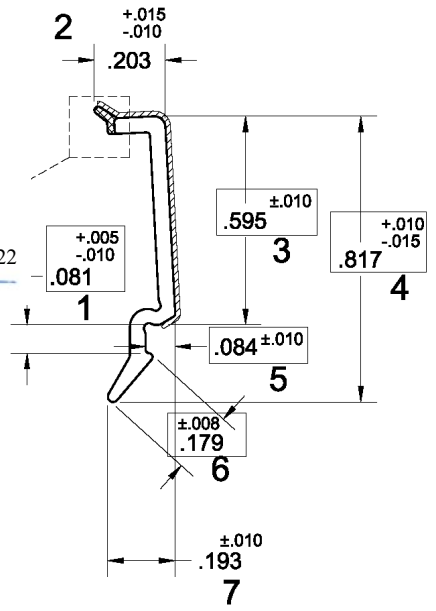
DRAWN DATE: 04-24-07

ALL PARTS ARE TO BE PACKED IN SAME DIRECTION

FLEX
W, OW, CW - USE WHITE FLEX
B, SND - USE BEIGE FLEX



FLEX DETAIL
SCALE = 4X



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Report# 22-138 Date 07-29-22
Reviewed BY EA

NO.	REVISION	BY	DATE
6	ADDED PACK NOTE; WO#13130	EAS	06-20-13
5	REVISED DIM 6; ADDED CRITICALS PER PLANT MANAGER REQUEST	EAS	06-11-13
4	REVISED BORDER	DRN	05-21-13
3	ADDED FLEX NOTE	DRN	05-21-13
2	REVISED DIM .193 TOL & DIM .128 TOL	EAS	05-12-08
1	REVISED SNAP IN LEG; DIM .193 WAS .198; DIM .128 WAS .138	EAS	06-04-07

CUSTOMER LENGTH	CHELSEA CUT LENGTH	TOLERANCE

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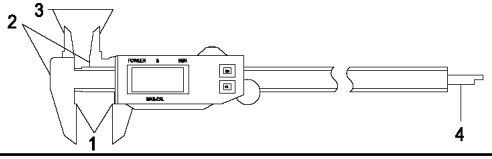

- END OF REPORT -