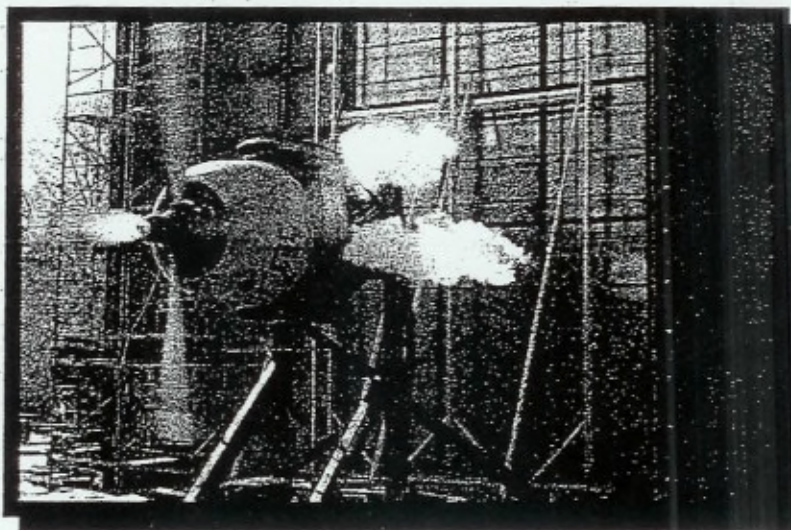




CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



TEST REPORT:

**AAMA 501-94 PERFORMANCE TEST
US ALUMINUM TOP NOTCH SYSTEM
REPORT #CCLI-00-046**

May 1, 2000

Prepared for:

United States Aluminum Corporation
200 Singleton Drive
Waxahachie, TX 75165

1601 Luna Road
Carrollton, Texas 75006

S-UNITED, INC.
A Quality Control Company

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AAMA 501-94 PERFORMANCE TEST
US ALUMINUM TOP NOTCH SYSTEM
REPORT # CCLI-00-046

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1. PROJECT DATA

<u>Project:</u>	AAMA 501-94 Performance Testing US Aluminum Top Notch System Mock-Up
<u>Date of Testing:</u>	April 7, 2000
<u>Tested For:</u>	United States Aluminum Corporation 200 Singleton Drive Waxahachie, TX 75165

Witnessed By: (All or Partial Viewing)

Greg Hall
Terry Hopgood

U.S. Aluminum Corporation
U.S. Aluminum Corporation

Jeffrey Crump

Construction Consulting Laboratory, *International*



2. INTRODUCTION

This report presents the performance results of US Aluminum Corporation Top Notch System Mock-Up. Tests were conducted at US Aluminum Corporation testing facility in Waxahachie, TX.

3. SCOPE

The purpose of this test was to verify performance characteristics of the US Aluminum Corporation Top Notch System Mock-Up when tested in accordance with AAMA 501.94, Methods of Tests for Exterior Walls.

4. SUMMARY

US Aluminum Top Notch System Mock-Up complied with the performance requirements when tested in accordance with test methods noted in AAMA 501-94 with the following results:

- Air Infiltration of 0.02 cfm/ft² (.006 m³/min·m²) @ 6.24 psf.
- No Water Penetration @ 10 psf (.48 kPa).
- No Water Penetration @ 12 psf (.57 kPa) with a continuous seal at interior sill glazing gasket.
- Uniform Load Deflection of .530" (13.46mm) positive and .520" (13.21mm) negative @ 40.0 psf (1.92 kPa).
- No glass breakage or permanent deformation @ 60 psf +/- (2.87kPa) Uniform load Structural Test.
- Right Intermediate mullion failed with No glass breakage @ 127 psf +/- (6.08 kPa) Uniform Load Structural test to destruction.
- Head/Sill connections and anchoring members did not fail @ 127 psf (6.08 kPa) destruction test.

5. TEST SPECIMEN

<u>PRODUCT TYPE:</u>	Aluminum Thermally Broken Mock-Up, Photograph 1
<u>SERIES/MODEL:</u>	Top Notch System
<u>OVERALL SIZE:</u>	10' 10-½" x 8'-10" (3.31m x 2.69m)
<u>CONFIGURATION:</u>	Reference Mock-Up drawings, Appendix A

WEATHER-STRIP: None

GLASS: Sealed Insulated glass, 2 pcs ¼" (6.35mm) annealed, ½" (12.7mm) air spacer, and 1" (25.4mm) overall thickness.



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GLAZING: Captured glazed with wedge gasket part #NP-225 at interior and exterior of glass.

WEEP ARRANGEMENT: Total of six (6) $\frac{9}{32}$ " (7.14mm) weep holes spaced at quarter points at each setting block location with weep baffle part #UB-624 at interior of sill only. One (1) 1- $\frac{1}{2}$ " (38.1mm) weep tube at each continuous vertical, total of four (4).

SEALANT: All frame corners and vertical to horizontal connections silicone sealed. Sealant applied 2" (50.8mm) vertically and horizontally at gasket corners. **Continuous bead of sealant at interior sill glazing gasket full span.* Sealant applied to end dams and end dam fasteners at head, sill and verticals with foam blocks sealed to end dams at sill only. Sealed void between water diverter part #WD-200 and WD-210 at vertical glass pocket to horizontal pocket, **Mock-Up Drawing, Appendix A.**

**Continuous bead of sealant at interior sill glazing gasket was not required to pass water resistance test @ 10 psf (.48 kPa).*

INSTALLATION: Test specimen attached to chamber with two (2) $\frac{1}{4}$ " x 3" (6.35mm x 76.2mm) lag bolts spaced 2" (50.8mm) each side of vertical and at center of each D.L.O, at midpoint of frame jambs and 4" (101.6mm) from each jamb and on each side of vertical mulls at head and sill.

OTHER-FEATURES: Frame members are thermally broken, corners are coped; butted, and attached with four (4) #10 x 1" (25.4mm) screws at vertical to head and four (4) #10 x 1" (25.4mm) hex head screws at vertical to sill. Shear clip attached to intermediate vertical members with two (2) #10 x 2" (50.8mm) pan head screws, **Mock-Up Drawing, Appendix A.**

Date testing started: April 7, 2000
Date testing completed: April 7, 2000
Testing performed at: United States Aluminum testing facility in Waxahachie, Texas.

Refer to Mock-Up drawing in Appendix A, this report is not complete unless this drawing is stamped by this laboratory symbol are included.



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6. PERFORMANCE RESULTS

<u>Title of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Air Infiltration @ 6.24psf (.30 kPa)	ASTM E 283-91	0.02 cfm/ft ² (0.006 m ³ /min·m ²)	0.06 cfm/ft ² (.018 m ³ /min·m ²)
Water Resistance @ 10.00psf (.48 kPa)	ASTM E 331-96	No Leakage	No Leakage
Water Resistance @ 12.00psf (.57 kPa)	ASTM E 331-96	No Leakage	No Leakage
Uniform Load Deflection	ASTM E 330-97		
-Interior @ 40.00 psf (1.92 kPa)		0.520" (13.21mm)	0.580" (14.73mm)
-Exterior @ 40.00 psf (1.92 kPa)		0.530" (13.46mm)	0.580" (14.73mm)
Uniform Load Structural	ASTM E 330-97		
-Interior @ 60.00 psf (2.87 kPa)		No Damage	No Damage
-Exterior @ 60.00 psf (2.87 kPa)		No Damage	No Damage
-Permanent Set		Negligible	0.406" (10.31mm)
Uniform Load Structural (to destruction)	ASTM E 330-97		
-Interior @ 127 psf (6.08 kPa)		No Glass Breakage	

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and were compared to the test specimen. These records will be retained at CCLI for a period of four years.

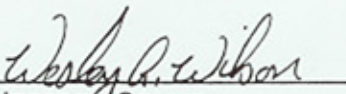


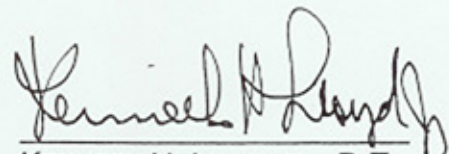
7. CONCLUSION

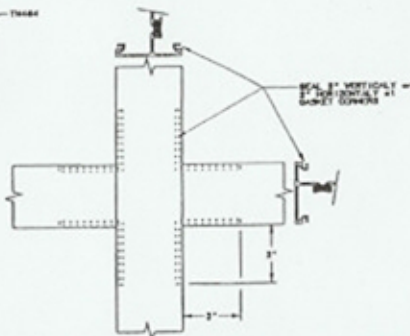
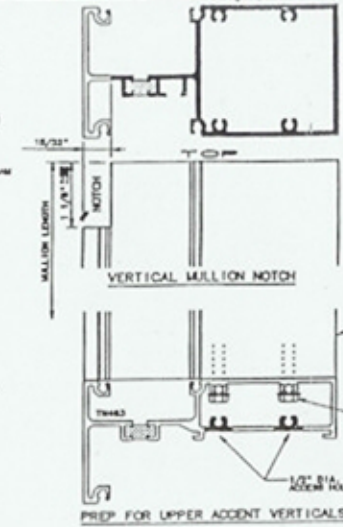
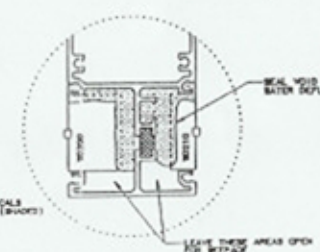
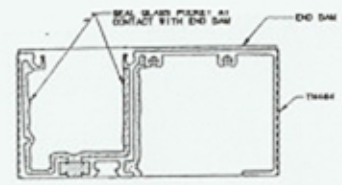
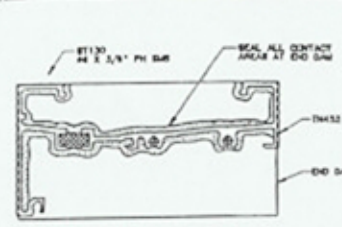
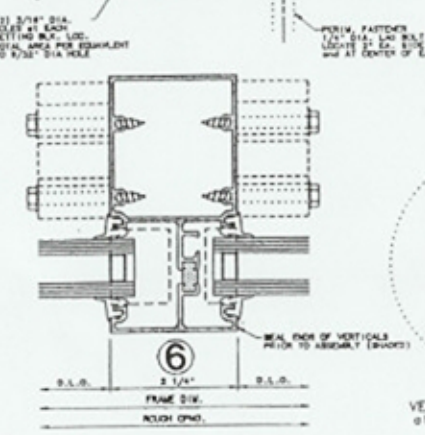
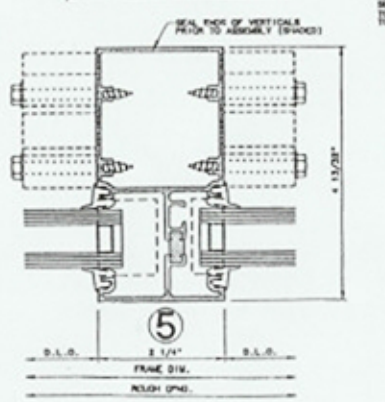
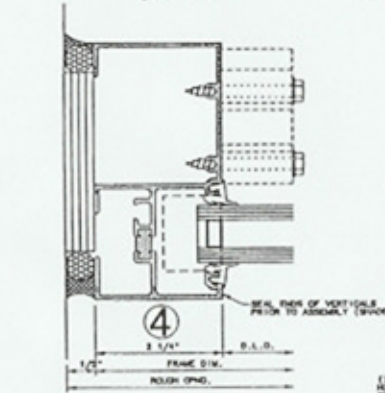
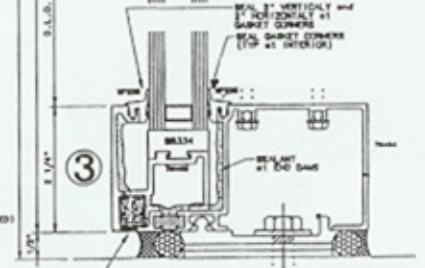
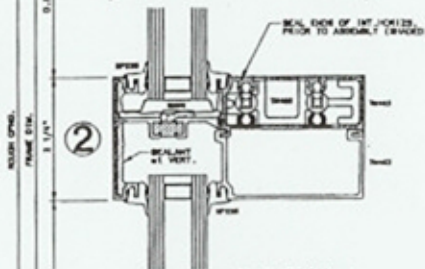
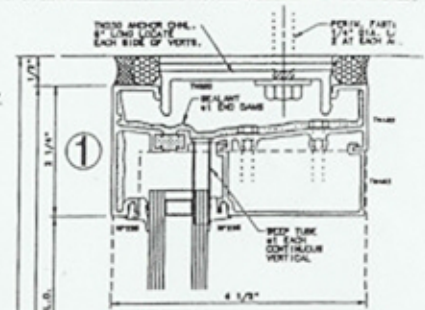
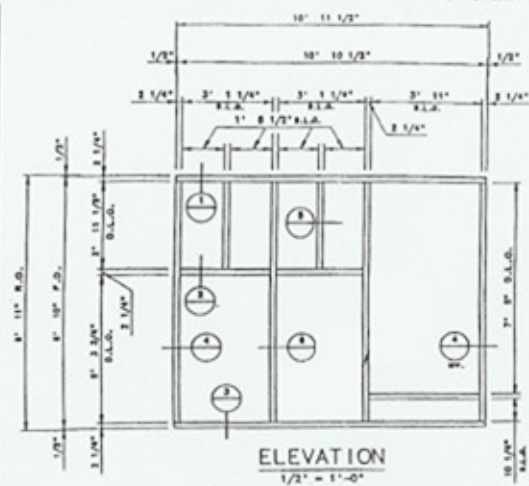
The test specimen meets the Laboratory test requirements of AAMA 501-94. The above results were obtained by using the designated test methods.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*


for JEFFREY CRUMP
TECHNICIAN


KENNETH H. LLOYD JR., P.E.
MANAGER



OF MATERIAL		
PART #	QTY.	LENGTH
TH462 HEAD	1	1.50 1/2"
TH463 INT. HORIZ.	3	27 1/4"
TH464 INT. HORIZ.	1	43"
TH464 FILL	1	1.50 1/2"
TH461 JAMB	3	102 6/8"
TH460 TOP MULLION	3	102 6/8"
TH465 ACCENT MULL	2	26 6/8"
TH463 GLASS STOP	2	17 15/32"
TH462 GLASS STOP	4	25 7/32"
TH463 GLASS STOP	3	48 31/32"
TH460 BUMP TUBE	6	1 5/8"
TH465 BEAR CLIP	6	1 1/8"
TH460 HEAD ANCHOR	12	6"
TH463 FILL ANCHOR	1	128 1/2"
TH464 BOTTLE GLASS	6	4"
BH378 BKT "N BUL 1/4"	12	6"
BH334 BKT "N BUL 1/4"	6	4"
BH300 WATER DIVORTER	4	
BH210 WATER DIVORTER	2	
UB405 RECP BUFFLE	6	4"
END SHAW	4	7 7/8"
HP228 GASKET		
ET1261 ARMOR. BROWSE	48	110 x 1"
PAIR. FASTENERS 31		
ET1367 CLIP. FASTENERS	12	110 x 3/4"
ET1382 END SHAW FASTEN B	4	98 x 3/8"
GLASS 36 5/8" x 26 5/8"	4	1" ANGLE THIN
GLASS 36 5/8" x 26 5/8"	3	1" ANGLE THIN

UNITED STATES ALUMINUM CORPORATION
Birmingham, Alabama
Manufacturing Facilities

TEST REQUIREMENTS

ALLOWABLE AIR INFILTRATION:
(ASTM E283-81)
ON 150/30. FT. = 0.24 PSF

ALLOWABLE WATER INFILTRATION:
(ASTM E331-81)
NO UNCONTROLLED WATER = 10 PSF

STRUCTURAL PERFORMANCE:
(ASTM E330-81)
DESIGN = 40 PSF
PROVE = 80 PSF (1/2 IN X 800-100)
AT 1/178, 3/4" MAX.

AREA OF SPECIMEN:	88.8 SQ. FT.
INFILLS:	1" 80/100 Thermal
FINISH:	PAINTED
PERIMETER SEAL:	OW 795
SYSTEM SEAL:	OW 795

NOTES:
1. TEST PERFORMED 4-7-00
SAND-12

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