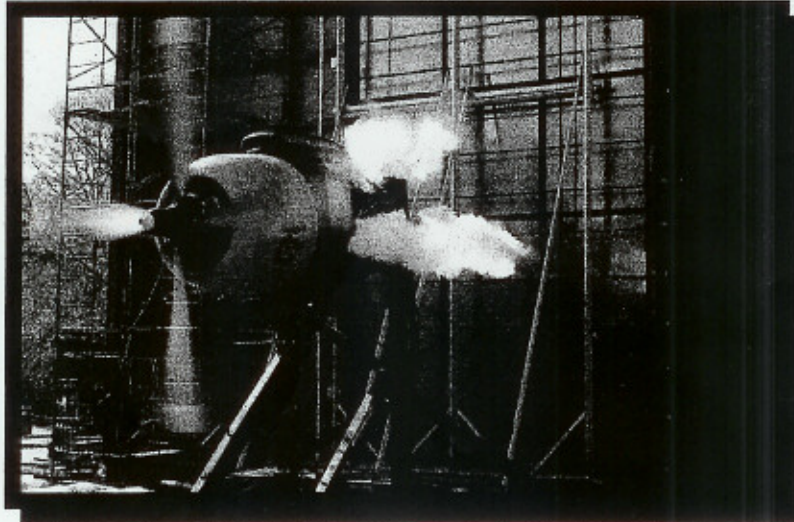




CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



TEST REPORT:

**AAMA 501-94 PERFORMANCE TEST
U.S. ALUMINUM SERIES FLUSH FRONT 451 MOCK UP
REPORT #CCLI-03-118**

October 8, 2003

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

Office: (972) 242-0556
FAX: (972) 245-6047



AAMA 501-94 PERFORMANCE TEST
U.S. ALUMINUM SERIES FLUSH FRONT 451 Mock Up
REPORT #CCLI-03-118

October 8, 2003
Page 1 of 4

1. PROJECT DATA

<u>Project:</u>	AAMA 501-94 Performance Testing Series Flush Front 451
<u>Date of Testing:</u>	July 18, 2003
<u>Tested For:</u>	United States Aluminum Corporation 200 Singleton Drive Waxahachie, TX 75165

<u>Witnessed By:</u>	(All or Partial Viewing)
Michael Brown	U.S. Aluminum Corporation
Terry Hopgood	U.S. Aluminum Corporation
Jeffrey Crump	Construction Consulting Laboratory, <i>International</i>



AAMA 501-94 PERFORMANCE TEST
U.S. ALUMINUM SERIES FLUSH FRONT 451 Mock Up
REPORT #CCLI-03-118

October 8, 2003
Page 2 of 4

2. SCOPE


Construction Consulting Laboratory, *International* (CCLI) was requested to witness performance testing on a United States Aluminum Series **Flush Front 451** Mock-Up. Tests were performed in accordance with AAMA 501-94 Laboratory Test Specification.

3. TEST SPECIMEN

PRODUCT TYPE: Aluminum Storefront, **Drawings Appendix A, Photograph Appendix B**
SERIES/MODEL: U.S. Aluminum Series **Flush Front 451**
OVERALL SIZE: **9'-4 $\frac{1}{4}$ " x 7'- $\frac{3}{4}$ "**
CONFIGURATION:



Refer to mock-up drawings in **Appendix A**. This report is not complete unless these drawings are stamped and initialed by CCLI as illustrated below.

 Construction Consulting
Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report # 03-118 Reviewed By [Signature]
Date: 10-8-03

WEATHER-STRIP: None

GLASS: Upper lites: $\frac{1}{4}$ " monolithic tempered glass. Lower Lites: 1" overall thickness sealed insulating glass, 2pcs $\frac{1}{4}$ " tempered with $\frac{1}{2}$ " air spacer.

GLAZING: NP-225 at all interior and exterior gaskets. No special adapters were required for 1" insulated glass. IS-251 glass adapters used when $\frac{1}{4}$ " glass is used. Applied to verticals and intermediate horizontals. Frame head contained M-525 glass bead.



AAMA 501-94 PERFORMANCE TEST
U.S. ALUMINUM SERIES FLUSH FRONT 451 Mock Up
REPORT #CCLI-03-118

October 8, 2003
Page 3 of 4

HARDWARE: None

WEEP ARRANGEMENT: 1 1/4" x 1/8" weep slot located at frame sill flashing (FF-400) 8" from each end and 24" O.C. total of (5) five.

ANCHORS: 1/4" dia. wood screws 6" from each end and 24" O.C. at frame sill. Frame head horizontal attached by 4" long channel (part #HC-200) which were attached by #12 x 3" flat head wood screw at each channel, two (2) per lite near end of horizontal.

SEALANT: Exterior perimeter seal applied with Dow 795, continuously, at jambs, head and sill. Interior perimeter seal applied with Dow 795, continuously, at jambs, head and sill. End of glass stop sealed (at head only) then it passed air and water tests; however, this seal was not required to pass 12 PSF and 15 PSF water pressures. Buttered ends of horizontal gaskets with Dow 795. Buttered ends of each horizontal frame with Dow 795 (entire contour of the horizontal as shown on mock-up drawings). Continuously sealed between the IS-251 and frame mullion or frame horizontal. This seal was applied after installing the IS-251. Applied & sealed CP-550 end cap (at top of verticals). At top of each vertical, completely sealed water deflectors (in each glass pocket). Applied and then sealed splice sleeve into FF-400 sill flashing. See detail "Q" on page 12-B2 of installation instructions. End dams (EC-480) were applied and sealed to ends of FF-400 at jamb locations.

OTHER-FEATURES: RX-210 (thermally slotted) filler was used at the intermediate vertical PF-100 filler was used continuously at the jambs. Side blocks (W-shapes) were inserted into deep pockets of verticals (at center of height, in each light) ST-251 #10 x 1" HH sheet metal screws were used for assembly of all vertical and horizontal frames. Vertical pieces (IS-251) were cut to DLO, approximately. Horizontal pieces (IS-251) were cut to DLO minus 1/32", approximately.

Date testing started: July 18, 2003

Date testing completed: July 18, 2003

Testing performed at: United States Aluminum testing facility in
Waxahachie, Texas



AAMA 501-94 PERFORMANCE TEST
U.S. ALUMINUM SERIES FLUSH FRONT 451 Mock Up
REPORT #CCLI-03-118

October 8, 2003
Page 4 of 4

4. PERFORMANCE RESULTS

<u>Title of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Air Infiltration @ 6.24 PSF	ASTM E 283	0.04 Cfm/ft ²	0.06Cfm/ft ²
Water Resistance @12.00 PSF	ASTM E 331	No Leakage	No Leakage
Water Resistance @15.00 PSF	ASTM E 331	No Leakage	No Leakage
Uniform Load Deflection -34.00 PSF Positive -34.00 PSF Negative	ASTM E 330	0.245" 0.260"	0.484" 0.484"
Uniform Load Deflection -47.00 PSF Positive -47.00 PSF Negative	ASTM E 330	0.345" 0.290"	0.484" 0.484"
Uniform Load Structural -Positive @ 70.50 PSF -Permanent Set -Negative@ 70.50 PSF -Permanent Set	ASTM E 330	No Damage .0625" No Damage .09375"	No Damage 0.170" No Damage 0.170"

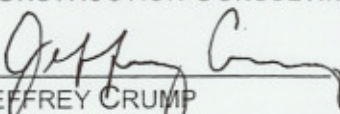
Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and were compared to the test specimen. These records will be retained at CCLI for a period of four years.

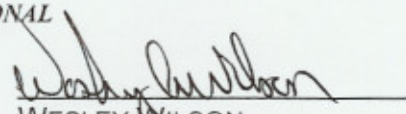
5. CONCLUSION

The test specimen met 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


JEFFREY CRUMP
TECHNICIAN


WESLEY WILSON
LABORATORY MANAGER

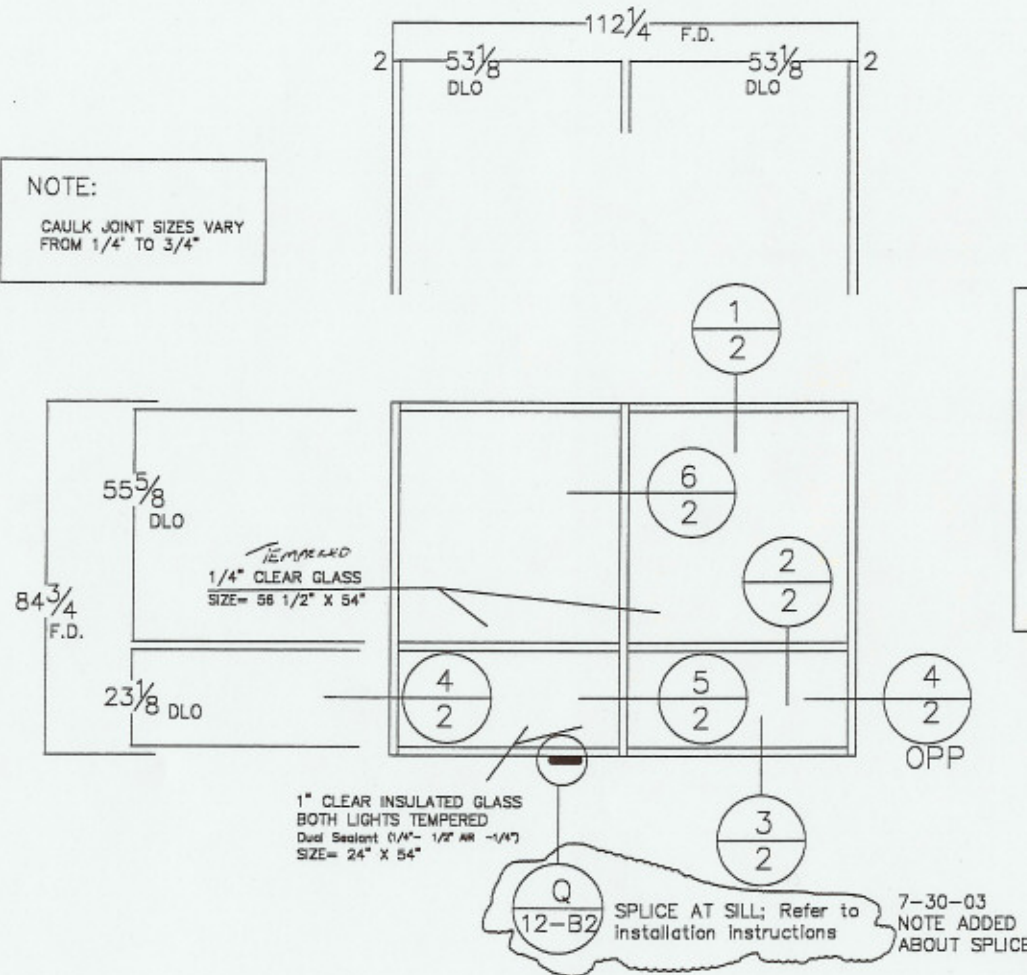
CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL



United States
ALUMINUM
COMMERCIAL PRODUCTS GROUP

NOTE:

CAULK JOINT SIZES VARY
FROM 1/4" TO 3/4"



TEST PROCEDURE:

6.24 PSF (air = .06 CFM/sq.ft.) = ASTM E 283
15 PSF water = ASTM E 331
47 PSF (design load) = ASTM E 330
70 PSF (design load) = ASTM E 330

Notes:

Intermediate vertical was 6063-T6 material

Construction Consulting
Laboratory, International
1601 Luns Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report # CB-118 Reviewed By Jr
Date: 10-8-03

ELEVATION for FF451

ALUMINUM Notes:

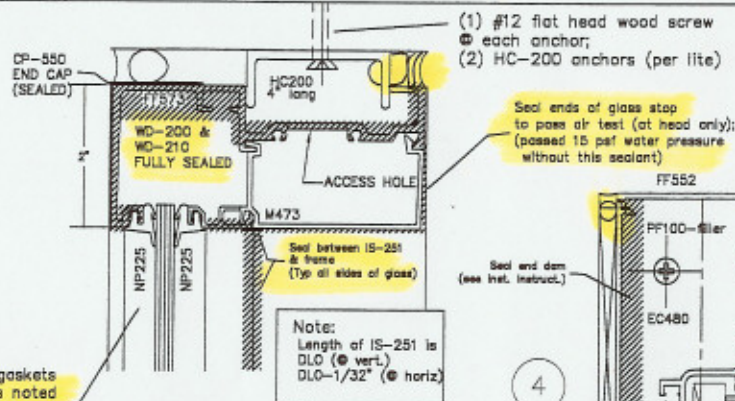
CLEAR ANODIZED
EXCEPT END DAMS

PAGE 1



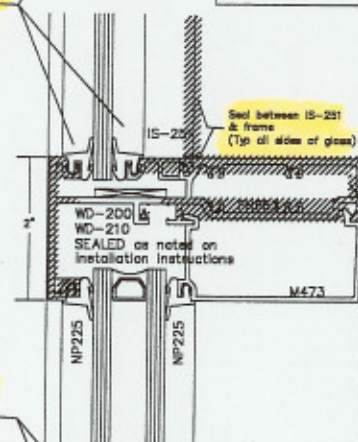
**United States
ALUMINUM**
COMMERCIAL PRODUCTS GROUP

1
HEAD



Seal butt end of gaskets
at all horizontals, as noted
on installation instructions
(interior & exterior gaskets)

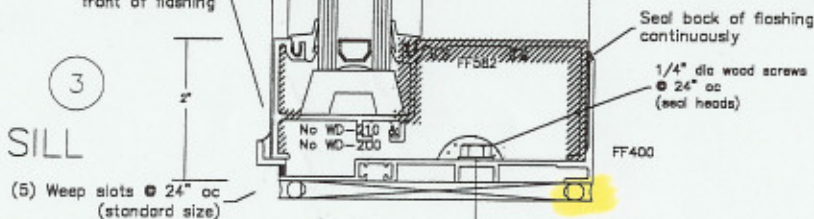
2
INT. HORIZ



Seal butt end of gaskets
at all horizontals, as noted
on installation instructions
(interior & exterior gaskets)

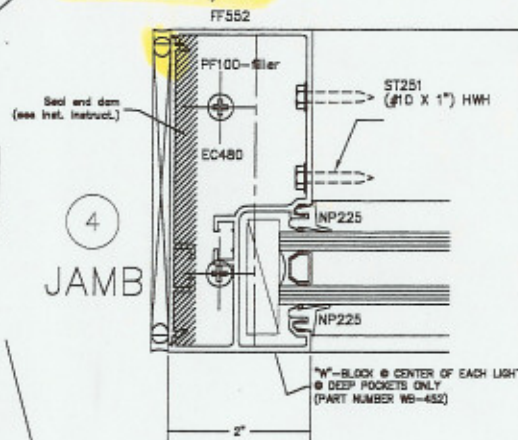
Cont. seal @
front of flashing

3
SILL



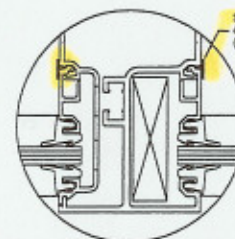
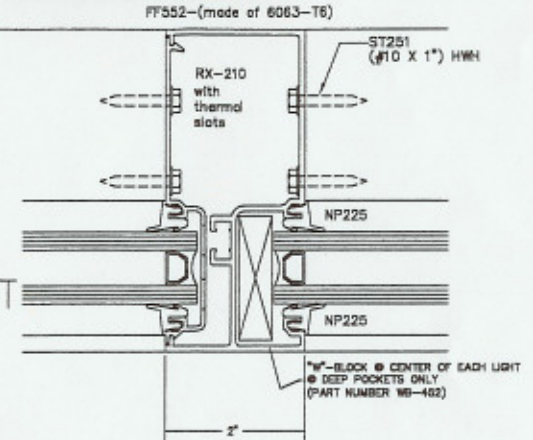
(5) Weep slots @ 24\"/>

4
JAMB



NOTE:
Butt ends of each horiz.
as noted in install. instruct.

5
INT
VERT



6
1/4\"/>

DETAILS for FF-451
PAGE 2

Notes:

Use one-part silicone sealant
applied as indicated on
installation instructions

All end dams and water deflectors sealed
as shown on installation instructions

Construction Consulting
Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556

Report #03-118 Reviewed By
Date: 10-8-03