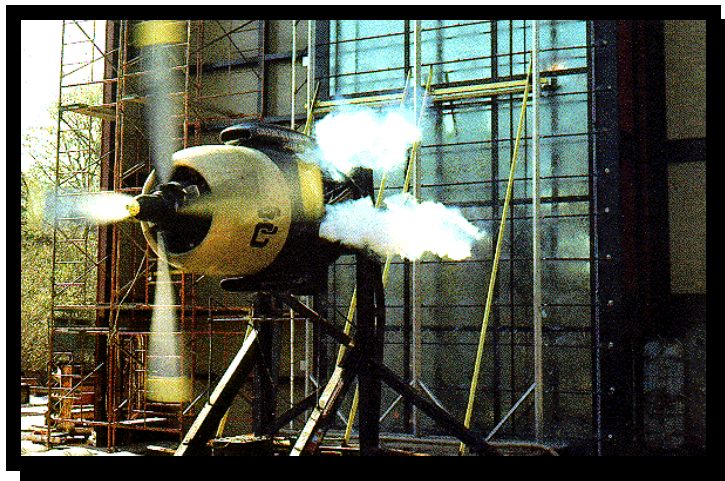




CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



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***TEST REPORT:***

**AAMA 501-05 PERFORMANCE REPORT  
UNITED STATES ALUMINUM  
SERIES FF 451 STOREFRONT SYSTEM  
REPORT CCLI #10-002**

**January 11, 2010**

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Prepared for:

**UNITED STATES ALUMINUM**  
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 501-05 PERFORMANCE REPORT  
UNITED STATES ALUMINUM  
SERIES FF 451 STOREFRONT SYSTEM  
REPORT CCLI #10-002

January 11, 2010

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### APPENDIX:

APPENDIX A: UNITED STATES ALUMINUM SERIES FF 451 STOREFRONT  
DRAWINGS

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

Detail	Detail	Date	Stamped as Illustrated
U.S. Aluminum	Elevation	12/7/09	
U.S. Aluminum BOM			
U.S. Aluminum	USA-3124	12/7/09	
U.S. Aluminum	USA-3114	12/7/09	
U.S. Aluminum	USA-3124	12/7/09	
U.S. Aluminum	USA-3124	12/7/09	
U.S. Aluminum	USA-3124	12/7/09	

**S-UNITED, INC.**

*A Quality Control Company*



AAMA 501-05 PERFORMANCE REPORT  
UNITED STATES ALUMINUM  
SERIES FF 451 STOREFRONT SYSTEM  
REPORT CCLI #10-002

January 11, 2010  
Page 1 of 3

## 1. PROJECT DATA

**Project:** AAMA 501-05 Performance Testing  
United States Aluminum  
Series FF 451 Storefront System

**Date of Testing:** December 23, 2010

**Test Performed At:** US Aluminum testing facility in Waxahachie, TX.

**Tested For:** United States Aluminum  
200 Singleton Drive  
Waxahachie, TX 75165

**Witnessed By:** (All or Partial Viewing)

Terry Hopgood United States Aluminum

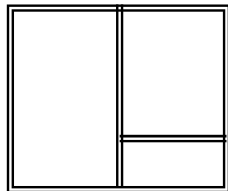
Jeffrey Crump Construction Consulting Laboratory, *International*

## 2. SUMMARY

The United States Aluminum Series FF 451 Storefront System was tested in accordance with AAMA 501-05 and passed the short form requirements noted in laboratory test specifications section for Air Infiltration @ 6.24 Psf, Water Penetration @ 8.00 Psf, Uniform Load Deflection @ 30 Psf with a positive measured deflection of .320" and a negative measured deflection of .315", with an allowable of .551". Uniform Load Structural Test was performed @ 45 Psf positive and negative with no glass breakage or unallowable permanent deformation.

## 3. TEST SPECIMEN

**Product Type:** Aluminum Storefront, **Product Drawings, Appendix A**  
**Series Model:** FF 451 Storefront System  
**Publication No.:** AAMA 501-05  
**Frame Size:** 7'-11<sup>3</sup>/<sub>16</sub>" x 8'-<sup>9</sup>/<sub>16</sub>"  
**Configuration:**





AAMA 501-05 PERFORMANCE REPORT  
UNITED STATES ALUMINUM  
SERIES FF 451 STOREFRONT SYSTEM  
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January 11, 2010  
Page 2 of 3

**Weather-Stripping:** None.

**Hardware:** None.

**Glass:** Sealed Insulated Glass: 2 pcs 1/4" tempered, 1/2" air spacer, and 1" overall thickness.

**Glazing:** Exterior glazed using glazing gasket (part #NP225) at interior and exterior of glass with horizontal glazing stops (part #M 573) at frame horizontal members.

**Weep Arrangement:** 1 1/4" x 3/16" weep slot located at frame sill flashing (FT-400), 2 1/2" from each vertical member, two under each lite (total of 4)..

**Sealant:** Frame is interior and exterior perimeter sealed with backer rod and Tremco silicone. Glazing gasket ends (part #NP225) buttered with silicone. Continuous seal located at interior and exterior of frame sill (part #FT583) and sill flashing (part #FT400). Water deflectors completely sealed (at head only) and sealed at interior on horizontal mullion. End dams embedded in silicone.

**Reinforcement:** None.

**Installation Features:** Test specimen was installed in a #2 (2" x 8") yellow pine wood test buck with #12 x 3" flat head wood screws , two (2), screws spaced 3" apart were located approximately 7" from each vertical mull. Frame sub-sill attached with 1/4" dia. wood screws 6" from each end and 12" on center.

**Other Features:** Frame member's thermally broken using polyurethane. Horizontal and vertical members attached using two (2) #10 x 1" HH-SMS per connection.



AAMA 501-05 PERFORMANCE REPORT  
UNITED STATES ALUMINUM  
SERIES FF 451 STOREFRONT SYSTEM  
REPORT CCLI #10-002

January 11, 2010  
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#### 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 283-04	0.039 CFM/Ft <sup>2</sup>	0.06 CFM/Ft <sup>2</sup>
Water Resistance @ 8.00 Psf	ASTM E 331-00	No Leakage	No Leakage
Uniform Load Deflection @ Vertical Mullion -Positive @ 30 Psf -Negative @ 30 Psf	ASTM E 330-02	0.320" 0.315"	0.551" 0.551"
Uniform Load Structural -Positive @ 45 Psf -Negative @ 45 Psf -Permanent Set	ASTM E 330-02	No Damage No Damage 0.0625"	No Damage No Damage 0.193"

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 **CCLI** for a period of four years.

#### 5. DISCLAIMER

The test specimen was tested in accordance with the short form requirements of AAMA 501-05. The results were obtained by using the designated test methods.

Respectfully submitted,

**CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL**

WESLEY A. WILSON  
LABORATORY MANAGER

JEFFREY CRUMP  
TESTING MANAGER



AAMA 501-05 PERFORMANCE REPORT  
**UNITED STATES ALUMINUM**  
SERIES FF 451 STOREFRONT SYSTEM  
REPORT CCLI #10-002

January 11, 2010

## APPENDIX



AAMA 501-05 PERFORMANCE REPORT  
UNITED STATES ALUMINUM  
SERIES FF 451 STOREFRONT SYSTEM  
REPORT CCLI #10-002

January 11, 2010

**APPENDIX A**

**PROJECT DRAWINGS**

<b><u>DRAWINGS</u></b>	<b><u>DETAIL #</u></b>	<b><u>DATE</u></b>
US Aluminum	Elevation	11/10/09
US Aluminum Bill of Materials		
US Aluminum		11/10/09
US Aluminum		11/11/09
US Aluminum		11/10/09
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US Aluminum		11/10/09
US Aluminum		11/10/09

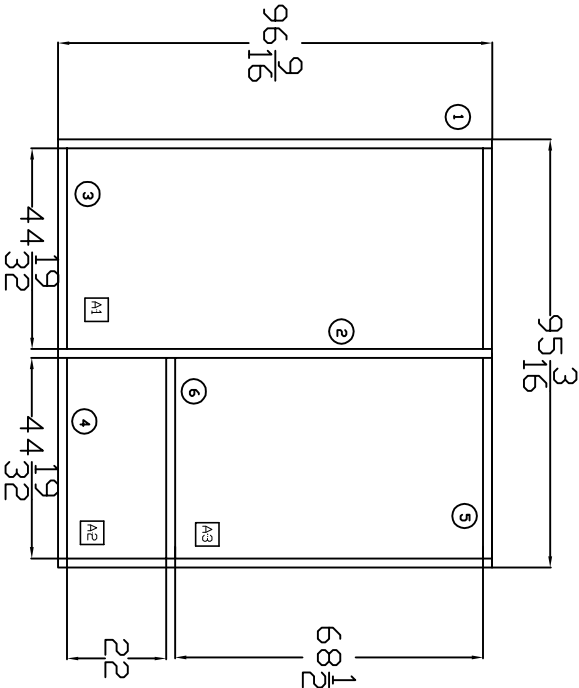
**- END OF REPORT -**

TEST REQUIREMENTS

ASTM E 283-91 (Air Infiltration)  
ASTM E 331-86 (Water Resistance)  
ASTM E 330-90 (Uniform Load  
Deflection and  
uniform Load Structural)

BILL OF MATERIALS

ATTACHED



INFILL SCHEDULE

SYMBOL	DESCRIPTION	QTY TO TEST
A1	1/4 Temp + .500 AIR + 1/4 temp 97 7/16 x 45 7/16	1
A2	1/4 Temp + .500 AIR + 1/4 temp 69 3/8 x 45 7/16	1
A3	1/4 Temp + .500 AIR + 1/4 temp 22 7/8 x 45 7/16	1

SYM	REVISION	DATE	BY

THIS SPACE RESERVED FOR STRUCTURAL ENGINEER

THIS SPACE RESERVED FOR METHOD-MADE USE ONLY

United States Aluminum

- 720 Cal-River Road
- Rock Hill, SC 29730
- 200 Singleton Drive
- Waxahatchie, TX 75165

DRAWN BY Terry H. SYSTEM SERIES FF451

DATE 12/7/09 STOREFRONT SYSTEM

APPROVED BY BILL OF MATERIALS

SCALE DRAWING NO. USA- SHEET

FULL SIZE 1 OF 8

SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION



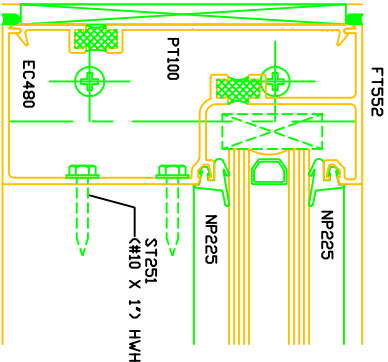
Bill Of Materials FT451						
	FRAME					
Item	Part#	Description	Qty	Supplier	Finish	
1	FT552	FRAME JAMB	2	INTEX TX	MILL	
2	RX210	VERTICAL FILLER	1	INTEX TX	MILL	
3	FT573	HEAD	1	INTEX TX	MILL	
4	FT582	SILL	1	INTEX TX	MILL	
5	FT400	SILL PAN	1	INTEX TX	MILL	
6	FT563	INT. HORIZONTAL	2	INTEX TX	MILL	
7	FT553	INT. VERTICAL	1	INTEX TX	MILL	
8	M-116	INT. VERTICAL STOP	1	INTEX TX	MILL	
9	M-573	GLASS STOP	4	INTEX TX	MILL	
	HARDWARE					
10	ST251	#10X 1" HHMS	24	VARIES	ZINK	
11	EC450	END DAM	2	INTEX TX	MILL	
	GLAZING					
12	SB240	SETTING BLOCK	2	E.P.G.		
13	SB200	SETTING BLOCK	4	E.P.G.		
14	WB452	WEDGE BLOCK	7	TRESCO		
15	NP225	WEDGE GASKET	120'	TRESCO		
16	CP550	CLOSER PLATE	2	VARIES		
17	WD210	WATER DEFLECTOR	3	VARIES		
18	WD200	WATER DEFLECTOR	3	VARIES		
19	SPEC. 2	SILICONE		TRESCO		

TEST REQUIREMENTS

ASTM E 283-91 (Air infiltration)  
ASTM E 331-86 (Water resistance)  
ASTM E 330-90 (Uniform load  
Deflection and  
uniform load Structural)

BILL OF MATERIALS

ATTACHED



1

SYM	REVISION	DATE	BY

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- Waxahatchie, TX 75165

DRAWN BY Terry H. SYSTEM SERIES FF451

DATE 12/7/09 STOREFRONT SYSTEM

APPROVED BY DESCRIPTION

SCALE DRAWING NO. JAMB

FULL SIZE USA- 2 OF 8

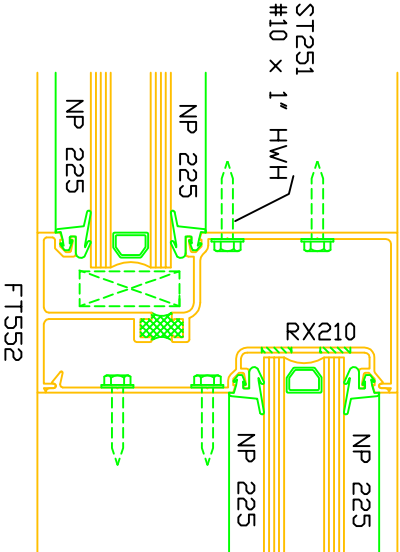
SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION

TEST REQUIREMENTS

ASTM E 283-91 (Air infiltration)  
ASTM E 331-86 (Water resistance)  
ASTM E 330-90 (Uniform load  
Deflection and  
uniform load Structural)

BILL OF MATERIALS

ATTACHED



SYM	REVISION	DATE	BY

THIS SPACE RESERVED FOR STRUCTURAL ENGINEER

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United States Aluminum

- 720 Cal-River Road
- Rock Hill, SC 29730
- 200 Singleton Drive
- Waxahachie, TX 75165

DRAWN BY Terry H. SYSTEM

SERIES FF451

DATE 12/7/09 STOREFRONT SYSTEM

APPROVED BY DESCRIPTION BILL OF MATERIALS

SCALE SHEET

FULL SIZE USA- .3 OF 8

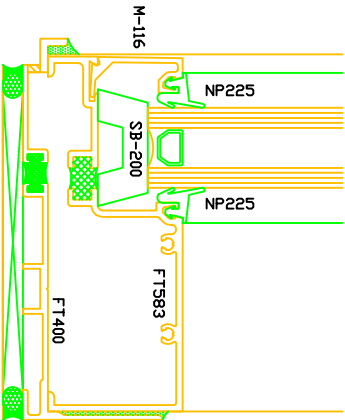
SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION

TEST REQUIREMENTS

ASTM E 283-91 (Air infiltration)  
ASTM E 331-86 (Water resistance)  
ASTM E 330-90 (Uniform load  
Deflection and  
uniform load Structural)

BILL OF MATERIALS

ATTACHED



3

SYM	REVISION	DATE	BY

THIS SPACE RESERVED FOR STRUCTURAL ENGINEER

THIS SPACE RESERVED FOR METHOD-MADE USE ONLY

United States Aluminum			
720 Cal-River Road Rock Hill, SC 29730 200 Singleton Drive Waxahatchie, TX 75165			
DRAWN BY Terry H.	SYSTEM SERIES FF451		
DATE 12/7/09	STOREFRONT SYSTEM		
APPROVED BY	ELEVATION & BILL OF MATERIALS		
SCALE FULL SIZE	DRAWING NO. USA-	SHEET 4 OF 8	

SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION

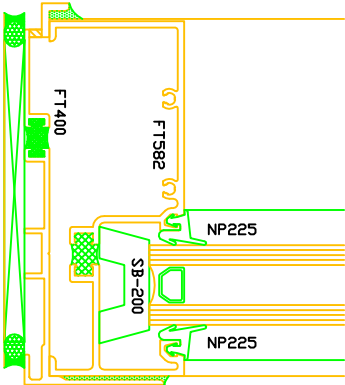
TEST REQUIREMENTS

ASTM E 283-91 (Air infiltration)  
ASTM E 331-86 (Water resistance)  
ASTM E 330-90 (Uniform load  
Deflection and  
uniform load Structural)

BILL OF MATERIALS

ATTACHED

4



SYM	REVISION	DATE	BY

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- Rock Hill, SC 29730
- 200 Singleton Drive
- Waxahachie, TX 75165

DRAWN BY Terry H. SYSTEM SERIES FF451

DATE 12/7/09 STOREFRONT SYSTEM

APPROVED BY DESCRIPTION BILL OF MATERIALS

SCALE DRAWING NO. SHEET

FULL SIZE USA- 5 OF 8

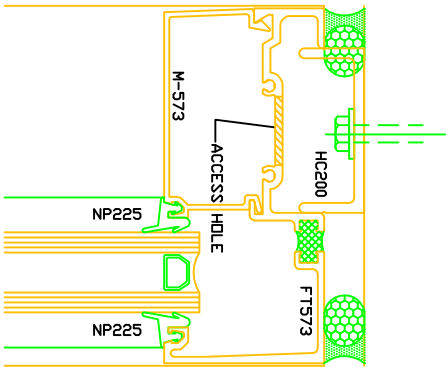
SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION

TEST REQUIREMENTS

ASTM E 283-91 (Air infiltration)  
ASTM E 331-86 (Water resistance)  
ASTM E 330-90 (Uniform load  
Deflection and  
uniform load Structural)

BILL OF MATERIALS

ATTACHED



5

SYM	REVISION	DATE	BY

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THIS SPACE RESERVED FOR METRO-DADE USE ONLY

United States Aluminum

- 720 Cal-River Road
- Rock Hill, SC 29730
- 200 Singleton Drive
- Waxahatchie, TX 75165

DRAWN BY Terry H.	SYSTEM SERIES FF451
DATE 12/7/09	DESCRIPTION STOREFRONT SYSTEM
APPROVED BY	HEAD WITH ANCHOR CLIP
SCALE FULL SIZE	DRAWING NO. USA-
	SHEET 6 OF 8

SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION

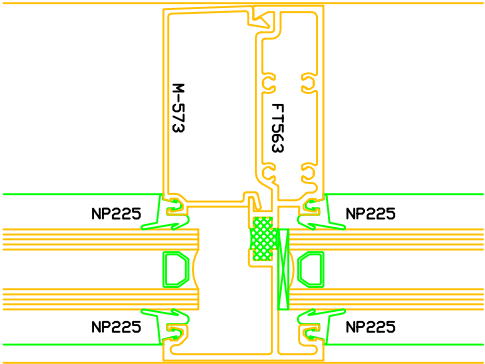
TEST REQUIREMENTS

ASTM E 283-91 (Air Infiltration)  
ASTM E 331-86 (Water Resistance)  
ASTM E 330-90 (Uniform Load  
Deflection and  
uniform Load Structural)

BILL OF MATERIALS

ATTACHED

6



SYM	REVISION	DATE	BY

THIS SPACE RESERVED FOR STRUCTURAL ENGINEER

THIS SPACE RESERVED FOR METRO-DADE USE ONLY

United States Aluminum

- 720 Cal-River Road
- Rock Hill, SC 29730
- 200 Singleton Drive
- Waxahachie, TX 75165

DRAWN BY Terry H. SYSTEM

SERIES FF451

DATE 12/7/09 DESCRIPTION STOREFRONT SYSTEM

APPROVED BY BILL OF MATERIALS ELEVATION &

SCALE FULL SIZE DRAWING NO. USA- SHEET 7 OF 8

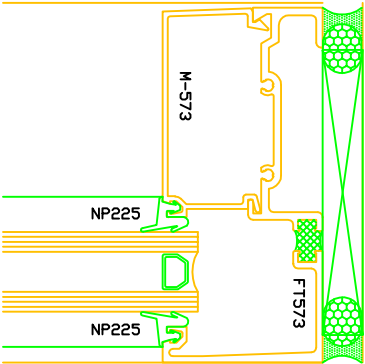
SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION

TEST REQUIREMENTS

ASTM E 283-91 (Air infiltration)  
ASTM E 331-86 (Water resistance)  
ASTM E 330-90 (Uniform load  
Deflection and  
uniform load Structural)

BILL OF MATERIALS

ATTACHED



7

SYM	REVISION	DATE	BY

THIS SPACE RESERVED FOR STRUCTURAL ENGINEER

THIS SPACE RESERVED FOR METHOD-MADE USE ONLY

United States Aluminum  
• 720 Cal-River Road  
Rock Hill, SC 29730  
• 200 Singleton Drive  
Waxahatchie, TX 75165

DRAWN BY Terry H. SYSTEM

DATE 12/7/09 DESCRIPTION STOREFRONT SYSTEM

APPROVED BY HEAD WITHOUT ANCHOR CLIP

SCALE FULL SIZE DRAWING NO. USA- SHEET 8 OF 8

SUBSIDIARY OF INTERNATIONAL ALUMINUM CORPORATION