ARCHITECTURAL TESTING INC.

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ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

United States Aluminum Corporation
200 Singleton Drive
Waxahachie, Texas 75165

Report No: 01-31865.01
Test Dates: 10/30/98
Report Date: 01/05/99
Expiration Date: 10/30/02

Test Sample Identification:
Series/Model: 4500
Type: Four lite curtain wall system
Overall Size: 80.00" x 80.00"
Glazing: 1" IG (1/4" annealed, 1/2" air, 1/4" annealed)

Project Scope: Architectural Testing, Inc. (ATI) was contracted by United States Aluminum Corporation to conduct sound transmission loss tests on a Series 4500, Four Lite Curtain Wall System. A summary of the results is listed in the Test Results section and the complete test data is included as Appendix C of this report.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E90-97, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*

ASTM E413-87 (Re-approved 1994), *Classification for Rating Sound Insulation.*

ASTM E1332-90, *Standard Classification for Determination of Outdoor-Indoor Transmission Class.*

Test Equipment: The equipment, used to conduct these tests, meets the requirements of ASTM E 90-97. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

Test Procedure: The sound transmission loss test was initially performed on a filler wall that was designed to test 3'0" by 7'0" and 6'8" by 7'0" test specimens. The filler wall achieved an STC rating of 64.

A wood frame was placed around the outside perimeter of the Series 4500, Four Lite Curtain Wall System. Silicone caulk was used to seal the curtain wall to the wood frame. The 6'8" by 7'0" plug was removed from the filler wall assembly and the test specimen was installed in the opening. The interior side of the frame, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A dense neoprene gasket and duct seal was used to seal the wood frame to the inside perimeter of the filler wall opening. A stethoscope was used to check for any abnormal air leaks before the test.

Test Procedure (continued):

One background noise sound pressure level, and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source and receive room measurements.

Sample Descriptions:

Construction:

	Frame
Size	80" x 80"
CORNERS	Butted
Fasteners	Screwed
Sealant	None
MATERIAL	AL
Color Ext.	Blue
Finish Ext.	Paint
Color Int.	Natural
Finish Int.	Mill
GLAZING METHOD	Exterior glazed with multi-leaf rubber gasket Fixed Day Light Openings(4) 36.5" x 36.5"

Fixed Lite Glazing: (Sheet #1 is Exterior Sheet)

	Sheet #1	Gap #1	Sheet #2
MEASURED THICKNESS	0.224"	0.510"	0.224"
INTERLAYER THICKNESS	NA	NA	NA
EMISSIVITY COATING	NA	NA	NA
COATING SURFACE	NA	NA	NA
SPACER/SEALANT	NA	A1	NA
MUNTIN PATTERN	NA	NA	NA
MATERIAL	Annealed	Air*	Annealed

Components:

TYPE	QUANTITY	LOCATION
WEATHERSTRIP		
No Weatherstrip		
HARDWARE		
No Hardware		
DRAINAGE		
5/16" diameter weep hole	6	Midspan of all horizontal glazing track covers

** - Stated per Client/Manufacturer NA-Non Applicable See Appendix B for Description Codes*

Comments: The design drawings (included in Appendix D) supplied by the requestor, accurately describe the Series 4500, Four Lite Curtain Wall System. The dimensions on the drawings that are circled and/or checked were verified against the test specimen. The test specimen was disassembled, and will be retained by ATI for a period not to exceed four years.

Test Results:

The sound transmission loss test was performed in accordance with ASTM E90-97. The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E413-87. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E1332-90. A summary of the sound transmission loss test results on the Series 4500, Four Lite Curtain Wall System is listed below.

ATI Job File No.	Sample Description	STC	OITC
01-31865.01-1	Series 4500, Four Lite Curtain Wall System	32	26

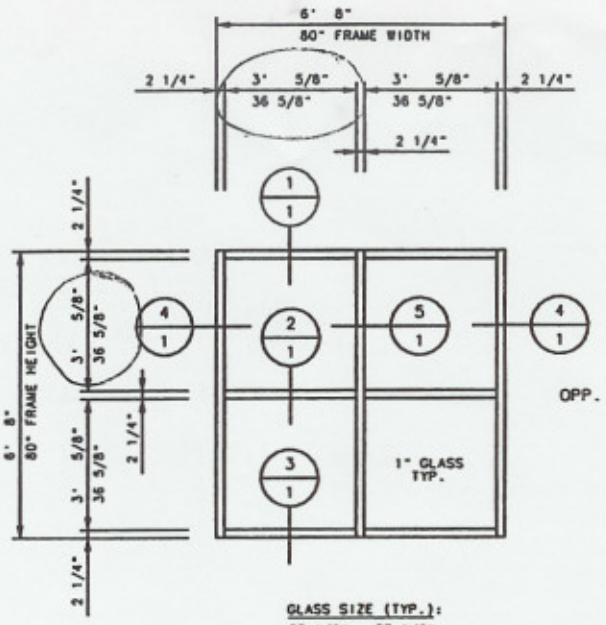
The complete test results are listed in Appendix C.

DOCUMENT CONTROL ADDENDUM #01-31865.00

Current Issue Date: 01/05/99

Report No.: 01-31865.01

Requested by: Greg Hall, United States Aluminum Corporation
Purpose: Sound Transmission Loss Testing of a Series 4500, Four Lite Curtain Wall System.
Issued Date: 01/05/99
Comments:

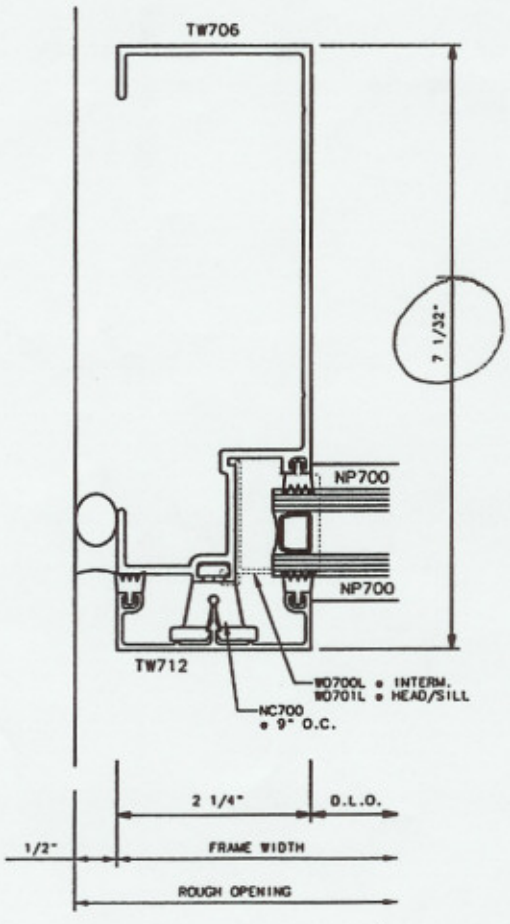


ELEVATION

SCALE: 1/2" = 1'-0"

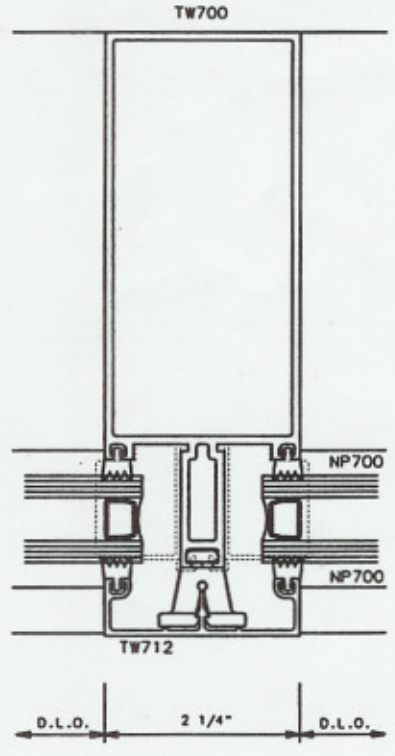
BILL OF MATERIAL

PART #	DESCRIPTION	QTY.	LENGTH	NOTES
TW706	JAMB	2	80"	
TW712	VERTICAL FACE CAP	3	80"	
TW717	HORIZONTAL FACE CAP	6	36 9/16"	1 WEEP/PART
TW700	TYP. MULLION	1	80"	
TW703	HEAD	2	36 5/8"	
TW725	PERIMETER SHEAR BLOCK	8	3 31/32"	2 HOLES @ JAMB MULLS (REF. DTL.
TW706	SILL	2	36 5/8"	
TW704	COVER PLATE	2	36 5/8"	
TW723	HORIZ. SHEAR BLOCK	4	1 1/2"	
TW705	INTERMEDIATE HORIZONTAL	2	36 5/8"	
NP700	GASKET	200 FT.	---	160 FT. ACTUAL REQ'D.
SB710	SETTING BLOCK	10	---	
NC700	FACE CLIP	150	---	75 REQ'D.
ST269	#12 X 2" PHSMS	8	---	
ST246	#12 X 3/4" PHSMS	16	---	
ST193	#8 X 3/4" PHSMS	12	---	
---	3/8 LAG BOLT	10	---	NON-STOCK
WD700L	WATER DEFLECTOR-INTERM.	2	---	
WD700R	WATER DEFLECTOR-INTERM.	2	---	
WD701L	WATER DEFLECTOR-SILL/HD	4	---	
WD701R	WATER DEFLECTOR-SILL/HD	4	---	
MF254	3/8" LOCKWASHER	10	---	
MF251	3/8" FLATWASHER	20	---	



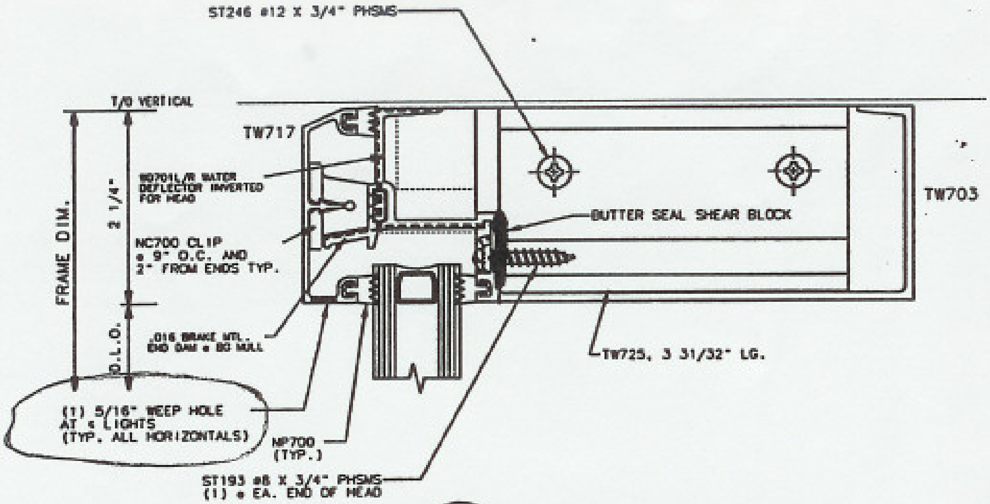
4 JAMB
1" GLASS

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED.
PROJ. ATI- 3/865 TEST DATE 10/30/98

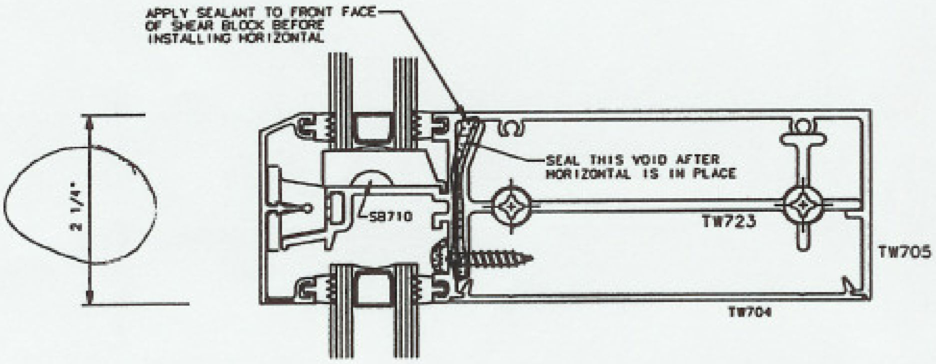


5 INTER. VERTICAL
1" GLASS

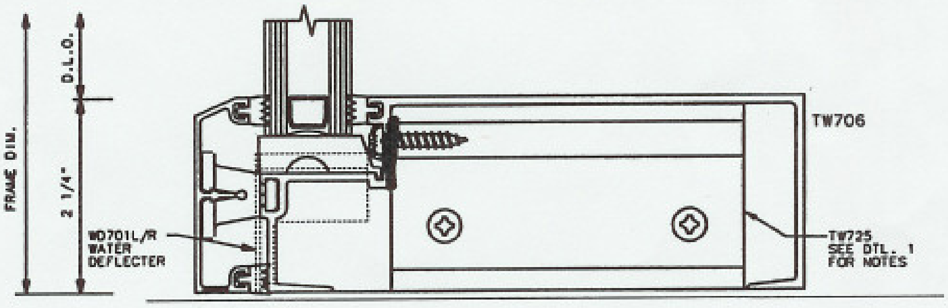
TESTED AT: ARCHITECTURAL TESTING, INC.
YORK, PA



1 HEAD
1" GLASS



2 INTER. HORIZONTAL
1" GLASS / 1" GLASS



3 SILL
1" GLASS

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED. EDM
PROJ. ATI- 31865 TEST DATE 10/30/98

PATENT PENDING

NO.	REVISION	DATE	BY

UNITED STATES ALUMINUM CORPORATION
3663 BANDINI BOULEVARD - VERNON, CALIFORNIA 90023
200 SINGLETON DRIVE - WAXAHACHIE, TEXAS 75165
6969 WEST 73RD STREET - CHICAGO, ILLINOIS 60638
720 CEL-RIVER ROAD - ROCK HILL, SOUTH CAROLINA 29730
720 CARDINAL DRIVE - BRIDGEPORT, NEW JERSEY 08014

CUSTOMER: UNITED STATES ALUMINUM CORP.

ARCHITECT:

PROJECT: ACOUSTIC MOCK-UP
SERIES 4500 CURTAIN WALL

DRAWN BY: G.HALL
DATE: 6/8/98
DRAWING NO: M98007
SHEET 1 OF 1