



Architectural Testing

PERFORMANCE TEST REPORT

Rendered to:

**WAYNE-DALTON CORPORATION
Rolling Door Division**

**Model 822
10' x 8'**

Report No:	01-46389.01
Test Dates:	08/22/03
Report Date:	11/13/03
Expiration Date:	08/22/07

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PERFORMANCE TEST REPORT

Rendered to:

WAYNE-DALTON CORPORATION
Rolling Door Division
14512 Lincoln Way East
Dalton, Ohio 44618

Report No: 01-46389.01
Test Date: 08/22/03
Report Date: 11/13/03

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Wayne-Dalton Corporation to perform wind load testing per ASTM E 330-97. The test was performed upon a Model 822 rolling steel slat door. The door was 10' wide by 8' high. The door was tested to a +/-44.0 psf design pressure. This report includes test data and drawings.

Test Procedure: The test specimen was evaluated in accordance with ASTM E 330-97, *Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference*. Testing was conducted at positive and negative loads as listed in the test results.

General Description: The steel test chamber provided a clear opening measuring 10' 0" wide by 8' 0" high. Two jamb conditions were provided. Steel tube with a 5/16" wall thickness was utilized on the left jamb and a 3,000 psi grout filled concrete block column for the right jamb. The head was comprised of two 12" steel channels that were stacked and welded.

Test Specimen:**Product:** Model 822 rolling steel slat door**Door Opening:** 10' 0" wide by 8' 0" high

Assembly Details: An "E" guide was utilized for the steel jamb and a "Z" guide for the grout filled concrete block jamb. The guide anchor spacing was 18" on center for the steel jamb and 24" on center for the grout filled concrete block jamb. The curtain was fabricated with 22 gauge slats with windlocks on every other slat. The windlocks were fastened with two rivets per lock. Reference Wayne-Dalton Drawing # 035-0001 for these details.

Test Results: The following results have been recorded:

ASTM E 330-97: *"Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference."*

Note: Polyethylene film and tape were used in a manner that did not influence the test results. Deflection was measured at the midspan and ends of the door with linear transducers.

Test Pressure	Duration	Maximum Deflection (Inch)			Permanent Set (Inch)		
		Transducer Number #1	Transducer Number #2	Transducer Number #3	Transducer Number #1	Transducer Number #2	Transducer Number #3
+15.5 psf (1/2 Design)	10 sec	Remove Slack					
+31.0 psf (Design)	10 sec	0.180	6.600	0.230	0.000	0.040	0.000
+47.0 psf (Overload)	10 sec	0.230	8.400	0.270	0.000	0.140	0.010
-15.5 psf (1/2 Design)	10 sec	Remove Slack					
-31.0 psf (Design)	10 sec	0.580	8.440	0.160	0.020	0.100	0.000
-47.0 psf (Overload)	10 sec	0.590	11.180	0.340	0.020	0.100	0.000
-56.0 psf (Overload)	10 sec	0.640	11.960	0.370	0.110	0.480	0.060
+28.0 psf (1/2 Test)	10 sec	Remove Slack					
+56.0 psf (Overload)	10 sec	0.220	9.400	0.210	0.010	0.020	0.010
+66.0 psf (Overload)	10 sec	0.260	10.400	0.240	0.010	0.500	0.010
-33.0 psf (1/2 Test)	10 sec	Remove Slack					
-66.0 psf (Overload)	10 sec	0.600	12.800	0.680	0.020	0.520	0.020

There was no visible damage and the door was operational at the conclusion of testing.

List of Official Observers:

Mark Daus	Wayne-Dalton Corporation
Michael Mendez	Wayne-Dalton Corporation
Bill Hammer	Wayne-Dalton Corporation
Jason Carrick	Wayne-Dalton Corporation
Douglas Steiner	Wayne-Dalton Corporation
Eric Rock	Architectural Testing, Inc.
Scott Kramer	Architectural Testing, Inc.

ASTM E8-01

Test Method: The test specimens were evaluated in accordance with ASTM E8-01, *Standard Test Methods for Tensile Testing of Metallic Materials*. The test specimens were machined and sized in compliance with section 6.0 of the standard. The specimens were tested using a Satec 50UD Universal Machine with a cross head speed of 0.2 in/min

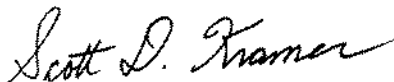
Test Results: The test results are shown on test logs 18888 through 18893 (attached) and summarized in the following table.

Specimen	Yield Strength (psi)	Yield Strain (in/in)	Tensile Load (lbf)	Tensile Strength (psi)	Elongation (%)	Area Reduction (%)
1	39,032	0.0031	820	50,600	31.65	32.10
2	39,010	0.0033	808	52,141	29.65	28.40
3	37,840	0.0031	794	49,622	29.50	31.90
4	36,306	0.0034	795	49,392	32.00	35.40
5	38,788	0.0031	802	50,147	31.00	36.20
6	36,626	0.0031	772	48,236	32.50	32.50
Average	37,934	0.0032	799	50,023	31.05	32.80

The average Tangent Modulus for the tested specimens was 28.4×10^6 psi.

A copy of this report will be retained by ATI for a period of four years. This report is the exclusive property of the client so named herein and is applicable to the samples tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory. This report may not be reproduced except in full without the approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC.:



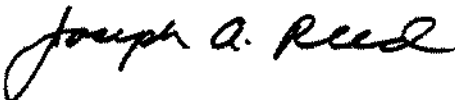
Digitally Signed by: Scott D. Kramer

Scott D. Kramer
Technician



Digitally Signed by: Connie L. Owad

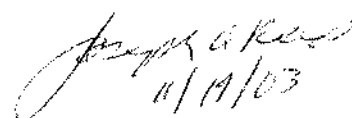
Connie Owad
Technician



Digitally Signed by: Joseph A. Reed

Joseph A. Reed, P.E.
Director - Engineering and Product Testing

SDK:baw
01-46389.01



DOCUMENT CONTROL ADDENDUM #01-46389.00

Current Issue Date: 11/13/03

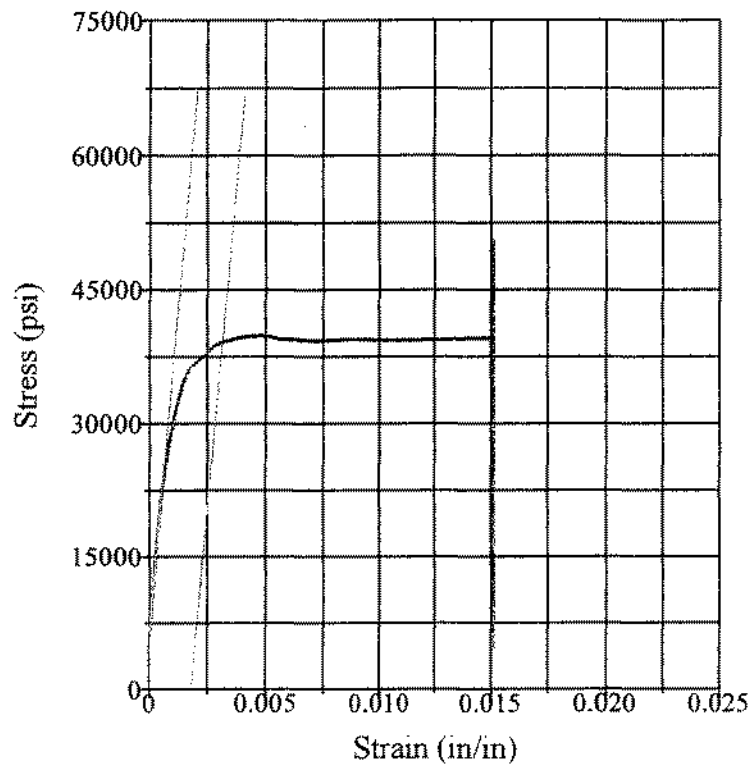
Report No.: 01-46389.01

Requested by: Mark Daus, Wayne Dalton Corporation

Purpose: ASTM E 330 testing on Model 822, 10' x 8'.

Issued Date: 11/13/03

Comments: Florida P.E. seal required on report.

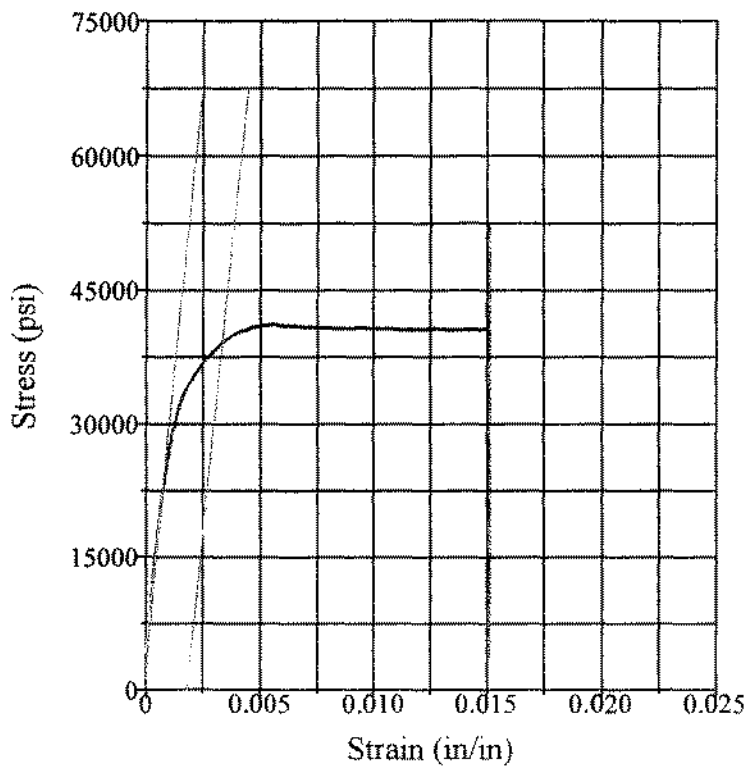


Test Results

Width: 0.5060 in
 After Test Width: 0.4080 in
 Thickness: 0.0320 in
 After Test Thickness: 0.0270 in
 Area: 0.0162 in²
 After Test Area: 0.0110 in²
 Tensile Strength: 50600 psi
 Peak Load: 820 lbf
 Load at Yield: 632.3205 lbf
 Position at Yield: 0.0663 in
 Time at Yield: 0.3349 min
 Strain at Yield: 0.0031 in/in
 Stress at Yield: 39032.1200 psi
 Elongation at Yield: 0.0063 in
 Reduction of Area: 32.1 %
 Total Elongation: 31.6500 %
 Pretest Punch Length: 2.000 in
 Posttest Punch Length: 2.633 in
 Modulus of Elasticity: 29278700 psi

Test Summary

Counter: 18888
 Elapsed Time: 00:04:38
 ATI #: 01-46385
 Client: Wayne Dalton Corporation
 Material Type: Steel Door
 Sample #: 1
 Comments: 10 x 8 120-32
 Procedure Name: ASTM E 8-01, Tensile Testing of
 Start Date: 10/17/03
 Start Time: 10:11:57 AM
 End Date: 10/17/03
 End Time: 10:16:35 AM
 Workstation: Architectural Testing Inc.
 Tested By: Connie

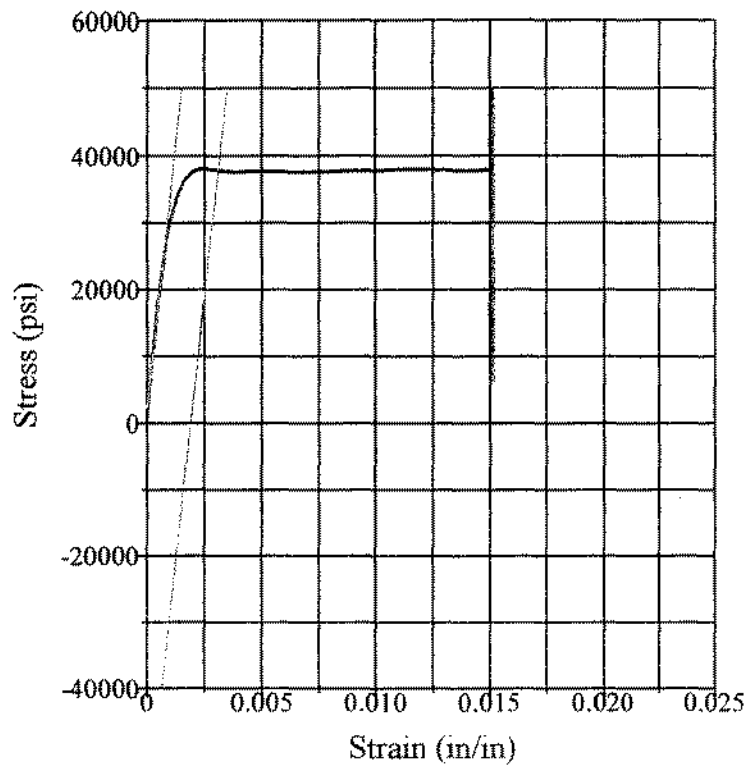


Test Results

Width: 0.5000 in
 After Test Width: 0.4050 in
 Thickness: 0.0310 in
 After Test Thickness: 0.0275 in
 Area: 0.0155 in²
 After Test Area: 0.0111 in²
 Tensile Strength: 52141 psi
 Peak Load: 808 lbf
 Load at Yield: 604.6682 lbf
 Position at Yield: 0.0688 in
 Time at Yield: 0.3471 min
 Strain at Yield: 0.0033 in/in
 Stress at Yield: 39010.8500 psi
 Elongation at Yield: 0.0066 in
 Reduction of Area: 28.4 %
 Total Elongation: 29.6500 %
 Pretest Punch Length: 2.000 in
 Posttest Punch Length: 2.593 in
 Modulus of Elasticity: 25541600 psi

Test Summary

Counter: 18889
 Elapsed Time: 00:04:50
 ATI #: 01-46385
 Client: Wayne Dalton Corporation
 Material Type: Steel Door
 Sample #: 2
 Comments: 10 x 8 120-32
 Procedure Name: ASTM E 8-01, Tensile Testing of
 Start Date: 10/17/03
 Start Time: 10:18:48 AM
 End Date: 10/17/03
 End Time: 10:23:38 AM
 Workstation: Architectural Testing Inc.
 Tested By: Connie

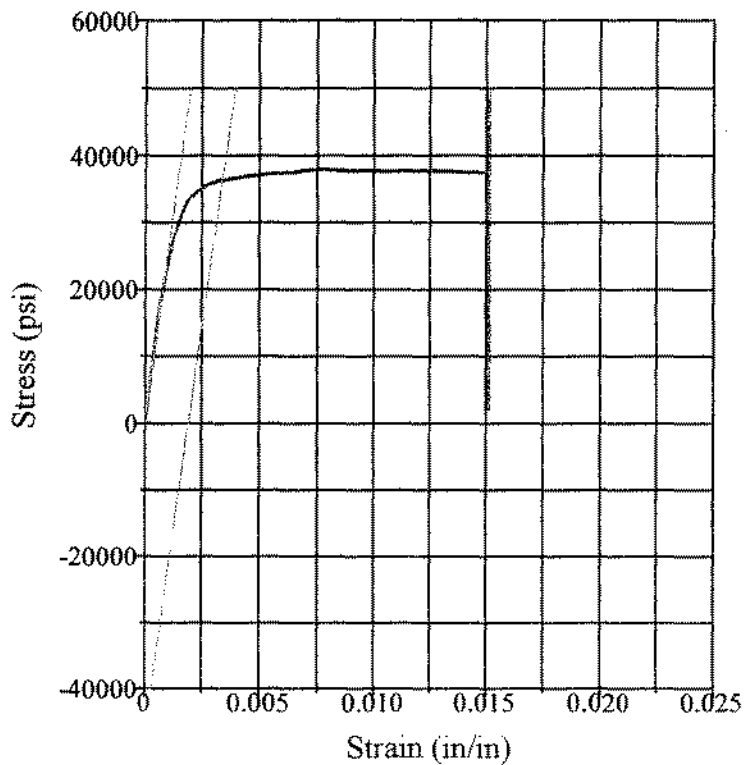


Test Results

Width: 0.5005 in
 After Test Width: 0.4025 in
 Thickness: 0.0320 in
 After Test Thickness: 0.0270 in
 Area: 0.0160 in²
 After Test Area: 0.0109 in²
 Tensile Strength: 49622 psi
 Peak Load: 794 lbf
 Load at Yield: 605.4542 lbf
 Position at Yield: 0.0655 in
 Time at Yield: 0.3308 min
 Strain at Yield: 0.0031 in/in
 Stress at Yield: 37840.8900 psi
 Elongation at Yield: 0.0062 in
 Reduction of Area: 31.9 %
 Total Elongation: 29.5000 %
 Pretest Punch Length: 2.000 in
 Posttest Punch Length: 2.59 in
 Modulus of Elasticity: 31813600 psi

Test Summary

Counter: 18890
 Elapsed Time: 00:04:06
 ATI #: 01-46385
 Client: Wayne Dalton Corporation
 Material Type: Steel Door
 Sample #: 3
 Comments: 10 x 8 120-32
 Procedure Name: ASTM E 8-01, Tensile Testing of
 Start Date: 10/17/03
 Start Time: 10:25:59 AM
 End Date: 10/17/03
 End Time: 10:30:05 AM
 Workstation: Architectural Testing Inc.
 Tested By: Connie

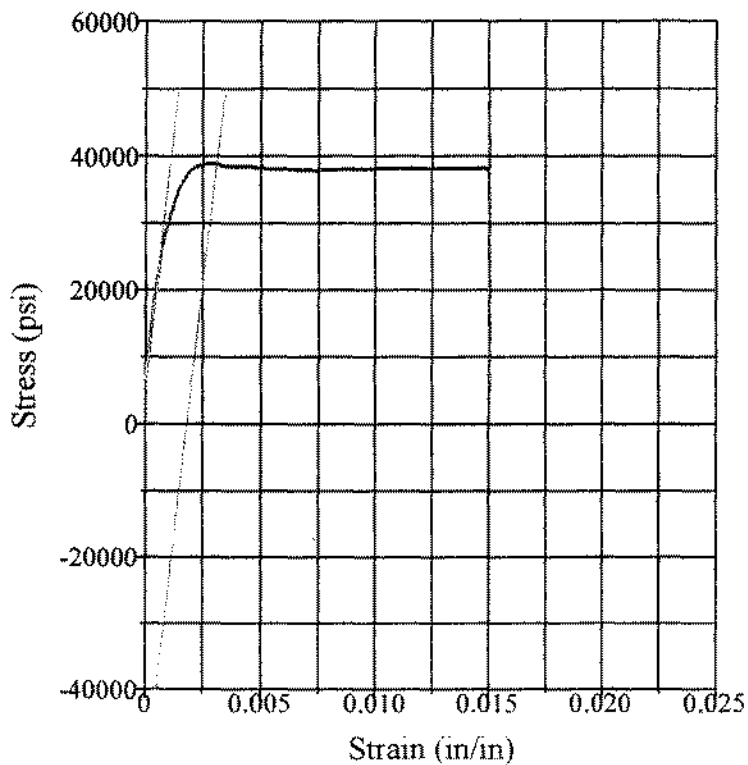


Test Results

Width: 0.5020 in
 After Test Width: 0.3775 in
 Thickness: 0.0320 in
 After Test Thickness: 0.0275 in
 Area: 0.0161 in²
 After Test Area: 0.0104 in²
 Tensile Strength: 49392 psi
 Peak Load: 795 lbf
 Load at Yield: 584.5377 lbf
 Position at Yield: 0.0603 in
 Time at Yield: 0.3050 min
 Strain at Yield: 0.0034 in/in
 Stress at Yield: 36306.6800 psi
 Elongation at Yield: 0.0068 in
 Reduction of Area: 35.4 %
 Total Elongation: 32.0000 %
 Pretest Punch Length: 2.000 in
 Posttest Punch Length: 2.64 in
 Modulus of Elasticity: 24498900 psi

Test Summary

Counter: 18891
 Elapsed Time: 00:04:16
 ATI #: 01-46385
 Client: Wayne Dalton Corporation
 Material Type: Steel Door
 Sample #: 4
 Comments: 10 x 8 120-32
 Procedure Name: ASTM E 8-01, Tensile Testing of
 Start Date: 10/17/03
 Start Time: 10:32:26 AM
 End Date: 10/17/03
 End Time: 10:36:42 AM
 Workstation: Architectural Testing Inc.
 Tested By: Connie



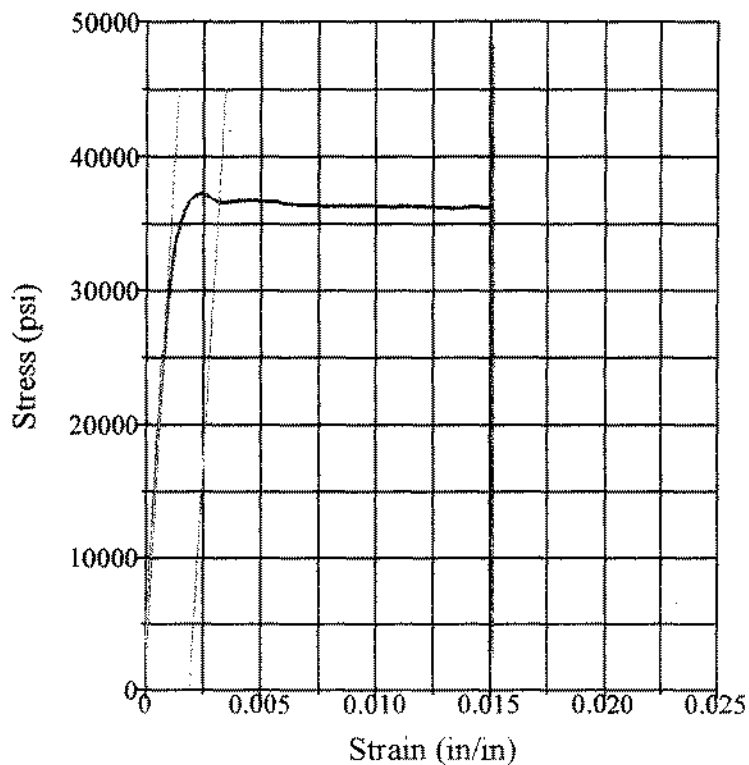
Test Results

Width: 0.5005 in
 After Test Width: 0.3850 in
 Thickness: 0.0320 in
 After Test Thickness: 0.0265 in
 Area: 0.0160 in²
 After Test Area: 0.0102 in²
 Tensile Strength: 50147 psi
 Peak Load: 802 lbf
 Load at Yield: 620.6132 lbf
 Position at Yield: 0.0528 in
 Time at Yield: 0.2673 min
 Strain at Yield: 0.0031 in/in
 Stress at Yield: 38788.3300 psi
 Elongation at Yield: 0.0062 in
 Reduction of Area: 36.2 %
 Total Elongation: 31.0000 %
 Pretest Punch Length: 2.000 in
 Posttest Punch Length: 2.62 in
 Modulus of Elasticity: 29827900 psi

Avg. Tangent Modulus = 28.4

Test Summary

Counter: 18892
 Elapsed Time: 00:04:03
 ATI #: 01-46385
 Client: Wayne Dalton Corporation
 Material Type: Steel Door
 Sample #: 5
 Comments: 10 x 8 120-32
 Procedure Name: ASTM E 8-01, Tensile Testing of
 Start Date: 10/17/03
 Start Time: 10:38:41 AM
 End Date: 10/17/03
 End Time: 10:42:44 AM
 Workstation: Architectural Testing Inc.
 Tested By: Connie



Test Results

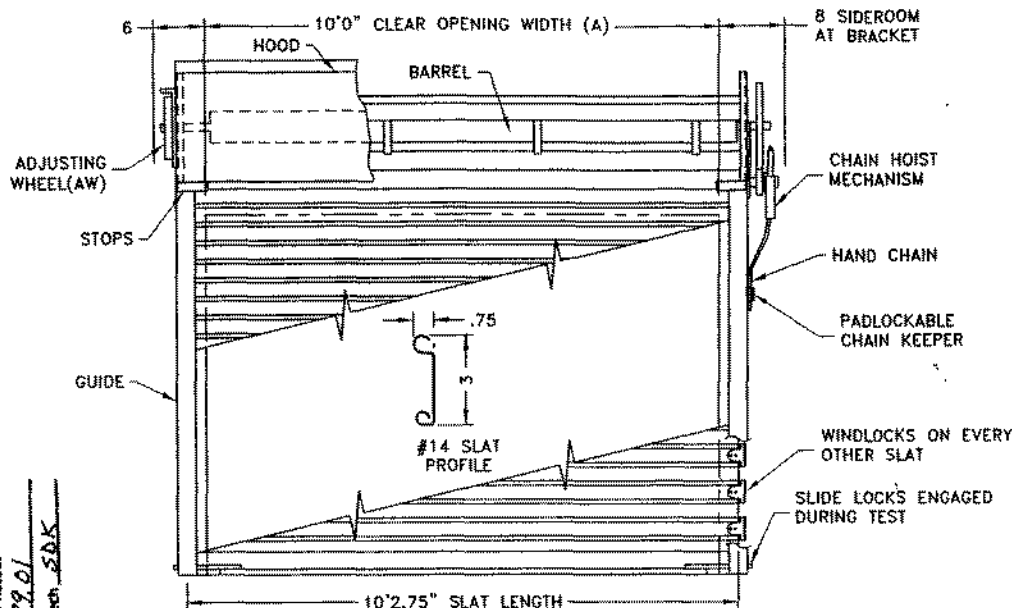
Width:	0.4995 in
After Test Width:	0.3840 in
Thickness:	0.0320 in
After Test Thickness:	0.0280 in
Area:	0.0160 in ²
After Test Area:	0.0108 in ²
Tensile Strength:	48236 psi
Peak Load:	772 lbf
Load at Yield:	586.0244 lbf
Position at Yield:	0.0438 in
Time at Yield:	0.2223 min
Strain at Yield:	0.0031 in/in
Stress at Yield:	36626.5200 psi
Elongation at Yield:	0.0063 in
Reduction of Area:	32.5 %
Total Elongation:	32.5000 %
Pretest Punch Length:	2.000 in
Posttest Punch Length:	2.65 in
Modulus of Elasticity:	29372200 psi

Test Summary

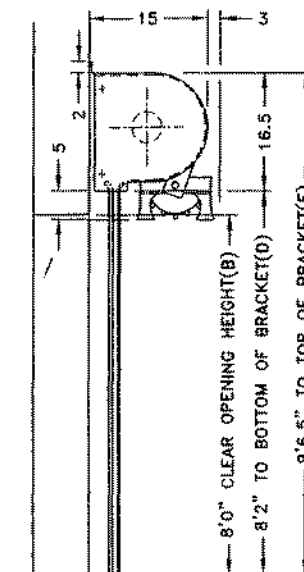
Counter:	18893
Elapsed Time:	00:03:58
ATI #:	01-46385
Client:	Wayne Dalton Corporation
Material Type:	Steel Door
Sample #:	6
Comments:	10 x 8 120-32
Procedure Name:	ASTM E 8-01, Tensile Testing of
Start Date:	10/17/03
Start Time:	10:46:10 AM
End Date:	10/17/03
End Time:	10:50:08 AM
Workstation:	Architectural Testing Inc.
Tested By:	Connie

DRAWING NO.
035-0001

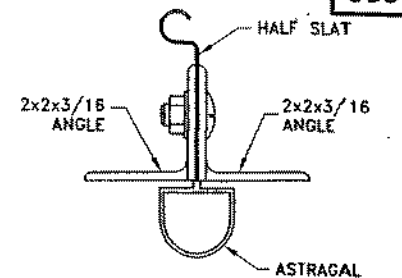
Architectural Testing
Test sample complies with these details.
Deviations are noted.
Report 01-46389.01
Date 10-31-03 Tech SDK



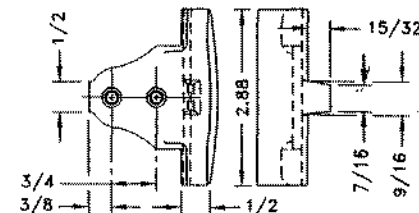
COILSIDE ELEVATION



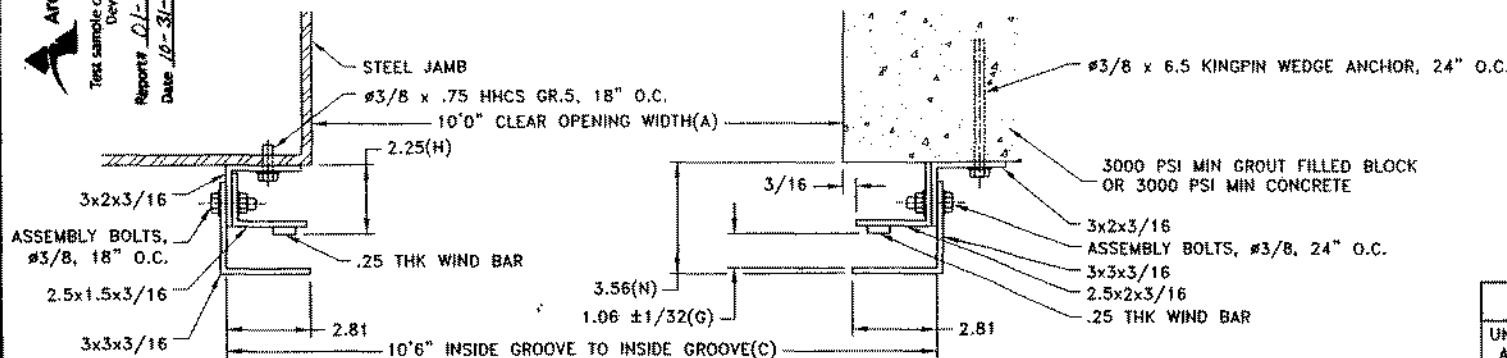
VERTICAL DETAIL



BOTTOM BAR DETAIL



WINDLOCK DETAIL



GUIDE DETAIL

NOTES:

1. UNIFORM STATIC AIR PRESSURE TEST PERFORMED PER ASTM E 330
2. TENSILE TEST PERFORMED ON CURTAIN PER ASTM E 8
3. TESTED BY ARCHITECTURAL TESTING, INC.
4. CURTAIN IS .028 MIN STEEL PER ASTM A 653, GR.40
5. GUIDE ANGLES ARE STRUCTURAL STEEL PER ASTM A 36
6. HOOD IS 24GA GALVANIZED STEEL

TEST	DATE	TEST REPORT NUMBER	RESULTS
UNIFORM STATIC AIR PRESSURE			
TENSILE			

PART NUMBER	WEIGHT (LB.)	TITLE	DRAWN BY	CHECKED BY	APPVD. BY	TOLERANCES (UNLESS OTHERWISE SPECIFIED)
REFERENCE		WINDLOAD TEST, 822, 10' x 8', #14 SLAT, ±44 PSF DESIGN (±66 PSF TEST)	M. DAUS 10/15/2003			LINEAR .X ± .060 LINEAR .XX ± .030 LINEAR .XXX ± .010 ANGULAR ± .50° DIMENSIONS IN INCHES
		MATERIAL	SCALE - WHEN THIS BOX IS .50" HIGH	ORIGINAL RELEASE		
		AS SHOWN	NONE			

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REV.	REV'D. BY	APPVD. BY	RELEASE	DESCRIPTION
				REVISIONS

SIZE	DRAWING NO.	REVISION
B	035-0001	

Wayne Dalton
Rolling Door Division
44512 Lincoln Way E
Dalton, Ohio 44618