



# NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200  
FAX (717) 767-4100  
www.nctlinc.com

**AAMA/WDMA/CSA 101/I.S.2/A440-11**  
**AAMA/WDMA/CSA 101/I.S.2/A440-08**  
**AAMA/WDMA/CSA 101/I.S.2/A440-05**

## TEST REPORT SUMMARY

Rendered to:

**CLIMATEGUARD MANUFACTURING**  
2500 North Pulaski  
Chicago, IL 60639

**PRODUCT TYPE: Type XO Horizontal Slider**

**SERIES/ MODEL: "500"**

Title	Summary of Results
Primary Product Designator AAMA/WDMA/CSA 101/I.S.2/A440-11 AAMA/WDMA/CSA 101/I.S.2/A440-08 AAMA/WDMA/CSA 101/I.S.2/A440-05	Class R-PG35: Size tested 1600 x 1118 mm (~63 x 44 in) - Type HS Class R-PG35: Size tested 1600 x 1118 mm (63 x 44 in) - Type HS HS-R35 1600 x 1118 (63 x 44)
Positive Design Pressure	+1680 Pa (+35.09 psf)
Negative Design Pressure	-1680 Pa (-35.09 psf)
Operating Force (in motion <sub>max</sub> )	58 N (13 lbf)
Air Infiltration	0.6 L/s/m <sup>2</sup> (0.12 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)
Uniform Load Structural Test Pressure	±2520 Pa (52.63 psf)
Forced Entry Resistance	ASTM F588-07 - Grade 10 Pass

Test Completed: 11/05/14

Reference must be made to Report No. NCTL-110-17414-1 dated 11/26/14 for complete test specimen description and data.

**For National Certified Testing Laboratories**

DIGITAL SIGNATURE

Jay Leader  
Technician



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**AAMA/WDMA/CSA 101/I.S.2/A440-05**

## STRUCTURAL TEST REPORT

**NCTL-110-17414-1**

REPORT TO:  
CLIMATEGUARD MANUFACTURING  
2500 NORTH PULASKI  
CHICAGO, IL 60639

REPORT NUMBER: NCTL-110-17414-1  
REPORT DATE: 11/26/14

PRODUCT:  
**"500"**  
TYPE XO HORIZONTAL SLIDER



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<b>Report Number</b>	NCTL-110-17414-1
<b>Report Date</b>	11/26/14
<b>Report To</b>	ClimateGuard Manufacturing 2500 North Pulaski Chicago, IL 60639
<b>Test Date</b>	11/05/14
<b>Specification</b>	AAMA/WDMA/CSA 101/I.S.2/A440-11 NAFS 2011 - North American Fenestration Standard/Specification for windows, doors, and skylights AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS North American Fenestration Standard/Specification for windows, doors, and skylights AAMA/WDMA/CSA 101/I.S.2/A440-05 Standard/Specification for Windows, Doors, and Unit Skylights
<b>Performance Results</b>	<u>AAMA/WDMA/CSA 101/I.S.2/A440-11</u> Class R-PG35: Size tested 1600 x 1118 mm (~63 x 44 in)-Type HS <u>AAMA/WDMA/CSA 101/I.S.2/A440-08</u> Class R-PG35: Size tested 1600 x 1118 mm (63 x 44 in)-Type HS <u>AAMA/WDMA/CSA 101/I.S.2/A440-05</u> H-R35 1600 x 1118 (63 x 44)

## Description of Specimen Tested

Note: All dimensions are in the order (Width x Height x Thickness) unless otherwise noted.

<b>Model/ Series</b>	"500"
<b>Configuration</b>	Type XO Horizontal Slider
<b>Frame Size</b>	<u>Overall</u> 1600 mm x 1118 mm (63" x 44") <u>Active Panel Size</u> 794 mm x 1048 mm (31.25" x 41.25")
<b>Viewing Area</b>	721 mm x 978 mm (28.375" x 38.5")
<b>Fixed Lite Viewing Area</b>	721 mm x 991 mm (28.375" x 39")
<b>Frame &amp; Panel Type</b>	Extruded vinyl
<b>Joint Construction</b>	<u>Frame &amp; Panel</u> Mitered, welded <u>Fixed Meeting Stile</u> Fastened via a plastic bracket. The bracket was fastened with (2) screws to the meeting stile and head/ sill.

**Glazing Components**

Overall	22.23 mm (0.875") nominal
Glass Thickness	(2) Lites of 3 mm (0.115") nominal annealed glass
Spacer Type/Size	16.38 mm (0.645") coated U-shaped steel spacer (Type CU-D)
Glazing System	The active panel was exterior glazed and the fixed lite was interior glazed with silicone back-bedding with silicone heel bead and a snap-in rigid vinyl glazing bead

**Weatherstrip**

Type	(1) Strip center fin
Size	5.84 mm (0.230") high
Location	Frame perimeter and active meeting stile
Type	(1) Strip center fin
Size	8.38 mm (0.330") high
Location	Fixed meeting stile
Type	(2) Strips center fin
Size	5.84 mm (0.230") high
Location	Top and bottom rails
Type	(1) Strip center fin
Size	6.35 mm (0.250")
Location	Jamb stile
Type	Adhesive-backed center fin dust pad 25.4 mm x 12.7 mm (1" x 0.5")
Size	6.35 mm (0.250") high
Location	Top of the active meeting stile
Type	Adhesive-backed polypile dust pad 28.58 mm x 28.58 mm (1.125" x 1.125")
Size	10.16 mm (0.400") high
Location	Top rail/ active meeting stile
Type	Adhesive-backed polypile dust pad
Size	28.58 mm x 47.63 mm x 11.43 mm (1.125" x 1.875" x 0.450") high
Location	Mid span of the interior head track

**Operating Hardware**

Locks	
Type	Metal cam-type sweep
Location	288 mm (11.5") From each end of the active meeting stile
Keeper	
Type	Metal
Location	Fixed meeting stile at the lock locations

**Auxiliary**

Type	Rigid vinyl track cover
Location	Interior sill track
Type	Dual metal rollers with plastic housing
Location	101.6 mm (4") From each end of the bottom rail

**Reinforcement**

Type	Aluminum contour-shaped
Thickness	1.40 mm (0.055")
Location	Active meeting stile

**Weep Description**

Size	25.4 mm (1") wide by 6.35 mm (0.25") high with plastic weep cover
Location	104.78 mm (4.125") From each end of the exterior sill face
Size	12.7 mm (0.5") wide by 4.78 mm (0.188") high
Location	130.18 mm (5.125") From each end of the exterior sill face
Size	25.4 mm (1") wide by 4.78 mm (0.188") high
Location	Each end of the center sill leg
Size	23.83 mm (0.938") wide by 6.35 mm (0.25") high
Location	Each end of the interior sill track cover
Size	6.35 mm (0.25") wide by 4.78 mm (0.188") high
Location	56 mm (2.188") From each end of the bottom rail

**Interior/ Exterior Surface Finish**

White vinyl (PVC)

**Sealant**

Location	Exterior perimeter of fixed lite and interior perimeter of the active panel
Material	Silicone

**Insect Screen**

Size	756 mm (29.75") wide by 1006 mm (39.625")
Corner Construction	Butt-type pressure fitted corner keys
Material	Fiberglass mesh with solid vinyl spline. (2) Sill retainer springs

**Installation Method**

The window was installed in a 50.8 mm x 254 mm (2" x 10") spruce-pine-fir lumber test buck. 25.4 mm x 12.7 mm (1" x 0.5") Wood blind stops were located at the interior and exterior frame perimeter. Each blind stop was secured with (1) 31.75 mm (1.25") brad staple located at 76.2 mm (3") from each end and 203.2 mm (8") on center thereafter. The interior and exterior perimeter were sealed with silicone

***Test Results - AAMA/WDMA/CSA 101/I.S.2/A440-2011, 2008 & 2005***

<u>Paragraph</u>	<u>Test</u>
5.3.1/ 9.3.1	Operating Force and Force to Latch - Method B (Force Gauge) ASTM E2068-00(08)
	Initiate Motion = 58 N (13 lbf)
	Maintain Motion - Opening = 58 N (13 lbf)
	Maintain Motion - Closing = 36 N (8 lbf)
	Allowed (R Rating <sub>05/08/11</sub> ) = 90 N (20 lbf)
	Latches = <27 N (<6 lbf)
	Allowed = 100 N (22.5 lbf)

**NOTE:** The results above represent the maximum force among all sash tested.

<u>Paragraph</u>	<u>Test</u>
5.3.2.1/ 9.3.2	Air Leakage Resistance ASTM E283-04(12)

The tested specimen meets or exceeds the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-2011, 2008, and 2005 for air infiltration at 75 Pa (1.6 psf).

Maximum Allowable	=	1.5 L/s/m <sup>2</sup> (0.3 cfm/ft <sup>2</sup> )
Extraneous Air Leakage	=	0.33 L/s (0.7 cfm)
Total Air Leakage	=	1.46 L/s (3.1 cfm)
Air Infiltration Rate	=	0.6 L/s/m <sup>2</sup> (0.12 cfm/ft <sup>2</sup> )

<u>Paragraph</u>	<u>Test</u>
5.3.3/ 9.3.3	Water Penetration Resistance ASTM E547-00(09)
	<u>3.4 L / (min • m<sup>2</sup>) (5.0 gph/ft<sup>2</sup>)</u>
	No Leakage after 4 cycles of 5 minutes at 260 Pa (5.43 psf)
	<b>NOTE:</b> Tested with and without insect screen

<u>Paragraph</u>	<u>Test</u>
5.3.4.2/ 9.3.4.2	Uniform Load Deflection at Design Pressure ASTM E330-14
	No damage after positive      1680 Pa (35.09 psf) held for 10 seconds
	No damage after negative      1680 Pa (35.09 psf) held for 10 seconds
	Measured Deflection <sub>Positive</sub> = 10.97 mm (0.432 inches)
	Measured Deflection <sub>Negative</sub> = 10.64 mm (0.419 inches)

<u>Paragraph</u>	<u>Test</u>
5.3.4.3/ 9.3.4.3	Uniform Load Structural Test ASTM E330-14
	No damage after positive      2520 Pa (52.63 psf) held for 10 seconds
	No damage after negative      2520 Pa (52.63 psf) held for 10 seconds
	Measured Permanent Set <sub>Positive</sub> = 0.91 mm (0.036 inches)
	Measured Permanent Set <sub>Negative</sub> = 1.02 mm (0.040 inches)
	Maximum Allowed (0.4%)      = 3.96 mm (0.156 inches)
	<b>NOTE:</b> Deflection and Permanent Set measurements taken on the meeting stile over a 991 mm (39") span.

<u>Paragraph</u>	<u>Test</u>
5.3.5/ 9.3.5	Forced Entry Resistance ASTM F588-07
	<u>Type A Window Assembly/ Grade 10:</u> = Pass
	<u>Test</u>
	<b>Operable Panel</b>
	Disassembly      = No Entry
	Lock Manipulation      = No Entry
	Sash Manipulation      = No Entry
	Test A1      = No Entry
	Test A2      = No Entry
	Test A3      = No Entry
	Test A4      = No Entry
	Test A5      = No Entry
	Test A7      = No Entry
	Hardware Manipulation Test      = No Entry
	Sash Manipulation Test      = No Entry

Type D Window Assembly/ Grade 10\*: = Pass

Test

**Fixed Lite/ Panel**

Disassembly = No Entry

Sash Manipulation = No Entry

**NOTE:** 1. T1 = 5 minutes, L1 = 667 N (150 lbf), L2 = 333 N (75 lbf), L3 = 111 N (25 lbf)  
2. Loads were held for 60 seconds.

Paragraph      Test

5.3.6.2/ 9.3.6.2 Thermoplastic Corner Weld Test (PVC products only) = Pass

Paragraph      Test

5.3.6.3/ 9.3.6.3 Deglazing Test

ASTM E987-88(09)

Active Panel

Rails – 230 N (51.71 lbf)

Maximum Allowed = 90% (100%)

Top Rail = 12.8%

Bottom Rail = 13.6%

Stiles – 320 N (71.94 lbf)

Maximum Allowed = 90% (100%)

Jamb Stile = 7.8%

Meeting Stile = 8.8%

**NOTE:** The glass bite was approximately 12.7 mm (0.5")

This test report was prepared by National Certified Testing Laboratory (NCTL), for the exclusive use of the above named client and it does not constitute certification of this product. The results are for the particular specimen tested and do not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. The test specimen was supplied to NCTL by the above named client. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen are to be drawn from the ASTM E330 test. Forced entry resistance test equipment used is in compliance with Section 7 of the ASTM F588-07 test method. Foam tape is mounted to the perimeter of the test buck prior to clamping to the test wall. NCTL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. The results in this report are actual tested values and are applicable to the specimen tested only, using the components and construction methods described herein.

Detailed drawings were available for laboratory records and compared to the test specimen at the time of this report. Component drawings were reviewed for product verification. The bill of materials contains details with any deviations noted. Ambient conditions during the referenced testing are available upon request. A copy of this report along with representative sections of the test specimen will be retained by NCTL. This report does not constitute certification or approval of the product, which may only be granted by a certification program validator or recognized approval entity. All tests were conducted in full compliance with the referenced specifications and/or test methods. This report is the joint property of National Certified Testing Laboratories Inc. and the Client to whom it is issued. Permission to reproduce this report by anyone other than National Certified Testing Laboratories Inc. and the Client must be granted in writing by both of the above parties. This report may not be reproduced, except its entirety, without the written consent of NCTL.

**National Certified Testing Laboratories**A digital signature of Jay Leader in cursive script, overlaid with a circular NCTL logo. Below the signature, the text "DIGITAL SIGNATURE" is printed in a small, sans-serif font.

Jay Leader  
Technician

A digital signature of Robert H. Zeiders in cursive script, overlaid with a circular NCTL logo. Below the signature, the text "DIGITAL SIGNATURE" is printed in a small, sans-serif font.

Robert H. Zeiders, P.E.  
Vice-President Engineering & Quality

NJL/ drm

Attachments

Appendix A – Revision Summary  
Appendix B – Drawings