



NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200
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AAMA/WDMA/CSA 101/I.S.2/A440-17

TEST REPORT SUMMARY

Rendered to:

**Climate Guard Manufacturing
2500 North Pulaski
Chicago, IL 60639**

PRODUCT TYPE: Project In at Top (Hopper)

SERIES/ MODEL: "1199"

Title	Summary of Results
Primary Product Designator AAMA/WDMA/CSA 101/I.S.2/A440-17	Class LC-PG55: Size tested 1219 x 813 mm (~48 x 32 in) - Type AP
Design Pressure	±2640 Pa (±55.14 psf)
Operating Force (in motion _{max})	<27 N (<6 lbf)
Air Infiltration	0.1 L/s/m ² (<0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	440 Pa (9.19 psf)
Uniform Load Structural Test Pressure	±3960 Pa (±82.71 psf)
Forced Entry Resistance	ASTM F588-07 - Grade 10 Pass

Test Completed: 06/24/19

Reference must be made to Report No. NCTL-110-22251-1 dated 07/11/19 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/A440-17
STRUCTURAL PERFORMANCE TEST REPORT

NCTL-110-22251-1

REPORT TO:
CLIMATE GUARD MANUFACTURING
2500 NORTH PULASKI
CHICAGO, IL 60639

REPORT DATE: 07/11/19

PRODUCT TYPE: PROJECT IN AT TOP (HOPPER)

SERIES/ MODEL: "1199"



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STRUCTURAL PERFORMANCE TEST REPORT

Report Number NCTL-110-22251-1

Report Date 07/11/19

Report To Climate Guard Manufacturing
2500 North Pulaski
Chicago, IL 60639

Date Testing Started 06/24/19
Date Testing Completed 06/24/19

Specification AAMA/WDMA/CSA 101/I.S.2/A440-2017
NAFS - North American Fenestration Standard/Specification for windows, doors, and skylights

Performance Results Class LC-PG55: Size tested 1219 x 813 mm (~48 x 32 in) - Type AP

Description of Specimen Tested

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

Model/ Series "1199"

Configuration Project-In-At-Top (Hopper)

Frame Size Overall
1219 mm x 813 mm (48" x 32")

Vent Size 1178 mm x 772 mm (46.375" x 30.375")

Viewing Area 1032 mm x 629 mm (40.625" x 24.75")

Frame & Vent Type Extruded aluminum with poured urethane thermal breaks

Joint Construction Frame
(2) Screw butt-type
Vent
Mitered with staked-in-place metal corner keys

Glazing Components
Overall 22.10 mm (0.870") nominal
Glass Thickness (2) Lites of 3 mm (0.118") nominal annealed glass
Spacer Type/Size 16.10 mm (0.634") Coated U-shaped steel spacer (Type CU-D)
Glazing System Interior glazed with a butyl back-bedding and a snap-in aluminum glazing bead with bulb-vinyl

Weatherstrip
Type (2) Strips EPDM bulb
Location Vent perimeter

Operating Hardware

Locks	
Type	Metal lock/ lock handle
Location	292 mm (11.5") From each end of the top rail
Keeper	
Type	Metal
Location	Head at the lock locations
Hinge Hardware	
Type	(4)-Bar
Location	Jambs/ stiles

Auxiliary No auxiliary items employed

Reinforcement No reinforcement employed

Weep Description

Size	25.4 mm (1") wide by 5.08 mm (0.200") high with plastic weep flap
Location	69 mm (2.70") From each end of the exterior sill face
Size	6.35 mm (0.25") Diameter
Location	29 mm (1.125") From each end and midspan of the sill screen track

Interior/ Exterior Surface Finish

White painted aluminum

Sealant

Location	Interior glazing perimeter and vent corners
Material	Silicone
Location	Screw heads and frame corners
Material	Small joint sealant

Insect Screen

Size	1108 mm (43.625") wide by 699 mm (27.5")
Corner Construction	Butt-type with plastic corner keys
Material	Fiberglass mesh with solid spline, (2) retainer springs

Installation Method

The window was installed in a 51 mm x 254 mm (2" x 10") spruce-pine-fir lumber test buck and was sandwiched between 12.7 mm (0.5") x 12.7 mm (0.5") wood blind stops. The stops were fastened with staples located on approximately 152 mm (6") centers. The exterior perimeter was sealed with silicone sealant.

Test Results - AAMA/WDMA/CSA 101/I.S.2/A440-2017

<u>Paragraph</u>	<u>Test</u>
9.3.1	Operating Force and Force to Latch - Method B (Force Gauge) ASTM E2068-00(08)
	Initiate Motion = <27 N (<6 lbf)
	Allowed (LC Rating ₁₇) = 60 N (13.49 lbf)
	Maintain Motion - Opening = <27 N (<6 lbf)
	Maintain Motion - Closing = <27 N (<6 lbf)
	Allowed (LC Rating ₁₇) = 30 N (6.74 lbf)
	Latches = 36 N 8 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>
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/A440-2017 for air infiltration at 75 Pa (1.57 psf).
	Maximum Allowable = 1.5 L/s/m ² (0.30 cfm/ft ²)
	<u>Infiltration</u>
	Total Air Leakage = 0.09 L/s (0.19 cfm)
	Extraneous Air Leakage _{Tare} = 0.09 L/s (0.19 cfm)
	Net Air Leakage = <0.01 L/s (<0.01 cfm)
	Air Infiltration Rate = 0.1 L/s/m ² (<0.01 cfm/ft ²)

<u>Paragraph</u>	<u>Test</u>
9.3.3	Water Penetration Resistance ASTM E547-00(16)
	<u>3.4 L/ (min• m²) (5.0 gph/ft²)</u>
	No Leakage after 4 cycles of 5 minutes at 440 Pa (9.19 psf)
	NOTE: Tested with and without insect screen

<u>Paragraph</u>	<u>Test</u>
9.3.4.2	Uniform Load Deflection at Design Pressure ASTM E330-14
	No damage after positive 2640 Pa (55.14 psf) held for 10 seconds
	No damage after negative 2640 Pa (55.14 psf) held for 10 seconds
	Measured Deflection _{Positive} = 0.81 mm (0.032 inches)
	Measured Deflection _{Negative} = 0.66 mm (0.026 inches)

Paragraph Test
 9.3.4.3 Uniform Load Structural Test
 ASTM E330-14

No damage after positive 3960 Pa (82.71 psf) held for 10 seconds
 No damage after negative 3960 Pa (82.71 psf) held for 10 seconds

Measured Permanent Set ^{Positive} = 0.13 mm (0.005 inches)
 Measured Permanent Set ^{Negative} = 0.41 mm (0.016 inches)
 Maximum Allowed (0.4%) = 4.32 mm (0.170 inches)

NOTE: Deflection and Permanent Set measurements taken on the bottom rail over a 1080 mm (42.5") span.

Paragraph Test
 9.3.6.5.5 Awning/ Hopper/ Projected Hardware Load Test

Load applied 70 N (15.74 lbf) at 60 seconds
 Outer Corner Deflection = 10.16 mm (0.40")
 Maximum Allowable Deflection = Report Only

Paragraph Test
 9.3.5 Forced Entry Resistance
 ASTM F588-14

Type B Window Assembly/ Grade 10: = Pass

Test
 Disassembly = No Entry
 Lock Manipulation = No Entry
 Sash Manipulation = No Entry
 Test B1 = No Entry
 Test B2 = No Entry
 Test B3 = No Entry
 Hardware Manipulation Test = No Entry
 Sash Manipulation Test = No Entry

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

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 test method. Foam tape is mounted to the perimeter of the test buck prior to clamping to the test wall. It is the assertion of this laboratory that any film employed during testing does not affect measurement values. 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 per applicable requirements 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. Tests were performed in the order set forth by the applicable standard or specification. This report is the joint property of NCTL and the client to whom it is issued. Permission to reproduce this report by anyone other than NCTL 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.

For National Certified Testing Laboratories

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Technician



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Justin Bupp
Laboratory Manager

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Attachments

- Appendix A - Revision Summary
- Appendix B - Drawings