



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

TEST REPORT SUMMARY

Rendered to:

REMODELERS SUPPLY CENTER

2622 North Pulaski
Chicago, IL 60639

PRODUCT TYPE: Hopper (Project-In-At-Top)

SERIES/ MODEL: "1199"

| Title | Summary of Results |
|--|---|
| Primary Product Designator AAMA/WDMA/CSA 101/I.S.2/A440-08 AAMA/WDMA/CSA 101/I.S.2/A440-05 | Class LC-PG55: Size tested 1219 x 813 mm (48 x 32 in) - Type AP AP-LC55 1219 x 813 (48 x 32) |
| Positive Design Pressure | +2640 Pa (+55.0 psf) |
| Negative Design Pressure | -2640 Pa (-55.0 psf) |
| Operating Force (in motion) | 30 N (7 lbf) |
| Air Infiltration | 0.1 L/s/m ² (0.02 cfm/ft ²) |
| Water Penetration Resistance Test Pressure | 440 Pa (9.0 psf) |
| Uniform Load Structural Test Pressure | ±3960 Pa (82.5 psf) |
| Forced Entry Resistance | ASTM F588-07 - Grade 10 Pass |

Reference must be made to Report No. NCTL-110-15329-1 dated 10/05/12 for complete test specimen description and data.

For National Certified Testing Laboratories

Jay Leader
Technician



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

STRUCTURAL TEST REPORT

NCTL-110-15329-1

REPORT TO:
REMODELERS SUPPLY CENTER
2622 NORTH PULASKI
CHICAGO, IL 60639

REPORT NUMBER: NCTL-110-15329-1
REPORT DATE: 10/05/12

PRODUCT:
“1199” Hopper (Project-In-At-Top)



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Report Number NCTL-110-15329-1

Report Date 10/05/12

Report To Remodelers Supply Center
2622 North Pulaski
Chicago, IL 60639

Test Date 10/03/12
Expiration Date 10/03/16

Specification 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

Performance Results AAMA/WDMA/CSA 101/I.S.2/A440-08
Class LC-PG55: Size tested 1219 x 813 mm (48 x 32 in) - Type AP
AAMA/WDMA/CSA 101/I.S.2/A440-05
AP-LC55 1219 x 813 (48 x 32)

Description of Specimen Tested

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

Model/ Series "1199" (Project-In-At-Top)

Configuration Hopper

Overall Frame Size 1219.2 mm x 812.8 mm (48" x 32")

Vent Size 1179.51 mm x 771.53 mm (46.4375" x 30.375")

Frame & Vent Type Extruded aluminum with poured urethane thermal breaks

Joint Construction Frame
(2) Screw butt-type
Vent
Mitered, (2) staked-in-place extruded aluminum corner keys

Glazing Components
Overall 22.40 mm (0.882") Nominal
Glass Thickness (1) Lite of 4 mm (0.152") nominal annealed glass exterior
(1) Lite of 3 mm (0.120") nominal annealed glass interior
Spacer Type/Size 15.49 mm (0.610") Coated U-shaped steel spacer (Type CU-D)
Glazing System Interior glazed with a mastic back-bedding and a snap-in extruded aluminum glazing bead with a bulb-vinyl gasket

Weatherstrip
Type (2) Strips bulb-vinyl
Location Vent perimeter

Operating Hardware

Locks

Type Metal lock/ lock handle
 Location 327.03 mm (12.875") From each end of the top rail

Keeper

Type Metal with 3.18 mm (0.125") shim
 Location Head at the lock locations

Hinge Hardware

Type (4)-Bar
 Location Bottom of each jamb/ stile

Reinforcement

No reinforcement employed

Weep Description

No apparent weeps employed

Interior/ Exterior Surface Finish

Brown painted aluminum

Sealant

Location Frame and vent corners
 Material Small joint sealant

Insect Screen

Size 1101.73 mm (43.4375") wide by 698.5 mm (27.5") High
 Corner Construction Butt-type with plastic corner key
 Material Fiberglass mesh with vinyl-bulb spline and nylon plungers at the stiles

Installation Method

The window was installed in a 50.8 mm x 254 mm (2" x 10") wood buck and secured with 12.7 mm (0.5") x 19.05 mm (0.75") wood blind stops at the interior and exterior perimeter of the buck. Each blind stop was secured with 38.1 mm (1.5") U-shaped staples located at 76.2 mm (3") from the end and the remaining staples 203.2 mm (8") on center. The exterior perimeter was sealed with silicone.

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

| <u>Paragraph</u> | <u>Test</u> | | | |
|------------------|--|---|---------|------------|
| 5.2 | Operating Force and Force to Latch - Method B (Force Gauge) ASTM E2068-00(08) | | | |
| | Initiate Motion | = | 30 N | (7 lbf) |
| | Maintain Motion - Opening | = | 30 N | (7 lbf) |
| | Maintain Motion - Closing | = | 30 N | (7 lbf) |
| | Allowed (LC Rating ₀₈) | = | 30 N | (7 lbf) |
| | Latches | = | <26.7 N | (<6 lbf) |
| | Allowed | = | 100 N | (22.5 lbf) |

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

| | |
|-----------------------------|--|
| <u>Paragraph</u> 5.3.2.1 | <u>Test</u> 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/A440-2008 and 2005 for air infiltration at 75 Pa (1.6 psf). |
| | Maximum Allowable = 1.5 L/s/m ² (0.3 cfm/ft ²) |
| | Total Infiltration Rate = 2.28 L/s (2.2 cfm) |
| | Infiltration Rate/Area = 0.1 L/s/m ² (0.02 cfm/ft ²) |

| | |
|---------------------------|---|
| <u>Paragraph</u> 5.3.3 | <u>Test</u> Water Penetration Resistance ASTM E547-00(09) |
| | No Leakage after 4 cycles of 5 minutes at 440 Pa (9.0 psf) |
| | NOTE: Tested with and without insect screen |

| | |
|-----------------------------|---|
| <u>Paragraph</u> 5.3.4.2 | <u>Test</u> Uniform Load Deflection at Design Pressure ASTM E330-02(10) |
| | <u>Bottom Rail</u> |
| | No damage after positive 2640 Pa (55.00 psf) held for 10 seconds |
| | No damage after negative 2640 Pa (55.00 psf) held for 10 seconds |
| | Measured Deflection _{Positive} = 0.84 mm (0.033 inches) |
| | Measured Deflection _{Negative} = 0.38 mm (0.015 inches) |

| | |
|-----------------------------|--|
| <u>Paragraph</u> 5.3.4.3 | <u>Test</u> Uniform Load Structural Test ASTM E330-02(10) |
| | <u>Bottom Rail</u> |
| | No damage after positive 3960 Pa (82.50 psf) held for 10 seconds |
| | No damage after negative 3960 Pa (82.50 psf) held for 10 seconds |
| | Measured Permanent Set _{Positive} = 0.20 mm (0.008 inches) |
| | Measured Permanent Set _{Negative} = 0.61 mm (0.024 inches) |
| | Maximum Allowed (0.4%) = 4.34 mm (0.171 inches) |
| | NOTE: Deflection and Permanent Set measurements taken on the bottom rail over a 1085.85 mm (42.75") span. |

| <u>Paragraph</u> 5.3.5 | <u>Test</u> Forced Entry Resistance ASTM F588-07 | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|--|----------------|----------------|----------------|-------------|----------|----------|-------------------|----------|----------|-------------------|----------|----------|---------|----------|----------|---------|----------|----------|---------|----------|----------|----------------------------|----------|----------|
| | <u>Type B Window Assembly/Grade 10:</u> Pass | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="0"> <thead> <tr> <th><u>Test</u></th> <th><u>Results</u></th> <th><u>Allowed</u></th> </tr> </thead> <tbody> <tr> <td>Disassembly</td> <td>No Entry</td> <td>No Entry</td> </tr> <tr> <td>Lock Manipulation</td> <td>No Entry</td> <td>No Entry</td> </tr> <tr> <td>Sash Manipulation</td> <td>No Entry</td> <td>No Entry</td> </tr> <tr> <td>Test B1</td> <td>No Entry</td> <td>No Entry</td> </tr> <tr> <td>Test B2</td> <td>No Entry</td> <td>No Entry</td> </tr> <tr> <td>Test B3</td> <td>No Entry</td> <td>No Entry</td> </tr> <tr> <td>Hardware Manipulation Test</td> <td>No Entry</td> <td>No Entry</td> </tr> </tbody> </table> | <u>Test</u> | <u>Results</u> | <u>Allowed</u> | Disassembly | No Entry | No Entry | Lock Manipulation | No Entry | No Entry | Sash Manipulation | No Entry | No Entry | Test B1 | No Entry | No Entry | Test B2 | No Entry | No Entry | Test B3 | No Entry | No Entry | Hardware Manipulation Test | No Entry | No Entry |
| <u>Test</u> | <u>Results</u> | <u>Allowed</u> | | | | | | | | | | | | | | | | | | | | | | | |
| Disassembly | No Entry | No Entry | | | | | | | | | | | | | | | | | | | | | | | |
| Lock Manipulation | No Entry | No Entry | | | | | | | | | | | | | | | | | | | | | | | |
| Sash Manipulation | No Entry | No Entry | | | | | | | | | | | | | | | | | | | | | | | |
| Test B1 | No Entry | No Entry | | | | | | | | | | | | | | | | | | | | | | | |
| Test B2 | No Entry | No Entry | | | | | | | | | | | | | | | | | | | | | | | |
| Test B3 | No Entry | No Entry | | | | | | | | | | | | | | | | | | | | | | | |
| Hardware Manipulation Test | No Entry | No Entry | | | | | | | | | | | | | | | | | | | | | | | |

Sash Manipulation Test

No Entry

No Entry

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

| <u>Paragraph</u> | <u>Test</u> |
|-------------------------|---|
| 5.3.6.6.6 ₀₈ | Hardware Load Test |
| 5.3.6.6.7 ₀₅ | 70N (15lbf) Load Applied = 3.30 mm (0.130") |

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



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Technician



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

Attachments

- Appendix A – Revision Summary
- Appendix B – Drawings

Appendix A

Section 1:

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were Reviewed (as submitted) for Product Verification
(Reference: NCTL-110-15329-1)

See Attached Documentation;
any deviations noted.

Note: The above referenced component drawings along with representative sections of the test specimen will be retained per procedure by NCTL. This testing facility assumes that all information provided by the client is accurate.

Section 2:

| <u>Identification</u> | <u>Date</u> | <u>Page & Revision</u> |
|-----------------------|-------------|----------------------------|
| Original Issue | 10/05/12 | Not Applicable |