



TEST REPORT

Report No.: E2552.04-501-47

Rendered to:

CLIMATE GUARD MANUFACTURING
Chicago, Illinois

PRODUCT TYPE: PVC Awning Window
SERIES/MODEL: CG THERMAFORCE

SPECIFICATION(S): 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.*

CSA A440S1-09, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.*

Test Date(s): 11/05/14
Through: 11/10/14
Report Date: 07/12/16



SUMMARY OF RESULTS

Summary of Results	
Title	Test Specimen #1 <i>Non-reinforced</i>
AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11	Class LC-PG55 1219 x 813 (48 x 32)-AP
AAMA/WDMA/CSA 101/I.S.2/A440-05	AP-LC55 1219 x 813 (48 x 32)
Design Pressure	±2640 Pa (±55.14 psf)
Air Infiltration	0.1 L/s/m ² (0.02 cfm/ft ²)
Canadian Air Infiltration/Exfiltration Level	A3
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

Summary of Results		
Title	Test Specimen #2 <i>Reinforced rails</i>	Test Specimen #3 <i>Non-reinforced</i>
AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11	Class LC-PG60 1219 x 813 (48 x 32)-AP	Class LC-PG100 914 x 610* (36 x 24*)-AP
AAMA/WDMA/CSA 101/I.S.2/A440-05	AP-LC60 1219 x 813 (48 x 32)	AP-LC85 914 x 610* (36 x 24*)
Design Pressure	±2880 Pa (±60.15 psf)	±5520 Pa (±115.29 psf)

Test Completion Date: 11/10/14

Reference must be made to Report No. E2552.04-501-47, dated 07/12/16 for complete test specimen description and detailed test results.

1.0 Report Issued To: Climate Guard Manufacturing
 2662 N. Pulaski Road
 Chicago, Illinois 60639

2.0 Test Laboratory: Architectural Testing, Inc.
 1140 Lincoln Avenue
 Springdale, Pennsylvania 15144
 724-275-7100

3.0 Project Summary:

3.1 Product Type: PVC Awning Window

3.2 Series/Model: CG THERMAFORCE

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimens tested successfully met the performance requirements for the following ratings:

Test Specimen(s)	Title	Summary of Results
1	101/I.S.2/A440-08 and -11	Class LC-PG55 1219 x 813 (48 x 32)-AP
1	101/I.S.2/A440-05	AP-LC55 1219 x 813 (48 x 32)
2	101/I.S.2/A440-08 and -11	Class LC-PG60 1219 x 813 (48 x 32)-AP
2	101/I.S.2/A440-05	AP-LC60 1219 x 813 (48 x 32)
3	101/I.S.2/A440-08 and -11	Class LC-PG100 914 x 610* (36 x 24*)-AP
3	101/I.S.2/A440-05	AP-LC85 914 x 610* (36 x 24*)

This product was originally tested as the Deceuninck North America, LLC Series/Model 440.720 AW-001, PVC Awning Window and is a reissue of the original Report No. E2552.01-501-47. This report is reissued in the name of Climate Guard Manufacturing through written authorization by Deceuninck North America, LLC.

General Note: An asterisk (*) next to the size designation indicates that the size tested for optional performance was smaller than the Gateway test size for the product type and class.

3.4 Test Dates: 11/05/14 - 11/10/14

3.5 Test Record Retention End Date: All test records for this report will be retained until November 10, 2018.

3.6 Test Location: Deceuninck North America, LLC test facility in Monroe, Ohio. Calibration of test equipment was performed by Architectural Testing in accordance with AAMA205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

3.0 Project Summary: (Continued)

3.7 Test Specimen Source: The test specimen(s) were provided by the client. Representative samples of the test specimen(s) will be retained by Architectural Testing for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix C. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Dean Erbaugh	Deceuninck North America, LLC
James Grippo	Architectural Testing, Inc.

4.0 Test Specification(s):

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.*

CSA A440S1-09, Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.*

5.0 Test Specimen Description:

5.1 Product Sizes:

Test Specimens #1 and #2:

Overall Area: 1.0 m ² (10.7 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1219	48	813	32
Vent size	1188	46-3/4	781	30-3/4
Screen size	1124	44-1/4	718	28-1/4

5.0 Test Specimen Description: (Continued)

Test Specimen #3:

Overall Area: 0.6 m ² (6.0 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	914	36	610	24
Vent size	883	34-3/4	578	22-3/4
Screen size	819	32-1/4	514	20-1/4

The following descriptions apply to all specimens.

5.2 Frame Construction:

Frame Member	Material	Description
Head, sill, and jambs	PVC	Extruded

	Joinery Type	Detail
All corners	Mitered	Thermally welded

5.3 Vent Construction:

Vent Member	Material	Description
All rails and stiles	PVC	Extruded

	Joinery Type	Detail
All corners	Mitered	Thermally welded

5.4 Weatherstripping:

Description	Quantity	Location
1/4" wide by 5/16" high foam-filled vinyl bulb (Amesbury QEZD 260)	1 Row	Vent perimeter
3/16" diameter foam-filled vinyl bulb (Amesbury AP425)	1 Row	Frame
1/4" diameter hollow vinyl bulb (Amesbury AP427)	1 Row	Interior frame leg

5.0 Test Specimen Description: (Continued)

5.5 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
7/8" IG	Silicone foam/butyl	3/32" annealed	3/32" annealed	Set from the exterior against a double-sided adhesive tape and secured with rigid glazing beads.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Test specimens #1 and #2	1	1105 x 699	43-1/2 x 27-1/2	1/2"
Test specimen #3	1	800 x 495	31-1/2 x 19-1/2	1/2"

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weepslot	1/4" wide by 1/8" deep	2	Bottom rail glazing pocket, one at each end
Weepslot	1/4" wide by 1/8" deep	4	Bottom rail bottom surface, two at each end

5.7 Hardware:

Description	Quantity	Location
Lever lock with multi-point lock system	2	Each jamb/stile; with metal keepers on each stile at 3-1/4", 16-1/2" and 23-1/2" up from the bottom on Test Specimen #1 and #2, and at 3-1/4" and 15-1/4" up from the bottom on Test Specimen #3.
Die cast metal snubber	2 sets	Head/top rail; , one 8" off midspan on Test specimens #1 and #2, and 6" off midspan on Test specimen #3.
Dual arm rotary operator with metal guide track	1	Sill/bottom rail
Single arm concealed hinge with stainless steel track	2	One at each jamb/stile

5.0 Test Specimen Description: (Continued)

5.8 Reinforcement: No reinforcement was utilized for test specimens #1 and #3.

Drawing Number	Location	Material
10000672	Test specimen #2 Top rail and bottom rail	Fiberglass

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Extruded aluminum	Mitered with plastic corner keys	Fiberglass	Flexible vinyl spline

6.0 Installation:

Each specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 3/16" shim space. The nail fin perimeter of the specimen was sealed with a silicone sealant.

Location	Anchor Description	Anchor Location
Integral nail fin	#8 x 5/8" long pan head screw	Nominally spaced at 12" on center, and starting 2" in from each corner.

7.0 Test Results: The temperature during testing was 20.5°C (69°F). The results are tabulated as follows:

Test Specimen #1:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 45 N (10 lbf) Maintain motion: 13 N (3 lbf) Locks: 13 N (3 lbf)	60 N (13 lbf) max. 30 N (7 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.1 L/s/m ² (0.02 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1
Air Leakage, Exfiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.2 L/s/m ² (0.03 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1
Canadian Air Infiltration/Exfiltration Level	A3	0.5 L/s/m ² (0.1 cfm/ft ²) max.	
Water Penetration, per ASTM E 547	N/A	N/A	3
Uniform Load Deflection, per ASTM E 330 Deflections taken at the left stile +1200 Pa (+25.06 psf) -1200 Pa (-25.06 psf)	0.3 mm (0.01") 0.8 mm (0.03")	Report Only	4, 6, 7
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the left stile +1800 Pa (+37.59 psf) -1800 Pa (-37.59 psf)	<0.3 mm (<0.01") <0.3 mm (<0.01")	1.3 mm (0.05") max. 1.3 mm (0.05") max.	5, 6
Forced Entry Resistance, per ASTM F 588, Type: B - Grade: 10	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
Insect Screen Serviceability per NAFS Canadian Supplement (CSA A440S1-09) 60 N (13.5 lbf)	Pass	Meets as stated	

7.0 Test Results: (Continued)

Test Specimen #1: (Continued)

Title of Test	Results	Allowed	Note
Awning, Hopper, Projected Hardware Load Test 70 N (15 lbf)	14.2 mm (0.56")	Report Only	
Optional Performance			
Water Penetration, per ASTM E 547 at 580 Pa (12.11 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 Deflections taken at the left stile +2640 Pa (+55.14 psf) -2640 Pa (-55.14 psf)	0.8 mm (0.03") 0.8 mm (0.03")	Report Only	4, 6, 7
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the left stile +3960 Pa (+82.71 psf) -3960 Pa (-82.71 psf)	0.3 mm (0.01") 0.3 mm (0.01")	1.3 mm (0.05") max. 1.3 mm (0.05") max.	5, 6

Test Specimen #2:

Title of Test	Results	Allowed	Note
Optional Performance			
Uniform Load Deflection, per ASTM E 330 Deflections taken at the left stile +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	0.3 mm (0.01") 0.8 mm (0.03")	Report Only	4, 6, 7
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the left stile +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	0.3 mm (0.01") 0.3 mm (0.01")	1.3 mm (0.05") max. 1.3 mm (0.05") max.	5, 6

7.0 Test Results: (Continued)

Test Specimen #3:

Title of Test	Results	Allowed	Note
Optional Performance			
Uniform Load Deflection, per ASTM E 330 Deflections taken at the left stile +5520 Pa (+115.29 psf) -5520 Pa (-115.29 psf)	0.8 mm (0.03") 1.0 mm (0.04")	Report Only	4, 6, 7
Uniform Load Structural, per ASTM E 330 Permanent sets taken at the left stile +8280 Pa (+172.93 psf) -8280 Pa (-172.93 psf)	<0.3 mm (<0.01") 0.3 mm (0.01")	1.3 mm (0.05") max. 1.3 mm (0.05") max.	5, 6

Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.

Note 2: With and without insect screen.

Note 3: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 4: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Note 5: Loads were held for 10 seconds.

Note 6: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Note 7: Loads were held for 52 seconds.

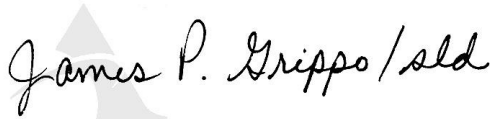


This report is reissued in the name of Climate Guard Manufacturing through written authorization of Deceuninck North America, LLC to whom the original report was rendered. The original Deceuninck North America, LLC Report No. is E2552.01-501-47.

Architectural Testing will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing, Inc. for the entire test record retention period.

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For ARCHITECTURAL TESTING, Inc.



Digitally Signed for: James P. Grippo by Sandy L. DiCaro

James P. Grippo
Technician



Digitally Signed by: Lynn George

Lynn George
Director- Regional Operations

JPG:sld

Attachments (pages): This report is complete only when all attachments listed are included.

- Appendix-A: Alteration Addendum (1)
- Appendix-B: Location of Air Seal (1)
- Appendix-C: Drawing(s) (9)