

TEST REPORT

Report No.: D2596.01-501-47

Rendered to:

DECEUNINCK NORTH AMERICA, LLC Monroe, Ohio

PRODUCT TYPE: PVC Casement Window, Type XOX SERIES/MODEL: 141.194 CA-009

SPECIFICATIONS: AAMA/WDMA/CSA 101/I.S.2/A440-11, 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.

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 Dates:
 10/29/13

 Through:
 11/12/13

 Report Date:
 12/27/13



SUMMARY OF RESULTS

	Summary of Results		
Title	Test Specimen #1	Test Specimen #2	
Itte	Non-reinforced Vent	Reinforced	
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class R-PG15 2743 x 1829	Class LC-PG35 2743 x1524	
Rating	(108 x 72) - C	(108 x 60) - C	
AAMA/WDMA/CSA 101/I.S.2/A440-05	C- R15 2743 x 1829	C- LC35 2743 x1524	
Rating	(108 x 72)	(108 x 60)	
Design Pressure	±720 Pa (±15.04 psf)	±1680 Pa (±35.09 psf)	
Air Infiltration	0.1 L/s/m ² (0.02 cfm/ft ²)	See Test Specimen #1	
Canadian Air Infiltration/Exfiltration Level	A3	See Test Specimen #1	
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)	See Test Specimen #1	

	Summary of Results		
Titlo	Test Specimen #3	Test Specimen #4	
litie	Reinforced	Reinforced	
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class LC-PG30 2438 x 1829	Class LC-PG35 2438 x 1524	
Rating	(96 x 72) - C	(96 x 60) - C	
AAMA/WDMA/CSA 101/I.S.2/A440-05	C-LC30 2438 x 1829	C-LC35 2438 x 1524	
Rating	(96 x 72)	(96 x 60)	
Design Pressure	±1440Pa (±30.08 psf)	±1680 Pa (±35.09 psf)	

Test Completion Date: 11/12/2013

Reference must be made to Report No. D2596.01-501-47, dated 12/27/13 for complete test specimen description and detailed test results. Reference Architectural Testing, Inc. Report No. D2398.01-501-47, dated 11/20/13 for complete *Gateway* test specimen description and test results.



1.0	Report Issued To:	Deceuninck North America, LLC 351 North Garver Road Monroe, Ohio 45050
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 Casement Window , Type XOX
- 3.2 Series/Model: 141-194 CA-009
- **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. Reference Architectural Testing, Inc. Report No. D2398.01-501-47, dated 11/20/13 for complete *Gateway* test specimen description and test results.

Test Specimen No.	AAMA/WDMA/CSA 101/I.S.2/A440-11 Rating	AAMA/WDMA/CSA 101/I.S.2/A440-05 Rating
1	Class R-PG15 2743 x 1829 (108 x 72)- C	C-R15 2743 x 1829 (108 x 72)
2	Class LC-PG35 2743 x1524 (108 x 60)- C	C-LC35 2743 x1524 (108 x 60)
3	Class LC-PG30 2438 x 1829 (96 x 72)- C	C-LC30 2438 x 1829 (96 x 72)
4	Class LC-PG35 2438 x 1524 (96 x 60)- C	C-LC35 2438 x 1524 (96 x 60)

3.4 Test Dates: 10/29/2013 - 11/12/2013

- **3.5 Test Record Retention End Date**: All test records for this report will be retained until December 27, 2017.
- **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 AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".



3.0 Project Summary: (Continued)

- **3.7 Test Sample Source**: The test specimens 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 B. 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 - 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.*

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 Specimen #1:

Overall Area :	Width		Hei	ght
5.0 m ² (54.0 ft ²)	millimeters	inches	millimeters	inches
Overall size	2743	108	1829	72
Operable vent size (2)	891	35-1/16	1786	70-5/16
Center fixed vent size	891	35-1/16	1786	70-5/16
Screen size (2)	829	32-5/8	1727	68



5.1 Product Sizes: (Continued)

Overall Area :	Width		He	ight
4.2 m ² (45.0 ft ²)	millimeters	inches	millimeters	inches
Overall size	2743	108	1524	60
Operable vent size (2)	891	35-1/16	1481	58-5/16
Center fixed vent size	891	35-1/16	1481	58-5/16
Screen size (2)	832	32-3/4	1421	55-15/16

Test Specimen #2:

Test Specimen #3:

Overall Area :	Width		Hei	ght
4.5 m ² (48.0 ft ²)	millimeters	inches	millimeters	inches
Overall size	2438	96	1829	72
Operable vent size (2)	787	31	1786	70-5/16
Center fixed vent size	787	31	1786	70-5/16
Screen size (2)	729	28-11/16	1722	67-13/16

Test Specimen #4:

Overall Area:	Width		Height	
3.7 m ² (40.0 ft ²)	millimeters	inches	millimeters	inches
Overall size	2438	96	1524	60
Operable vent size (2)	787	31	1481	58-5/16
Center fixed vent size	787	31	1481	58-5/16
Screen size (2)	729	28-11/16	1421	55-15/16



The following descriptions apply to all specimens.

5.2 Frame Construction:

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

	Joinery Type	Detail
All corners	Mitered	Thermally welded
Integral mullions	Coped/ butt type	Secured to the head and sill with six #8 x 3" long screws with sealing washers, three at each end.

5.3 Vent Construction: The fixed center vent was secured to the frame using #8 x 1-3/4" long screws with washers, three at each rail and and five at each stile (72" height units) (four at each stile 60" height units). The screws were evenly spaced and starting 5" from each corner. A PVC spacer was secured to each member of the fixed vent with two #8 x 3/4" long screws, one at each end.

Sash Member	Material	Description
All rails and	DVC	Futmided
stiles	PVC	Extruded

	Joinery Type	Detail
All corners	Mitered	Thermally welded

5.4 Weatherstripping:

Description	Quantity	Location
Co-extruded 0.250" diameter flexible vinyl bulb seal	1 Row	Vent perimeter, interior side
Co-extruded 0.280" high flexible fin	1 Row	Vent perimeter, at mid profile
0.400" high foam filled vinyl jacket leaf	1 Row	Vent perimeter, exterior side



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
3/4" IG	Butyl, single sealed	3/32" annealed	3/32" annealed	Set from the exterior against a double-side adhesive tape and secured with rigid vinyl glazing beads.

Test Spesimon	Quantity	Daylight	t Opening	Glass
i est specimen	Quantity	millimeters	inches	Bite
Test specimen #1	3	805 x 1705	31-11/16 x 67-1/8	1/2"
Test specimen #2	3	805 x 1397	31-11/16 x 55	1/2"
Test specimen #3	3	705 x 1705	27-3/4 x 67-1/8	1/2"
Test specimen #4	3	705 x 1397	27-3/4 x 55	1/2"

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weepslot	3/8" wide by	6	Exterior face of bottom rails, , one 2-
•	3/16° deep		1/4" in from each end
Weenslot	3/8" wide by	6	Bottom rail glazing pockets, one at
weepside	3/16" deep	0	each end



5.7 Hardware:

Description	Quantity	Location
Rotary operator with	2	Sill with guide track at bottom rail of operable
metal guide track		vents
Multi point lever/lock stay bar system	2	Test Specimens #1 and #3: Mullions with four metal keepers on each stile of operable vents located 3-1/2", 22-1/2", 42-1/4" and 61-1/2" up from bottom. Test Specimens #2 and #4: Mullions with three metal keepers on each stile of operable vents located 3-1/2", 27" and 49-1/2" up from bottom.
Single arm concealed hinge with stainless steel guide track	4	Two per operable vent, top rail/ head and bottom rail/sill
Metal stud bracket	2	One per operable vent, bottom rails
Plastic ramp block	2	One per operable vent, bottom rails
Metal alignment snubbers	2 Sets	One per operable vent at the mid span of hinge stile / jamb

5.8 Reinforcement: Test specimen #1: No vent reinforcement was utilized.

Drawing Number	Location	Material
10500006	Test specimens #2, #3 and #4 All operable vent stiles	Extruded aluminum
10300028	All test specimens Mullions	Extruded aluminum

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Roll-formed	Square-cut with	fiborglass	Flovible vinyl cpline
aluminum	plastic corner keys	liberglass	Flexible villyl spille



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 window was sealed with a silicone sealant.

Location	Anchor Description	Anchor Location
Integral nail fin/ jambs	#8 x 5/8" long pan head screw	Nominally spaced at 14" on center, starting 1" from each end
Integral nail fin/ head and sill	#8 x 5/8" long pan head screw	Nominally spaced at 7" on center, starting 1" from each end



7.0 Test Results: The temperature during testing was 21.7°C (71°F). The results are tabulated as follows:

Test Specimen #1:			
Title of Test	Results	Allowed	Note
	Initiate motion:		
	45 N (10 lbf)	60 N (13 lbf) max.	
Operating Force,	Maintain motion:		
per ASTM E 2068	13 N (3 lbf)	30 N (7 lbf) max.	
	Locks:		
	9 N (2 lbf)	100 N (22.5 lbf) max.	
Air Leakage,			
Infiltration per ASTM E 283	0.1 L/s/m ²	1.5 L/s/m ²	
at 75 Pa (1.57 psf)	(0.02 cfm/ft^2)	$(0.3 \text{ cfm/ft}^2) \text{ max.}$	1
Air Leakage,			
Exfiltration per ASTM E 283	0.2 L/s/m ²	1.5 L/s/m ²	
at 75 Pa (1.57 psf)	(0.03 cfm/ft ²)	$(0.3 \text{ cfm/ft}^2) \text{ max.}$	1
Canadian Air			
Infiltration/Exfiltration Level	A3	N/A	
Water Penetration,			
per ASTM E 547	N/A	N/A	3
Uniform Load Deflection,			
per ASTM E 330			
taken at the right vertical mullion			
+720 Pa (+15.04 psf)	11.4 mm (0.45")		
-720 Pa (-15.04 psf)	14.2 mm (0.56")	Report Only.	4, 6, 7
Uniform Load Structural,			
per ASTM E 330			
taken at the right vertical mullion			
+1080 Pa (+22.56 psf)	0.5 mm (0.02")	7.1 mm (0.28") max.	
-1080 Pa (-22.56 psf)	1.3 mm (0.05")	7.1 mm (0.28") 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			
(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
Sash Vertical Deflection			
200 N (45 lbf)	1.5 mm (.06")	17.8 mm (0.70") max.	
Distributed Load			
300 Pa (6.27 psf)	Pass	No damage	
0	ptional Performance		
Water Penetration,			
per ASTM E 547at			
580 Pa (12.11 psf)	Pass	No leakage	

Test Specimen #2:

Title of Test	Results	Allowed	Note	
Optional Performance				
Uniform Load Deflection,				
per ASTM E 330				
taken at the right vertical mullion				
+1680 Pa (+35.09 psf)	14.2 mm (0.56")			
-1680 Pa (-35.09 psf)	15.2 mm (0.60")	Report Only	4, 6, 7	
Uniform Load Structural,				
per ASTM E 330				
taken at the right vertical mullion				
+2520 Pa (+52.63 psf)	0.5 mm (0.02")	6.1 mm (0.24") max.		
-2520 Pa (-52.63 psf)	1.8 mm (0.07")	6.1 mm (0.24") max.	5,6	

Test Specimen #3:

Title of Test	Results	Allowed	Note					
Optional Performance								
Uniform Load Deflection,								
per ASTM E 330								
taken at the right vertical mullion								
+1440 Pa (+30.08 psf)	23.3 mm (0.92")							
-1440 Pa (-30.08 psf)	25.1 mm (0.99")	Report Only	4, 6, 7					
Uniform Load Structural,								
per ASTM E 330								
taken at the right vertical mullion								
+2160 Pa (+45.11 psf)	1.5 mm (0.06")	7.1 mm (0.28") max.						
-2160 Pa (-45.11 psf)	1.8 mm (0.07")	7.1 mm (0.28") max.	5,6					



7.0 Test Results: (Continued)

Test Specimen #4:

Title of Test	Results	Allowed	Note					
Optional Performance								
Uniform Load Deflection,								
per ASTM E 330								
taken at the right vertical mullion								
+1680 Pa (+35.09 psf)	12.2 mm (0.48")							
-1680 Pa (-35.09 psf)	14.2 mm (0.56")	Report Only	4, 6, 7					
Uniform Load Structural,								
per ASTM E 330								
taken at the right vertical mullion								
+2520 Pa (+52.63 psf)	1.0 mm (0.04")	6.1 mm (0.24") max.						
-2520 Pa (-52.63 psf)	1.3 mm (0.05")	6.1 mm (0.24") 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



Architectural Testing will service this report for the entire test record retention period. Test records that are retained 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.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, Inc.

James P. Grippo Technician 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: Drawings (9)

This report produced from controlled document template ATI 00438, issued 01/31/12.



Appendix A

Alteration Addendum

Note: *No alterations were required.*



Appendix B

Drawings



<u>Casement - XOX</u>		DECEUNINCK MODEL NO.		141.194 CA - 009			deceuninck		
					Faster			ier	
				Material	Туре	Qty	Size	Length	Head
				ex. Vinyl, Alum,	ex. Rivot /		ex. #4, #6,		ex. Pan, Flat,
		Part No.	Vendor	Composite	Screw		#8, etc.		Oval, etc.
Frame		ar en 1906 en 1917 - 19 	n General and the constrained	yi alarakayiyin ala aliy					
	Head	10008056	Deceuninck	Vinyl					
	Frame Adapter - Head (if applicable)								West of the States
	Jamb	10008056	Deceuninck	Vinyl				and the second	
	Sill	10008056	Deceuninck	Vinyl				18. (B. 19.)	
	Mullion	10005739	Deceuninck	Vinyl	and the second second	1.00	and the second		
	Frame Adapter - Sill (if applicable)								
Sash	FIXED LITE SINCER - P1200-A	anal na maritra Milaya na Mat	역시 이 이 사람	ik - mito pro aktika nova pro nad			FOR STRUCTURE		
	Top Rail	10005484	Deceuninck	Vinyl	and the second second		and the second second		
	Lock Stile	10005484	Deceuninck	Vinyl				and the days	 A statistic second secon
	Hinge Stile	10005484	Deceuninck	Vinyl					
	Bottom Rail	10005484	Deceuninck	Vinyl		1012 A.S.			and the second second
	Glazing Bead	10005473	Deceuninck	Vinyl					
Hardware				an in a bhail ann an		antin-transmentantality		and a second	
	Glass Thickness	3/4" IG		Glass			and the second	and the second	Carl Street Street
	Operator						ļ		
	Hinge								
	Keeper								
	Lock Handle								
	Lie Bar or Lock Bar Guides								
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Reinforcement	(if applicable)		- <u> </u>						
	Frame	4000000				- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10			
	Mullion	10300028		Aluminum					
	Panel Stiles	10500006		Aluminum		0.00			
	Sash (large hollow)	······································							
	Sash (small hollow)		l					Second States	

hardware components must be emailed along with a copy of this completed form to Deceuninck for the testing process to begin.

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	REVISION HISTORY					
CAD MAINTAINED, CHANGES SHALL BE	REV	DESCRIPTION	DATE	APPROVED		
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