



NATIONAL CERTIFIED TESTING LABORATORIES

8350 PARKLINE BLVD. STE. 12 • ORLANDO, FLORIDA 32809 • TELEPHONE (407) 240-1356
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Florida Building Code TAS 201-94
Florida Building Code TAS 202-94
Florida Building Code TAS 203-94

STRUCTURAL, IMPACT & CYCLING TEST REPORT SUMMARY

RENDERED TO:

Deceuninck North America, LLC
351 North Garver Road
Monroe, OH 45050

"623/620" Sliding Glass Door

SUMMARY OF RESULTS					
Installation: Screw Installation					
Specimen 1	TAS 202		+ 65.0 psf.	- 65.0 psf.	
Specimens 2, 3, 4	TAS 201/203		+ 65.0 psf.	- 65.0 psf.	
Specimen 1					
Air Infiltration per ASTM E283 in accordance with TAS 202-94					
			Infiltration: <0.1 cfm/ft ²		
Water Penetration Resistance per ASTM E331 in accordance with TAS 202-94					
			19.75 psf - Passed/No water penetration		
			9.0 psf - Passed/No water penetration		
Static Air Pressure per ASTM E330 in accordance with TAS 202-94					
Design Load Pressure		+/- 65.0 psf			
Overload/ Structural Load Pressure		+/- 97.5 psf.			
Forced Entry Resistance per ASTM F842 in accordance with TAS 202-94					
Passed - Grade 10					
Specimens 2, 3, 4					
Large Missile Impact/ Pressure Loading in accordance with TAS 201-94 and TAS 203-94					
Impacts rejected without allowing penetration and the product shows no resultant failure or distress					

Note: ¹ Achieved with sill extender

Test Completion Date: 09/28/16

Reference must be made to NCTL Report Number NCTL-210-4044-02 report dated 11/07/16 for complete test sample description and data.

National Certified Testing Laboratories

Mark Bennett
Manager of Testing Services

01/25/17



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Florida Building Code TAS 201-94
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STRUCTURAL, IMPACT & CYCLING PERFORMANCE TEST REPORT

NCTL-210-4044-02

Deceuninck North America, LLC
351 North Garver Road
Monroe, OH 45050

REPORT NUMBER: NCTL-210-4044-02
REPORT DATE: 11/07/16

"623/620"
Sliding Glass Door


01/25/17



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Report Number NCTL-210-4044-02

Report Date 11/07/16

Report To Deceuninck North America, LLC
351 North Garver Road
Monroe, OH 45050

Test Start Date 09/23/16
Test End Date 09/28/16

Specification: Florida Building Code TAS 201-94
Impact Test Procedures
Florida Building Code TAS 202-94
Criteria for Testing Impact and Non-Impact Resistant Building Envelope
Components using Uniform Static Air Pressure
Florida Building Code TAS 203-94
Criteria for Testing Products Subjected to Cyclic Pressure Loading

Description of Sample Tested

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

Model/Type "623/620" Sliding Glass Door

Configuration XO

Frame Size 2438 mm x 2438 mm (96" x 96")

Panel Size
Active & Fixed 1232 mm x 2375 mm (48.5" x 93.5")

Viewing Area
Active & Fixed 1035 mm x 2159 mm (40.75" x 85")

Frame Type Rigid Vinyl (PVC)

Joint Construction
Frame
Butt jointed and secured using (3) #8 x 63.5 mm (2.5") Phillips pan head self-tapping screws at each corner through jamb to horizontal member. A sill gasket was used between main frame members that had an overall measurement of 115.9 mm x 52 mm (4.563" x 2.047").
Main Frame Head & Jambs
The profile measured 129.2 mm x 51 mm (5.088" x 2.007"). The frame jamb used a frame in interior jamb track, 54.1 mm x 26.7 mm (2.128" x 1.051") on fixed panel frame jamb and exterior jamb track on active panel frame jamb.
Main Frame Sill
The profile measured 129.2 mm x 51 mm (5.088" x 2.007")

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PanelRails and Stiles

Mitered and welded corners. Overall measurement 101.6 mm x 44.6 mm (4" x 1.755")

Panel Interlock

Interlock attachment had an overall measurement of 50.9 mm x 57.9 mm (2.002" x 2.279"), was snap fit onto panel stile and was secured using #8 x 19.1 mm (0.75") Phillips pan head self-tapping screws.

Glazing Components

Overall	25.4 mm (1") Nominal
Glass Thickness	(1) Lite of 5 mm (0.1875") nominal tempered glass to the Exterior (1) Lite of laminated glass to the interior
Laminated Glass	(2) Lites of 5 mm (0.1875") nominal annealed glass separated by a 2.29 mm (0.090") Kuraray America "Sentry Glass Plus" interlayer
Spacer Type/ Size	9.5 mm (0.375") Desiccant-filled stainless steel spacer (Type SS-D)

Glazing System

Exterior glazed with a "SikaFlex 552" and a snap-in rigid vinyl glazing bead that had an overall measurement of 9.1 mm x 24.8 mm (0.36" x 0.977"),

Weatherstrip

Type	Fin pile weatherstrip
Size	298.5 mm x 19.1 mm (11.75" x 0.75")
Location	Active panel lock rail

Operating Hardware

Type	Gemini II lock w/2450 trimplate
Size	298.5 mm x 19.1 mm (11.75" x 0.75")
Location	Active panel lock rail
Type	Gemini 1" tall keeper
Size	260.7 mm x 10.1 mm (10.265" x 0.399")
Location	Main frame interior jamb track
Type	Adjustable roller
Size	191.1 mm x 50.8 mm (7.525" x 2")
Location	At each end of the active panel

Auxiliary

Type	Rail Insert
Size	39.5 mm x 50.1 mm (1.555" x 1.971")
Location	Panel bottom rail
Type	Rail Interlock
Size	46.9 mm x 29.1 mm (1.845" x 1.145")
Location	Interior main frame head track
Type	Sill cover
Size	54.5 mm x 36.8 mm (2.145" x 1.447")
Location	Exterior sill track
Type	Sill extender
Size	5.7 mm x 17.8 mm (0.226" x 0.701")
Location	Interior sill, on top of sill leg
Type	Snubber
Size	45.2 mm x 31.5 mm (1.78" x 1.242")
Location	Exterior fixed panel frame, screwed in placed between main frame jamb and panel stile. Also employed on head between main frame head and panel top rail.

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Type	"HD" L Bracket
Size	50.8 mm x 76.2 mm (2" x 3")
Location	Bottom of fixed interlock panel
Type	Nylon Bracket
Size	254 mm x 44.6 mm (10" x 1.755")
Location	Top of fixed interlock panel secured using #8 x 63.5 (2.5") Phillips flat head screws
Type	Sill Insert
Size	45.7 mm x 16.7 mm (1.8" x 0.656")
Location	Exterior sill track

Reinforcement

Type	Stile and rail reinforcement
Size	49.9 mm x 39.5 mm (1.965" x 1.555")
Location	Active and fixed panel stiles and rails
Type	Fixed and active panel reinforcement
Size	50.1 mm x 39.5 mm (1.971" x 1.555")
Location	Interlocking stiles
Type	Aluminum square tube
Size	25.4 mm x 25.4 mm (1" x 1")
Location	Interlocking stiles

Weep Description

Type	Weep Slot
Size	25.4 mm x 6.4 mm (1" x 0.25")
Location	50.8 mm (2") From each end of the exterior sill face

Interior/Exterior Surface Finish

White vinyl (PVC)

Sealant

Location	A silicone sealant was employed around the perimeter of the frame that sealed the specimen to the wood test buck (Interior & Exterior)
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Insect Screen

A custom screen was employed on the frame

Installation Method

The specimen was installed in a 50.8 mm x 304.8 mm (2" x 12") spruce-pine-fir lumber test buck using:

(1) #10 x 50.8 mm (2") Phillips pan head screw was located on the head and sill at approximately 165.1 mm (6.5") from each end and 304.8 mm (12") on center thereafter and on each jamb at approximately 165.1 mm (6.5") from the head and sill and approximately 355.6 mm (14.0") on center thereafter. The exterior perimeter was sealed with silicone sealant.

Test Results - TAS 202

Test Method
ASTM E283-04(12)

Test
Air Leakage Resistance

Specimen 1Information at 1.6 psf:

Maximum Allowable	=	0.3 cfm/ft ²
Infiltration Rate/ Area	=	<0.1 cfm/ft ²



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Test Method
ASTM E547-00(09)

Test
Water Resistance Test

Specimen 1

The test specimen complies with the requirements of TAS 202 at 5.0 gph/ft²

No Leakage after 1 cycle of 15 minutes at 432 Pa (9 psf)

(Silicone bead used on bottom rail of fixed panel and closed cell foam in the weep holes.)

No Leakage after 1 cycle of 15 minutes at 468 Pa (9.75 psf)

(Silicone bead used on bottom rail of fixed panel and closed cell foam in the weep holes.)

Test Method
ASTM E330-14

Test
Static Air Pressure Tests

Specimen 1

Half Test Load - ± 48.75 psf

Positive = No damage

Negative = No damage

Design Loads - ± 65.0 psf

Measured Deflection _{Positive} = 1.077 inches

Measured Deflection _{Negative} = 1.126 inches

Test Loads - ± 97.5 psf

Measured Permanent Set _{Positive} = 0.022 inches

Measured Permanent Set _{Negative} = 0.015 inches

NOTE: Deflection and Permanent Set measurements taken on the midspan of interlock with a 0.4%/ 9.5 mm (0.374") permanent set limit.

NOTE: Upon completion of testing there was no structural distress indicative of failure

Test Results - TAS 201

Test
Large Missile Impact

Type and weight of missile

#2 Southern Yellow Pine 2x4, Length 92" & 9 lbs Speed 50.0 ft/ sec.

Specimen 2

Impact

Location

Midspan of Interlock

Impact

Midspan of Active

Impact

Bottom Right Corner of Active Panel

Specimen 3

Impact

Midspan of Interlock

Impact

Midspan of Active

Impact

Bottom Right Corner of Active Panel

Specimen 4

Impact

Midspan of Interlock

Impact

Midspan of Active

Impact

Bottom Right Corner of Active Panel

NOTE: All missile impacts were rejected without penetration, tearing, or separation of the laminate. Shattered sacrificial and laminated glass. No visible damage to the frame was observed.

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Test Results - TAS 203

Test

Cyclic Wind Pressure Loading

After completion of the impact tests, the test specimens were pressure cycled in accordance with Table 1626 of 2010 Florida Building Code Building.

Maximum Cyclic Load Test Pressure: +65.0 psf & -65.0 psf

Specimens 2, 3 & 4

Positive Loads

Range of Test	Actual				# of Cycles
+0.2 to +0.5 DP	13.0	psf to	32.5	psf	3,500
+0.0 to +0.6 DP	0.0	psf to	39.0	psf	300
+0.5 to +0.8 DP	32.5	psf to	52.0	psf	600
+0.3 to +1.0 DP	19.5	psf to	65.0	psf	100

Negative Loads

Range of Test	Actual				# of Cycles
-0.3 to -1.0 DP	19.5	psf to	65.0	psf	50
-0.5 to -0.8 DP	32.5	psf to	52.0	psf	1,050
-0.0 to -0.6 DP	0.0	psf to	39.0	psf	50
-0.2 to -0.5 DP	13.0	psf to	32.5	psf	3,350

NOTE: Specimens showed no resultant failure distress or permanent deformation with a recovery of at least 90% over maximum deflection after cycle test. No failure of fasteners or separation of glass from the frame.

Test Method
ASTM F842-13

Test
Forced Entry Resistance

Passed

Test Observers

Mark Bennett NCTL, Inc.
Christopher Bennett NCTL, Inc.

Where required, plastic film (2-mil) was used to seal against air leakage. The film did not affect the performance of the specimens or influence the results of the tests. All tests were conducted in accordance with the TAS 201, TAS 202 and TAS 203 test methods. Upon completion of all testing, the specimens meet the requirements of Sections 1606, 1620 and 1626 of the "Florida Building Code, Building" and the TAS 201, 202 and 203 protocols.

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. All testing was performed in compliance with the referenced test method or specification and any deviations are noted. Ambient conditions during the referenced testing are available upon request. Any film employed during testing had no effect upon test results.

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 E330-02(10) test. Forced entry resistance test equipment used is in compliance with Section 7 of the ASTM F842-04 test method. 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.

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 may not be reproduced, except in full, without the written consent of NCTL.

National Certified Testing Laboratories



Mark Bennett
Manager of Testing Services



Christopher Bennett
Division Manager

MB/ cb

Attachments

NCTL Certification No.: 16-0218.06

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APPENDIX A

Section 1:

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were reviewed (as submitted) for Product Verification (Reference: NCTL-210-4044-02)

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>Revision</u>
Original Issue	11/07/16	Not Applicable



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APPENDIX B
DRAWINGS

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