NATIONAL CERTIFIED TESTING LABORATORIES

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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:

Gemi Windows and Doors
307 Four Brooks Road
Stamford, CT 06903

PRODUCT TYPE: Dual Action Inswing Side-Hinged Door

SERIES/ MODEL: "5000 Window/ Balcony Door"

SUMMARY OF RESULTS

Installation: Screw Installation

Specimen 1	TAS	202	+ 60.0	psf. -	60.0	psf.
Specimens 2, 3, 4	TAS	201/203	+ 60.0	psf. -	60.0	psf.

Specimen 1

Air Infiltration per ASTM E283 in accordance with TAS 202-94

Infiltration: 0.03 cfm/ft^2

Water Penetration Resistance per ASTM E331 in accordance with TAS 202-94

9.00 psf - Passed/ No water penetration

Static Air Pressure per ASTM E330 in accordance with TAS 202-94

Design Load Pressure	+/- 60.0 psf
Overload/ Structural Load Pressure	+/- 90.0 psf

Forced Entry Resistance per AAMA 1304-02 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

Test Completion Date: 06/29/18
Revision Date: 10/06/20

Reference must be made to NCTL Report Number NCTL-110-21258-1 report dated 07/06/18 for complete test sample description and data.

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Jay Leader
Technician

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

NCTL-110-21258-1

REPORT TO:
GEMI WINDOWS AND DOORS
307 FOUR BROOKS ROAD
STAMFORD, CT 06903

REPORT NUMBER: NCTL-110-21258-1
REPORT DATE: 07/06/18
Revision Date: 10/06/20

PRODUCT TYPE: DUAL ACTION INSWING SIDE-HINGED DOOR

SERIES/ MODEL: "5000 WINDOW/ BALCONY DOOR"

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Report Number	NCTL-110-21258-1
Report Date	07/06/18
Revision Date	10/06/20
Report To	Gemi Windows and Doors 307 Four Brooks Road Stamford, CT 06903
Date Testing Started	06/11/18
Date Testing Completed	06/29/18
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/ Series	"5000 Window/ Balcony Door"
Configuration	Dual Action Inswing Side Hinged Door
Frame Size	Overall 1270 mm x 2438 mm (50" x 96")
Leaf Size	1183 mm x 2351 mm (46.563" x 92.563")
Viewing Area	978 mm x 2146 mm (38.5" x 84.5")
Frame & Leaf Type	Extruded vinyl
Joint Construction	Frame/ Leaf Mitered, welded
Glazing Components	
Overall	32 mm (1.260") nominal
Glass Thickness	(1) Lite of laminated glass at the interior and exterior
Laminated Glass	(2) Lites of 3 mm (0.115") nominal annealed glass separated by a 0.76 mm (0.030") PVB interlayer at the exterior. (2) Lites of 5 mm (0.195") nominal annealed glass separated by a 2.29 mm (0.090") PVB interlayer at the interior
Spacer Type/Size	13.21 mm (0.520") Desiccant-filled aluminum spacer (Type A1-D)
Glazing System	Interior glazed with a bulb-vinyl gasket and urethane back-bedding/ heel bead and a snap-in (2) leaf dual durometer rigid vinyl glazing bead

Weatherstrip	
Type	(2) Strips single-leaf vinyl
Location	Leaf perimeter
Type	(1) Strip bulb-vinyl
Location	Frame perimeter with 6.35 mm (0.25") notch located 102 mm (6") from each end of the head
Operating Hardware	
Locks	
Type	Single handle (15)-point integrated lock system
Location	1178 mm (46.375") From the bottom of the lock stile with (2) lock points on the top rail (4) lock points on the hinge stile (3) lock points on the bottom rail and (6) lock points on the lock stile
Keeper	
Type	Metal
Location	Frame members at the lock locations
Hinge Hardware	
Type	Concealed hinge
Location	Top and bottom of the hinge stile/ hinge jamb
Auxiliary	No auxiliary items employed
Reinforcement	
Type	J-shaped galvanized steel
Thickness	1.40 mm (0.055")
Location	Frame perimeter secured with evenly spaced screws
Type	Galvanized steel tube
Thickness	1.96 mm (0.077")
Location	Leaf perimeter secured with evenly spaced screws
Weep Description	
Size	25.4 mm (1") wide by 6.35 mm (0.25") high
Location	89 mm (3.5") From each end of the exterior sill track
Size	29 mm (1.125") wide by 3.56 mm (0.140") high with plastic weep cover
Location	210 mm (8.25") From each end of the exterior sill face
Size	29 mm (1.125") wide by 6.35 mm (0.25") high
Location	197 mm (7.75") From each end of the bottom rail
Interior/ Exterior Surface Finish	White vinyl (PVC)
Sealant	No apparent sealant applied
Insect Screen	No screen employed
Installation Method	The door was installed in a 51 mm x 254 mm (2" x 10") spruce-pine-fir lumber test buck and was secured with metal straps. Each strap was fastened to the frame with (1) #8 x 25.4 mm (1") pan head tek screw and to the buck with (2) #8 x 32 mm (1.25") flat head torx screws located 114 mm (4.5"), 400 mm (15.75"), 667 mm (26.25"), 933 mm (36.75"), 1308 mm (51.5"), 1664 mm (65.5"), 2064 mm (81.25") and 2369 mm (93.25") from the bottom of each jamb and 152 mm (6") and 406 mm (16") from each end of the head. Urethane foam was applied to the frame/ buck perimeter. The exterior perimeter was sealed with silicone sealant.

Test Results - TAS 202

Test Method	Test
ASTM E283	Air Leakage Resistance

Specimen 1
Information at 1.6 psf:

Maximum Allowable	=	0.3 cfm/ft²
Infiltration Rate/ Area	=	0.03 cfm/ft²

Test Method	Test
ASTM E331	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 431 Pa (9.00 psf)

Test Method	Test
ASTM E330	Static Air Pressure Tests

Specimen 1
Half Test Load - **± 45.0 psf**

Positive	=	No damage
Negative	=	No damage

Design Loads - **± 60.0 psf**

Measured Deflection Positive	=	0.086 inches
Measured Deflection Negative	=	0.016 inches

Test Loads - **± 90.0 psf**

Measured Permanent Set Positive	=	0.023 inches
Measured Permanent Set Negative	=	0.001 inches

NOTE: Deflection and Permanent Set measurements taken on the hinge stile with a 0.4%/ 2.84 mm (0.112") 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.

	Location
Specimen 2	
Impact	Center of the Glazing
Impact	Top Right Corner of the Glazing
Specimen 3	
Impact	Bottom Left Corner of the Glazing
Impact	Center of the Glazing
Specimen 4	
Impact	Top Right Corner of Glazing
Impact	Center of the Glazing

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.

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: +60.0 psf & -60.0 psf

Specimens 2, 3, 4

Positive Loads

Range of Test	Actual				# of Cycles
+0.2 to +0.5 DP	12.0	psf to	30.0	psf	3,500
+0.0 to +0.6 DP	0.0	psf to	36.0	psf	300
+0.5 to +0.8 DP	30.0	psf to	48.0	psf	600
+0.3 to +1.0 DP	18.0	psf to	60.0	psf	100

Negative Loads

Range of Test	Actual				# of Cycles
-0.3 to -1.0 DP	18.0	psf to	60.0	psf	50
-0.5 to -0.8 DP	30.0	psf to	48.0	psf	1,050
-0.0 to -0.6 DP	0.0	psf to	36.0	psf	50
-0.2 to -0.5 DP	12.0	psf to	30.0	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
AAMA 1304-02

Test
Forced Entry Resistance

135 kg (300 lb)

Lock stile corners	=	Pass
Above the lock	=	Pass

NOTE: Duration of load is 30 seconds

Test Observers

Justin Bupp	NCTL, Inc.
Jay Leader	NCTL, Inc.
George Encinger	Gemi Windows and Doors

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 F588-07 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

Jay Leader
Technician

Justin L. Bupp
Laboratory Manager

NJL/ dro
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-110-21258-1)

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.

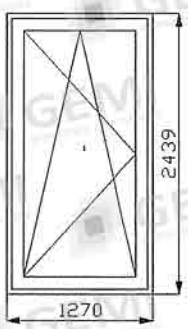
Section 2:

Identification	Date	Revision
Original Issue	07/06/18	Not Applicable
Revision 01	10/06/20	Specified inswing as operating orientation

APPENDIX B

DRAWINGS

Position BOM ID5000



Profile system: aluplast IDEAL 5000®
Rectangular window,
Width: 1270 mm, Height: 2439 mm
Field: 1 tilt & turn left

Glazing: Laminated VSG 33.2 – 14 – Laminated VSG 55.6

Frame profile: 80mm: 150x03, reinforcement: 239020 (Ix: 2.10 cm4, Iy: 1.10 cm4)
gasket : EPDM

Sash profile: 105mm, Classic-line, recessed: 150x30
reinforcement: 229115 (Ix: 6.40 cm4, Iy: 5.00 cm4)
gasket : TPE
hardware: G-U tilt & turn

Glazing bead: 20mm high, 17mm wide,
black gasket EPDM: 120651

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NCTL-110-21258.1
TEST DATE 6/29/18

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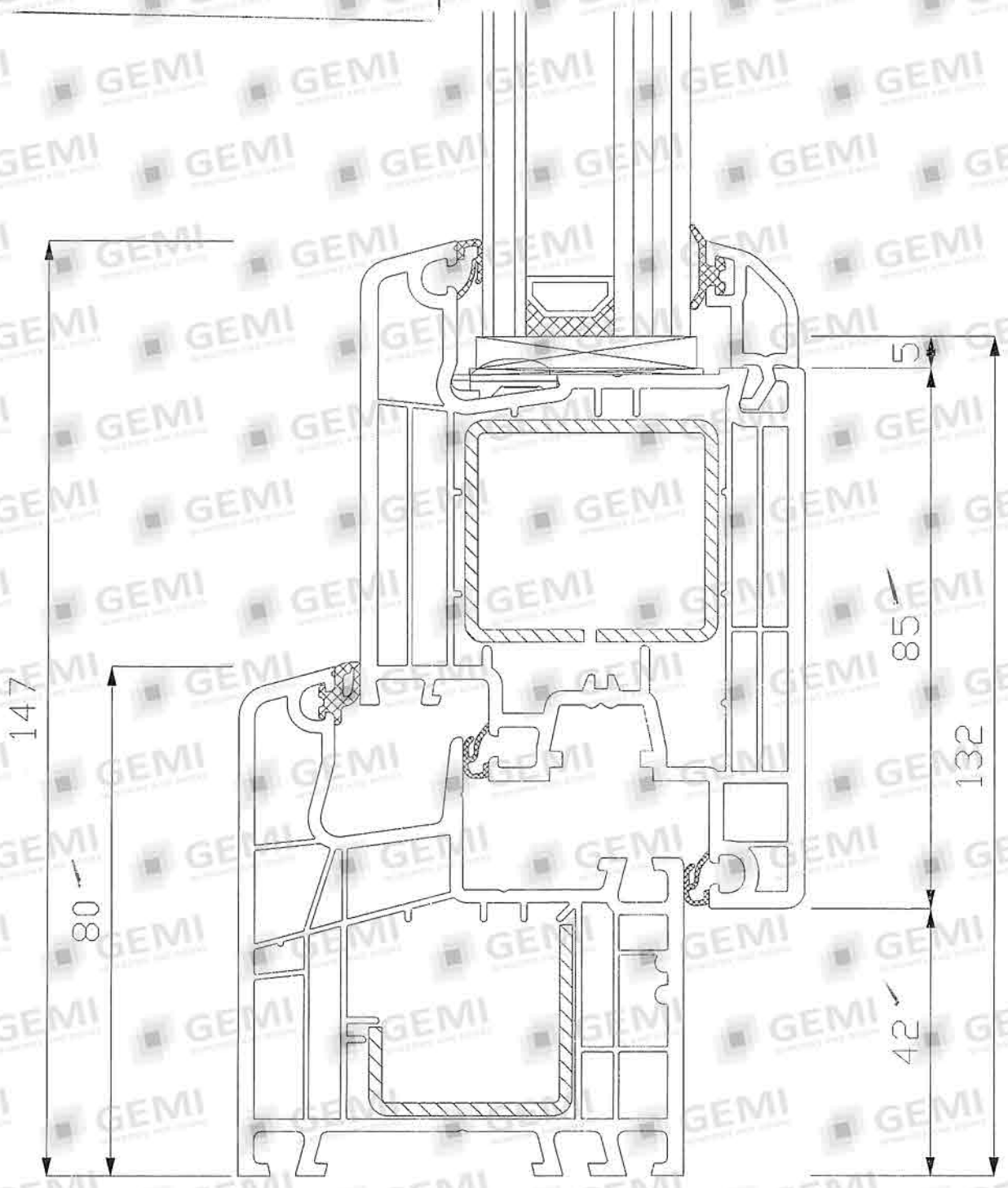

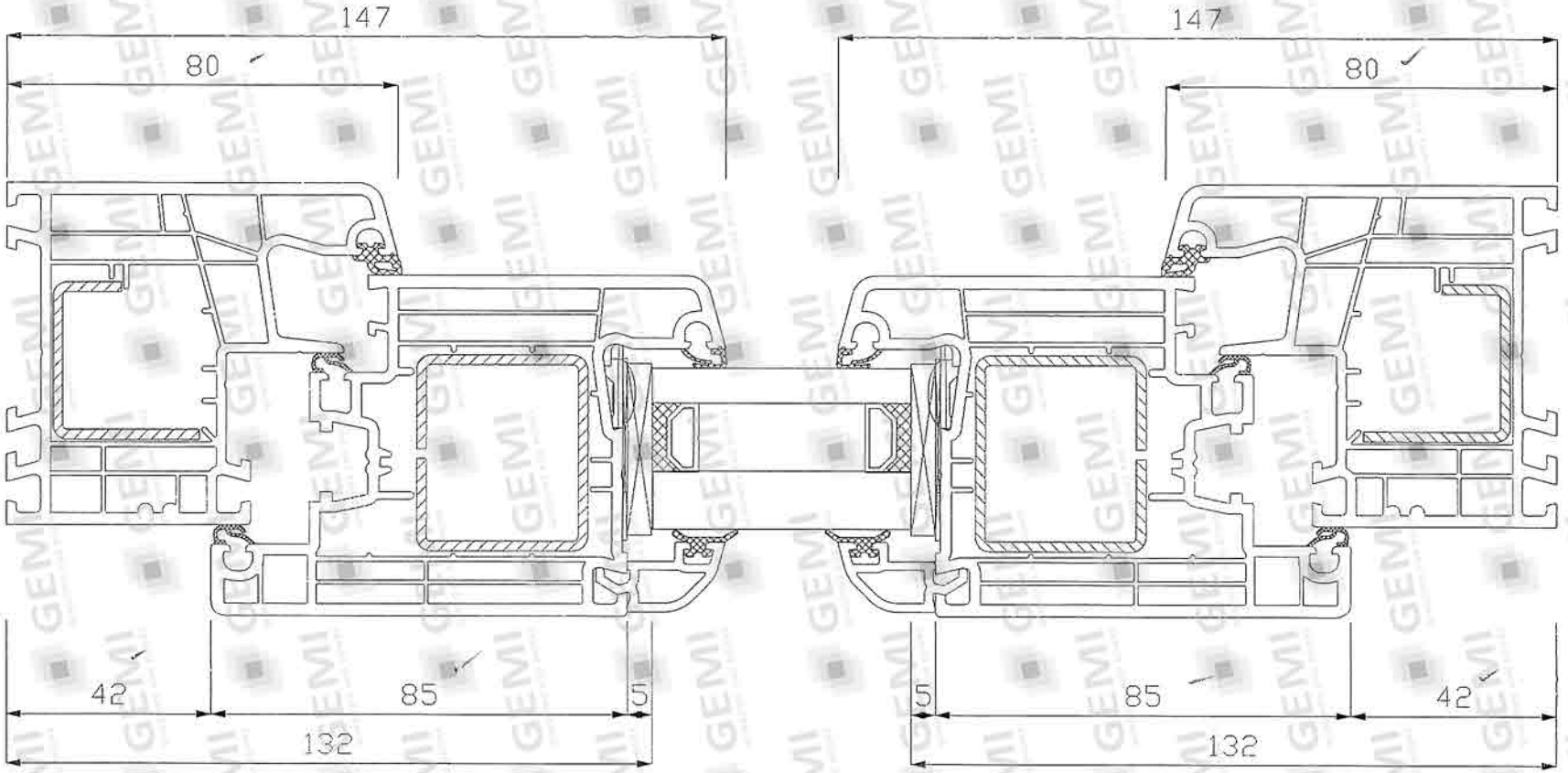

TEST SPECIMEN COMPLIES
WITH THESE DETAILS.
ANY DEVIATION IS NOTED
REPORT NO. NCTL-110-212558-1
TEST DATE 6/29/18