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ROTO-FRANK OF AMERICA, INC.
TEST REPORT

SCOPE OF WORK
ASTM F2090 TESTING ON A DOUBLE HUNG WINDOW WITH TWO SINGLE ACTION ANGEL VENTLOCK® SIDE FIXED, WINDOW OPENING CONTROL DEVICES

REPORT NUMBER
S1663.01-109-44

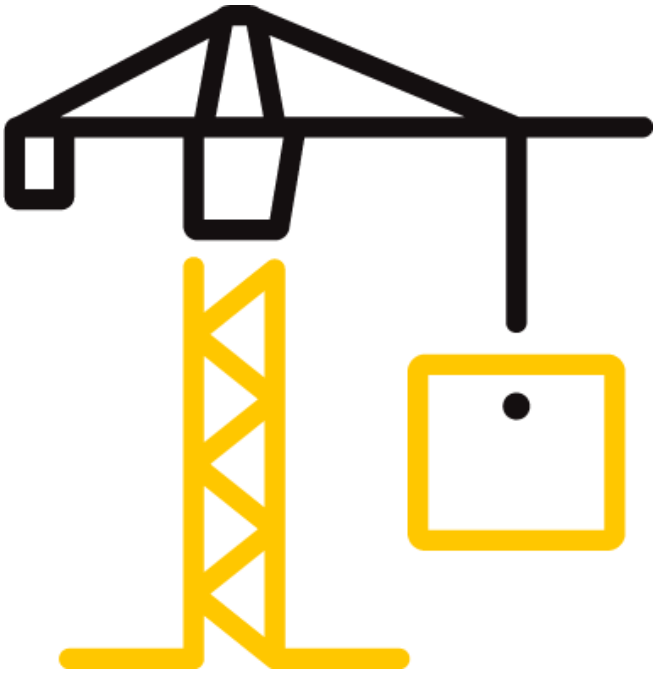
TEST DATES
12/23/24 - 12/26/24

ISSUE DATE
01/27/25

RECORD RETENTION END DATE
12/26/28

PAGES
12

DOCUMENT CONTROL NUMBER
RT-R-AMER-Test-2805 (09/23/24)



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TEST REPORT FOR ROTO-FRANK OF AMERICA, INC.
Report No.: S1663.01-109-44
Date: 01/27/25

REPORT ISSUED TO

ROTO-FRANK OF AMERICA, INC.
14 Inspiration Lane
Chester, Connecticut 06412

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Roto-Frank of America, Inc. to perform testing in accordance with ASTM F2090, on their Angel Ventlock® Side Fixed, window opening control device. Results obtained are tested values and were secured by using the designated test method. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk Approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

For INTERTEK B&C:

COMPLETED BY:	Jason R. Zeller	**REVIEWED BY:**	Ken R. Stough
TITLE:	Technician – Product Testing	**TITLE:**	Project Manager – Product Testing
SIGNATURE:	Digitally Signed by: Jason Zeller	**SIGNATURE:**	Digitally Signed by: Ken Stough
DATE:	01/27/25	**DATE:**	01/27/25

JRZ:mas

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SECTION 2
TEST METHOD

The specimens were evaluated in accordance with the following:

> **ASTM F2090-21**, *Standard Specification for Window Fall Prevention Devices With Emergency Escape (Egress) Release Mechanisms (Sections 10.1 through 10.5 to satisfy Section 9)*

SECTION 3
MATERIAL SOURCE/INSTALLATION

Test specimen was provided by the client. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of four years from the test completion date.

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for no shim space.

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Head, sill, and jambs	#10 x 1-1/2" pan head screw	Located 2" from corners, spaced 8" on center, through nail fin into test buck

SECTION 4
EQUIPMENT

Tape Measure Verification: 63788
Weather Station: 63316
Spring Scale: Y002137
Stopwatch: INT03722
Force Gauge: INT03950

SECTION 5
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Ken R. Stough	Intertek B&C
Jason R. Zeller	Intertek B&C

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SECTION 6
TEST SPECIMEN DESCRIPTION

Product Type: Single Action Window Opening Control Device
Series/Model: Angel Ventlock® Side Fixed

Product Sizes:

OVERALL AREA:	**WIDTH**		**HEIGHT**	
0.5 m² (5.8 ft²)	**millimeters**	**inches**	**millimeters**	**inches**
Overall size	597	23-1/2	902	35-1/2
Exterior sash	533	21	438	17-1/4
Interior sash	533	21	438	17-1/4

Frame Construction:

FRAME MEMBER	**MATERIAL**	**DESCRIPTION**
Head, sill, jambs	Wood and vinyl	Milled wood with extruded vinyl exterior skin

	JOINERY TYPE	**DETAIL**
All corners	Copped and butted	Wood member joinery fastened using three 3/8" crown, 1" long staples and one #8 x 1-1/2" flat head screw, through head and sill into jambs

Sash Construction:

SASH MEMBER	**MATERIAL**	**DESCRIPTION**
Rails, stiles	Wood	Milled

	JOINERY TYPE	**DETAIL**
All corners	Copped and butted	Fastened using one 5/16" crown, 1" long staple, through top and bottom rails into stiles

Reinforcement: *No reinforcement was utilized.*

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Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Kerf-mounted 0.130" diameter hollow vinyl bulb gasket	1 row	Jambs, interior sash track
Coextruded 0.340" diameter hollow vinyl bulb gasket	2 rows	Head, exterior sash track
Adhered 1-1/2" x 1", 0.270" high poly pad	1 per jamb	Jambs at meeting rail
0.625" wide, 0.410" high, hollow foam gasket	1 row	Interior sash, bottom rail
Coextruded 0.300" diameter hollow vinyl bulb gasket	1 row	Exterior sash, bottom rail

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
11/16" IG	Aluminum reinforced butyl spacer	3/32" annealed	3/32" annealed	Exterior glazed against double sided glazing tape, secured with a vinyl snap-in glazing stop

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Exterior sash daylight opening	1	441 x 346	17-3/8 x 13-5/8	1/2"
Interior sash daylight opening	1	441 x 346	17-3/8 x 13-5/8	1/2"

Drainage:

DRAINAGE METHOD	SIZE	QUANTITY	LOCATION
Weep slots	3/8" wide by 1/8" high	2 per sash	Bottom rail glazing stop, 2" from stiles, draining from glazing track out to exterior

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Hardware:

DESCRIPTION	QUANTITY	LOCATION
Sweep latch	1	Interior sash, top rail at midspan
Sweep latch receiver	1	Exterior sash, bottom rail at midspan
Tilt latch	2 per sash	Interior and exterior sash, top rails at stiles
Balance with tilt bar	2 per sash	Interior and exterior sash, stiles at bottom rail
Window opening control devices	2	Exterior sash, 6-1/2" from bottom rail

Window Opening Control Device Description: Two window opening control devices were placed in the exterior sash stiles, 6-1/2" from bottom rail. The devices measured 0.630" wide by 2.717" high by 0.774" deep. The devices were constructed from a steel housing and tongue and a steel wire spring. When assembled, each device utilized a single action to disengage and allow egress. A magnet at the end of the tongue was utilized to maintain disengagement. The device utilized a wire spring that kept the device engaged. When the device was passed over by the sash, the device automatically reset to the engaged position upon returning the sash to the closed position.

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SECTION 7
TEST RESULTS

The temperature during testing was 16°-17°C (60°-62°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Actions to Disengage	Two single action	Two independent single actions or one dual action	1
Window Opening Size	3-3/4" (95 mm)	<4" (102 mm)	
Operating Force, per ASTM E2068	Initiate Motion: <0.5 lbf (<2 N)	15 lbf (66 N) max	
Pre Load Testing, 75 lbf (333 N) 5 cycles	Pass	No damage	2
Operational Cycling, 4000 cycles	Pass	No damage	3
Load Testing, 75 lbf (333 N)100 cycles	Pass	No damage	2
Window Opening Size	3-3/4" (95 mm)	<4" (102 mm)	
Operating Force, per ASTM E2068	Initiate Motion: <0.5 lbf (<2 N)	15 lbf (66 N) max	

Note 1: The *devices automatically re-engaged after opening and closing the window.*

Note 2: Loads were held for 10 seconds.

Note 3: The devices were manually disengaged, and the vent was opened past the opening control device. The vent was returned to the closed position, and a visual inspection was made ensuring the automatic re-engagement of the window opening control devices.

***General Note**: All testing was performed in accordance with Sections 9.2, 9.3.2, and 10.1 through 10.5 of the referenced standard. The window opening control devices utilized on the test unit met all the requirements for Window Opening Control Device set forth in ASTM F2090-21. At the completion of testing, the devices were fully operational. The devices, once released, automatically reset (Section 9).*

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SECTION 8
PHOTOGRAPHS

Photo No. 1
Double Hung Window with Two
Angel Ventlock® Side Fixed
Window Opening Control Devices Installed

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Photo No. 2
Angel Ventlock® Side Fixed
Window Opening Control Devices

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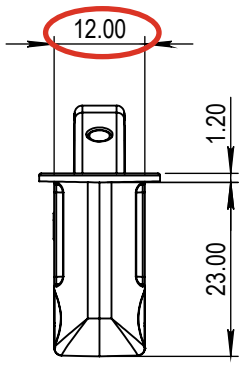
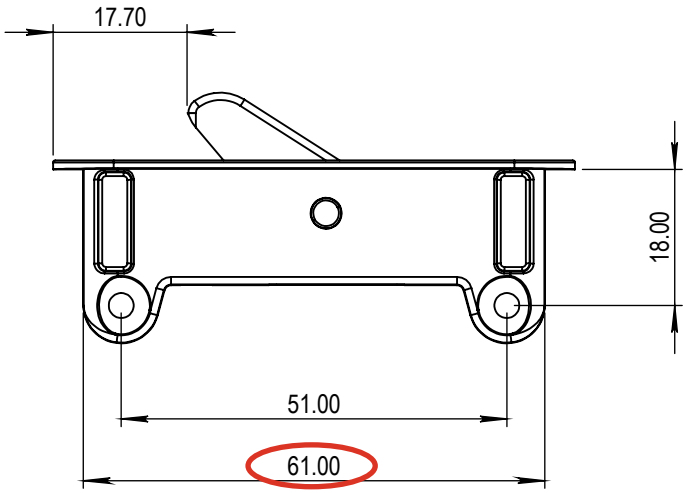
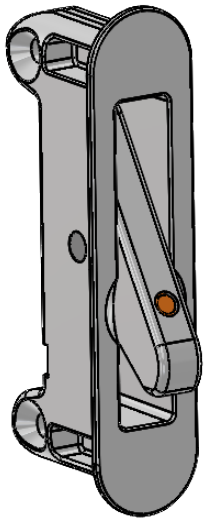
SECTION 9
DRAWING

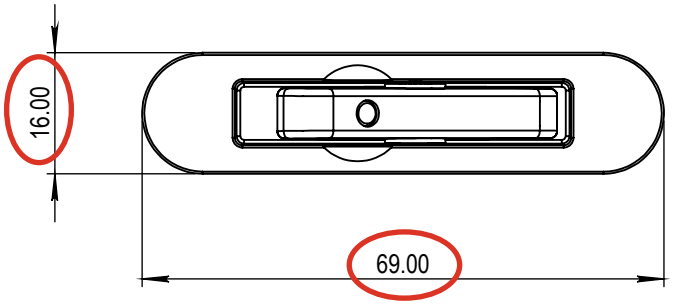
The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

Report #:	S1663.01
Date:	01/10/25
Verified by:	

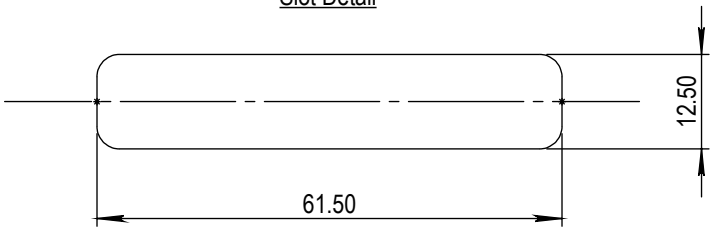








Slot Detail



1 30.04.2024.		A.H.
Issue & Date	Description	Init.

Part Number	100677
Description	Product introduction AngelSX
Material	n/a
Scale	1:1 unless otherwise specified
Tolerance	n/a

MIGHTON PRODUCTS

First Angle Projection

A4

Sheet 1 of 1

Notes
1. Product introduction drawing.
2. For reference only.
3. Supplied with x2 devices, x2 bumpons and x4 machine screws.
4. Patent protected.

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SECTION 10
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/27/25	N/A	Original Report Issue