

INTEGRATED WINDOW SYSTEMS TEST REPORT

SCOPE OF WORK

AIR / WATER / STRUCTURAL TESTING ON TILT UP CONCRETE WALL WITH FIXED WINDOW

REPORT NUMBER

R8378.01-801-44 R1

TEST DATE(S)

09/12/24 - 09/13/24

ISSUE DATE

09/23/24

REISSUE DATE

09/27/24

RECORD RETENTION END DATE

09/19/28

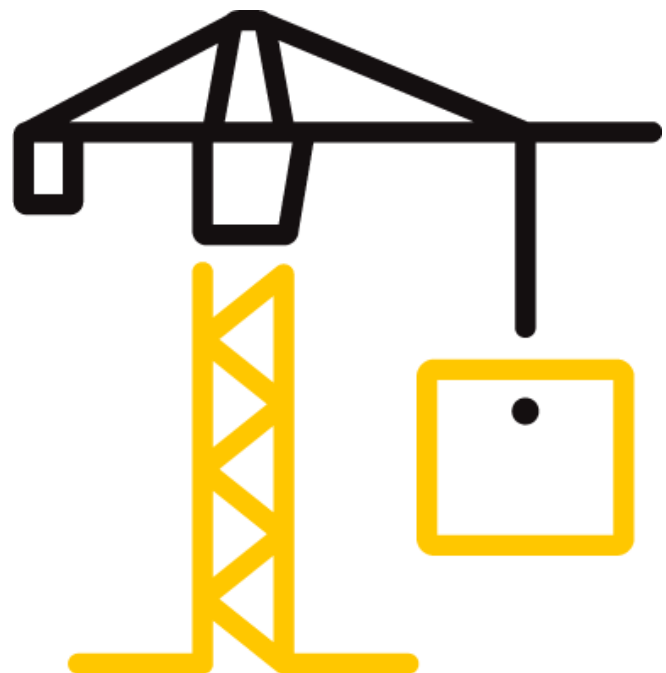
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DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2805 (10/12/23)

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REPORT ISSUED TO INTEGRATED WINDOW SYSTEMS

PO Box 250
Adel, Iowa 50003

SECTION 1 SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Integrated Window Systems to perform testing in accordance with ASTM E283, *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*, ASTM E 547 *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*, ASTM E 331 *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference* and ASTM E330 *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*, on their Tilt Up Concrete Wall with Fixed Window. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek test facility in Plano, TX.

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. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2 SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-22	CW-PG100-FW 1524 x 1524 (60 x 60)
Design Pressure	±6240 Pa (±130.33 psf)
Air Infiltration	<0.10 L/s/m ² (<0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	960 Pa (20.05 psf)
Uniform Load Structural Test Pressure	±9360 Pa (±195.49 psf)
Forced Entry	Type D Grade 10

For INTERTEK B&C:

COMPLETED BY:	Alexei Buruian	REVIEWED BY:	Jeffrey Crump, FMPC
TITLE:	Technician – Building & Construction	TITLE:	Laboratory Manager – Building & Construction
SIGNATURE:		SIGNATURE:	
DATE:	09/27/24	DATE:	09/27/24

JC:cm

SECTION 3 TEST METHOD(S)

The specimens were evaluated in accordance with the following:

ASTM E283/E283-19, *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E331-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM E547-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

ASTM F588-17, *Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact*

SECTION 4 MATERIAL SOURCE/INSTALLATION

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

The uPVC window specimen was installed into a concrete wall opening. The Test Specimen Buck allowed for a 1/8" shim space. The exterior perimeter of the test specimen was sealed with sealant. Installation of the tested product was performed by the client.

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Frame head, sill and jambs	Frame is cast into concrete	Frame perimeter

SECTION 5

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Alexei Buruian	Intertek B&C
Jovica Cijuk	Intertek B&C
Jeffrey Crump, FMPC	Intertek B&C

SECTION 6

TEST SPECIMEN DESCRIPTION

Product Type: uPVC Fixed Window

Series/Model: Tilt Up Concrete Wall with Fixed Window

Product Sizes:

OVERALL AREA:	WIDTH		HEIGHT	
	millimeters	inches	millimeters	inches
2.3 m ² (25.0 ft ²)				
Overall Concrete Wall Size	2337	92	2337	92
Concrete Wall Thickness	230	9.06		
Window Frame	1524	60	1524	60
Daylight Opening	1384	54-1/2	1384	54-1/2

Frame Construction:

FRAME MEMBER	MATERIAL	DESCRIPTION
Head, sill and jambs,	uPVC	Extruded
	JOINERY TYPE	DETAIL
All corners	Mitered	Thermally welded

Reinforcement: *No reinforcement was utilized.*

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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
1" IG	Aluminum	1/4" tempered	1/4" tempered	Interior glazed with silicone located at the exterior face of glass and vinyl glazing bead located at the interior face of glass.

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Frame Head, Sill and Jamb	2	1384 x 1384	54-1/2 x 54-1/2	5/8"

Drainage: *No drainage was utilized.*

SECTION 7 TEST RESULTS

The temperature during testing was 22°C (72°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Air Leakage, Infiltration per ASTM E283 at 300 Pa (6.27 psf)	<0.10 L/s/m ² (<0.01 cfm/ft ²)	.5 L/s/m ² (0.1 cfm/ft ²) max.	1
Air Leakage, Exfiltration per ASTM E283 at 300 Pa (6.27 psf)	<0.10 L/s/m ² (<0.01 cfm/ft ²)	.5 L/s/m ² (0.1 cfm/ft ²) max.	1
Water Penetration, per ASTM E547 and ASTM E331 at 960 Pa (20.05 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E330 Deflections taken at Frame Jamb +6240 Pa (+130.33 psf) -6240 Pa (-130.33 psf)	1.30 mm (0.05") 1.02 mm (0.04")	8.6 mm (0.34") max. 8.6 mm (0.34") max.	3, 4

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TITLE OF TEST	RESULTS	ALLOWED	NOTE
Uniform Load Structural, per ASTM E330 Permanent set taken at Frame Jamb +9360 Pa (+195.49 psf) -9360 Pa (-195.49 psf)	0.30 mm (0.01") <0.10 mm (<0.01")	3 mm (0.12") max. 3 mm (0.12") max.	3, 4
Forced Entry Resistance, per ASTM F588, Type: D - Grade: 10	Pass	No entry	

General Note: All testing was performed in accordance with the referenced standard(s).

Note 1: Test Date 09/12/24 / Time: 10:00 AM

Note 2: Without insect screen.

Note 3: Loads were held for 10 seconds.

Note 4: Tape and film were not used to seal against air leakage during structural testing.

SECTION 8
PHOTOGRAPHS



Photo No. 1

Integrated Window Systems Tilt Up Concrete Wall with Fixed Window



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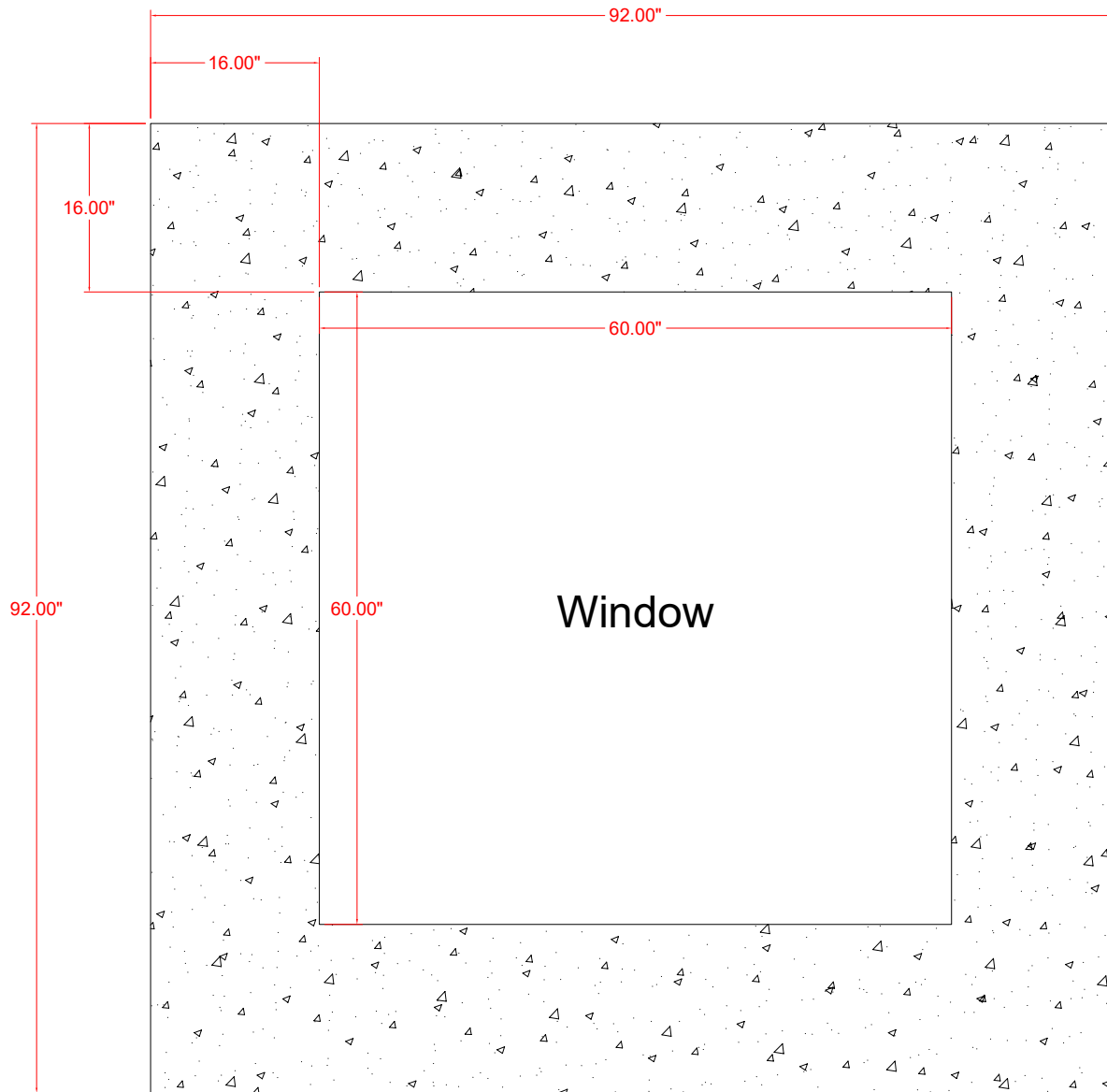
Date: 09/23/24

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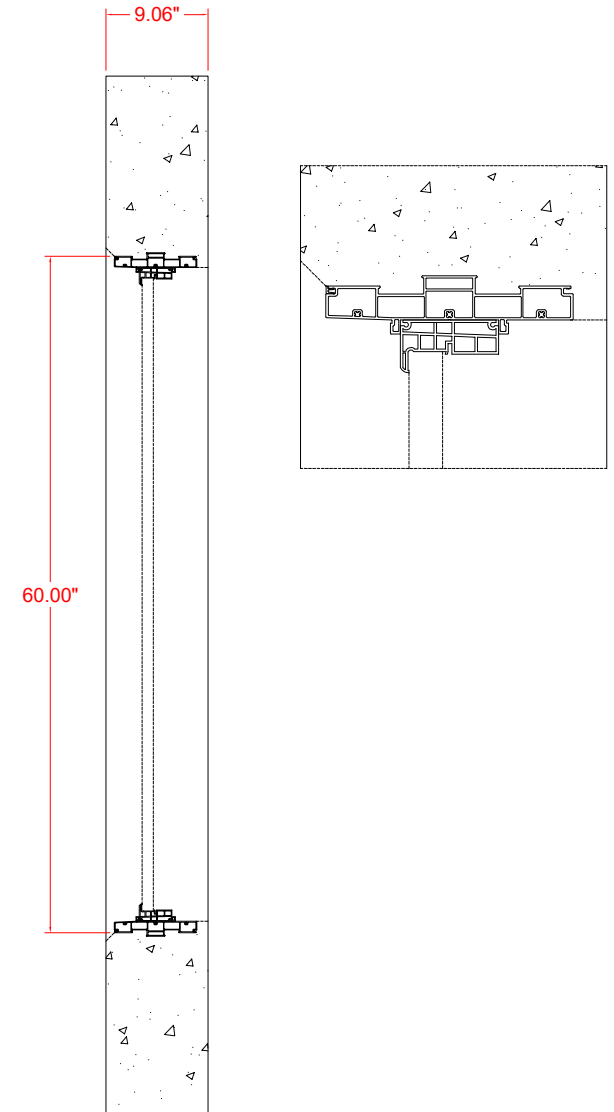
SECTION 9
DRAWINGS

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.

Top View



Side View



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Date: 09/26/24
Verified by: J. Crump

INTEGRATED WINDOW SYSTEMS™
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Manufacturer: Integrated Window Systems™
Model: Tilt Series Cast-In Place
Description: Intertek Concrete Panel for Testing

Date: 9/18/24
By: ASK
Scale:
URL: iwstilt.com



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Date: 09/23/24

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SECTION 10

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	09/23/24	N/A	Original Report Issue
1	09/27/24	3	Change window to test specimen in installation