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In Plant Testing

The Williams Brothers Corp. of America
Marcus Williams
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Report Date: August 26, 2025
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Report Number: ESP044689P.1

PRODUCT NAME: William Brothers Roof Hatch
PRODUCT TYPE: Roof Hatch
SERIES/MODEL: WB RH/WB RH-AL

Standard/Specifications	Summary
ASTM E283/E283M-19	**0.62 L/(s•m²) (0.12 cfm/ft²)**
ASTM E547-00 (2016)	**DP30**
ASTM E330/E330M-14 (2021)	**DP+50/DP-50**

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INTRODUCTION:

The following report presents the results of tests conducted on a WB-RH Roof Hatch 48 x 48" manufactured by The Williams Brothers Corp. of America. Testing was conducted on July 30, 2025 by Richard Luna of Element Des Moines. The tests were requested by Marcus Williams of The Williams Brothers Corp. of America and were performed at Element Des Moines.

The purpose of the testing was to determine the performance of the window for the air leakage resistance test in accordance with ASTM E283/E283M-19, water penetration resistance test in accordance with ASTM E547-00 (2016), uniform load deflection test and uniform load structural test in accordance with ASTM E330/E330M-14 (2021).

SUMMARY OF RESULTS:

Test	Measured
Air Leakage Resistance Test	
@ +300 Pa (6.24 psf)	0.62 L/(s•m^2) (0.12 cfm/ft^2)
Water Penetration Resistance Test	
@ 220 Pa (4.60 psf)	No Entry: Complies
Uniform Load Deflection Test	
@ 2400 Pa (50.13 psf) Positive/ 2400 Pa (50.13 psf) Negative	Complies
Deflection	0.00 mm (0.000 in) Pos., 0.00 mm (0.000 in) Neg.

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TEST RESULTS:

AIR LEAKAGE RESISTANCE TEST

Parameter	Units	Measured	Allowable Requirement
Total Product Area	m^2 (ft^2)	1.49 (16.00)	----
Total Sash Crack Length	m (ft.)	4.47 (14.67)	----
Test Pressure Difference - Infiltration	Pa (psf)	+300 (6.24)	300 (6.24)
Air Leakage	L/s (cfm)	0.92 (1.94)	----
Air Leakage Rate	L/(s•m2) (cfm/ft^2)	0.62 (0.12)	Reporting Only

WATER PENETRATION RESISTANCE TEST

Parameter	Units	Measured	Allowed Requirement
Test Pressure Difference	Pa (psf)	220 (4.60)	N/A
Water Flow	L/(m2•min) (GPH/ft^2)	3.4 (5)	3.4 (5)
Duration Static (15 min.)	Minutes	15	Report Only
Water Penetration Resistance	----	Complies	No Entry of water past water/test plane

UNIFORM LOAD DEFLECTION TEST

Parameter	Units	Measured	Allowed Requirement
Maximum Test Load - Positive	Pa (PSF)	2400 (50.13)	N/A
Duration	Seconds	10	10
Deflection Under Load Span of unsupported No Deflection = 0 mm (0.000 in)	mm (inches)	0.00 (0.000)	Report Only
Maximum Test Load - Negative	Pa (PSF)	2400 (50.13)	N/A
Duration	Seconds	10	10
Deflection Under Load Span of unsupported No Deflection = 0 mm (0.000 in)	mm (inches)	0.00 (0.000)	Report Only
OVERALL PERFORMANCE	-----	Complies	No breakage of glass or damage to render unit inoperable

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TEST METHODS:

Air Leakage Resistance Test
ASTM E283/E283M-19, "Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen".

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

Uniform Load Deflection Test
E330/E330M-14 (2021) “Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference”.

Uniform Load Structural Test
E330/E330M-14 (2021) "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference".

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TEST UNIT DESCRIPTION:

Product Name	:	William Brothers Roof Hatch
Product Type	:	Roof Hatch
Series/Model #	:	WB RH/WB RH-AL
Rating Tested To	:	Air Leakage: +300 Pa Water Resistance: DP30 Structural Tests: +DP50/ –DP50
Overall Frame Size	:	1219 x 1219 mm (48.000 x 48.000 inches)
Sash Size	:	N/A
Finish	:	Durable re-coatable gray primer finish
Reinforcement	:	N/A
Curb Construction	:	Curb shall be 14 ga. (G 90) galvanized steel with durable re-coatable gray primer finish standard. Curb shall be 12” (304mm) in height with a 4” (101mm) fiber board insulation, and mounting holes for roof attachment. Curb shall have integral cap flashing of the same material and thickness as the curb. Curb and cap flashing shall be fully welded at the corners for a watertight construction. Hinges are two-piece formed steel, with a non-removable heavy-duty pivot pin.
Cover Construction	:	Cover shall be 14 ga. (G 90) galvanized steel, with radius corners for safety, and shall be fully welded at the cor- ners for watertight construction. An extruded rubber gasket, mechanically fastened to the inside of the lid shall cause the hatch lid to seal.
Screen Construction	:	N/A

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TEST UNIT DESCRIPTION:

Glazing System	:	N/A
Weather Strip	:	Weather resistant gasket
Weeps	:	N/A
Hardware	:	Hardware shall include interior handle, with a positive, one-point locking mechanism, exterior handle, and provisions for padlock, both inside and out. Pre-lubricated compression springs, encased in zinc-plated telescopic tubes, for smooth and controlled door operation at any position. An automatic, hold-open arm, with vinyl grip, shall be standard. All hardware shall be corrosion resistant, and all fasteners shall be of a self-locking type
Joint Sealant Application	:	N/A
General Installation Description	:	Screw Install
Installation Method	:	(4) screws on each side, (1) screw at the top and bottom in the center.

REMARKS:

The samples of the tested unit will be held in the laboratory for a period of one (1) month then disposed of.

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Respectfully submitted,

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