

RAM INDUSTRIES TEST REPORT

SCOPE OF WORK

AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON SERIES S1100 SINGLE HUNG WINDOW

REPORT NUMBER

M3164.01-801-44-R0

TEST DATE(S)

09/03/21 – 09/21/21

ISSUE DATE

02/08/22

RECORD RETENTION END DATE

09/21/25

PAGES

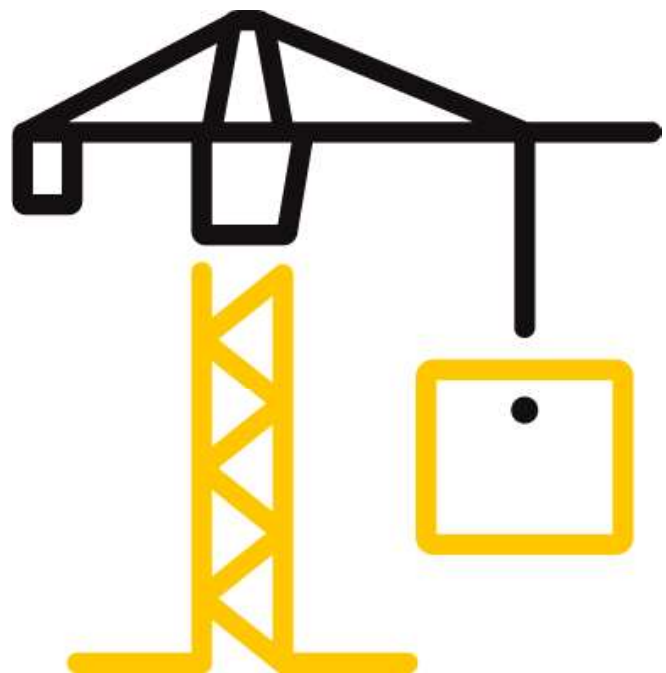
33

DOCUMENT CONTROL NUMBER

ATI 00506 (07/24/17)

RT-R-AMER-Test-2809

© 2017 INTERTEK



TEST REPORT FOR RAM INDUSTRIES

REPORT NO.: J9583.01-801-47-R0

Date: 02/08/22

REPORT ISSUED TO

RAM INDUSTRIES

8600 Commerce Park Dr.
Houston, TX 77036

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Ram Industries to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-17, *NAFS 2017 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*, on their Series S1100 Single Hung 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. 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
Primary Product Designator	1524 x 3048 (60 x 120) AW-PG50-H*
Design Pressure	±2400 Pa (±50.13 psf)

For INTERTEK B&C:

COMPLETED BY: Jeffrey Crump, FMPC

TITLE: Laboratory Manager

SIGNATURE:



Digitally Signed by: Jeffrey Crump

DATE: 02/08/22

REVIEWED BY: Lucio "Fred" Muñoz

TITLE: Project Manager

SIGNATURE:



Digitally Signed by: Lucio Munoz

DATE: 02/08/22

JC:cm

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample(s) tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

TEST REPORT FOR RAM INDUSTRIES

REPORT NO.: J9583.01-801-47-R0

Date: 02/08/22

SECTION 3

TEST METHOD(S)

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440-17, *NAFS 2017 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

CSA A440S1-09, Canadian Supplement to **AAMA/WDMA/CSA 101/I.S.2/A440**, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA 910-16, *Voluntary "Life Cycle" Specifications and Test Methods for AW Class Architectural Windows and Doors*

AAMA 205-15, *In-Plant Testing Guidelines for Manufacturers and Independent Laboratories*

AND

ASTM F588-14, *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 specimen was installed into a pine wood buck. The rough opening allowed for a 1/8" shim space. The exterior perimeter of the window was sealed with sealant. Installation of the tested product was performed by the client.

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Frame	#8 x 2" screws coarse threaded screws	6" from each end of head, sill and jambs, no more than 16" O.C. at center of each frame member.

SECTION 5

EQUIPMENT

Calibration of test equipment was performed by Intertek B&C in accordance with AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories"

TEST REPORT FOR RAM INDUSTRIES
REPORT NO.: J9583.01-801-47-R0
Date: 02/08/22

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Jeff Ashcraft	Ram Industries
Jeffrey Crump	Intertek B&C

SECTION 7

GATEWAY

Reference Intertek B&C Report No. M3161.01-801-44, dated 01/04/21 for complete *Gateway* test specimen description and test results.

TEST REPORT FOR RAM INDUSTRIES
REPORT NO.: J9583.01-801-47-R0
Date: 02/08/22

SECTION 8
TEST SPECIMEN DESCRIPTION

Product Type: Single Hung Window
Series/Model: S1100

Product Size(s):

OVERALL AREA:	WIDTH		HEIGHT	
	millimeters	inches	millimeters	inches
3.8 m ² (50 ft ²)				
Overall Size	1524	60	3048	120
Sash Size	1454	57-1/4	737	29
Sash DLO	1429	56-1/4	705	27-3/4
Fixed DLO	1422	56	2210	87

Frame Construction:

FRAME MEMBER	MATERIAL	DESCRIPTION
Head and jambs	Aluminum	Extruded aluminum thermally broken with Ensinger thermal insulbars.
Sill	Aluminum	Extruded aluminum thermally broken with Ensinger thermal insulbars.
	JOINERY TYPE	DETAIL
All corners and meeting rail	Mechanical	Corners are milled and mechanically fastened with two (2) #8 x 2-1/2" PH flat head screw. Fixed meeting rail is milled and mechanically fastened with three (3) #8 x 2-1/2" PH flat head screw.

Sash Construction:

SASH MEMBER	MATERIAL	DESCRIPTION
Rails and stiles	Aluminum	Extruded aluminum thermally broken with Ensinger thermal insulbars.
	JOINERY TYPE	DETAIL
All Corners	Mechanical	Corners are milled and mechanically fastened with two (2) #8-18 x 1" PI-PH-SMS tek and corner bracket located at each stile to rail connection.

Reinforcement: *No reinforcement was utilized.*

TEST REPORT FOR RAM INDUSTRIES

REPORT NO.: J9583.01-801-47-R0

Date: 02/08/22

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Amesbury Truth Weatherstrip (187)	2	Exterior face of fixed meeting rail.
Amesbury Truth Q-Lon (Q250T190)	4	Exterior and interior face of sash stiles.
Amesbury Truth Weatherstrip (12033)	1	Exterior leg of sash bottom rail.
Amesbury Truth Weatherstrip (12034)	1	Interior leg of 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
1" IG	Aluminum	1/4" Tempered	1/4" Tempered	Sash is marine glazed with Orazen extruded polymers. Fixed lite is exterior glazed with Dowsil 1199 at the interior face of glass and Orazen extruded polymers gasket and aluminum bead at the exterior face of glass.

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Sash	2	1429 x 705	56-1/4 x 27-3/4	.500
Fixed Lite	2	1422 x 2210	56 x 87	.500

Drainage: Sloped sill

Hardware:

DESCRIPTION	QUANTITY	LOCATION
Cam lock	2	Located 6" from each end of sash top rail, attached with four (4) #6 x 3/4" flat head screw.
Lock keeper	2	Located at fixed meeting rail and attached with two (2) #8 x 1-1/2" screws.
Block and tackle balance	2	Attached with #8 x 1-1/4" PL-FH-SMS 18-8, each.

TEST REPORT FOR RAM INDUSTRIES
REPORT NO.: J9583.01-801-47-R0
Date: 02/08/22

SECTION 9
TEST RESULTS

The temperature during testing was 27°C (80°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
LIFE CYCLE per AAMA 910			
Operating Force, per ASTM E2068	Initiate Motion: 116 N (26 lbf) Maintain Motion: 80 N (22 lbf) Locks: 62 N (14 lbf)	200 N (45 lbf) max 200 N (45 lbf) max Report Only	
Uniform Load Deflection, per ASTM E330 Deflections taken at meeting rail +2400 Pa (+40.10 psf) -2400 Pa (-40.10 psf)	7.9 mm (0.31") 7.9 mm (0.31")	8.13 mm (0.32") max. 8.13 mm (0.32") max.	1,
Uniform Load Structural, per ASTM E330 Permanent set taken at meeting rail +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	0.8 mm (0.03") 0.5 mm (0.02")	0.0 mm (0.11") max. 0.0 mm (0.11") max.	6, 7

Note 1: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 2: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Note 3: Loads were held for 10 seconds.

Note 4: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

General Note: *The window was tested in accordance with the venting use classification.*



Total Quality. Assured.

TEST REPORT FOR RAM INDUSTRIES

REPORT NO.: J9583.01-801-47-R0

Date: 02/08/22

1909 10th Street, Suite 100
Plano, Texas 75074

Telephone: 469-814-0687
www.intertek.com/building

SECTION 10

CONCLUSION

The specimen tested successfully met the performance requirements for a AW-PG40-H rating.

Reference Intertek-ATI Report No. M3161.01-801-44, dated 01/04/22 for complete *Gateway* test specimen description and test results.