

CLIENT: Viewmax Windows & Doors Co. Ltd.
297 HuaXin Road QiaoRun Development Zone
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China

Test Report No: T1342-3a	Issue Date: December 4, 2019
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SAMPLE ID: Viewmax Windows & Doors Co. Ltd. E3 Series O/X|O TT & Fixed Combination Windows.

SAMPLE DESCRIPTION: Width: 2438 mm; Height: 2438 mm. See pages 5-12 for full description.

SAMPLING DETAIL: Test sample from Viewmax Windows & Doors Co. Ltd. was submitted directly to QAI.

DATE OF RECEIPT: Test sample was received on September 9, 2019

TESTING PERIOD: Testing was conducted September 24, 2019 through October 23, 2019.

TESTING LOCATION: QAI Laboratories Ltd., Burnaby, BC, Canada.

AUTHORIZATION: Proposal #19SO05072-, signed by Nenad Lihtar, dated May 11, 2019.

TEST PROCEDURE: Testing was performed following the methods and requirements outlined in the following standards:
AAMA/WDMA/CSA 101/I.S.2/A440-17 NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights.
CSA A440S1-19 – Canadian Supplement to NAFS.

TEST RESULTS:

E3 Series O/X O TT & Fixed Combination Windows: Class R – PG20: Size tested 96.0 x 96.0 in Class R – PG960 (SI): Size tested 2438 x 2438 mm
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Detailed test results and product ratings are available on pages 3-4.

CONTENTS: Test Report pages 1 through 35.

Prepared By



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Signed for and on behalf of
QAI Laboratories, Ltd



Lawrence Gibson, P.Eng
Executive Vice President

TEST CONDITIONS:

AAMA/WDMA/CSA 101/I.S.2/A440-17 NAFS and CSA A440S1-19

QAI Laboratories Ltd. (QAI) was retained by Viewmax Windows & Doors Co. Ltd. to perform testing in accordance with the mandatory test requirements of AAMA/WDMA/CSA 101/I.S.2/A440-17 NAFS and CSA A440S1-19 on a representative sample of a 2438 mm x 2438 mm E3 Series O/X|O TT & Fixed Combination Windows.

This report includes tests performed on a specimen of specific dimensions. Actual product performance may be affected by variations in the windows dimensions, assembly details and installation method. The drawings supplied by Viewmax Windows & Doors Co. Ltd. were verified by QAI for the window unit tested and are shown in Appendix A.

Installed by: Viewmax Windows & Doors Co. Ltd.

Installation details:

- Bead of structural sealant between test specimen and wooden test buck.
- Test specimen fastened around to wooden test buck using #18 x 3-1/4" pan-head screws spaced approximately every 19".

Wooden test buck details:

- Inner frame: nominal 2"x 6" stud framing.
- Outer frame: nominal 2" x 12" stud framing.
- Rough opening: 3/16" larger in width and 1/4" larger in height.
- Shims: Fourteen 7/16" x 1-1/2" x 3-3/8" rigid PVC shims in total installed around test specimen. Four shims at head, four shims at sill and three at each jamb.

PRODUCT RATINGS:

Table 1: Summary of test results

Test Name	AAMA/WDMA/CSA 101/I.S.2/A440-17 NAFS and CSA A440S1-19 Results:
Operating Force Test (Clause 9.3.1)	Pass
Air Leakage Resistance Test (ASTM E283)	Pressure differential = 75 Pa Infiltration result = 0.114 L/s/m ² (0.022 cfm/ft ²) Exfiltration result = 0.112 L/s/m ² (0.022 cfm/ft ²) Overall result = A3 Level
Water Penetration Resistance Test (ASTM E547)	Maximum pressure differential = 290 Pa (DP 40 – 6.00 psf)
Uniform Load Deflection Test (ASTM E330 – Procedure A)	Design pressure = 1440 Pa (DP 30) Maximum pressure differential = 1440 Pa (30.1 psf) Maximum deflection at design pressure = 42.3 mm (1.665") - Measurement taken along vertical mullion
Uniform Load Structural Test (ASTM E330 – Procedure A)	Design pressure = 960 Pa (DP 20) Maximum pressure differential = 1440 Pa (30.1 psf)
Forced Entry Resistance Test (ASTM F588)	Grade 10 - Pass
Stabilizing Arm Load Test (Clause 9.3.6.5.3)	Pass
Sash/ leaf Concentrated Load Test (Clause 9.3.6.4.2)	Pass
Thermoplastic Corner Weld Test (ASTM D618)	Pass

Notes:

- AAMA/WDMA/CSA 101/I.S.2/A440-17 NAFS, Clause 9.2.5: The air, water, and structural tests required by this Standard/Specification are performed on test specimens installed in a fixture that permits installation in accordance with the manufacturer's documented instructions. These tests are used to evaluate the performance of the fenestration product only and are not intended to test the performance of the installation, particularly the perimeter sealants between the fixture and the test specimen and the anchoring of the test assembly to the test fixture.
- Products not installed according to the installation method described in this report may not perform to an equivalent performance level.

E3 Series O/XIO TT & Fixed Combination Windows:

Maximum Size Tested: 2438 mm wide x 2438 mm tall (96.0" x 96.0")

Performance Classification: R

Performance Grade: PG 20

Primary Designator:

Class R – PG20: Size tested 96.0 x 96.0 in

Class R – PG960 (SI): Size tested 2438 x 2438 mm

Secondary Designator:

Positive Design Pressure (DP) = 960 Pa (20.05 psf)

Negative Design Pressure (DP) = -960 Pa (-20.05 psf)

Water Penetration Resistance Test Pressure = 290 Pa (6.00 psf)

Canadian Air Infiltration / Exfiltration = A3 Level

Mullion Assembly:

Primary Designator:

Class R – PG20 – Size Tested 96.0 in Span / 49.0 in TribWd MA

Class R – PG960 (SI) – Size Tested 2438 mm Span / 1245 mm TribWd MA

Secondary Designator:

Positive Design Pressure (DP) = 960 Pa (20.05 psf)

Negative Design Pressure (DP) = -960 Pa (-20.05 psf)

Water Penetration Resistance Test Pressure = 290 Pa (6.00 psf)

Canadian Air Infiltration / Exfiltration = A3 Level