

PRODUCT APPROVAL EVALUATION REPORT

<u>Product Manufacturer:</u> E.S. WINDOWS, Inc. 10653 NE Quaybridge Ct. Miami, FL 33138	<u>Product Name/Model & Description:</u> Series ES-2020 FIXED WINDOW (L.M.I. & S.M.I.) (HVHZ) Fixed Window – large & small missile impact
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Scope: This product has been evaluated by the below-signed Florida Professional Engineer for compliance with the Code noted herein and is, for the purpose intended, at least equivalent to that required by the Code, in accordance with section 553.842 F.S. & chapter 61G20-3.005 F.A.C. Re-evaluation of this product shall be required following applicable Code modifications or revisions.

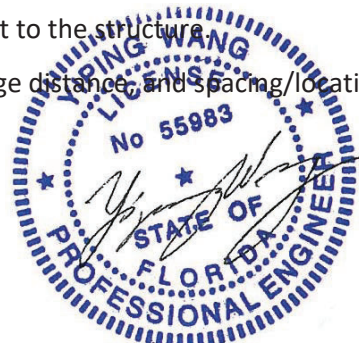
Code: 8th Edition Florida Building Code (2023), inclusive of all Supplements effective as of this report date.

Compliance Method: 61G20-3.005 (1)(d) – Evaluation Report from a licensed Professional Engineer

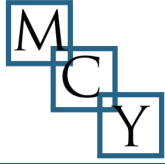
Product Description: Product Approval Drawing #AD18-32 and # AD24-32, prepared by MCY Engineering, signed and sealed by Yiping Wang, P.E., is an integral part of this Evaluation Report.

Limitations & Conditions of Use:

- This product has been evaluated for use **inside and outside of the HVHZ** (High Velocity Hurricane Zone)
- Impact Resistance: **Large and Small Missile Impact**
- Refer to Product Approval Drawing noted above for:
 - Maximum allowable wind loads at related maximum allowable size(s).
 - Other load limitations applicable to the product, if any.
 - Overall dimensions and material/grade of main product components, accessories, etc.
 - Illustrated diagrams of the attachment of the product to the structure
 - Anchor type(s), size(s), substrate(s), embedment, edge distance, and spacing/locations.



October 25th, 2024



Test Reports:

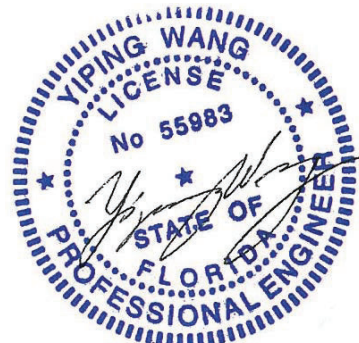
Mandatory Tests (Tested in accordance with Florida Building Code Tests Protocols)

Test Lab	Report Number	Test Report Date	Test Standard & Description
Blackwater Testing, Inc. -West Palm Beach, FL	<i>BT-ESW-18-007, signed and sealed by Constantin Bortes, P.E.</i>	09/12/18	TAS 201-94 (large missile impact) TAS 202-94 (uniform static test) TAS 203-94 (cyclic wind pressure loading) ASTM E330 (static load test) ASTM E283 (air infiltration test) ASTM E331 (water infiltration test) AAMA 1304(forced entry test)
Blackwater Testing, Inc. -West Palm Beach, FL	<i>BT-ESW-23-026, signed and sealed by Michael D Caldwell, P.E.</i>	09/25/2024	TAS 201-94 (large missile impact) TAS 201-94 (small missile impact) TAS 202-94 (uniform static test) TAS 203-94 (cyclic wind pressure loading) ASTM E330 (static load test) ASTM E283 (air infiltration test) ASTM E331 (water infiltration test) AAMA F842(forced entry test)

Engineering Analysis:

 The following engineering analyses and/or calculations have been performed:

- No comparative analysis has been performed for conditions other than those tested.
- No rational analysis has been performed.
- Anchor calculations are based on manufacturer's published anchor capacity, anchor Notice of Acceptance by Miami Dade County.



October 25th, 2024