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Product Evaluation Report

Date: March 9, 2021

Product Manufacturer:

Sun-Tek Manufacturing, Inc.

10303 General Dr.

Orlando, FL 32725

(407) 859-2117

Product Name: ICMG III (Impact) Aluminum Glass Skylight

Product Category: Skylights

Product Sub-Category: Skylights

Product Approval Method: Rule 61G20-3.005 Method 1(a) – Certification Mark or Listing

Prepared By:

James D., Wells, Jr. P.E.

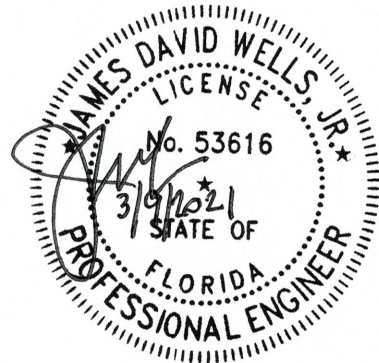
Florida P.E. License Number 53616

J & L Wells Consulting, LLC (J & L)

FBPE Certification of Authorization No. 27162

J & L Project No. 220271

J & L Report No. 2020-001



Certificate of Independence

J & L Wells Consulting, LLC and James D. Wells, Jr. P.E. do not have nor will acquire financial interest in the company manufacturing or distributing the product or in any other entity involved in the approval process of the product named herein.

Scope

This is a Product Evaluation Report issued by James D. Wells, Jr., P.E. (FL # 53616) for Sun-Tek Manufacturing, Inc. based on Product Approval Rule 61G20-3.005 Method 1(a) – Certification Mark or Listing of the State of Florida Product Approval, Department of Community Affairs – Florida Building Commission.

This product has been evaluated for compliance to the 7th Edition (2020) Florida Building Code (2020 FBC) and (2020) Florida Residential Code (2020 FRC) including the High Velocity Hurricane Zone (HVHZ) sections of the code. This evaluation is not an endorsement of this product or a recommendation for the specific use of this product.

Description of Product

See Installation Detail Instructions dated January 22, 2021 by James D. Wells, Jr. P.E. (FL # 53616) (Reference 1) for a description of the product, its installation and other pertinent data related to its use.

Installation Requirements

This product is to be installed as per the manufacturers Installation Detail Instructions (Reference 1) dated January 22, 2021 signed and sealed by James D. Wells, Jr. P.E., (FL # 53616).

Installation instructions have been verified to the test reports NCTL-210-4188-1A and NCTL-210-4188-1 dated September 15, 2020 (Reference 2) and supported by Anchor Calculations dated January 22, 2021, by James D. Wells, Jr. P.E. (Reference 3).

Code Conformance

This product has been evaluated and is in compliance with the 2020 FBC and 2020 FRC, High Velocity Hurricane Zone (HVHZ).

Where approved for use in areas requiring wind born debris protection, this product complies with Section 1609.1.2 of the 2020 FBC and R301.2.1.2 of the 2020 FRC and does not require Wind Bourne Debris Protection. This product meets missile level “D” and includes Wind Zone 4 as defined in ASTM E1996 and TAS 201.

This product meets the water infiltration requirements for HVHZ.

Testing and Labeling

Section 2405.5 - Unit Skylights and Tubular Daylighting Devices R308.6.9 Testing and Labeling

Skylight shall be tested and labeled.

Testing / Margin of Safety / Design Pressure Rating

Design Pressure Rating 60 PSF positive, 60 PSF negative.

Exterior Skylights shall be tested for conformance to the 2020 FBC and 2020 FRC in accordance with the following:

1. Exterior Skylights shall be tested for air infiltration, water penetration and static wind loading in accordance with 1709.6 (refers to Chapter 24 FBC) of the 2020 FBC and per TAS 202 for conformance to the HVHZ, WBDR and areas not requiring opening protection.
2. Impact and Cyclic Wind Pressure Loading shall be tested in accordance with the following per TAS 201 and TAS 203 for conformance to the HVHZ and WBDR.
 - a. Sections 1609.1.2, 1626.1 and 1626.2 of the 2020 FBC and
 - b. Sections R301.2.1.2 and R4403 (refers to Chapter 16 FBC) of the 2020 FRC

This product does not meet Risk Category IV, essential facility buildings or structures, requirements of Section 1604.5.

Reference 2 documents testing to: TAS 201-94, TAS 202-94, TAS 203-94, AAMA/WDMA/CSA 101/I.S.2/A440-08/11/17, and ASTM E1886-05 & ASTM E1996-05/09 (WZ4) in accordance with the above.

Reference 2 documents testing the Curb Mounted Skylight to the following test pressures:

1. Uniform Load Structural Test Pressures where +120/-120 psf (Paragraph 9.3.4.3)
2. Water Test Pressure of +15 psf (Paragraph 9.3.3)
3. Cyclic Wind Loading Pressure of +/-60 psf (Table 1, ASTM E1996-05/09)

Apply the following factors to arrive at Design Pressure:

1. A Safety Factor of 2 (2020 FBC, Sections 1504.9 and 1523.4) applied to the Uniform Load Structural Test Pressures to arrive at Design Pressures of +60/-60 psf.
2. A factor of $1/0.15 = 6.67$ applied to the Water Test Pressure to arrive at Design Pressure of +60 psf.

Therefore, the Overall Design Pressure is +/-60 psf.

Glazing Requirements

Sections 2405, 2411, and R308.6 of the 2020 FBC and FRC were reviewed. The product depicted in testing drawings (Reference 2) meets the applicable requirements of these sections as follows:

Section 2405.1 – Scope

Section R308.6.1 Definitions

Section 2405.2 - Allowable Glazing Materials And Limitations: For monolithic glazing systems, glazing material shall be laminated glass with minimum 30-mil (0.76 mm) polyvinyl butyral (PVB) (or equivalent) interlayer. As shown in documented Testing (Reference 2), the skylight contains insulated glass with 0.090" (2mm) Kuraray Butacite PVB interlayer.

Section 2411.3.3.1 – Setting Blocks: The ICMGIII skylight contains four 3/8" x 3/16" x 2" long EPDM setting blocks with 85 durometer hardness.

Section R308.6.2 - Permitted Materials: Laminated glass with a minimum interlayer thickness of 0.030 inch (0.76 mm). As shown in documented Testing (Reference 2), the skylight contains insulated glass with 0.090" (2 mm) Kuraray Butacite PVB interlayer.

Mounting Requirements

Sections 2405.4 Framing and R308.6.8 Curbs for Skylights of the 2020 FBC and FRC were reviewed for compliance with the following requirements:

Section 2405.4 - Skylight frames shall be constructed of noncombustible materials. As shown in the documented Testing Drawings (Reference 3), the skylight metal frame is made of 0.070" thick 6063-T6 aluminum.

Section 2405.4 - All skylights at an angle less than 45 deg. from the horizontal shall be mounted at least 4" above the planar of the roof. Installation of a skylight without a curb shall be permitted on roofs with a minimum slope of 14 degrees (three units vertical in 12 units horizontal) in Group R-3 occupancies. All unit skylights installed in a roof with a pitch flatter than 14 degrees (0.25 rad) shall be mounted at least 4 inches (102 mm) above the plane of the roof on a curb constructed as required for the frame unless otherwise specified in the manufacturer's installation instructions.

R308.6.8 Curbs for skylights. All unit skylights installed in a roof with a pitch flatter than three units vertical in 12 units horizontal (25-percent slope) shall be mounted on a curb extending at least 4 inches (102 mm) above the plane of the roof unless otherwise specified in the manufacturer's installation instructions.

In accordance with documented Testing (Reference 2) and as shown in Installation Instructions (Reference 1), the skylight assembly is installed on a wood curb 4 inches or more above the roof surface.

Product Approval

Section 2410.4 - High-Velocity Hurricane Zones - General

Skylights shall have product approval.

Limitation and Conditions of Use

Limitations and Conditions of Use are shown on the Installation Detail Instructions (Reference 3).

Product anchors shall be as designated and located as shown in the Installation Detail Instructions (Reference 1). Anchor embedment and edge distance exclude roofing material including, but not limited to, moisture barrier and sheathing.

All roofing details shall comply with Chapter 15 of the 2020 FBC.

Installation details described within the Installation Detail Instructions (Reference 1) are generic and may not reflect actual conditions for a specific site. Site conditions that deviate from the details shown in the Installation Detail Instructions (Reference 1) require further engineering analysis by a Licensed Engineer or Registered Architect.

Product to be labeled in accordance with FBC 1709.5.1 and 2405.5.

Quality Insurance

This product will be manufactured under a quality assurance program audited by National Accreditation & Management Institute (NAMI). NAMI is an approved Certification and Quality Assurance Entity per Rule 61G20-3(3).

Applications / Installations Outside the Limitations and Conditions of Use

Any modification to this product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others. As allowed in Rule 61G20-3(1)(e), a project specific approval by local authorities having jurisdiction may be used given an appropriate rational analysis and acceptance by local authority having jurisdiction.

Summary

This product complies with the 2020 FBC and 2020 FRC.

Performance and Testing Standards

Structural Test Reports NCTL-210-4188-1A (Reference 3) documents testing to the following:

High Velocity Hurricane Zone (HVHZ) Testing Application Standards (TAS) - NCTL-210-4188-1:

1. TAS 201-94, Impact Test Procedures, Dade County Building Code Compliance Office
2. TAS 202-94, Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure, Dade County Building Code Compliance Office
3. TAS 203-94, Criteria for Testing Products Subjected to Cyclic Pressure Loading

Reference 2 also documents testing to the following - NCTL-210-4188-1A:

1. AAMA/WDMA/CSA 101/I.S.2/A440-08/11/17, NAFS North American Fenestration Standard/Specification for Windows, Doors, and Skylights
2. ASTM E1886-05 & ASTM E1996-05/09 (WZ4)

References and Supporting Documents

1. Installation Detail Instructions, dated January 22, 2021 reviewed by J & L Wells Consulting LLC, and signed and sealed by James D. Wells, Jr. P.E. (FL # 53616)
2. Structural Test Report (Including Drawings) NCTL-210-4188-1A dated September 15, 2020
Structural Test Report (Including Drawings) NCTL-210-4188-1 dated September 15, 2020
3. Anchor calculations and drawings prepared by J & L Wells Consulting LLC, Dated January 22, 2021, signed and sealed by James D. Wells, Jr. P.E. (FL # 53616) (J&L Project No. 220271)
4. Kuraray Trosifol PVB Glass Interlayers (NOA No. 20-0915.22) issued by Miami Dade County Product Control Section Expiration date July 8, 2024