Product Evaluation Report

Manufacturer	Product Series, Model and/or Description
Natural Light Energy Systems 10821 N. 23rd Avenue Phoenix, AZ 85029	Single Glazed, Self-Flashing, Tubular Skylight in 21", 18", 13" and 10" Nominal Diameters

Code: Current Edition of the Florida Building Code including the 7th Edition (2020) Florida Building Code

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

Product Installation Instructions:

- Drawing No. NLS0007, Revision C, Dated 12/5/17, signed and sealed by Robert J. Amoruso, P.E., *Natural Light Energy Systems, Self-Flashing - Single Glazed Tubular Skylights Installation Anchorage Details.*

Engineering Analysis: The following engineering and/or rational analysis/calculations have been performed.

- Anchorage and product verification has been substantiated by calculation (PTC Report. No. 1739) prepared, signed and sealed by Robert J. Amoruso, P.E. in accordance with the current edition of the Florida Building Code.
- Design Pressure Evaluation
    - Code Requirements / MD HVHZ Requirements
        - Section 1504, Margin of Safety equal to 2:1 (applicable to non-HVHZ areas).
        - Section 1523, Margin of Safety equal to 2:1 (applicable to HVHZ areas).
        - Miami-Dade Building Code Compliance Office – Skylight FAQ. (http://bldgadmin.miamidade.gov/building/faqs/product/faqs-prod-skylights.asp) defines skylight test loading for plastic skylights as follows.
        - + 3.0 x Design Pressure
        - – 2.0 x Design Pressure
    - Design Pressure based on test results from Hurricane Test Laboratory, Inc. Test Report No. 0290-0318-02 / 0290-0604-02
        - Water penetration is:
            - 12 psf/0.15 = Design Pressure of +80 psf
        - Static wind load testing results are:
            - Maximum Inward Acting Test Load (+) used in testing was 240 psf/3 = Design Pressure of +80 psf
            - Maximum Outward Acting Test Load (-) used in testing was 160 psf/2 = Design Pressure of -80 psf
        - Cyclic Load test results are:
            - Cyclic test pressure was 80 psf = Design Pressure of +/-80 psf
        - Therefore, design pressure is +/- 80 psf

Performance Testing Standards:

- TAS 201-94 - Impact Test Procedures
- TAS 202-94 - Criteria for Testing Impact; Non-impact Resistant Building Envelope Components Using Uniform Static Air Pressure
- TAS 203-94 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

Product Testing:

- Hurricane Test Laboratory, Inc. Test Report No. 0290-0318-02 / 0290-0604-02, Dated March 29, 2002 / June 3, 2002, Single Glazed, Self-Flashing, Tubular Skylight. Signed and sealed by Vinu J. Abraham, FL P.E. No. 53820.

Material Certifications:

- Plaskolite, Inc. OPTIX Acrylic Plastic Sheet material certification per current Miami-Dade Notice of Acceptance (NOA). Current Miami-Dade NOA can be found here.

Product Certifications:

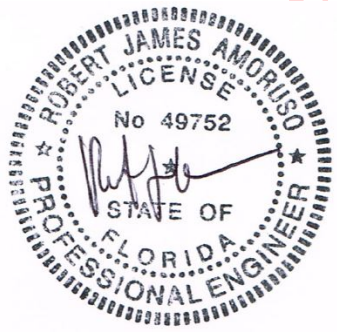
NAMI Cert. No.	Product Description	Design Pressure (psf)
NI005336	Solar Skylight 21”	+/- 80 psf
NI005336.01	Solar Skylight 18”	+/- 80 psf
NI005337	Solar Skylight 13”	+/- 80 psf
NI005337.01	Solar Skylight 10”	+/- 80 psf

Limitations & Conditions of Use:

- This product has been evaluated for use inside the HVHZ (High Velocity Hurricane Zone)
- This product is Impact Resistance. Therefore, a protective impact-rated device (i.e., shutter(s)) is not required.
- Refer to Product Installation Instructions noted above for:
  - Maximum allowable wind loads at related maximum allowable size(s).
  - 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.
- Site wind pressures shall be determined by a licensed professional engineer in accordance with the current edition of the Florida Building Code (and/or ASCE 7 as referenced in the current edition of the Florida Building Code) for components and cladding based on allowable stress design.
- Site conditions not covered in this product evaluation document are subject to additional engineering analysis by a licensed professional engineer or registered architect as required by the authority having jurisdiction.
- Adequacy of the existing structural substrates as a main wind force resisting system capable of withstanding and transferring applied product loads to the foundation is the responsibility of the licensed professional engineer or registered architect acting as the design professional of record for the project of installation.

Certificate of Independence per Product Approval Rule 61G20-3.009

PTC Product Design Group, LLC and Robert J. Amoruso, P.E. does not have, nor will acquire, any financial interest in the company manufacturing or distributing product(s) covered by this Product Evaluation Report. PTC Product Design Group, LLC and Robert J. Amoruso, P.E. do not have, nor will acquire any financial interest in any other entity involved in the approval process or testing of the product(s) covered by this Product Evaluation Report.



Digitally signed by Robert J Amoruso
Date: 2020.11.30 16:07:57 -05'00'

Evaluated by:
Robert J. Amoruso, P.E.
FL PE License No. 49752