

EVALUATION REPORT

FLORIDA PRODUCT APPROVAL – FL#48083.1

SOLAR SHINGLE

REPORT

T5581.01-122-34-R1

RENDERED TO:

LUMA RESOURCES LLC
2691 LEACH ROAD
ROCHESTER HILLS, MI 48309

PREPARED BY:

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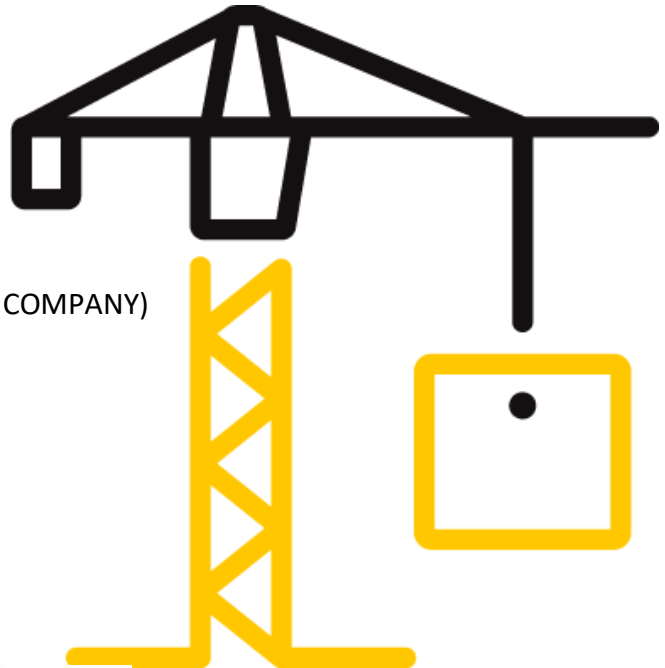
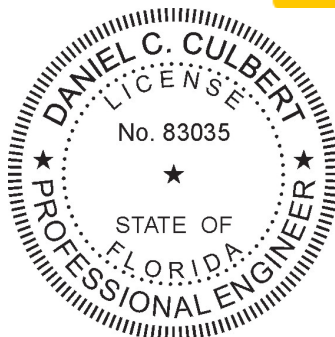
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Digitally Signed by Daniel C. Culbert



RENDERED TO:

Company Name:	Luma Resources LLC
Address:	2691 Leach Road
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1 PRODUCT OVERVIEW

Product Name:	Solar Shingle
Product Category:	Roofing
Product Subcategory:	Products Introduced as a Result of New Technology
Product Approval Method:	Method 1, Option D
Compliance Method:	State Product Approval Rule 61G20-3.005 (1)(d)
Product Description:	Solar Roofing System, Solar Shingle
Components:	300-110-LRSS - 56" x 17.4375" x 1.625" Luma Solar Shingle 100-510-M-CLP - 3" x 1.5" x 1" Mounting Clip, 0.052" thick hot dipped galvanized, A1011 steel, G-60 100-501-MS - #12 x 1" Hex Washer Head Mounting Screw, Type A Zinc CR3+3UM Minimum Full Thread
Evaluated:	TAS 107 Wind Resistance TAS 110 Material UL 7103 UL 1897 Wind Uplift
Connection Description:	Three (3) mounting clips per shingle installed with (2) #12 x 1" HWH Mounting Screw mounting screws per clip into minimum 5/32" plywood
Performance:	Wind Uplift Resistance Rating – 75 lb/ft ²
Limits of Use:	Non-HVHZ, Non-Impact Resistant

2 PURPOSE OF EVALUATION

This Product Evaluation Report issued by Daniel C. Culbert, P.E. to Luma Resources is based on State Product Approval Rule 61G20-3.005 (1)(d) of the Florida Department of Business and Professional Regulation.

The product is being issued an Evaluation Report as described herein and has been verified for compliance in accordance with the 2023 Florida Building Code, 8th Edition and 2023 Florida Building Code, Residential, 8th Edition.

This Product Evaluation Report shall be subject to review and revision if building code changes affect the limitations and conditions.

3 EVIDENCE SUBMITTED

- **Test Reports**
 - T2346.01-109-18: TAS 107-20, *Test Procedure for Wind Resistance Testing of Non-Rigid, Discontinuous Roof System Assemblies (Modified from ASTM D3161)*, 12/11/2025
 - 83790.01-106-18-r0: ASTM G155-05a *Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials*, ASTM B117-07a *Standard Practice for Operating Salt Spray (Fog) Apparatus*, 11/05/08
- **Certificate**
 - UL-US-2228084-1 Certificate of Compliance, 2024-01-10 with UL File E327331, Report on Building Integrated Photovoltaic Modules and Panels 2022-06-29

4 LIMITS OF USE

- The Luma Resources Solar Roofing System, Solar Shingle tested for and meets non-HVHZ, non-impact criteria for a Product Category: Roofing and Product Subcategory: Products Introduced as a Result of New Technology Florida Product Approval.
- Project specific construction design wind loads/pressures shall be determined as per section 1609 of the 2023 Florida Building Code, 8th Edition and per ASCE 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* for each installation and compared to the rating achieved in this Evaluation Report.
- Project specific residential construction design wind loads/pressures shall be determined per 2023 Florida Building Code, Residential, 8th Edition Chapter 3, Table R301.2(2) with adjustments per Table R301.2(3) Height and Exposure Adjustment Coefficients for Building Height and Exposure Category.

5 EVALUATION

Test Report/ Certificate	Standard	Rating/Results	Florida Building Code
T2346.01-109-18	TAS 107-20 (modified ASTM D3161)	110 mph – 2 hour test (Class F)	1504.3.3, 1507.17.8
83790.01-106-18-r0	TAS 110-2000 1) ASTM G155-05a 2) ASTM B117-07a	1) 2,000 hours 2) 1,000 hours	1515.1.4, 1523.1.1
UL-US-2228084-1, UL File E327331	UL 7103 UL 61730-1/UL 61730-2, UL 1897	Certificate of Compliance, Wind Uplift Resistance Rating – 75 lb/ft ²	1507.17.6

- T2346.01-109-18. The Solar Shingle was tested per TAS 107-20 (modified from ASTM D3161) on two test specimens. The test units were installed on a 5/32" thick plywood test decks with three (3) mounting clips located 6" from the end of shingle to edge of clip and at shingle center with (2) #8 x 1-3/8" mounting screws per clip. Testing was conducted in three different directions as described in TAS 107 Section 10. Procedure. No failure occurred.
- 83790.01-106-18-r0. Product samples were tested per TAS 110-2000 *Testing Requirements for Physical Properties of Roof Membranes, Insulation, Coatings and Other Roofing Components*, Table 15 for Structural, Nonstructural Metal Panels and Metal Single Roof Assemblies. Testing met ASTM G155-05a for 2,000 hours and ASTM B117.07a for 1,000 hours.
- UL-US-2228084-1 Certificate of Compliance for UL 7103/ UL 61730-1/UL 61730-2, dated 2024-01-10 with UL File E327331, Report on Building Integrated Photovoltaic Modules and Panels 2022-06-29 includes UL 1897 Wind Uplift Resistance Rating of 75 lb/ft².

6 INSTALLATION NOTES

Installation shall be as tested into minimum 5/32" thick plywood with three (3) Mounting Clips, located 6" from the end of the shingle to edge of clip and 1 at shingle center with (2) #8 x 1-3/8" mounting screws per clip.

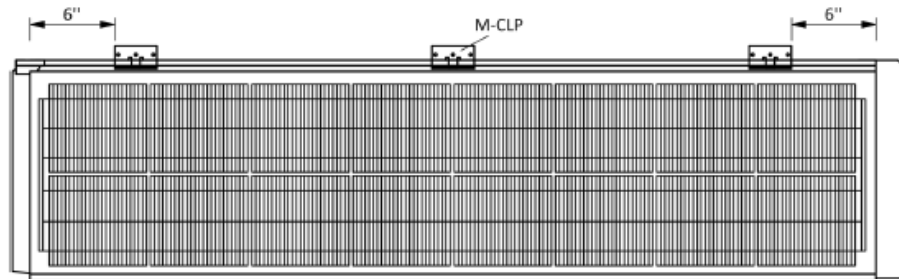


Installation Manual for
The Mirage Collection
7th Edition, November 2023

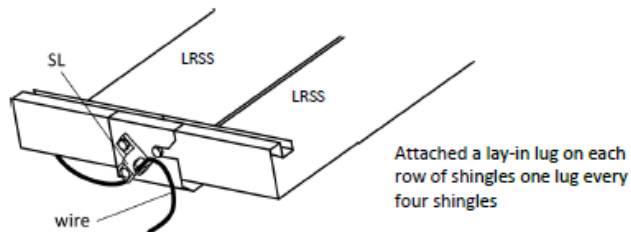
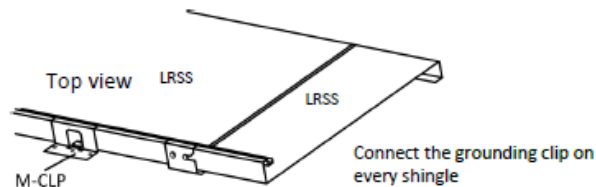
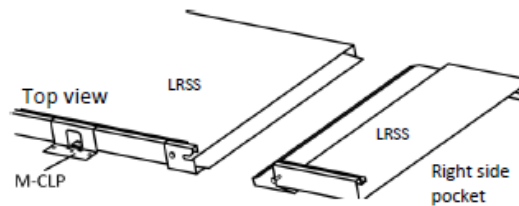
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6.7 Installation of the LUMA Solar Shingle (LRSS28-95A, LRSS28-100A, LRSS28-105A)

- Before installing solar shingles read all details
- Keep mounting clips away from rakes edges minimum 6"



1. When connecting solar shingles together follow electrical diagram and electrical specifications
2. Install shingles using three mounting clips use 1-3 MS for each clip
3. Starting on left working right set first shingle by following Eave and Rake details
4. Slide the left side shingle into right side pocket
5. Connect the grounding clip by tightening the stainless-steel threaded screw on the right side
6. Ensure the M-CLP and the stainless-steel grounding clip are tightened
7. When installing solar shingles attached a lay-in lug to every forth shingle in any row; Each row of solar shingles is to have at least one grounding lug
8. Run a continues bare solid number 10 ground wire linking each row of solar shingles together



7 GENERAL NOTES

- The Solar Shingle shown on this product evaluation document has been verified for compliance in accordance with the 2023 Florida Building Code, 8th Edition and 2023 Florida Building Code, Residential, 8th Edition. The Solar Shingle shall not be installed in High Velocity Hurricane Zones or within wind-borne debris regions as defined by the 2023 Florida Building Code.
- The UL 7103/UL 61730-1/UL 61730-2 certificate supersedes the UL 1703 standard noted in the Florida Building Code section 1507.17.6.
- The TAS 107 (ASTM D3161) 110 mph test wind speed (2 hour duration) does not correlate directly to the ultimate design 3-second gust wind speeds experienced in service as denoted on Figure 1609.3(1), Figure 1609.3(2), Figure 1609.3(3), Figure 1609.3(4) or ASCE 7. No accommodation is made in this test method for building height, building exposure category, or building importance factor.
- Design wind loads/pressures shall be determined as per section 1609 of the Florida Building Code, and ASCE 7 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, or 2023 Florida Building Code, Residential, 8th Edition Chapter 3.
- The #8 x 1-3/8" mounting screws tested in report T2346.01-109-18 qualifies the #12 x 1" Hex Washer Head Mounting Screw, Type A Zinc CR3+3UM Minimum Full Thread supplied for installation.
- The Solar Shingle is a non-structural building element.
- Anchors shall be installed following all recommendations and specifications of the anchor manufacturer.
- It shall be the responsibility of the contractor to verify the soundness and the structure to which the solar shingle is to be attached.
- Design of the support system is outside the scope of this report.

8 EQUIVALENCE STATEMENT

- Test conducted under ASTM G155-05a was reviewed and deemed to produce equivalent results to the current ASTM G155-13 standard. Test conducted under ASTM B117-07a was reviewed and deemed to produce equivalent results to the current ASTM B117-16.

Product Evaluation Report prepared by Daniel C. Culbert, P.E. (Florida License No. 83035), Architectural Testing, Inc. (an Intertek Company).