February 22nd,  2024

Unirac, Inc.
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Attn.: Engineering Department

Subject: Engineering Certification for the Unirac RM5 Roof Mounted Ballasted System to Support Photovoltaic Panels.

The Unirac RM5 is a ballasted photovoltaic panel support system consisted of two major components - a fully assembled ballasted bay and a module clamp holding the bay and PV modules together. The ballasted bays are the main dead weight to resist against any uplift due to wind loads. Lateral forces, both wind and seismic, are resisted by friction between the bay/roof pad and the roof surface.

Unirac online design assistant tool “U-Builder 2.0” is used to determine the required ballast quantity. The “U-Builder 2.0” covers a wide range of system configurations and loading and allows the user to customize the input to match the specific project conditions.

The RM5 PV module system satisfies the RWDI wind tunnel test results and the ballasted system design methodology, which makes the “U-Builder 2.0” a rational and easy method of designing RM5 ballasted PV module design tool in compliance with the structural requirements of the following reference documents:

Codes: ASCE/SEI 7-10, 7-16 Minimum Design Loads for Buildings and Other Structure.
International Building Code, 2015-2021 Edition

Other: Aluminum Design Manual, 2015 & 2020 Edition
RWDI Wind Pressure Study Report #1600097
SEAOC PV1-2012 Report – Structural Seismic Requirements and Commentary for Rooftop Solar PV Arrays
SEAOC PV2-2017 Report - Wind Design for Low-Profile Solar Photovoltaic Arrays on Flat Roofs
Terrapin Testing #TT516003-ASTM G115 Coefficient of Friction Testing Report.

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This letter certifies that the Unirac RM5 Roof Mounted Ballasted Photovoltaic Panel Support System and online design tool “U-Builder 2.0” are in compliance with the reference documents mentioned above.

Please feel free to call for any questions or clarifications.

Alireza Mashhadi Ali, PE
Director of Engineering Services

2/23/2024