



July 27, 2018

Unirac

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Attn.: Engineering Department,

Re: Engineering Certification for the Unirac RMDT Roof Mounted Ballasted Photovoltaic Panel Support System.

The Unirac RMDT Roof Mounted Ballasted Photovoltaic Panel Support System is a proprietary framed ballasted assembly which supports Photovoltaic panels. The ballast frames hold the PV panels and are ballasted with concrete blocks as required for the wind loads. The wind uplift loads are resisted directly by the ballast. Lateral forces, both wind and seismic, are resisted by friction between the ballast and the roof surface. For wind forces, the system is designed for no lateral or vertical displacement of the array. For seismic forces, the system is designed per SEAOC PV1-2012 requirements for lateral movement/displacement.

The ballasting requirements are determined using the Unirac online “U-Builder RMDT” Design Assistant tool. The Design Assistant covers a wide range of system configurations and loading, is accurate for flat roof-low rise buildings with a roof height equal to or less than 30 feet, and allows the user to customize the input to match the specific project conditions.

We have reviewed the Unirac RMDT Roof Mounted Ballasted Photovoltaic Panel Support System, the RDWI wind tunnel test results and the Unirac ballasted system design methodology and have determined that the Unirac RMDT ballasted system design methodology is a rational approach and is in compliance with the structural requirements of the following Reference Documents:

Codes: ASCE/SEI 7-05 and ASCE/SEI 7-10 Minimum Design Loads for Buildings and other Structures
International Building Code, 2009, 2012, & 2015 Editions
2015 Michigan Building Code

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

This letter certifies that the Unirac RMDT Roof Mounted Ballasted Photovoltaic Panel Support System and the Unirac online “U-Builder RMDT” Design Assistant tool are in compliance with the above Reference Documents.

If you have any questions on the above, do not hesitate to call.

Prepared By:

PZSE, Inc. - Structural Engineers

Roseville, CA

