

June 1, 2016

Orion Solar
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Commerce, CA 90040
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FAX:

Attn.: Engineering Department

Re: Engineering Certification for the Orion Jupiter II Ground Mount System

Jupiter II Ground Mount System Configuration

The structure is a column and beam system without bracing. The columns & beams are C-channels. The beams cantilever over both sides of the columns, and are connected to the columns by bolts. The solar panels are attached to the beams with Orion Solar Racking clamps. Gravity and lateral loads are transferred from the beams to the columns, and then to the foundation below. The maximum column on center spacing is 6'-5".

PZSE, Inc. – Structural Engineers has reviewed the Orion Jupiter II Ground Mount System. The review addressed the following items: Jupiter II Ground Mount System Configuration, Design Criteria, and Ground Mount Foundation Requirements. In addition to the review, a component capacity check was performed. This letter certifies that the Jupiter II Ground Mount System and all information, data and analysis contained within the Jupiter II design plan is in compliance with the structural requirements of the following Reference Documents:

1. Minimum Design Loads for Buildings and other Structures, ASCE/SEI 7-10
2. 2012 International Building Code, by International Code Council, Inc
3. 2013 California Building Code, by California Buildings and Standards Commission
4. 2010 Aluminum Design Manual, by The Aluminum Association
5. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012, by ICC-ES

Following are the requirements to meet the structural requirements of the above referenced documents.

Design Criteria

The procedures for analyzing the structure and calculating the minimum footing depth values found on the Jupiter II design plan are based on the following design criteria:

1. Risk/Occupancy Category = I
2. Wind Exposure Category = C
3. Topographic Factor = 1.0
4. Ground Snow Load = 0 psf
5. Maximum wind speed = 100mph (LRFD)
6. System Tilt Degree = 15, 20 or 25 degree

Jupiter II Ground Mount Foundation Requirements

The foundation requirements for a concrete cast-in-drilled-hole (CIDH) pier system may be obtained from footing table on the plan. This table is based on the piers being installed at their maximum allowable spacing. The assumptions for the foundation depth values are as follows:

1. Class 5 Soils – ref 2012 IBC Table 1806.2
2. Concrete Weight = 145 pcf
3. Concrete Strength, $f'c = 2500$ psi
4. Skin Friction - ref 2012 IBC 1810.3.3.1.4 & 1810.3.3.1.5
5. Resistance to corrosion and/or sulfate attack, along with possible adverse effects due to expansive soils or frost heave has not been considered in these foundation recommendations.
6. A soils report is widely considered the most reliable and accurate method for determining the type and depth of piers for any ground array system. Soils reports can be obtained through a Geotechnical Engineer.

Designer Responsibility

The Orion Jupiter II Ground Mount System is intended to be used under the responsible charge of a registered design professional where required by the authority having jurisdiction. In all cases, the Orion Jupiter II Ground Mount System should be used under the direction of a design professional with sufficient structural engineering knowledge and experience to be able to:

- Evaluate whether the Jupiter II System is applicable to the project, based on the characteristics of the project and “Design Criteria”.
- Understand and determine if the project site will meet the required “Jupiter II Ground Mount Foundation Requirements”.

PZSE-Inc. can provide structural engineering for non-standard configurations, wet-stamped letters, or specialized engineering requests.

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

Prepared by:
PZSE Inc. – Structural Engineers
Roseville, CA

