

21 February 2017

Project number: T004

SunRack Solar Co. Ltd.
No. 333 Qimen Road, Shushan District,
Hefei, Anhui 230071, China

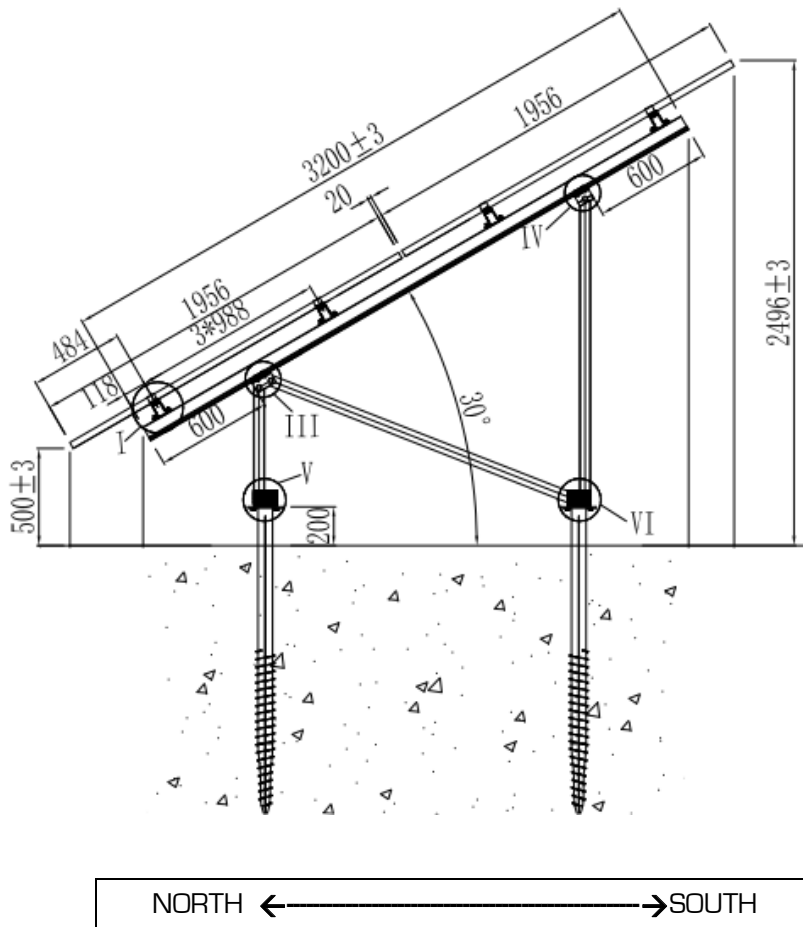
Attention: Cathy Xu.

Dear Madam,

RE: GROUND MOUNTING SYSTEM GT IV

As requested, we have reviewed the structural adequacy of the Aluminium support framing and the fixings specified in 'Ground Mounting System Installation Drawings prepared by SunRack Solar Co. Ltd. The system consists of post mounted frames as shown in the diagrams below. The frames are supported by twin piles at a regular spacing.

We certify that the framing is satisfactory for wind zones A, B, C & D as defined in AS1170.2 for the spacing of the frames as given in Table 1.0.



21 February 2017

Project No. T004

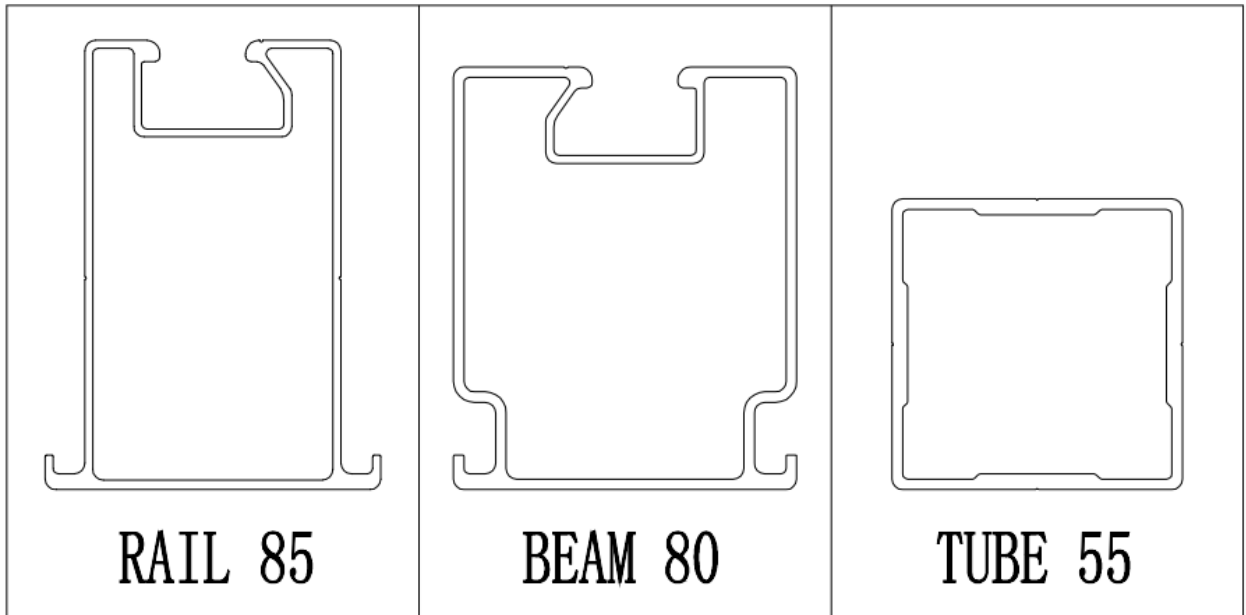
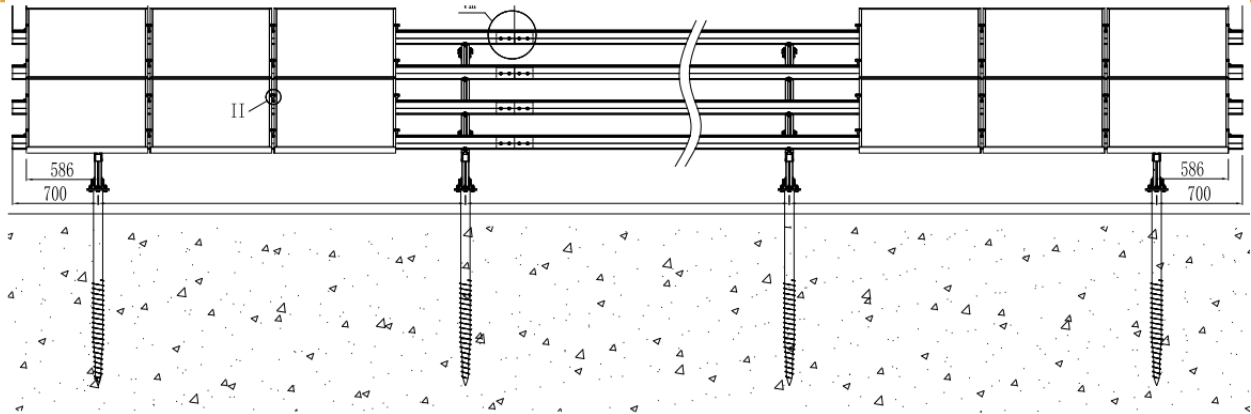


Table 1.0 Maximum Spacing between frame supports (mm)				
Wind Zone	A	B	C	D
Wind Speed Vs (m/s)	43	52	64	80
Spacing (mm)	3700	2210	1530	970

Notes :

- Cantilever span L1 shall not exceed 30% of the internal spans.
Minimum number of frames: 3 (i.e. two spans)
- The table is based on 72 cells PV panels (1950 long). The spacing would increase when used with 60 cell PV panels (1650 long).
- The given spacing is for an inclination of 30 degrees. The spacing can be increased further by reducing the tilt angle in steps of 5 degrees.
- Any amendment of spacing shall be designed and certified by a practising structural engineer.

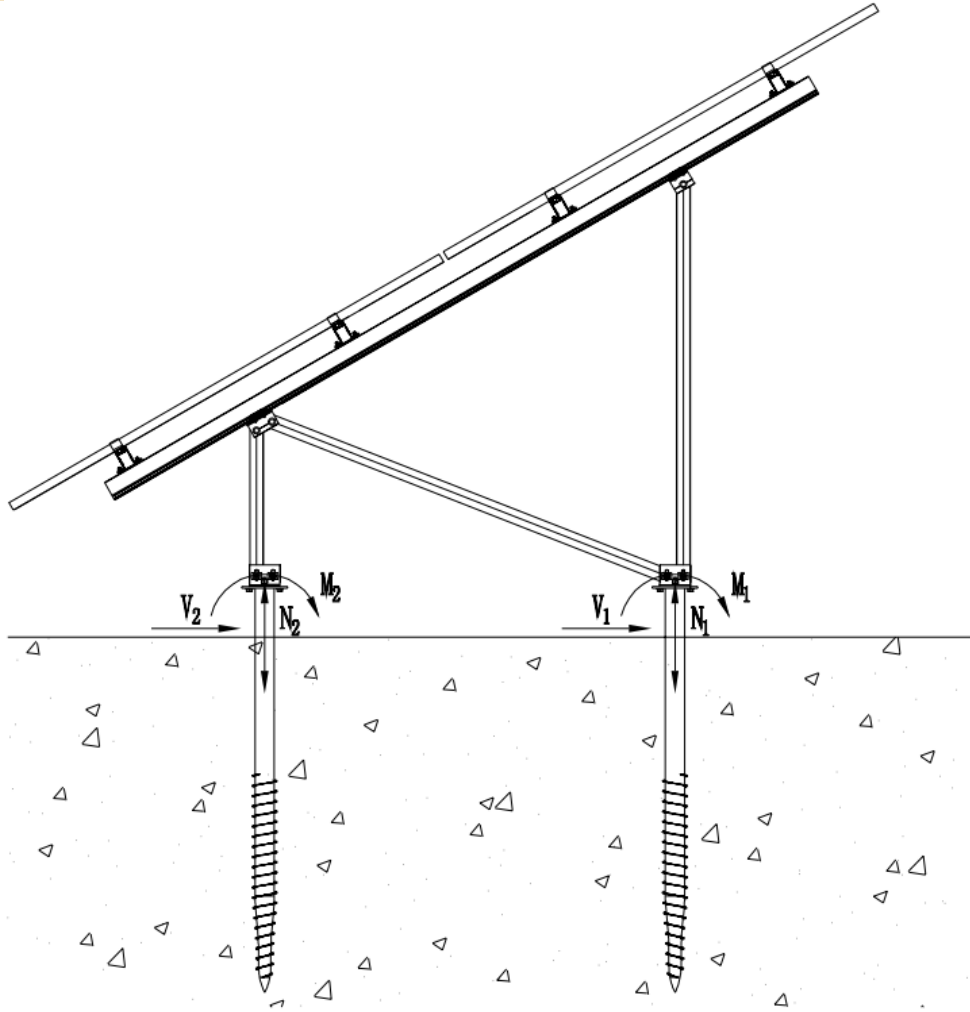


Table 2.0 Ultimate Forces at Post Base				
Wind Zone	A	B	C	D
Moment M (kNm)	1.9	1.9	1.9	1.9
Shear V (kN)	9.8	9.8	9.7	9.7
Compression Nc (kN)	9.2	8.7	8.5	8.3
Tension Nt (kN)	19.1	19.1	19.1	19.0

Our design investigation is based on the following Australian Standards and sections of Building Code of Australia relevant to structural issues.

- AS1170.0-2002 Structural design Actions Part 0: General principles.
- AS1170.2-2011 Structural design Actions Part 2: Wind actions.
- AS 1664.1-1997 Aluminum structures Part 1: Limit state design.
- AS 3566.1-2002 Self-drilling screws for the building and construction industries.
- AS 3566.1-2002 Self-drilling screws for the building and construction industries.
- AS3566.2 – 2002 Part 2: Corrosion resistance requirements.
- ISO3506:1-2009 Mechanical Properties of Corrosion-Resistance Stainless Steel Fasteners.

Following design, criteria has been used for the structural verification.

- Design Life 25 years.
- Importance Level Type 2: Ordinary.
- Annual Probability of exceedance 1/200.
- Terrain Category to AS1170.2 2.
- Service Deflection Not limited.
- Snow & Hail loading Not considered.
- Earthquake Loading Not considered.
- Maximum Pitch 30 degrees.
- Direction of Solar Panels North facing.
- Aluminum Rails 6005 - T5.
- Maximum size of Solar panels 1956x1000 (Portrait Orientation).
- Shielding factor $M_s = 1.0$.
- Topographic factor $M_t = 1.0$.

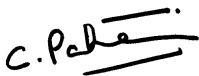
Subject to the following qualifications we certify that the above-mentioned frames are structurally adequate and conform to the above Australian standards.

- Each row of solar panels shall have a minimum of two rows of railing fixed to the framing.
- The cantilever span of the railing shall not exceed 30% of the adjacent spacing of the installed fixings.
- Minimum number of frames shall be three, and the railing shall be spliced.
- The connections between the solar panels shall be flexible to accommodate deflection of the railing.
- The deflection of the railing has not been controlled in the design. If deflection has to be limited, then spacing shall be reduced as advised by a practising structural engineer.

- The installation of the framing shall conform to relevant Australian Standards, Manufacturer's specifications and good building practice.
- The piled embedment shall be designed to resist the ultimate loads given in Table 2.0 above.
- The screw pile shall be hot dip galvanised pillar-bolt drilled into medium stiff natural undisturbed clay having a minimum bearing capacity of 100kPa.
- Embedment length shall be designed by a practising structural engineer. The surrounding ground shall be drained adequately to prevent softening or undermining of the founding material.
- Dissimilar metals shall be separated with a suitable inert material to prevent galvanic corrosion.
- The installation and fixings shall be periodically inspected and maintained.
- We have relied upon the test certificates issued by TUV Rheinland and material properties; of the components; supplied by SunRack Solar Co., Ltd
- The following are excluded from this certification.
 - x Framing of the solar panel units.
 - x Verification of test certificates for the materials and components.
 - x Load testing and certification.

Should you have any queries, please feel free to call Paheer on (02) 9565 5558.

Yours faithfully,
SPAD PTY LTD



Paheer C Paheerathan
BScEng, MEngSc, FIEAust, CPEng, NER (Civil & Structural) 142156, RPEQ 09066, VBA-EC 27362
Director