



10 November 2011

Project number: M137

Xiamen Hopergy Photovoltaic Technology Co. Ltd. (Client)
No. 46 1A Huli Av. Huli District
Xiamen China

Attention : Catherine Wu.

Dear Madam,

RE: XIAMEN HOPERGY PHOTOVOLTAIC TECHNOLOGY AS1170.2
VERIFICATION OF POLE MOUNTED FRAME SUPPORT

As requested, we have reviewed the structural adequacy of the Aluminum support framing and the fixings specified in 'Pole Mounting System Installation Manual' prepared by Xiamen Hopergy Photovoltaic Technology.

We certify that the pole mounted system supporting four (4) solar panels is structurally adequate to be used in the wind region A provided the post size is increased 165x3 CHS.

The certification is subject to the qualifications and criteria listed in this document.

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.
- AS1170.2-2002 Structural design Actions Part 2: Wind actions.
- AS 1664.1-1997 Aluminum structures Part 1: Limit state design.
- AS 4673-2001 Cold Formed Stainless Steel.
- 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 | 1/250. |
| ➤ Wind Region to AS 1170.2 | A |
| ➤ Terrain Category to AS1170.2 | 2. |
| ➤ Service Deflection | Not limited. |
| ➤ Snow loading | Not considered. |
| ➤ Earthquake Loading | Not considered. |

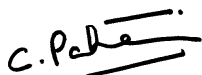
➤ Maximum Pitch	40 degrees.
➤ Aluminum Rails	6005 - T5.
➤ Maximum Height of post above ground.	1600
➤ 165x3 Post	Steel Q235
➤ Maximum size of Solar panels	1800x1000

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 roof framing.
- 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 practicing structural engineer.
- The post shall be embedded in a concrete pier founded in stable ground. The footing shall conform to AS2159, and AS2870, and be designed to suit the geotechnical condition of the soil and the imposed wind and gravity loading.
- The installation of the framing shall conform to relevant Australian Standards, Manufacturer's specifications and good building practice.
- The cantilever span of the railing shall not exceed 50% of the adjacent spacing of the installed fixings.
- Dissimilar metals shall be separated with a suitable inert material to prevent galvanic corrosion.
- The installation and fixings shall be periodically inspected and maintained.
- 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 9660 4200.

Yours faithfully,
SPAD PTY LTD



Paheer C Paheerathan BScEng, MEngSc, MIEAust, CPEng, NPER (Civil & Structural) 142156
Director