gamcorp
innovation in design and construction

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Our Ref: 1882-i538 / LvS
23 November 2015

Clenergy Australia
11/20 Duerdin Street
Clayton, VIC 3168

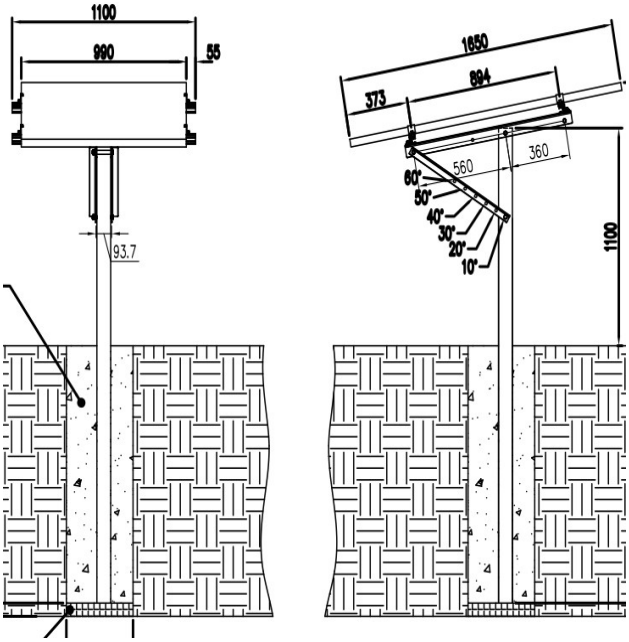
Array Frame Engineering Certificate

RE: Postmount PM1-A Installation

Gamcorp (Melbourne) Pty Ltd, being Structural Engineers within the meaning of Australian and NZ Building Regulations, have carried out a structural design check of the PV-ezRack Postmount PM1-A within Australia and New Zealand. The design check has been based on the information in the *PV-ezRack PM1-A Planning and Installation Guide* and schematic drawings of the system components, provided by Clenergy Australia.

Part number	Description
ER-R-ST	PV-ezRack Standard Rail, aluminium
L40.40.682	Left and right supporting rod (bracing), angle steel
L63.40.1010	Left and right supporting beam, angle steel
ER-P-83/2400	Pipe Diameter ø83_5, total length 2400mm, steel
ER-EC-ST	PV-ezRack End clamps, steel

We find the Postmount PM 1-A to be structurally sufficient for Australian and New Zealand use, based on the following conditions:



- Wind Loads to AS/NZ1170.2:2011, Amendment 3-2012;
- Wind Terrain Categories 2, 3 & 4;
- Wind average recurrence interval of 100 years — for ultimate state, 20 years — service-ability;
- Wind region A, B, C & D;
- Dimensions as shown here on the picture;
- Max. Solar Panel length 1.65m, width 1m;
- Yield strength:
  - steel 300 MPa,
  - aluminium 240 MPa;
- Maximum tilt angle and footing options: (refer tables on page 2)

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Maximum Tilt Angle and Footing Options:

	Wind Region			
	Region A	**Region B**	**Region C**	**Region D**
Wind speed (m/s)	41	48	59	73
Maximum tilt angle (°)	60	60	30	20
Soil Type	**Post embedded in concrete pier: 300 mm diameter concrete piers minimum depth (m)**			
Hard class soil *[Gravels; dry (hard) clays]*	0.80	0.85	0.90	0.80
Very Firm class soil *[Dry (stiff) clays; clayey sands; coarse sands; compact sands]*	0.85	0.95	0.95	0.85
Firm class soil *[Damp clays; sandy clays; damp sands]*	0.90	1.00	1.05	0.90
Soft class soil *[Wet clays; silty loams; wet or loose sands]*	1.10	1.20	1.25	1.10

Notes:
1. Other piers dimensions are possible, contact Gamcorp, if required.
2. Panel weight calculated: 20kg.
3. Embedment depth is relevant for soils, having adhesion capacity from the ground level; in other cases contact Gamcorp.
4. For concrete piers foundation, use 25 MPa strength concrete (minimum). It is recommended to insert N12 bar 200mm long at the bottom of the post into the concrete piers.
5. Solar Panels structural check by others.

Construction is to be carried out strictly on accordance with the instruction manual. This work was designed in accordance with the provisions of Australian Building Regulations and in accordance with sound, widely accepted engineering principles.

Yours faithfully,

Gamcorp (Melbourne) Pty Ltd

Martin Gamble
Managing Director
MAICD

Milan Bjelobrk
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