

Girder Extension for SolarTerrace-A

Code-Compliant Planning and Installation Guide V 1.2
Complying with AS/NZS1170.2-2011 AMDT 2-2016



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Introduction

PV-ezRack® Girder Extension for SolarTerrace-A is an optional accessory that special designed for Clenergy SolarTerrace III-A and SolarTerrace II-A. For the case using 72-cell PV modules that more than 2000mm, Girder Extension could provide flexible installation and ease warehouse management.

Please review this manual thoroughly before installing your PV-ezRack® Girder Extension for SolarTerrace-A. This manual provides

(1) simple introduction of installation relating to Girder Extension, and

(2) planning and installation instructions for Girder Extension.

The PV-ezRack® SolarTerrace™ parts, when installed in accordance with this guide, will be structurally sound and will meet the AS/NZS 1170.2:2011 AMDT 2-2016 standard. During installation, and especially when working on the roof, please comply with the SolarTerrace-A™ parts, when installed in accordance with this guide, will be structurally adequate and will meet the AS/NZS 1170 standards. During the installation and especially when working on the roof inform yourself about the appropriate safety regulations, and please also pay attention to the relevant regulations of your local region. Please check that you are using the current version of the installation manual by contacting Clenergy Australia by email on tech@clenergy.com.au, or your local representative.

Product Warranty:

Please refer [PV-ezRack® Product Warranty](#) on our website.

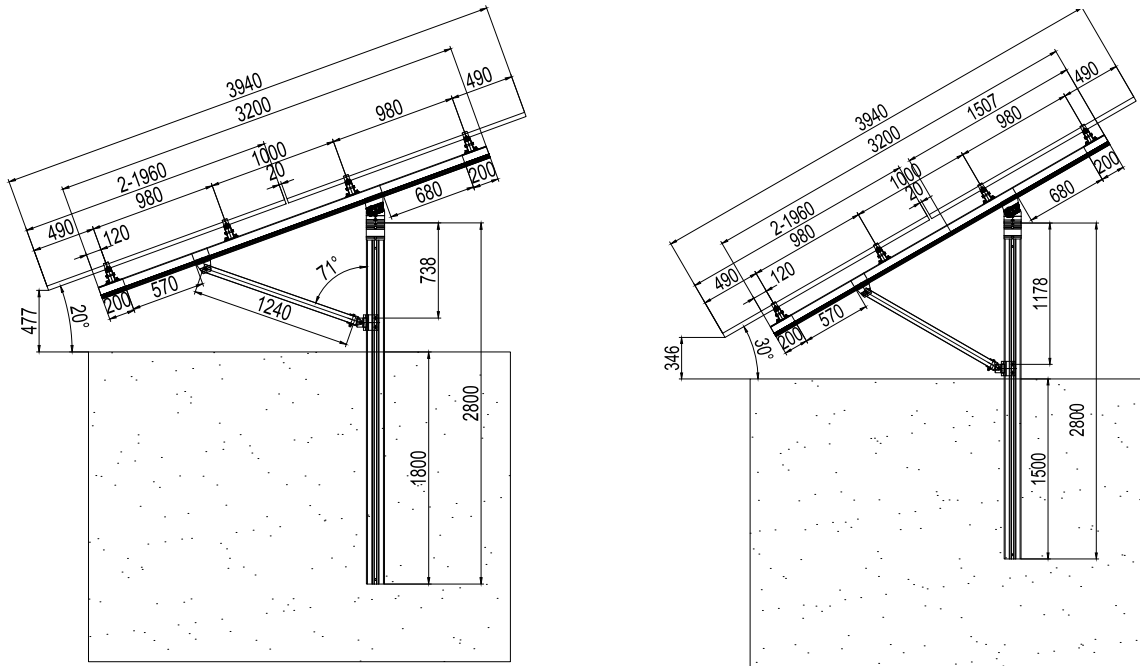
The installer is solely responsible for:

- Complying with all applicable local or national building codes, including any that may supersede this manual;
- Ensuring that PV-ezRack® and other products are appropriate for the particular installation and the installation environment;
- Using only PV-ezRack® parts and installer-supplied parts as specified by PV-ezRack® (substitution of parts may void the warranty and invalidate the letter of certification on page 2);
- How to recycle: according to the local relative statute.
- How to disassemble: Reverse installation process.
- Ensure that there are no less than two professionals working on panel installation.
- Ensure the installation of relative electrical equipment is performed by professional electrician.
- Ensuring safe installation of all electrical aspects of the PV array.

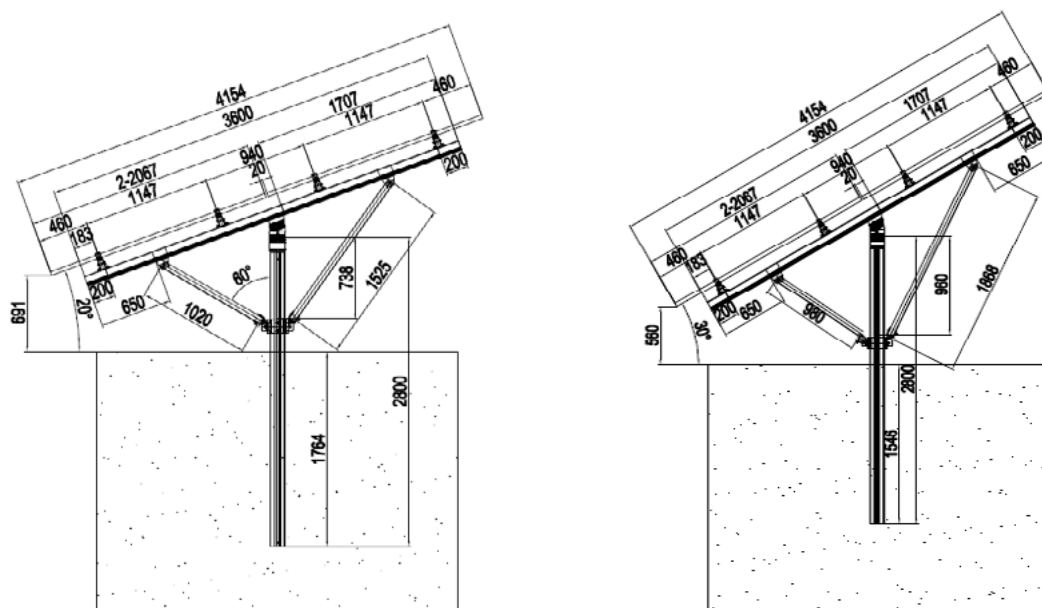
Planning

Side View of SolarTerrace II-A

Below is the side view drawing of STII-A Single Support with Girder Extension for panels up to 2000 x 1100 mm at 20° and 30° tilt angle.

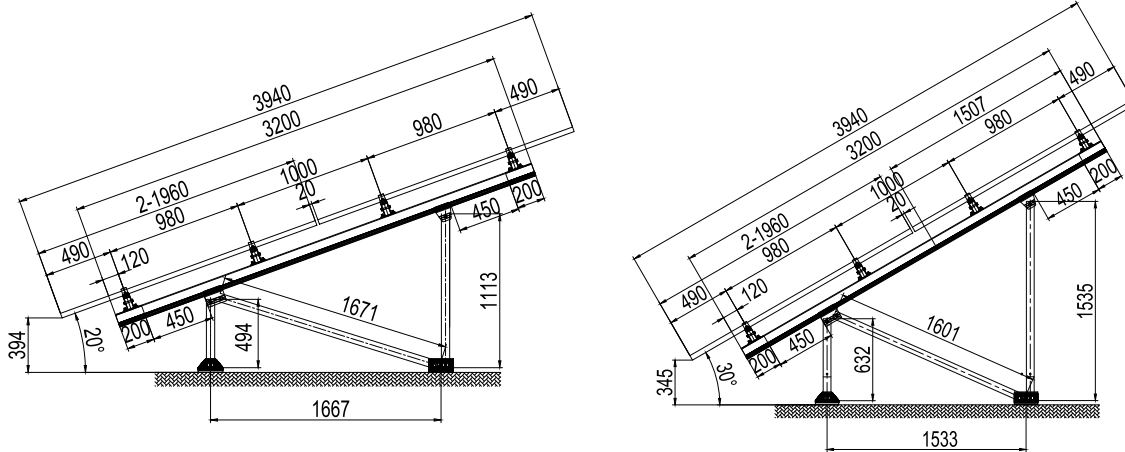


Below is the side view drawing of STII-A Double Support with Girder Extension for panels up to 2200 x 1100 mm at 20° and 30° tilt angle.

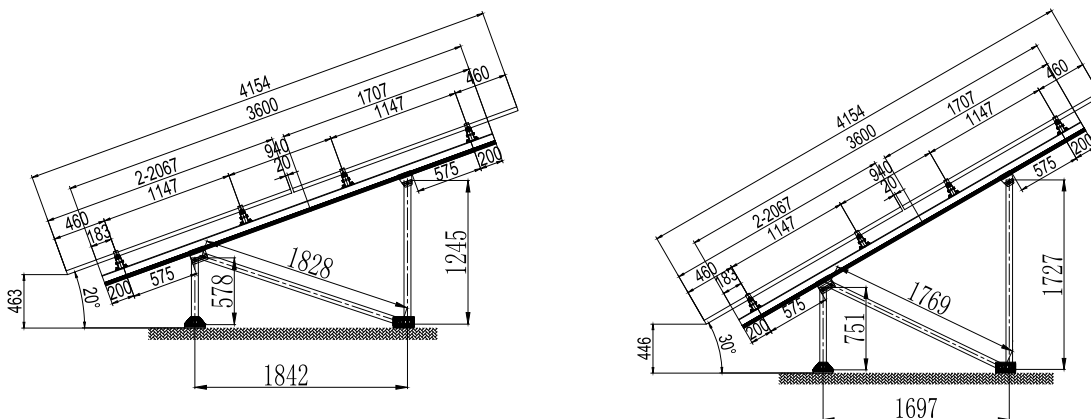


Side View of SolarTerrace III-A

Below is the side view drawing of STIII-A Single Support with Girder Extension for panels up to 2000 x 1100 mm at 20° and 30° tilt angle.



Below is the side view drawing of STIII-A Double Support with Girder Extension for panels up to 2200 x 1100 mm at 20° and 30° tilt angle.



Installation Spacing and Footing Options




Please refer to;

1. "STII-A Single Support with Girder Extension (200+2800+200 mm) Certification Letter" on page 9;
 2. "STII-A Double Support with Girder Extension (200+3200+200 mm) Certification Letter" on page 18;
 3. "STIII-A Single Support with Girder Extension (200+2800+200 mm) Certification Letter" on page 27;
 4. "STIII-A Double Support with Girder Extension (200+3200+200 mm) Certification Letter" on page 32.
- for max support spacing and footing options of corresponding scenarios in section 2.1, respectively.

Please note engineering certificates above (no. 1, 2 and 4) use the tables with factors, which are based on the spacing and footing options from corresponding certificates of no girder extension.

Tools and Components

Tools

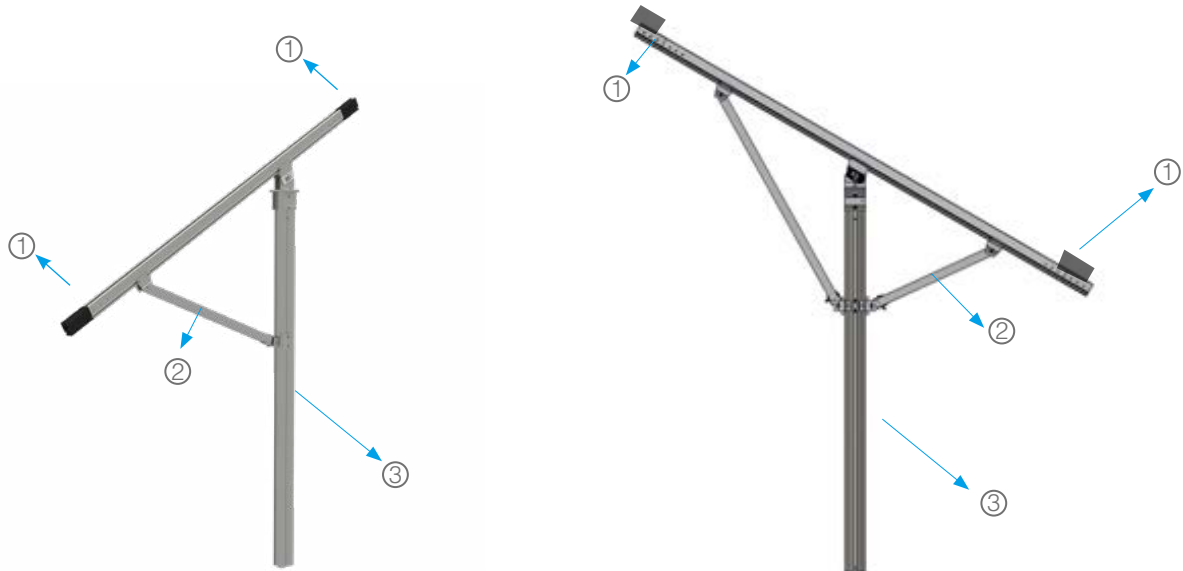
		
Screw Driver (for M8 Hexagon Socket Screw)	5m Tape	Mark Pen

Components

	
Splice for Tri-Groove Square Girder	Tri-Groove Square Girder 200mm

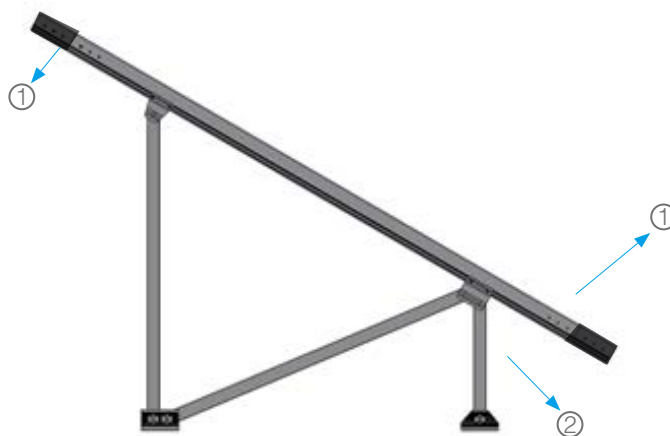
System Overview

STII-A with Girder Extension



1. Girder Extension 2. Pre-assembled Support 3. C-post

STIII-A with Girder Extension

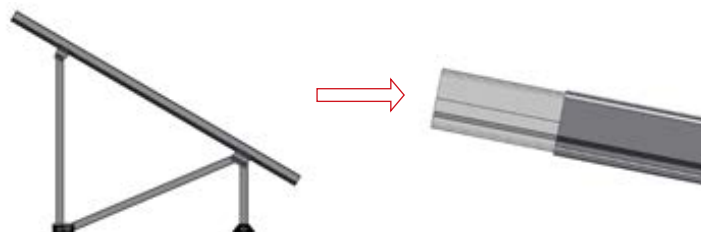


1. Girder Extension 2. Pre-assembled Support

Installation Instructions

The installation instruction of SolarTerrace support and other components can be found at both "Installation Guide PV-ezRack® STII-A-V3.2" and "Installation Guide PV-ezRack® STIII-A-V3.1". The installation instruction below specifies the instruction for girder extension only.

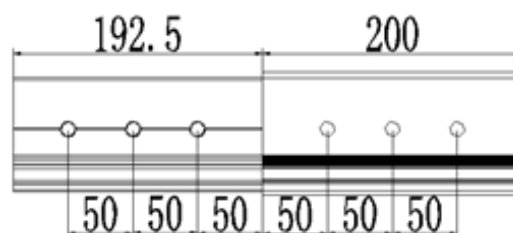
Insert half of the Splice for Tri-Groove Square Girder into one end of the Girder on the pre-assembled support.



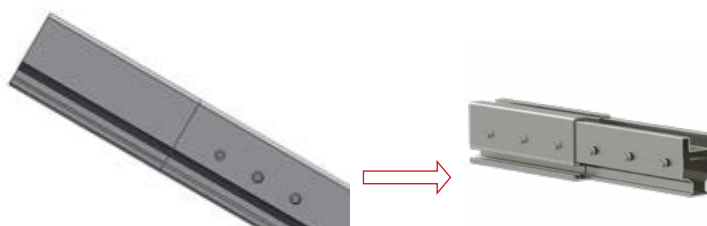
Apply 6 sets of self-drilling screws ST6.3*22 in the connection position on both sides, the screws have to be fixed according to the figure with dimension on the right. Fasten the screws until their rubber pads are slightly flattened.



Recommended torque for self-tapping screw ST6.3*22 is 12 N·m.



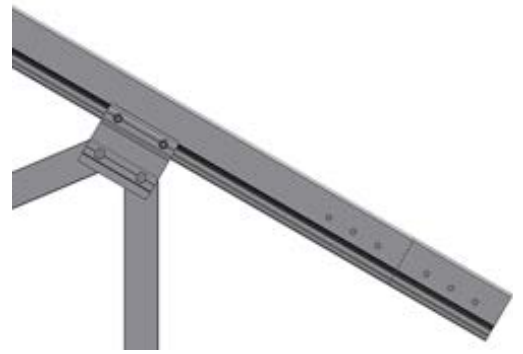
Insert a 200mm long Tri-Groove Square Girder into Splice and ensure that it will be orientated in the same direction as the existing Tri-Groove Square Girder. Now apply 6 sets of self-tapping screws in the connection positions on both sides. Repeat step 5.2 to fix the self-tapping screws.



The assembled Splice and Girder is shown on the right.



Fix the Splice for Tri-Groove Square Girder at the other side of the Girder on the pre-assembled support according to the steps above.



The Girder Extension installation on the pre-assembled support of PV-ezRack® SolarTerrace III-A is completed as shown on the right.



Use the same way in 5.1~5.5 to fix the Splice for Tri-Groove Square Girder on the pre-assembled support of PV-ezRack® SolarTerrace II-A.



Certification

- STII-A Single Support with Girder Extension (200+2800+200mm) -



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Our Ref: **7802-1** / AdA+LvS+NK
 4 May 2022

Clenergy Australia
 1/10 Duerdin Street
 Clayton, VIC 3168

Table with factors related to the letter 6396-1

RE: SolarTerrace II-A (Single Support with Extension) Installation in Australia and New Zealand

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 SolarTerrace II-A with extended girder within Australia and New Zealand. The design check has been based on the information in the *PV-ezRack SolarTerrace II-A Planning and Installation Guide* and schematic drawings of the system components, provided by Clenergy Australia.

Component Description	Part No
T-Rail 110	ER-R-T110/XXXX
PV-ezRack SolarTerrace II-A, Single Support (Pre-assembled) adjustable 20°/25°/30°, with 2800mm Girder	ER-S-STIIA/S30
PV-ezRack SolarTerrace II-A, C-Post	ER-CP-XXXX/A
Splice for T-Rail 110	ER-SP-T110
PV-ezRack SolarTerrace II-A, Post Head for C-post	ER-PH-CP/A, ER-PH-CP/A/G
PV-ezRack SolarTerrace II-A, Post Brace for C-Post on Single Support	ER-PB-CP/D/A, ER-PB-CP/D/A/G
PV-ezRack Inter Clamp	ER-IC-STXX
PV-ezRack End Clamp	ER-EC-STXX
PV-ezRack Universal Clamp for Frame Height 30-46mm with Grounding Clip	C-U/30/46-G
PV-ezRack Universal Clamp for Frame Height 30-46mm	C-U/30/46
PV-ezRack T-Rail Clamp with Grounding	ER-RC-T/G

We find the SolarTerrace II-A Single Support with Extended girder to be structurally sufficient for Australian and New Zealand use, based on the following conditions:

- Wind Loads to AS/NZ1170.2-2011(R2016);
 - Wind Terrain Category 2;
 - Wind average recurrence interval of **100 years** (ultimate);
 - Wind region A, B, C & D;
 - Wind pressure coefficients according Wind Tunnel Test Report RWDI #1101970, by Rowan Williams Davies & Irwin Inc. (Canada), dated 7/6/2012;
- Solar Panel length (Lp) **up to 2.0m, width 1.4m**, mass approx. **15kg/m²**;
- Materials Yield strength:
 - steel 400MPa,
 - aluminium 240MPa;
- Maximum frame spacing (S) and footing options: [refer table(s) on page 2].

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7802-1 - Compliance Letter STII-A with Extended Girder 200+2800+200 - 20220504

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Table with factors related to the letter 6396-1

panel dimensions 2000x1400 weight up to 15kg/m²		wind A 20 degree	wind A 30 degree	wind B 20 degree	wind B 30 degree	wind C 20 degree	wind D 20 degree
Reduction factor for frame spacing		0.71	0.67	0.59	0.62	0.54	0.64
Increasing factor for minimum concrete pier depth *	Compact sand	0.86	1.08	1.00	1.04	0.78	0.85
	Compact sand	0.94	1.13	1.05	1.11	0.76	0.90
	Medium dense sand	0.91	1.05	1.00	1.04	0.85	0.85
	Very soft to Hard clays	1.06	1.13	1.05	1.11	0.86	0.90
Firm to Soft Clays		1.00	1.13	1.04	1.00	0.80	0.90

*In some cases the footing depth is decreased as result of the smaller spacing

Notes.

- Other pier sizes are possible. In the case of ø250mm concrete pier, the pier depth will increase approx. 20% comparing with the ø300mm pier. Contact Gamcorp for the pier depths of other pier diameters.
- Refer to the letter 6396-1 for ground clearance and other notes and conditions.

Construction is to be carried out strictly in 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. This assessment excludes solar panels themselves. This certification is valid till **31 August 2022**, unless any of the relevant Australian Standards becomes updated before the due date.

Yours faithfully,
 Gamcorp (Melbourne) Pty Ltd



L. van Spaandonk
 Principal Engineer
 FIEAust CPEng NER

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 Certificate No: AU1222

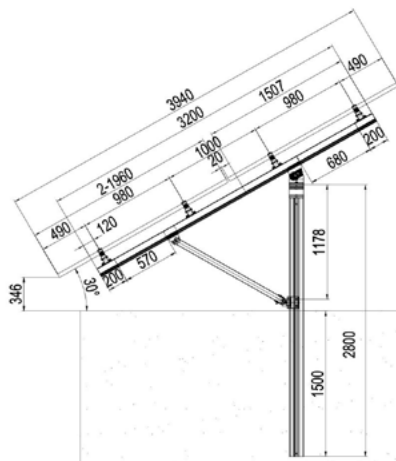
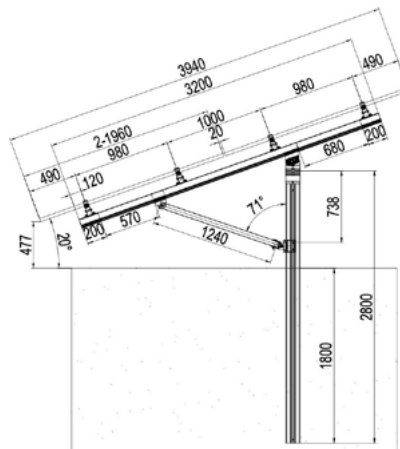
7802-1 - Compliance Letter STII-A with Extended Girder 200+2800+200 - 20220504

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Frames pictures by Clenergy



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Certification

- STII-A Single Support (with 2800mm girder length) -



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Our Ref: **6396-1** / LvS+AdA+NK
 4 May 2022

Clenergy Australia
 1/10 Duerdin Street
 Clayton, VIC 3168

Array Frame Engineering Certificate

RE: SolarTerrace II-A (single support) Installation in Australia and New Zealand

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 SolarTerrace II-A within Australia and New Zealand. The design check has been based on the information in the *PV-ezRack SolarTerrace II-A Planning and Installation Guide* and schematic drawings of the system components, provided by Clenergy Australia.

Component Description	Part No
T-Rail 110	ER-R-T110/XXXX
PV-ezRack SolarTerrace II-A, Single Support (Pre-assembled) adjustable 20°/25°/30°, with 2800mm Girder	ER-S-STIIA/S30
PV-ezRack SolarTerrace II-A, C-Post	ER-CP-XXXX/A
Splice for T-Rail 110	ER-SP-T110
PV-ezRack SolarTerrace II-A, Post Head for C-post	ER-PH-CP/A, ER-PH-CP/A/G
PV-ezRack SolarTerrace II-A, Post Brace for C-Post	ER-PB-CP/A, ER-PB-CP/A/G
PV-ezRack Inter Clamp	ER-IC-STXX
PV-ezRack End Clamp	ER-EC-STXX
PV-ezRack Universal Clamp for Frame Height 30-46mm with Grounding Clip	C-U/30/46-G
PV-ezRack Universal Clamp for Frame Height 30-46mm	C-U/30/46
PV-ezRack T-Rail Clamp with Grounding	ER-RC-T/G
East/West Adjustable - Bracket for T-Rail 110	BR-R110/EW, BR-R110/EW/G

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

- Wind Loads to AS/NZ1170.2:2011(R2016);
 - Wind Terrain Category 2;
 - Wind average recurrence interval of **100 years** (ultimate);
 - Wind region A, B, C & D;
 - Wind pressure coefficients according Wind Tunnel Test Report RWDI #1101970, by Rowan Williams Davies & Irwin Inc. (Canada), dated 7/6/2012;
- Solar Panel up to the **length (Lp) 1.7m, width 1.4m**, mass approx. **15kg/m²**;
- Materials Yield strength:
 - steel 400MPa;
 - aluminium 240MPa;
- Maximum frame spacing (S) and footing options: [refer table(s) on page 2].

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6396-1 - Compliance Letter STII-A with panels up to 1700mm - 20220504

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Table 1. Maximum Frame Spacing (S) and Footing Options

Wind Region	Region A		Region B		Region C	Region D
Panels tilt angle, degrees	20	30	20	30	20	20
Wind speed, m/s	41		48		59	73
Panel clearance (Cp), mm, max/min	583 / 446	600 / 501	583 / 446	600 / 501	583 / 446	583 / 446
Max/Min post height above the ground, mm, from Clenergy	1000 / 863	1399 / 1300	1000 / 863	1399 / 1300	1000 / 863	1000 / 863
Spacing (S), m	3.50	3.35	3.40	3.25	2.95	1.95
Max Vertical Uplift Reaction, kN	6.1	6.6	8.8	9.6	12.3	13.0
Max Vertical Down Reaction, kN	13.2	14.2	16.6	17.9	20.7	20.2
Max Horizontal Reaction, kN	3.9	6.5	5.1	8.6	6.7	6.8
Max Moment at GL, kNm	7.9	6.2	9.9	7.7	12.2	11.8
Soil Class	Driven post minimum embedment depth (D), m					
Compact sand	1.33	1.27	1.47	1.42	1.62	1.60
Medium dense sand	1.74	N/A	N/A	N/A	N/A	N/A
Very Stiff to Hard clays	1.36	1.30	1.51	1.45	1.67	1.66
Firm to Stiff Clays	N/A	N/A	N/A	N/A	N/A	N/A
Driven post maximum embedment depth based on standard 2800 mm long post (m), from Clenergy	1.937	1.500	1.937	1.500	1.937	1.937
Soil Class	Post embedded in concrete pier: 300 mm diameter concrete piers minimum depth (D), m					
Compact sand	0.85	0.80	0.95	0.90	1.05	1.00
Medium dense sand	1.10	1.05	1.20	1.15	1.30	1.30
Very Stiff to Hard clays	0.85	0.80	0.95	0.90	1.05	1.00
Firm to Stiff Clays	1.20	1.15	1.35	1.30	1.50	1.45

Notes.

- This certification is applicable only for Standard STII-A (single support) with dimensions as shown in the Figures 1-4 and the panel clearance above the ground (Cp) as mentioned in the Table 1. Contact Gamcorp for customised STII-A or if the site conditions are not covered by the soil classes considered in this assessment.
- For 25 degrees tilt angle the spacing and footing options for 30 degrees can be adopted (Cp=474-585mm, post height = 1200-1085mm AG, max post depth 1.715m).
- For concrete piers foundation we recommend to use 25 MPa strength concrete. Other pier sizes possible, contact Gamcorp. The minimum post embedment depth in the pier shall be approximately 0.9 of the pier depth.
- T-Rails overhang: 0.4*S maximum.
- Other pier sizes are possible. In the case of ø250mm concrete pier, the pier depth will increase approx. 20% comparing with the ø300mm pier. Contact Gamcorp for the pier depths of other pier diameters.

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6396-1 - Compliance Letter STII-A with panels up to 1700mm - 20220504

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Table 2. Explanation of the adopted soil classes

	ABC (Allowable Bearing Capacity), kPa
Compact sand	≥ 300
Medium dense sand	150 - 300
Very Stiff to Hard clays	300 - 600
Firm to Stiff Clays	100 - 150

The maximum frame spacing is based on the structural capacity of the frame in the perimeter zone of an array. We recommend to perform tests on site for the geotechnical capacity of the driven post. The spacing may need to be decreased to achieve the available geotechnical capacity of the driven post following from the test results.

Construction is to be carried out strictly in 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. This assessment excludes solar panels themselves. This certification is valid till **31 August 2022**, unless any of the relevant Australian Standards becomes updated before the due date.

Yours faithfully,
 Gamcorp (Melbourne) Pty Ltd

L. van Spaandonk
 Principal Engineer
 FIEAust CPEng NER

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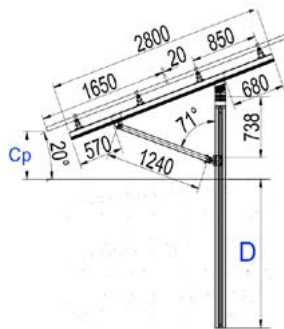


Fig. 1

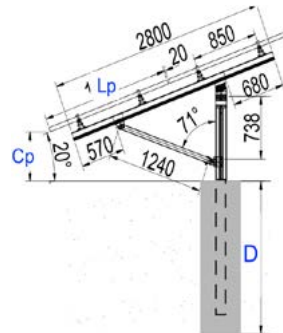


Fig. 2

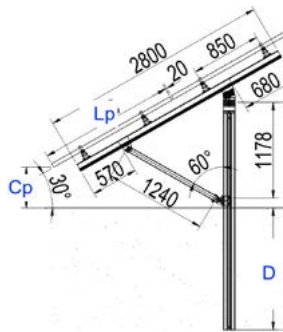


Fig. 3

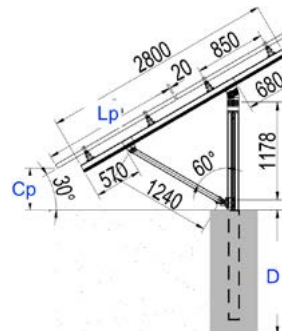


Fig. 4

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Certification

- STII-A Double Support with Girder Extension (200+3200+200mm) -



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Our Ref: **7375-1** / LvS
 4 May 2022

Clenergy Australia
 1/10 Duerdin Street
 Clayton, VIC 3168

Tables with factors related to the letter 6396-2

RE: SolarTerrace II-A with panels 2001-2400mm long for installation in Australia and New Zealand

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 SolarTerrace II-A (double support) with Girder Extension (part number: GE-STA/200) for installation with panels 2001-2400mm long (portrait oriented) in Australia and New Zealand. The design check has been based on the information in the PV-ezRack SolarTerrace II-A and its Girder Extension Planning and Installation Guide, and schematic drawings of the system components, provided by Clenergy Australia.

panel length, mm			wind A 20 degree	wind A 30 degree	wind B 20 degree	wind B 30 degree	wind C 20 degree	wind D 20 degree
Reduction factor for frame spacing	2001-2050		1.00	1.00	1.00	0.97	0.91	0.87
	2051-2100		1.00	1.00	1.00	0.93	0.91	0.85
	2101-2150		1.00	1.00	1.00	0.90	0.77	0.74
	2151-2200		1.00	1.00	0.94	0.88	0.72	0.69
Increasing factor for minimum post embedment ramming depth*	2001-2050	Compact sand	1.02	1.02	1.02	N/A	1.03	N/A
	2051-2100		1.04	1.04	1.04	N/A	1.03	N/A
	2101-2150		1.06	1.06	1.07	N/A	0.96	N/A
	2151-2200		1.07	1.07	1.04	N/A	0.93	N/A
Increasing factor for minimum concrete pier depth*	2001-2050	Compact sand	1.00	1.05	1.00	1.09	1.00	1.00
		Medium dense sand	1.09	1.08	1.04	1.03	1.00	1.00
		Very Stiff to Hard clays	1.06	1.05	1.10	1.04	1.00	1.00
		Firm to Stiff Clays	1.04	1.07	1.00	1.03	0.94	0.94
	2051-2100	Compact sand	1.00	1.05	1.00	1.09	1.00	1.00
		Medium dense sand	1.09	1.08	1.04	1.03	1.00	1.00
		Very Stiff to Hard clays	1.06	1.05	1.10	1.04	1.00	1.00
		Firm to Stiff Clays	1.04	1.07	1.00	1.03	0.94	0.94
	2101-2150	Compact sand	1.00	1.05	1.00	1.09	1.00	1.00
		Medium dense sand	1.09	1.08	1.04	1.03	1.00	1.00
		Very Stiff to Hard clays	1.06	1.05	1.10	1.04	1.00	1.00
		Firm to Stiff Clays	1.04	1.07	1.00	1.03	0.94	0.94
	2151-2200	Compact sand	1.00	1.05	1.00	1.09	1.00	1.00
		Medium dense sand	1.09	1.08	1.04	1.03	1.00	1.00
		Very Stiff to Hard clays	1.06	1.05	1.10	1.04	1.00	1.00
		Firm to Stiff Clays	1.04	1.07	1.00	1.03	0.94	0.94

Table 1. Panels 2001 – 2200 mm long

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7375-1 - Tables with Factors for STII-A with Panels 2001-2400 - 20220504

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panel length, mm			wind A 20 degree	wind A 30 degree	wind B 20 degree	wind B 30 degree	wind C 20 degree	wind D 20 degree
Reduction factor for frame spacing	2201-2250		1.00	1.00	0.86	0.85	0.65	0.64
	2251-2300		1.00	0.97	0.80	0.78	0.60	0.59
	2301-2350		0.94	0.89	0.73	0.71	0.56	0.54
	2351-2400		0.85	0.77	0.67	0.66	0.51	0.50
Increasing factor for minimum post embedment ramming depth*	2201-2250	Compact sand	1.09	1.09	1.02	N/A	0.91	N/A
	2251-2300		1.10	1.09	1.01	N/A	0.89	N/A
	2301-2350		1.10	1.07	0.99	N/A	0.88	N/A
	2351-2400		1.07	1.01	0.97	N/A	0.85	N/A
Increasing factor for minimum concrete pier depth*	2201-2250	Compact sand	1.11	1.05	1.00	1.00	0.91	0.91
		Medium dense sand	1.09	1.08	1.04	0.97	0.93	0.93
		Very Stiff to Hard clays	1.29	1.24	1.20	1.13	1.09	1.09
		Firm to Stiff Clays	1.20	1.13	1.07	1.09	0.94	0.94
	2251-2300	Compact sand	1.11	1.05	1.00	1.00	0.91	0.91
		Medium dense sand	1.09	1.08	1.04	0.97	0.93	0.93
		Very Stiff to Hard clays	1.29	1.24	1.20	1.13	1.09	1.09
		Firm to Stiff Clays	1.20	1.13	1.07	1.09	0.94	0.94
	2301-2350	Compact sand	1.11	1.05	1.00	1.00	0.91	0.91
		Medium dense sand	1.09	1.08	1.04	0.97	0.93	0.93
		Very Stiff to Hard clays	1.29	1.24	1.20	1.13	1.09	1.09
		Firm to Stiff Clays	1.20	1.13	1.07	1.09	0.94	0.94
	2351-2400	Compact sand	1.11	1.05	1.00	1.00	0.91	0.91
		Medium dense sand	1.09	1.08	1.04	0.97	0.93	0.93
		Very Stiff to Hard clays	1.29	1.24	1.20	1.13	1.09	1.09
		Firm to Stiff Clays	1.20	1.13	1.07	1.09	0.94	0.94

Table 2. Panels 2201 – 2400 mm long

*In some cases the footing depth is decreased as result of the smaller spacing

Refer to the letter 6396-2 for ground clearance and other notes and conditions.

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. This certification is valid till **August 31, 2022**.

Yours faithfully,
 Gamcorp (Melbourne) Pty Ltd


L. Van Spaandonk
 Principal Engineer
 FIEAust CPEng NER CMEngNZ

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 Certificate No: AU1222

7375-1 - Tables with Factors for STII-A with Panels 2001-2400 - 20220504

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Certification

- STII-A Double Support (with 3200mm girder length) -



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Our Ref: **6396-2** / LvS+NK
 4 May 2022

Clenergy Australia
 1/10 Duerdin Street
 Clayton, VIC 3168

Array Frame Engineering Certificate

RE: SolarTerrace II-A (double support) Installation in Australia and New Zealand

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 SolarTerrace II-A within Australia and New Zealand. The design check has been based on the information in the *PV-ezRack SolarTerrace II-A Planning and Installation Guide* and schematic drawings of the system components, provided by Clenergy Australia.

Component Description	Part No
T-Rail 110	ER-R-T110/XXXX
PV-ezRack SolarTerrace II-A, Double Support (Pre-assembled) adjustable 20°, with 3200mm Girder	ER-S-STIIA/D20
PV-ezRack SolarTerrace II-A, Double Support (Pre-assembled) adjustable 30°, with 3200mm Girder	ER-S-STIIA/D30
PV-ezRack SolarTerrace II-A, C-Post	ER-CP-XXXX/A
Splice for T-Rail 110	ER-SP-T110
PV-ezRack SolarTerrace II-A, Post Head for C-post	ER-PH-CP/A, ER-PH-CP/A/G
PV-ezRack SolarTerrace II-A, Post Brace for C-Post on Double Support	ER-PB-CP/D/A, ER-PB-CP/D/A/G
PV-ezRack Inter Clamp	ER-IC-STXX
PV-ezRack End Clamp	ER-EC-STXX
PV-ezRack Universal Clamp for Frame Height 30-46mm with Grounding Clip	C-U/30/46-G
PV-ezRack Universal Clamp for Frame Height 30-46mm	C-U/30/46
PV-ezRack T-Rail Clamp with Grounding	ER-RC-T/G
East/West Adjustable - Bracket for T-Rail 110	BR-R110/EW, BR-R110/EW/G

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

- Wind Loads to AS/NZ1170.2-2011(R2016);
 - Wind Terrain Category 2;
 - Wind average recurrence interval of **100 years** (ultimate);
 - Wind region A, B, C & D;
 - Wind pressure coefficients according Wind Tunnel Test Report RWDI #1101970, by Rowan Williams Davies & Irwin Inc. (Canada), dated 7/6/2012;
- Solar Panel up to the **length (Lp) 2.0m, width 1.4m**, mass approx. **15kg/m²**;
- Materials Yield strength:
 - steel 400MPa,
 - aluminium 240MPa;
- Maximum frame spacing (S) and footing options: [refer table(s) on page 2].

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 Certificate No: AU1222

6396-2 - Compliance Letter STII-A with panels up to 2000mm - 20220504

Page 1 of 4

Certification

- STII-A Double Support (with 3200mm girder length) -



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Table 1. Maximum Frame Spacing (S) and Footing Options

Wind Region	Region A		Region B		Region C	Region D
Panels tilt angle, degrees	20	30	20	30	20	20
Wind speed, m/s	41		48		59	73
Panel clearance (Cp), mm, max/min	691 / 554	560 / 445	691 / 554	560 / 445	691 / 554	691 / 554
Max/Min post height above the ground, mm, from Clenergy	1000 / 863	1200 / 1085	1000 / 863	1200 / 1085	1000 / 863	1000 / 863
Spacing (S), m	3.30	3.20	3.20	2.95 (2.85*)	2.85	1.95 (1.90*)
Max Vertical Uplift Reaction, kN	6.7	7.8	9.7	10.6	14.0	15.3
Max Vertical Down Reaction, kN	14.6	15.6	18.4	18.7	23.5	23.7
Max Horizontal Reaction, kN	4.3	7.3	5.7	9.2	7.7	8.0
Max Moment at GL, kNm	8.2	12.3	10.9	15.4	14.5	15.2
Soil Class	Driven post minimum embedment depth (D), m					
Compact sand	1.34	1.61	1.51	N/A	1.71	N/A
Medium dense sand	1.76	N/A	N/A	N/A	N/A	N/A
Very Stiff to Hard days	1.38	1.67	1.56	N/A	1.78	N/A
Firm to Stiff Clays	N/A	N/A	N/A	N/A	N/A	N/A
Driven post maximum embedment depth based on standard 2800 mm long post (m), from Clenergy	1.937	1.715	1.937	1.715	1.937	1.715
Soil Class	Post embedded in concrete pier: 300 mm diameter concrete piers minimum depth (D), m					
Compact sand	0.90	1.05	1.00	1.10	1.10	1.10
Medium dense sand	1.10	1.30	1.25	1.45	1.40	1.40
Very Stiff to Hard days	0.85	1.05	1.00	1.15	1.10	1.10
Firm to Stiff Clays	1.25	1.50	1.40	1.65	1.60	1.60

Notes.

- This certification is applicable only for Standard STII-A (double support) with dimensions as shown in the Figures 1-4 and the panel clearance above the ground (Cp) as mentioned in the Table 1. Contact Gamcorp for customised STII-A or if the site conditions are not covered by the soil classes considered in this assessment.

- For concrete piers foundation we recommend to use 25 MPa strength concrete. Other pier sizes possible, contact Gamcorp. The minimum post embedment depth in the pier shall be approximately 0.9 of the pier depth.

- (*): when using Clenergy East-West adaptor (if different to the spacing without adaptor);

- T-Rails overhang: 0.4*S maximum.

- Other pier sizes are possible. In the case of ø250mm concrete pier, the pier depth will increase approx. 20% comparing with the ø300mm pier depth. Contact Gamcorp for the pier depth of other pier diameters.

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6396-2 - Compliance Letter STII-A with panels up to 2000mm - 20220504

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Table 2. Assumed capacity for adopted soil classes

	ABC (Allowable Bearing Capacity), kPa
Compact sand	≥ 300
Medium dense sand	150 – 300
Very Stiff to Hard clays	300 – 600
Firm to Stiff Clays	100 – 150

The maximum frame spacing is based on the structural capacity of the frame in the perimeter zone of an array. We recommend to perform tests on site for the geotechnical capacity of the driven post. The spacing may need to be decreased to achieve the available geotechnical capacity of the driven post following from the test results.

Construction is to be carried out strictly in 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. This assessment excludes solar panels themselves. This certification is valid till **31 August 2022**, unless any of the relevant Australian Standards becomes updated before the due date.

Yours faithfully,
 Gamcorp (Melbourne) Pty Ltd

L. van Spaandonk
 Principal Engineer
 FIEAust CPEng NER

ISO 9001:2015 Registered Firm
 Certificate No: AU1222

6396-2 - Compliance Letter STII-A with panels up to 2000mm - 20220504

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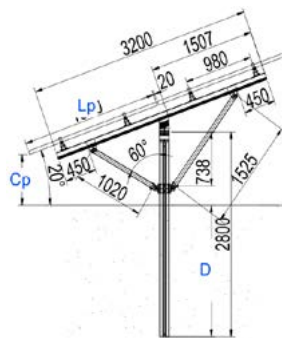


Fig. 1

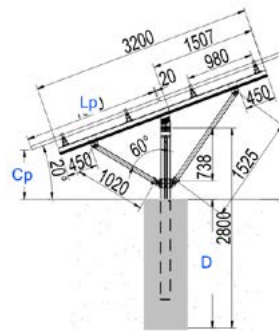


Fig. 2

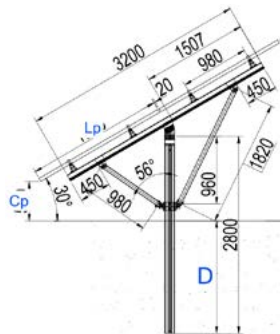


Fig. 3

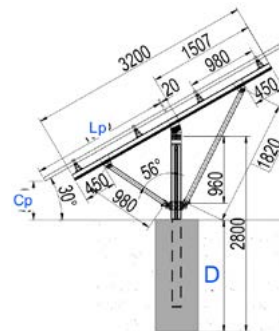


Fig. 4

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6396-2 - Compliance Letter STII-A with panels up to 2000mm - 20220504

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Certification

- STIII-A Single Support with Girder Extension (200+2800+200mm) -



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Our Ref: **7802-2** / YK+AdA+LvS+NK
 4 May 2022

Clenergy Australia
 1/10 Duerdin Street
 Clayton, VIC 3168

Array Frame Engineering Certificate

RE: SolarTerrace III-A with Extended Girder (200 mm + 2800 mm + 200 mm)

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 SolarTerrace III-A with Extended Girder within Australia and New Zealand. The design check has been based on the information and schematic drawings of the system components, provided by Clenergy Australia.

Component Description	Part Number
T-Rail 110	ER-R-T110/XX
PV-ezRack SolarTerrace III-A, (Pre-assembled) 20°, with 2800 mm Girder	ER-S-STIIIA/S20
PV-ezRack SolarTerrace III-A, (Pre-assembled) 30°, with 2800 mm Girder	ER-S-STIIIA/S30
Girder extension	GE-STA/200
Splice for T-Rail 110	ER-SP-T110
PV-ezRack Inter Clamp	ER-IC-STXX
PV-ezRack End Clamp	ER-EC-STXX
PV-ezRack Universal Clamp for Frame Height 30-46mm with Grounding Clip	C-U/30/46-G
PV-ezRack Universal Clamp for Frame Height 30-46mm	C-U/30/46
PV-ezRack T-Rail Clamp with Grounding	ER-RC-T/G
East/West Adjustable - Bracket for T-Rail 110	BR-R110/EW, BR-R110/EW/G

We find the SolarTerrace III-A with Extended Girder to be structurally sufficient for Australian and New Zealand use, based on the following conditions:

- Wind Loads to AS/NZS1170.2:2011 (R2016);
 - Wind Terrain Category 2;
 - Wind average recurrence interval of 100 years (ultimate);
 - Wind region A, B, C & D;
 - No shielding considered (Ms=1)
- Soils classification and properties to AS/NZS 4676-2000 and AS4678-2002;
- Solar Panel size up to **1.4m wide x 2m high** (in portrait orientation), mass approx 15 kg/m²;
- Maximum support(frame) spacing and footing options: refer following pages;
- For ground screws option see Gamcorp letter 6292.

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7802-2 - Compliance Letter STIII-A with Extended Girder 200+2800+200 - 20220504

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Maximum Support Frame Spacing and Footing Options

Wind region	A										B										C				D			
Regional wind speed (VR, m/s)	41										45										59				73			
Panel T/R angle	20°										20°										20°				20°			
Front Leg	3.60		3.05		3.50		2.55		2.70		1.70		7.9		9.6		7.9		9.6		13.6		1.3					
Uplift (kN)	3.4		2.7		6.0		3.6		7.7		7.9		14.7		14.7		14.7		14.7		14.7		14.7					
Down Force (kN)	10.1		9.9		13.4		10.7		10.7		10.7		10.7		10.7		10.7		10.7		10.7		10.7					
Total horizontal force at leg base (kN)	4.5		8.4		6.0		9.7		7.0		6.7																	
Footings	Concrete Footing Options																											
Wind region	A										B										C				D			
Continuous Paving Slab, Length x Thickness (L x T)-m	2.20 x 0.15		500		0		2.20 x 0.15		500		0		2.40 x 0.17		500		0		2.20 x 0.16		500		0					
Adopt reo	N16 @ 125 both ways (incl or SL-41)																											
Continuous Strip Footing, Width x Depth (W x D)-m	0.30 x 0.40		0.45 x 0.40		700		200		0.35 x 0.35		0.65 x 0.65		500		0		0.35 x 0.45		0.50 x 0.50		700		200					
Adopt reo	SL-41																											
Individual Pad Footing per leg, Length (L) x Width (W) x Depth (D) x C x X	0.45 x 0.45 x 0.45		0.85 x 0.85 x 0.85		700		200		0.70 x 0.70 x 0.70		0.75 x 0.75 x 0.75		800		300		0.50 x 0.50 x 0.50		0.70 x 0.70 x 0.70		800		300					
Adopt reo	SL-41																											
Transverse Strip Footing, Length x Width x Depth (L x W x D)	2.20 x 0.60 x 0.60		900		400		2.40 x 0.70 x 0.70		800		300		2.30 x 0.65 x 0.65		600		100		2.40 x 0.75 x 0.75		600		100					
Adopt reo	SL-41																											

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 Certificate No: AU1222

7802-2 - Compliance Letter STIII-A with Extended Girder 200+2800+200 - 20220504

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Notes:

1. The footing examples shown, recommended for 'Firm' soils with allowable end bearing capacity of 100 kPa minimum (damp clays, sandy clays, damp sands). Contact Gamcorp for site specific conditions (to find out whether more cost effective solution is possible).
2. Concrete grade: N25 minimum, cover: 50mm (Contact Gamcorp to find out whether more cost effective solution is possible, based on site specific conditions).
3. For the fixing of STIII-A to the concrete footing we recommend using M16 (Grade 5.8 Carbon Steel anchor studs or similar). Adopt minimum anchor embedment depth according the anchors manufacturer's manual. Clenergy STIII-A has 6 anchors per frame, 2 at front and 4 at rear.
4. For footing drawings by Gamcorp (S01-S04) see letter 5510-2. Other footing options are possible – contact Gamcorp.

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. Should you need to clarify anything please contact the designer. This certification is valid till 31 August 2022, unless any of the relevant Australian Standards becomes updated before the due date.

Yours faithfully,
Gamcorp (Melbourne) Pty Ltd



L. van Spaandonk
Principal Engineer
FIEAust CPEng NER

Attachments

- Frames pictures by Clenergy

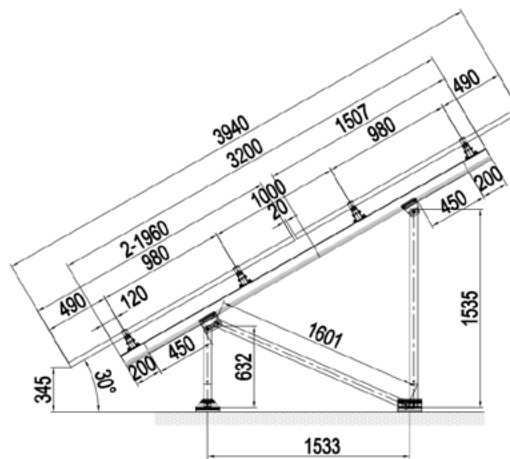
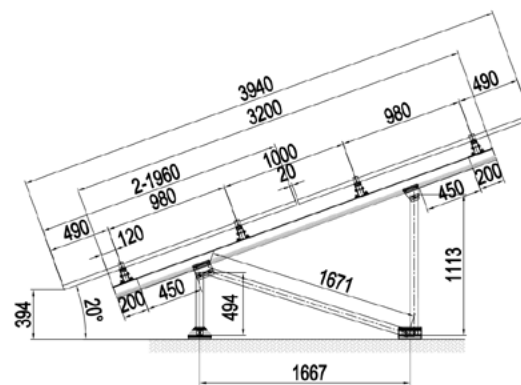
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7802-2 - Compliance Letter STIII-A with Extended Girder 200+2800+200 - 20220504

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 Certificate No: AU1222

7802-2 - Compliance Letter STIII-A with Extended Girder 200+2800+200 - 20220504

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Certification

- STIII-A Double Support with Girder Extension (200+3200+200mm) -



Gamcorp (Melbourne) Pty Ltd A.C.N 141 076 904 A.B.N 73 015 060 240
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 Tel: 03 9543 2211



Our Ref: **7375-2** / LvS + NK
 4 May 2022

Clenergy Australia
 1/10 Duerdin Street
 Clayton, VIC 3168

Tables with factors related to the letter 5510 - 2

RE: SolarTerrace III-A with panels 2001-2400mm long for installation in Australia and New Zealand

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 SolarTerrace III-A with Girder Extension (part number: GE-STA/200) for installation with panels 2001-2400mm long (portrait oriented) and 1400mm wide in Australia and New Zealand. The design check has been based on the information in the PV-ezRack SolarTerrace III-A and its Girder Extension Planning and Installation Guide, and schematic drawings of the system components, provided by Clenergy Australia.

See the Tables on page 2 and 3 of this letter.

Construction is to be carried out strictly in 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.
 This certification is valid till **August 31, 2022**.

Yours faithfully,
 Gamcorp (Melbourne) Pty Ltd

L. Van Spaandonk

Principal Engineer

FIEAust CPEng NER CMEngNZ

ISO 9001:2015 Registered Firm
 Certificate No: AU1222

7375-2 - Tables with Factors for STIII-A with Panels 2001-2400 - 20220504

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Panel length, mm			wind A 20 degree	wind A 30 degree	wind B 20 degree	wind B 30 degree	wind C 20 degree	wind D 20 degree
Reduct on factor for frame spacing	2001 - 2050		0.97	0.95	0.97	0.85	0.87	0.83
	2051 - 2100		0.97	0.95	0.96	0.80	0.82	0.78
	2101 - 2150		0.97	0.89	0.96	0.75	0.77	0.73
	2151 - 2200		0.97	0.74	0.96	0.69	0.72	0.68
Increasing factor for concrete footing depth*	2001-2050	Continuous Paving Slab, Thickness (T), m	1.00	1.00	1.00	1.20	1.00	1.17
		Continuous Strip Footing, Depth (D), m	1.00	1.09	1.00	1.08	1.00	1.00
		Individual Pad footing per leg, Depth (X), m	1.00	1.00	1.00	1.00	0.93	0.87
		Transverse Strip Footing, Depth (D), m	1.00	1.00	1.00	0.88	0.94	0.81
	2051-2100	Continuous Paving Slab, Thickness (T), m	1.00	1.00	1.00	1.20	1.00	1.17
		Continuous Strip Footing, Depth (D), m	1.00	1.09	1.00	1.08	1.00	1.00
		Individual Pad footing per leg, Depth (X), m	1.00	1.00	1.00	1.00	0.93	0.87
		Transverse Strip Footing, Depth (D), m	1.00	1.06	1.07	0.81	0.94	0.81
	2101-2150	Continuous Paving Slab, Thickness (T), m	1.00	1.25	1.00	1.20	1.00	1.17
		Continuous Strip Footing, Depth (D), m	1.00	1.09	1.00	1.08	1.00	1.08
		Individual Pad footing per leg, Depth (X), m	1.00	1.00	1.00	1.00	0.93	0.87
		Transverse Strip Footing, Depth (D), m	1.00	1.00	1.07	0.81	0.88	0.81
	2151-2200	Continuous Paving Slab, Thickness (T), m	1.00	1.25	1.00	1.20	1.00	1.17
		Continuous Strip Footing, Depth (D), m	1.00	1.09	1.00	1.08	1.09	1.08
		Individual Pad footing per leg, Depth (X), m	1.08	1.00	1.00	1.00	0.87	0.87
		Transverse Strip Footing, Depth (D), m	1.00	0.88	1.14	0.75	0.81	0.75

Table 1. Panels 2001 – 2200 mm long

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7375-2 - Tables with Factors for STIII-A with Panels 2001-2400 - 20220504

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Panel length, mm			wind A 20 degree	wind A 30 degree	wind B 20 degree	wind B 30 degree	wind C 20 degree	wind D 20 degree
Reduction factor for frame spacing	2201 - 2250		0.89	0.63	0.81	0.59	0.63	0.65
	2251 - 2300		0.75	0.53	0.69	0.49	0.53	0.60
	2301 - 2350		0.64	0.45	0.59	0.42	0.45	0.53
	2351 - 2400		0.54	0.39	0.50	0.36	0.38	0.45
Increasing factor for concrete footing depth*	2201-2250	Continuous Paving Slab, Thickness (T), m	1.00	1.30	1.00	1.36	1.08	1.27
		Continuous Strip Footing, Depth (D), m	1.05	1.09	1.00	1.08	1.00	1.27
		Individual Pad footing per leg, Depth (X), m	1.12	N/P (increase width too)	1.00	1.81	1.04	1.15
		Transverse Strip Footing, Depth (D), m	1.00	1.00	1.00	1.00	1.00	1.00
	2251-2300	Continuous Paving Slab, Thickness (T), m	1.00	1.35	1.00	1.40	1.12	1.30
		Continuous Strip Footing, Depth (D), m	1.05	1.09	1.00	1.00	1.00	1.30
		Individual Pad footing per leg, Depth (X), m	1.03	1.39	1.00	1.22	1.00	1.09
		Transverse Strip Footing, Depth (D), m	1.00	1.06	1.00	1.00	1.00	1.00
	2301-2350	Continuous Paving Slab, Thickness (T), m	1.00	1.40	1.00	1.48	1.16	1.33
		Continuous Strip Footing, Depth (D), m	1.08	1.00	1.00	1.00	1.00	1.00
		Individual Pad footing per leg, Depth (X), m	1.00	1.06	1.00	1.00	1.00	1.07
		Transverse Strip Footing, Depth (D), m	1.00	1.00	1.00	1.00	1.00	1.00
	2351-2400	Continuous Paving Slab, Thickness (T), m	1.00	1.45	1.00	1.52	1.20	1.40
		Continuous Strip Footing, Depth (D), m	1.08	1.00	1.00	1.00	1.09	1.00
		Individual Pad footing per leg, Depth (X), m	1.00	1.00	1.00	1.00	1.00	1.00
		Transverse Strip Footing, Depth (D), m	1.00	1.00	1.00	1.00	1.00	1.00

Table 2. Panels 2201 – 2400 mm long

*In some cases the footing depth is decreased as a result of the smaller spacing

Refer to the letter 5510 - 2 for footing length, footing width, footing height above ground level, clearance between the panel and ground, and any other notes and conditions.

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7375-2 - Tables with Factors for STIII-A with Panels 2001-2400 - 20220504

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Certification

- STIII-A Double Support (with 3200mm girder length) -



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Our Ref: **5510-2/** BG-AdA-LvS-NK
 4 May 2022

Clenergy Australia
 1/10 Duerdin Street
 Clayton, VIC 3168

Array Frame Engineering Certificate

RE: SolarTerrace III-A with panels 2000 mm high

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 SolarTerrace III-A with panels 2000mm high within Australia and New Zealand. The design check has been based on the information in the *PV-ezRack SolarTerrace III-A Planning and Installation Guide* and schematic drawings of the system components, provided by Clenergy Australia.

Component Description	Part Number
T-Rail 110	ER-R-T110/XX
PV-ezRack SolarTerrace III-A, Single Support (Pre-assembled) 20°, with 3200 mm Girder	ER-S-STIIIA/D20
PV-ezRack SolarTerrace III-A, Single Support (Pre-assembled) 30°, with 3200 mm Girder	ER-S-STIIIA/D30
Splice for T-Rail 110	ER-SP-T110
PV-ezRack Inter Clamp	ER-IC-STXX
PV-ezRack End Clamp	ER-EC-STXX
PV-ezRack Universal Clamp for Frame Height 30-46mm with Grounding Clip	C-U/30/46-G
PV-ezRack Universal Clamp for Frame Height 30-46mm	C-U/30/46
PV-ezRack T-Rail Clamp with Grounding	ER-RC-T/G
East/West Adjustable - Bracket for T-Rail 110	BR-R110/EW, BR-R110/EW/G

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

- Wind Loads to AS/NZS1170.2:2011 (R2016);
 - Wind Terrain Category 2;
 - Wind average recurrence interval of 100 years (ultimate);
 - Wind region A, B, C & D;
 - $M_s=1$, $M_d=1$, $M_t=1$;
- Soils classification and properties to AS/NZS 4676-2000 and AS4678-2002;
- Solar Panel size up to **1.4m** wide x **2.0m** high (max) in portrait orientation, mass approx **15kg/m²**;
- Maximum support(frame) spacing and footing options at the edge zone: refer following pages.
- For ground screws option see Gamcorp letter 6292.

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Maximum Support Frame Spacing and Footing Options

Wind region	A										B										C										D									
Regional wind speed (V _R , m/s)	41										48										59										73									
Panel Tilt angle	20°										20°										20°										20°									
	Front Leg		Rear Leg		Front Leg		Rear Leg		Front Leg		Rear Leg		Front Leg		Rear Leg		Front Leg		Rear Leg		Front Leg		Rear Leg		Front Leg		Rear Leg													
Maximum spacing (S _m , m)	3.60		3.10		3.50		2.95		3.00		2.00 (1.90*)		1.5		20.3		9.1		10.2		7.7		8.8		2.8		10.4													
Uplift Force (kN)	0.1	30.7	0.1	16.0	0.5	15.0	0.0	22.3	1.1	20.3	1.5	21.5	1.1	20.3	1.5	21.5	1.1	20.3	1.5	21.5	1.1	20.3	1.5	21.5	1.1	20.3	1.5	21.5												
Down Force (kN)	6.2	5.8	5.0	8.4	7.5	8.1	6.8	11.5	9.1	10.2	8.8	10.4	7.7	8.8	8.8	10.4	7.7	8.8	8.8	10.4	7.7	8.8	8.8	10.4	7.7	8.8	8.8	10.4												
Total horizontal force at leg base (kN)	4.5		8.6		6.0		11.2		7.7		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9		7.9													
Footing Type	Concrete Footing Options										Concrete Footing Options										Concrete Footing Options										Concrete Footing Options									
Wind region	A										B										C										D									
Continuous Piling Stab, Length x Thickness (L x T) - m	2.30 x 0.15		500	0	2.3 x 0.20		500	0	2.30 x 0.20		500	0	2.40 x 0.25		500	0	2.40 x 0.25		500	0	2.65 x 0.30		500	0																
Adopt reo	N16@125 both ways (bw) or SL-81										N16@125 both ways (bw) or SL-81										N16@125 both ways (bw) or SL-81										N16@125 both ways (bw) or SL-81									
Continuous Strip Footing, Width x Depth (W x D) - m	0.30x 0.40	0.35x 0.40	700	200	0.35 x 0.55	0.55 x 0.55	700	200	0.35 x 0.45	0.45 x 0.45	700	200	0.55 x 0.65	0.65 x 0.65	700	200	0.50 x 0.55	0.55 x 0.55	700	200	0.55 x 0.60	0.70 x 0.60	600	100																
Adopt reo	SL-81						SL-81						SL-81						SL-81																					
Individual Pad footing per leg, Length (=Width) x Depth (B x C x D)	0.50 x 0.50 x 0.60	0.70 x 0.70 x 0.60	700	200	0.85 x 0.85 x 0.9	0.95 x 0.95 x 0.9	900	400	0.55x 0.55 x 0.75	0.75 x 0.75 x 0.75	800	300	0.95 x 0.95 x 0.9	1.05 x 1.05 x 0.9	900	400	0.60x 0.60 x 0.75	0.75 x 0.75 x 0.75	700	200	0.70 x 0.70 x 0.75	0.80 x 0.80 x 0.75	700	200																
Adopt reo	SL-81						SL-81						SL-81						SL-81																					
Transverse Strip Footing, Length x Width x Depth (L x A x D)	2.30 x 0.75 x 0.60		600	100	2.50 x 0.80 x 0.80		700	200	2.50 x 0.75 x 0.70		600	100	2.85 x 0.85 x 0.80		600	100	2.70 x 0.85 x 0.80		900	400	2.90 x 0.80 x 0.80		1000	500																
Adopt reo	SL-81						SL-81						SL-81						SL-81																					

Note(*): when using east west adaptor

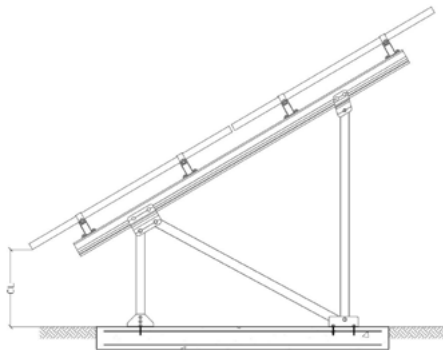
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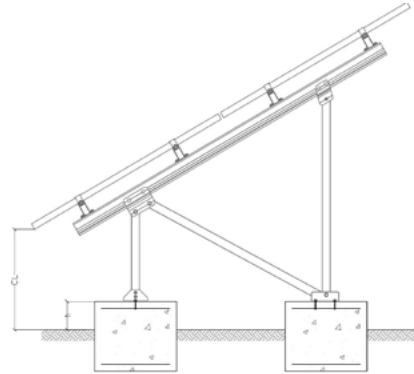
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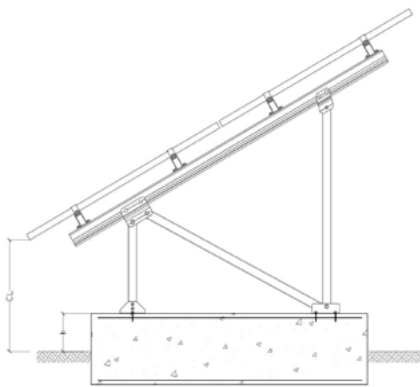
Continuous Paving Slab



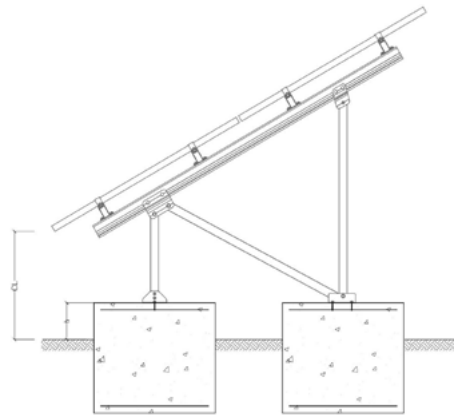
Continuous Strip Footing



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Transverse Strip Footing



Individual Pad footing

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Certification

- STII-A Double Support (with 3200mm girder length) -



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Notes:

1. The footing examples shown, recommended for 'Firm' soils with allowable end bearing capacity of 100 kPa minimum (damp clays, sandy clays, damp sands). Contact Gamcorp for site specific conditions (to find out whether more cost effective solution is possible).
2. Concrete grade: N25 minimum, cover: 50mm (Contact Gamcorp to find out whether more cost effective solution is possible, based on site specific conditions).
3. For the fixing of STIII-A to the concrete footing we recommend using M16 (Grade 5.8 Carbon Steel anchor studs or similar). Adopt minimum anchor embedment depth according the anchors manufacturer's manual. Clenergy STIII-A has 6 anchors per frame, 2 at front and 4 at rear.
4. Other footing options are possible – contact Gamcorp.

Construction is to be carried out strictly on accordance with the instruction manual. This work was designed by **Acha De Alwis** in accordance with the provisions of Australian Building Regulations and in accordance with sound, widely accepted engineering principles. Should you need to clarify anything please contact the designer. This certification is valid till **August 31, 2022**, unless any of the relevant Australian Standards becomes updated before the due date.

Yours faithfully,
 Gamcorp (Melbourne) Pty Ltd



L. van Spaandonk
 Principal Engineer
 FIEAust CPEng NER

Attachments

- Frames pictures by Clenergy
- Footing drawings by Gamcorp (S01-S04)

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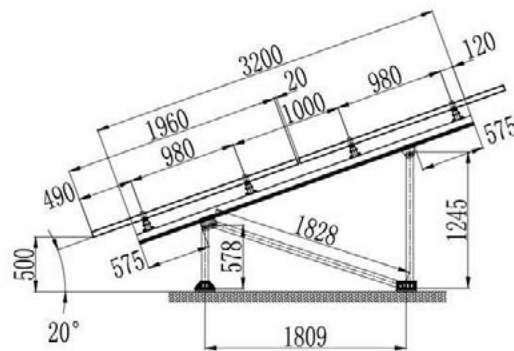
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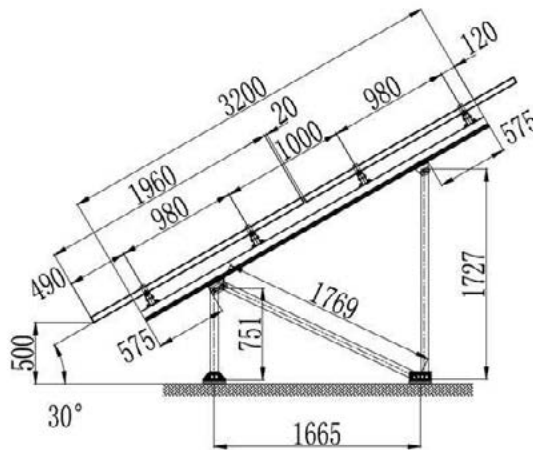


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Part Number: ER-S-STIIIA/D20



Part Number: ER-S-STIIIA/D30



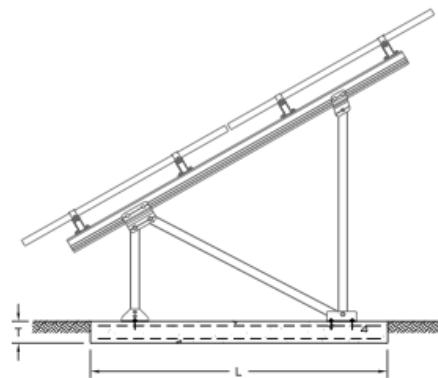
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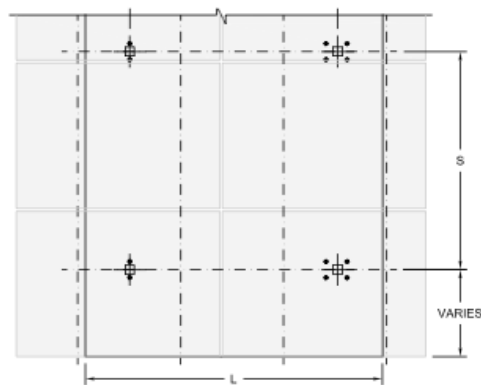
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SECTION



PLAN

S01. Continuous Paving Slab

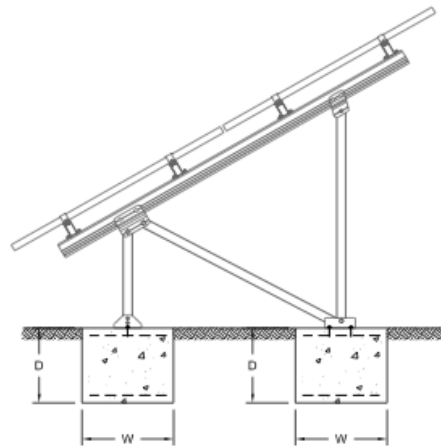
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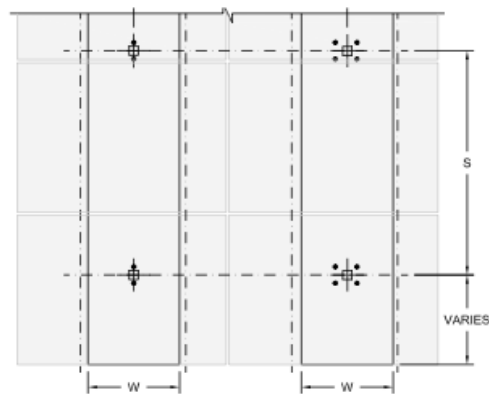
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SECTION



PLAN

S02. Continuous Strip Footing

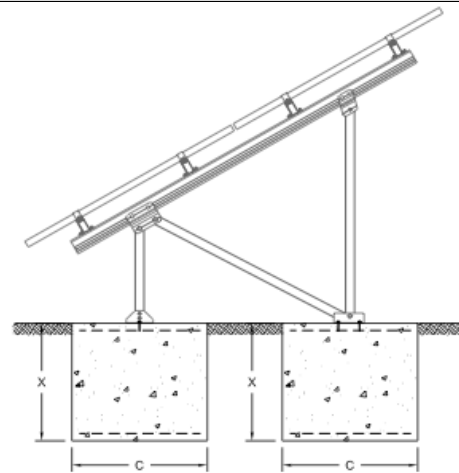
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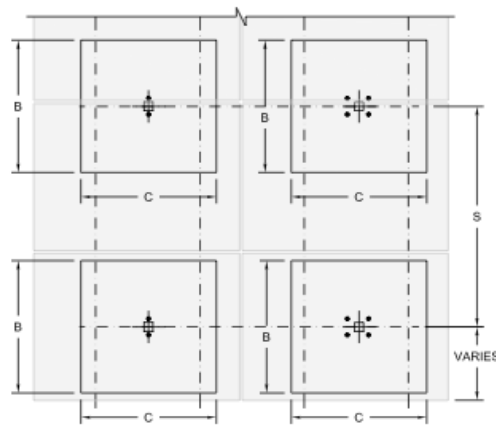
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SECTION



PLAN

S03. Individual Pad footing per leg

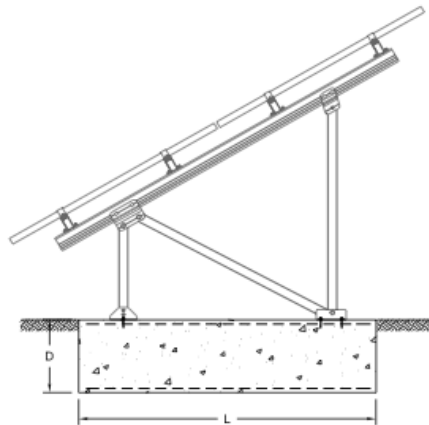
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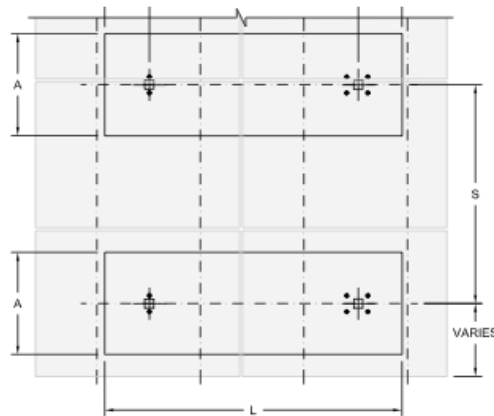
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SECTION



PLAN

S04. Transverse Strip Footing

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