

General Certification for Titanergy Ground Mounted System

For: JIANGYIN TITANERGY CO. LTD
No.11 Wuxiang Road
Yunting Street, Jiangyin
China 214422

Job No.: 11323-GM
Date: 14/07/2022

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Installation Steps

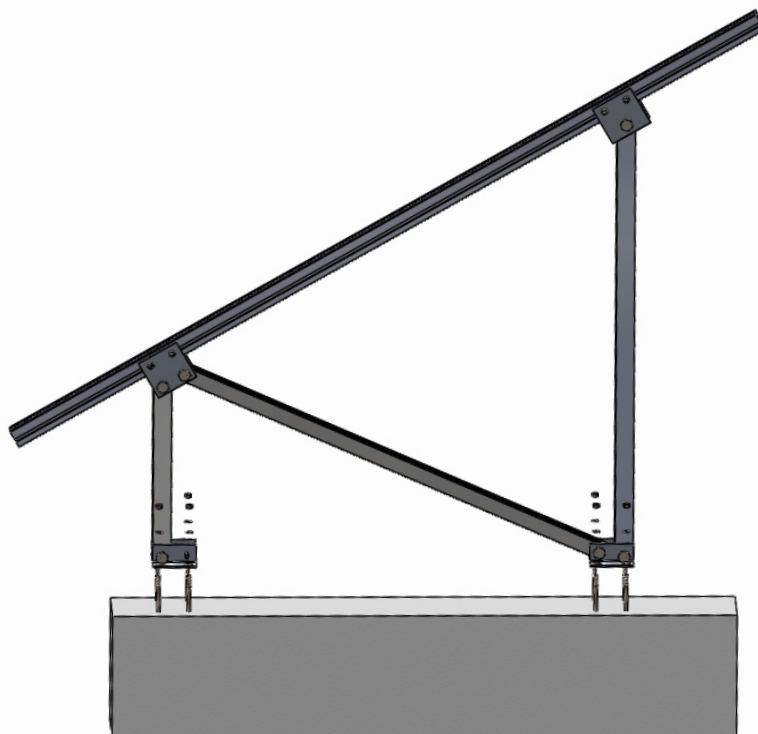
1. Unfasten the pre-assembled front leg, rear leg and connecting tube from the support structure. Fasten the base of the legs to the pre-prepared anchor bolts. Tighten anchor bolts to secure.





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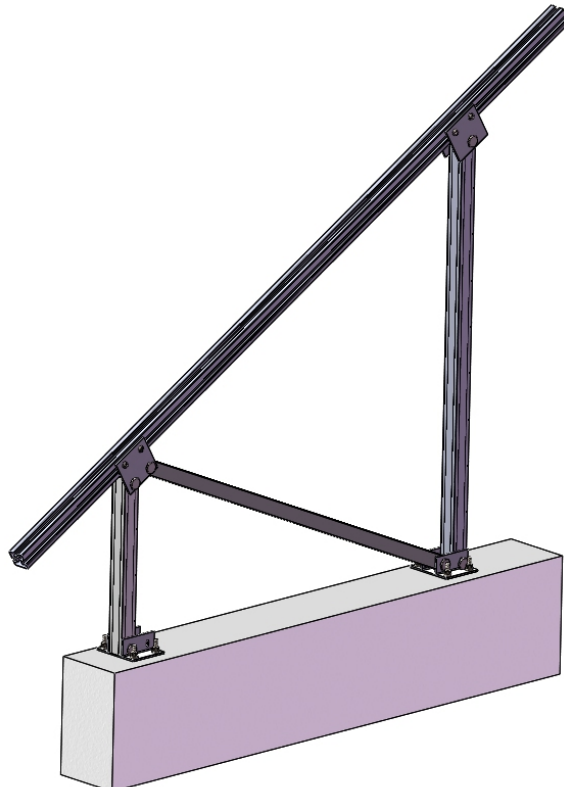
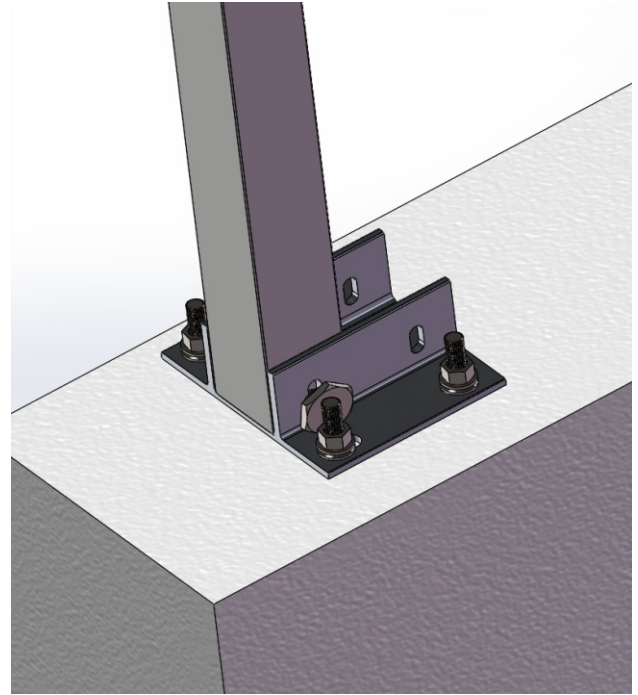
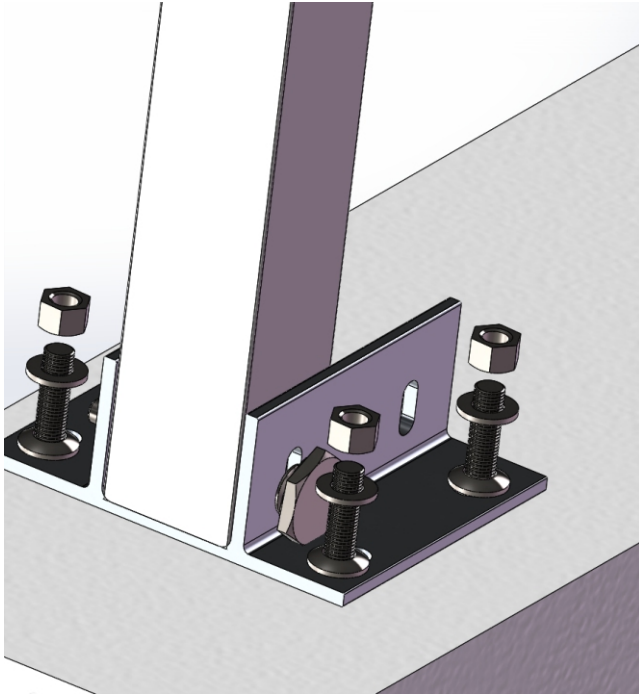
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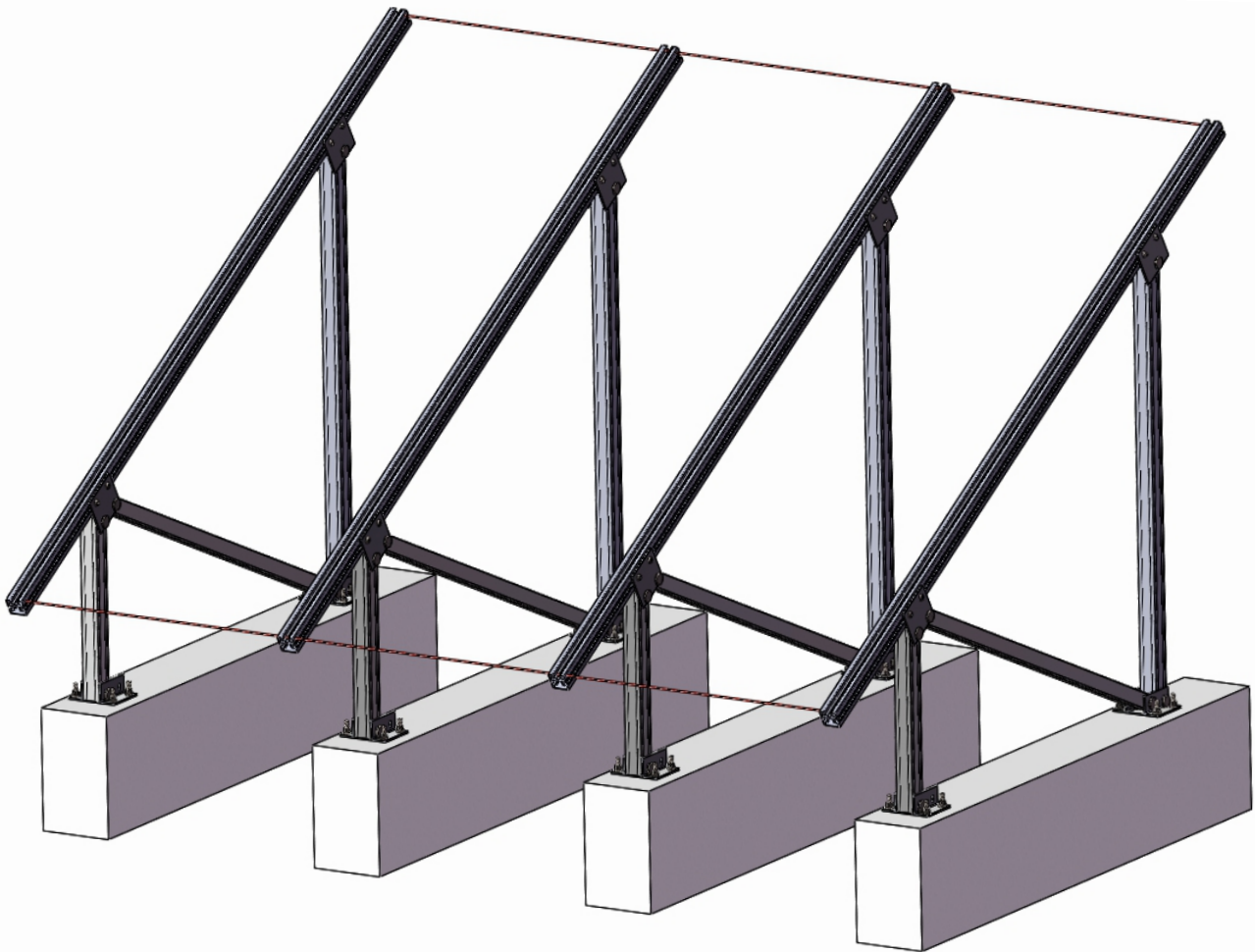


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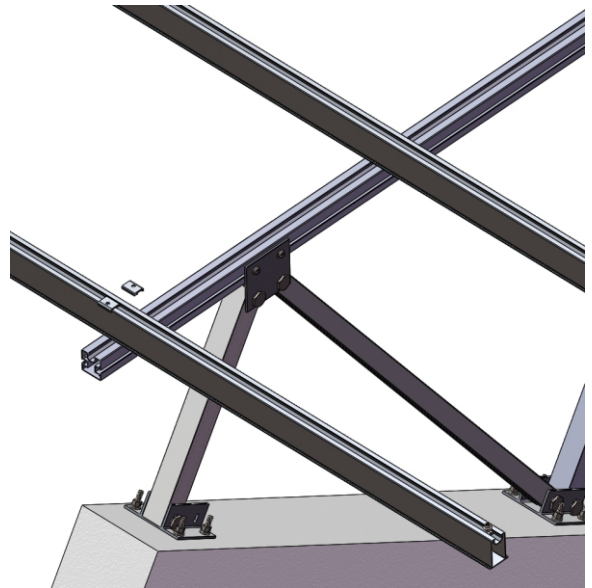
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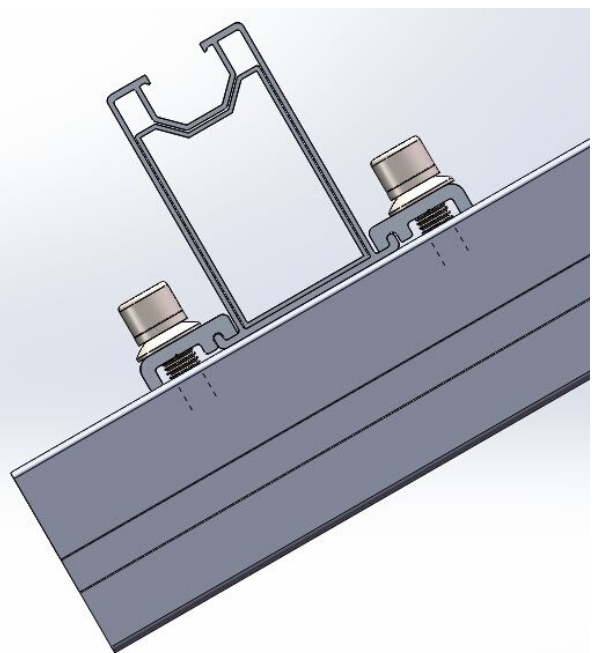
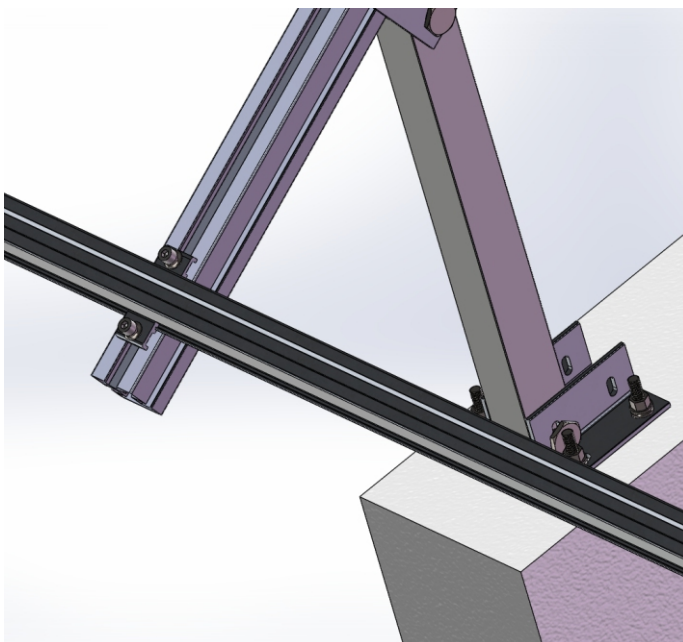
2. Repeat the above operation in accordance with the planned array layout. It is important to ensure that the beams are kept in line with each other.



3. Place the HD Rails on the Pre-assembled Support, adjust the HD Rails to ensure that they are in line. Tighten both HD Rail Clamps to secure.



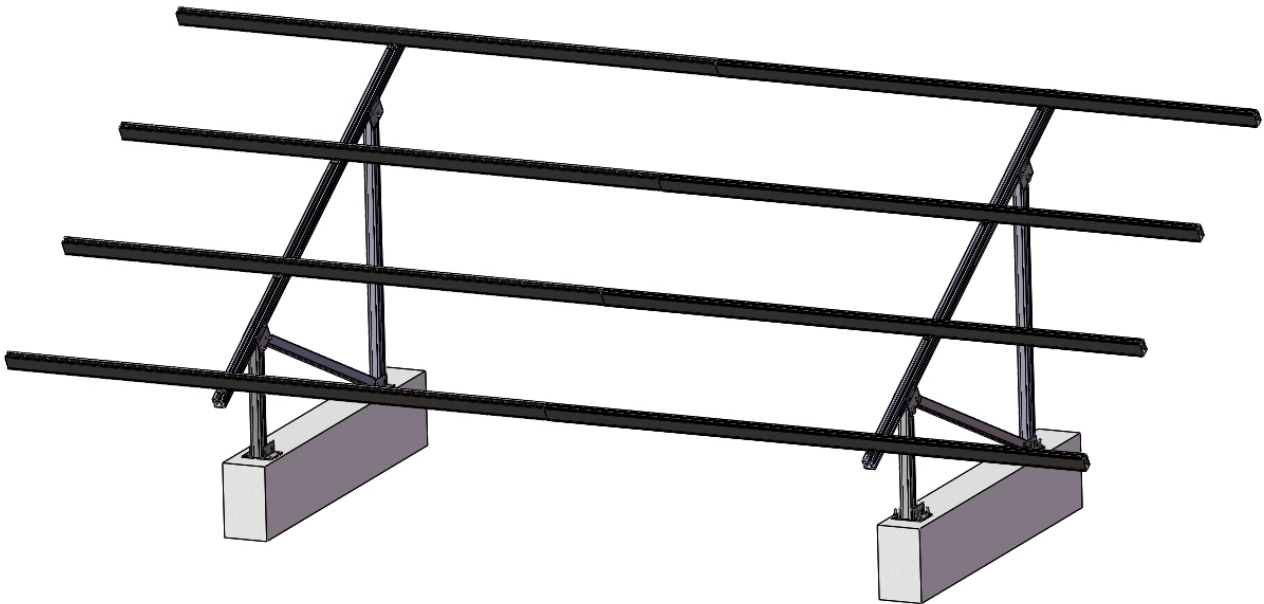
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3	4



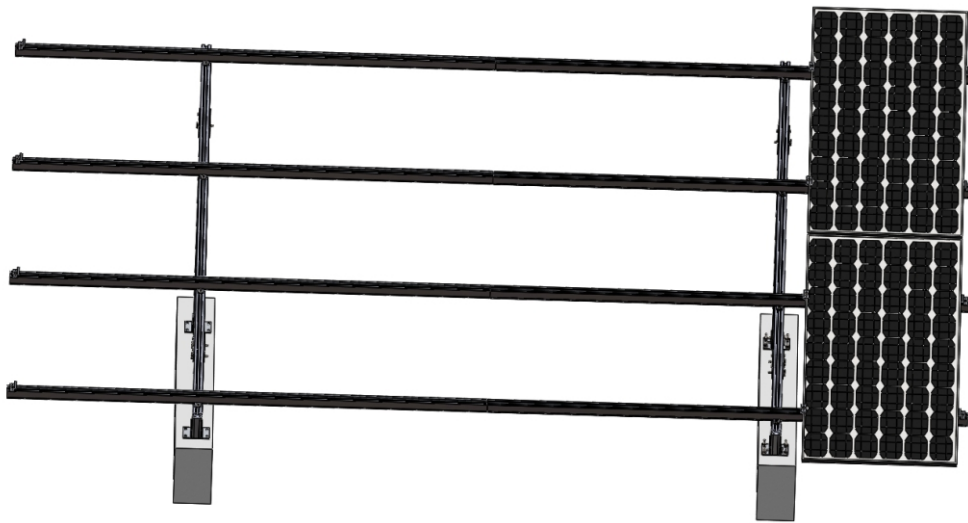


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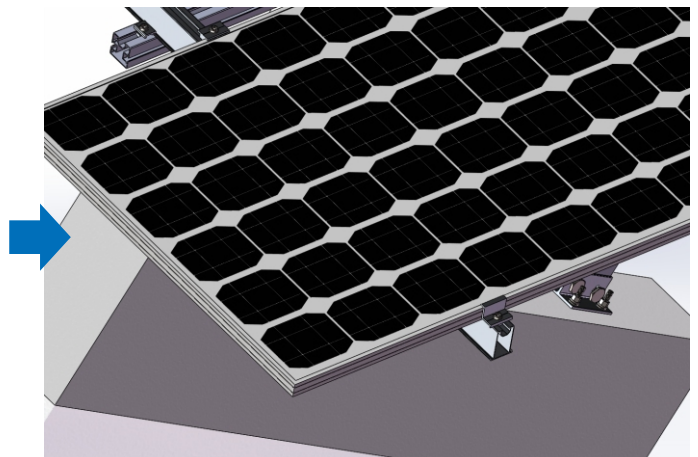
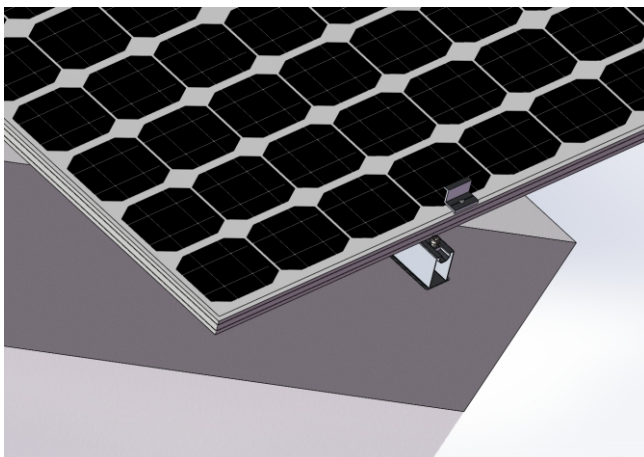
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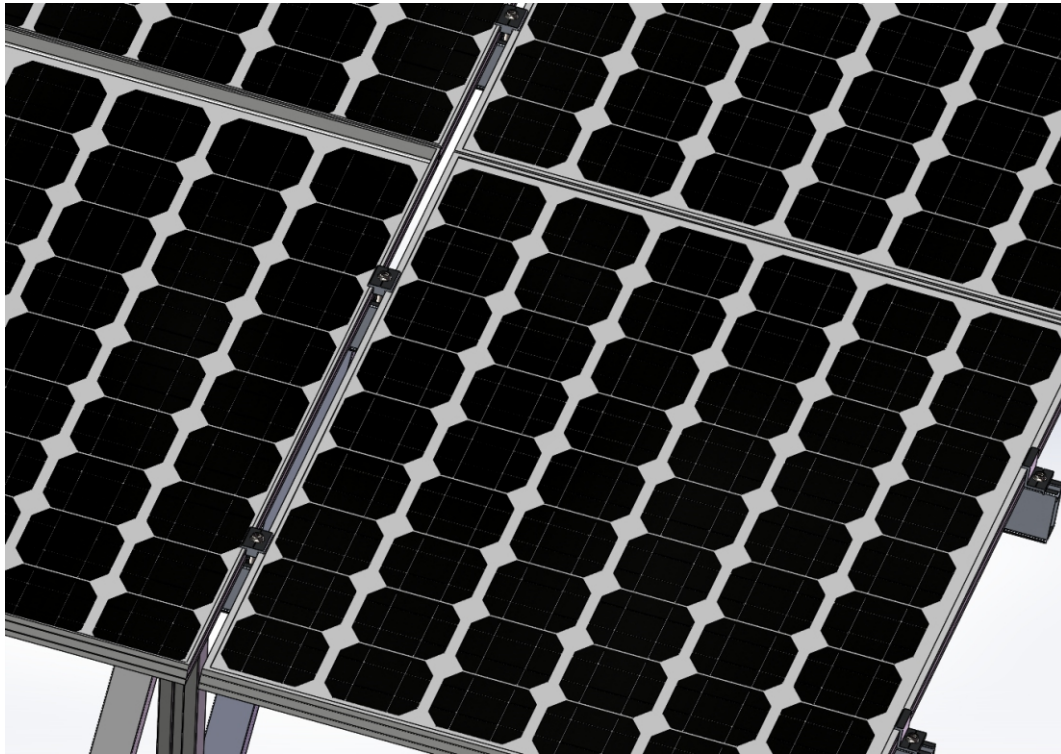
4. Place solar panels on the HD Rails.



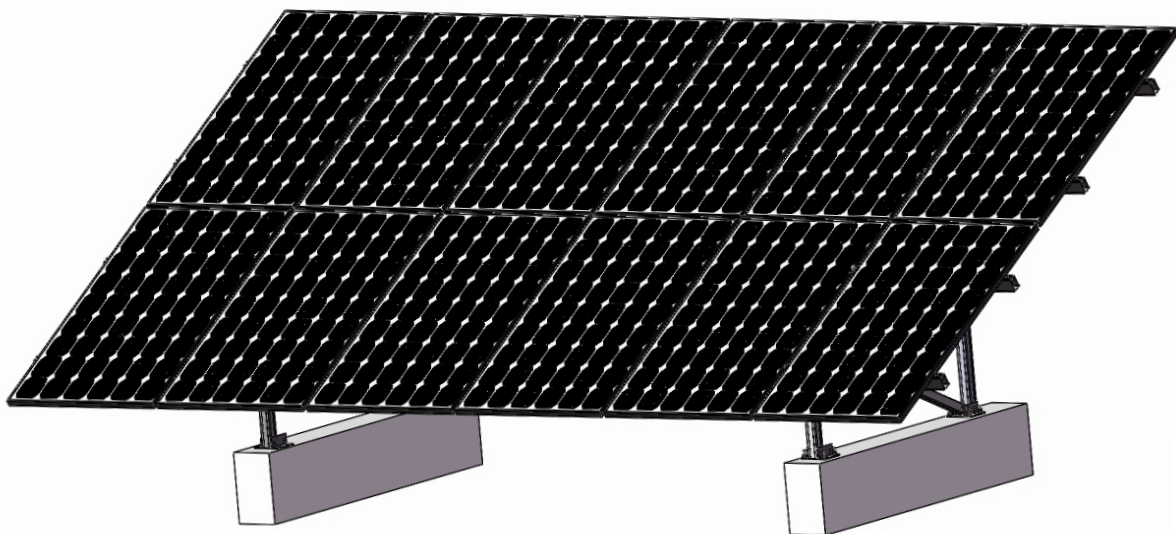
5. Use end clamps with, M8*25 Hexagon screws and fixing nuts to attach solar panels to the rails. Adjacent solar panels are attached by using mid clamps with M8 Hexagon screws. (The hexagon screw length is determined by the solar panel's thickness)



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6. Repeat steps until installation is completed.





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Approval			
Author Signature		Approver Signature	
Name	Ali Askari	Name	L. Van Spaandonk
Title	Structural Engineer	Title	Principal Engineer

Our Ref: 11323-GM/AA
30 June 2022

JIANGYIN TITANERGY CO. LTD

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RE: General Certification for Titanergy Ground Mounted System

Gamcorp (Melbourne) Pty Ltd, being Structural Engineers within the meaning of Australian Building Regulations, have carried out a structural design check of Titanergy Ground Mounted System for installation within Australia. The design check has been based on the drawings and other documents and information provided by JIANGYIN TITANERGY CO. LTD.

We find the Installation of Titanenergy Ground Mounted System for Australian use to be structurally sufficient based on the following conditions:

- Wind loads to **AS/NZS1170.2:2021**;
- Wind region **A, B1, B2, C & D**;
- Wind terrain category **2 & 3**;
- Wind average recurrence interval of **200 years (ultimate)**;
- Regional wind speed WRA **43 m/s**, WRB1/B2 **52 m/s**, WRC **61m/s** & WRD **72 m/s**;
- Ms=1, Mt=1, Md=Var. (0.9 to 1);
- The PV panel dimensions to be **1800mm x 1100mm, 2000mm x 1100mm, 2200mm x 1200mm & 2400mm x 1200mm**;
- Tilt angle **15, 30 & 45** degrees;
- Only **Portrait** installation has been assessed;
- Maximum weight of the PV panel and array frame to be **15 kg/m²**;
- Material of rails and other components to be **AL/6005-T5 UNO**;
- Ground screw material Steel Q235B;
- Maximum base level from the ground **150mm** for ground screw footing;
- Maximum overhang 30% of the frame span;
- Refer to **Tables 1a to 4h** for maximum frame spacing (**S**) according to **1450mm** embedment depth for **1600mm** ground screws;
- Refer to **Tables 5a to 8h** for maximum frame spacing (**S**) and minimum concrete strip footing dimensions;
- Refer to **Figures 1 to 4** for **general arrangement** details;
- Refer to **Figure 5** for **1600mm** ground screw details;
- Min **4 x M12 8.8/TB** bolted to end plate of **1600mm** ground screws at each front / rear leg;
- For concrete footing use **32 MPa** strength concrete minimum with **SL81** top and bottom with **40mm** cover;
- Min **4 x M12** Ramset Chemset Reo 502 plus anchor stud Grade 5.8 (CS12160GH) or equivalent product at each front / rear leg. Minimum embedment 110mm. To be installed according to Ramset technical data sheet;
- Rail splice connection must be placed a quarter length of the spacing of the frames. No Splice should be placed at the centre of span or over the frame;
- For the ground mount system with 2200mmx1200mm & 2400mmx1200mm panel at tilt angle **30 & 45 degree** within **Wind Region D**, the minimum length for **D-Module** must be **30mm**. For all other cases the minimum length for D-Module to be 20mm;
- Installation of PV panels to be done in accordance with the PV panels installation manual;
- The certification **excludes** assessment of the members durability/corrosion and PV panels

Table 1a – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region A, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	3200	2650	1750
30	2150	1350	900
45	1550	950	650

Table 1b – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region B1 & B2, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2600	1950	1300
30	1600	1000	650
45	1150	700	N/A

Table 1c – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region C, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2200	1350	900
30	1150	700	N/A
45	850	N/A	N/A

Table 1d – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region D, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1550	950	650
30	800	N/A	N/A
45	600	N/A	N/A

Table 1e – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region A, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	3400	3300	2200
30	2650	1650	1100
45	1900	1150	750

Table 1f – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region B1 & B2, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2850	2350	1550
30	1950	1200	800
45	1400	850	550

Table 1g – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region C, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2450	1700	1100
30	1400	850	550
45	1000	600	N/A

Table 1h – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region D, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1900	1150	750
30	1000	600	N/A
45	700	N/A	N/A

Table 2a – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region A, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	3050	2350	1550
30	1950	1200	800
45	1400	850	550

Table 2b – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region B1 & B2, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2450	1750	1150
30	1450	900	600
45	1050	650	N/A

Table 2c – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region C, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2000	1250	800
30	1050	650	N/A
45	750	N/A	N/A

Table 2d – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region D, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1400	850	550
30	750	N/A	N/A
45	550	N/A	N/A

Table 2e – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region A, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	3300	2950	1950
30	2400	1500	1000
45	1700	1050	700

Table 2f – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region B1 & B2, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2700	2150	1400
30	1750	1100	700
45	1250	800	N/A

Table 2g – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region C, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2350	1500	1000
30	1250	800	N/A
45	900	550	N/A

Table 2h – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region D, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1700	1050	700
30	900	550	N/A
45	650	N/A	N/A

Table 3a – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region A, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2900	2200	1450
30	1800	1100	750
45	1300	800	N/A

Table 3b – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region B1 & B2, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2350	1600	1050
30	1350	850	N/A
45	950	600	N/A

Table 3c – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region C, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1800	1100	750
30	950	600	N/A
45	700	N/A	N/A

Table 3d – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region D, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1250	800	N/A
30	650	N/A	N/A
45	N/A	N/A	N/A

Table 3e – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region A, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	3200	2650	1750
30	2200	1350	900
45	1550	950	650

Table 3f – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region B1 & B2, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2550	1950	1300
30	1650	1000	650
45	1150	700	N/A

Table 3g – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region C, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2200	1350	900
30	1150	700	N/A
45	850	N/A	N/A

Table 3h – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region D, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1550	950	650
30	800	N/A	N/A
45	600	N/A	N/A

Table 4a – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region A, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2600	1950	1300
30	1650	1050	700
45	1200	750	N/A

Table 4b – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region B1 & B2, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2250	1450	950
30	1250	750	N/A
45	900	N/A	N/A

Table 4c – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region C, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1650	1050	700
30	900	N/A	N/A
45	650	N/A	N/A

Table 4d – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region D, TC 2 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1150	700	N/A
30	600	N/A	N/A
45	N/A	N/A	N/A

Table 4e – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region A, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	3050	2250	1500
30	2050	1250	850
45	1450	900	600

Table 4f – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region B1 & B2, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2450	1800	1200
30	1500	950	600
45	1100	650	N/A

Table 4g – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region C, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	2050	1250	850
30	1100	650	N/A
45	800	N/A	N/A

Table 4h – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region D, TC 3 with 1600mm Ground Screws According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)		
	Hard	Very Firm	Firm
15	1400	900	600
30	750	N/A	N/A
45	N/A	N/A	N/A

Table 5a – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region A, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	3200	3000 x 550 x 550
30	2750	3200 x 700 x 700
45	2150	2900 x 750 x 750

Table 5b – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region B1 & B2, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2600	2900 x 600 x 600
30	2200	3000 x 750 x 750
45	2050	3200 x 800 x 800

Table 5c – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region C, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2250	3400 x 600 x 600
30	1850	3100 x 800 x 800
45	1500	3200 x 800 x 800

Table 5d – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region D, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	1900	3400 x 650 x 650
30	1400	3300 x 800 x 800
45	1100	3000 x 850 x 850

Table 5e – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region A, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	3400	3200 x 500 x 500
30	3150	3000 x 700 x 700
45	2550	2800 x 750 x 750

Table 5f – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region B1 & B2, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2850	3000 x 550 x 550
30	2450	2800 x 750 x 750
45	2400	3100 x 800 x 800

Table 5g – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region C, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2450	3000 x 600 x 600
30	2050	2800 x 800 x 800
45	1800	3200 x 800 x 800

Table 5h – Maximum Frame Spacing for Pv Panel 1800x1100mm, Wind Region D, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2100	3200 x 650 x 650
30	1700	3300 x 800 x 800
45	1350	3000 x 850 x 850

Table 6a – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region A, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	3050	3200 x 550 x 550
30	2400	3100 x 700 x 700
45	1800	2700 x 750 x 750

Table 6b – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region B1 & B2, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2450	3200 x 600 x 600
30	2050	3100 x 750 x 750
45	1800	3100 x 800 x 800

Table 6c – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region C, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2100	3500 x 600 x 600
30	1750	3200 x 800 x 800
45	1300	3100 x 800 x 800

Table 6d – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region D, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	1700	3400 x 650 x 650
30	1250	3200 x 800 x 800
45	1000	3000 x 850 x 850

Table 6e – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region A, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	3300	3400 x 500 x 500
30	2900	3100 x 700 x 700
45	2150	2700 x 750 x 750

Table 6f – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region B1 & B2, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2700	3200 x 550 x 550
30	2300	2900 x 750 x 750
45	2150	3100 x 800 x 800

Table 6g – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region C, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2350	3200 x 600 x 600
30	1950	3000 x 800 x 800
45	1550	3100 x 800 x 800

Table 6h – Maximum Frame Spacing for Pv Panel 2000x1100mm, Wind Region D, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2000	3300 x 650 x 650
30	1500	3200 x 800 x 800
45	1200	3000 x 850 x 850

Table 7a – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region A, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2900	3500 x 550 x 550
30	2150	3200 x 700 x 700
45	1600	2700 x 750 x 750

Table 7b – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region B1 & B2, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2350	3500 x 600 x 600
30	2000	3300 x 750 x 750
45	1600	3100 x 800 x 800

Table 7c – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region C, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2000	3700 x 600 x 600
30	1550	3200 x 800 x 800
45	1150	3100 x 800 x 800

Table 7d – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region D, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	1500	3500 x 650 x 650
30	1150	3300 x 800 x 800
45	900	3000 x 850 x 850

Table 7e – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region A, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	3200	3600 x 500 x 500
30	2500	3200 x 700 x 700
45	1850	2700 x 750 x 750

Table 7f – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region B1 & B2, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2550	3500 x 550 x 550
30	2200	3200 x 750 x 750
45	1850	3000 x 800 x 800

Table 7g – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region C, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2200	3500 x 600 x 600
30	1850	3200 x 800 x 800
45	1350	3000 x 800 x 800

Table 7h – Maximum Frame Spacing for Pv Panel 2200x1200mm, Wind Region D, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	1800	3500 x 650 x 650
30	1350	3200 x 800 x 800
45	1050	2900 x 850 x 850

Table 8a – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region A, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2600	3800 x 550 x 550
30	1850	3500 x 700 x 700
45	1350	2900 x 750 x 750

Table 8b – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region B1 & B2, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2250	3800 x 600 x 600
30	1850	3500 x 750 x 750
45	1350	2900 x 800 x 800

Table 8c – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region C, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	1900	3800 x 600 x 600
30	1350	3500 x 800 x 800
45	950	2900 x 800 x 800

Table 8d – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region D, TC 2 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	1400	3800 x 650 x 650
30	1000	3500 x 800 x 800
45	N/A	N/A

Table 8e – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region A, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	3050	3800 x 500 x 500
30	2150	3500 x 700 x 700
45	1600	2900 x 750 x 750

Table 8f – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region B1 & B2, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2450	3800 x 550 x 550
30	2100	3500 x 750 x 750
45	1600	2900 x 800 x 800

Table 8g – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region C, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	2150	3800 x 600 x 600
30	1550	3500 x 800 x 800
45	1150	2900 x 800 x 800

Table 8h – Maximum Frame Spacing for Pv Panel 2400x1200mm, Wind Region D, TC 3 with Concrete Strip Footing According to Soil Conditions

Tilt Angle (°)	Maximum Frame Spacing, S (mm)	Length x Width x Height, L x W x H (mm)
		Hard, Very Firm, Firm
15	1650	3800 x 650 x 650
30	1200	3500 x 800 x 800
45	900	2900 x 850 x 850

NOTES:

- **The footing recommendations have been calculated for the following soil conditions (ABC indicates the soil allowable bearing capacity):**
 - **Hard:** Gravels; dry (hard) clays, ABC = 240 kPa
 - **Very Firm:** Dry (stiff) clays; clayey sands; coarse sands; compact sands, ABC = 150 kPa
 - **Firm:** Damp clays; sandy clays; damp sands, ABC = 100 kPa
- **Site-specific soil report shall be made available to justify the soil conditions.**
- **This certificate is only valid as a whole. Any information extracted from this certificate is not valid if standing alone.**
- **If any of the above conditions cannot be met, the structural engineer must be notified immediately.**

Construction is to be carried out strictly in accordance with the manufacturer's instructions. This work was designed by **Ali Askari** in accordance with the provisions of Australian Building Regulations and in accordance with sound, widely accepted engineering principles.

This certification is only valid till **15/07/2024**. Gamcorp should be contacted for future validation. Contact Gamcorp for a customised system or if the site conditions are not covered by this assessment.

Yours faithfully,
Gamcorp (Melbourne) Pty Ltd



L. Van Spaandonk

Principal Engineer
FIEAust CPEng NER 5038980
NT Registration: 244137ES
QLD Registration: 18703
VIC Registration: PE0001956
TAS Registration: CC7366

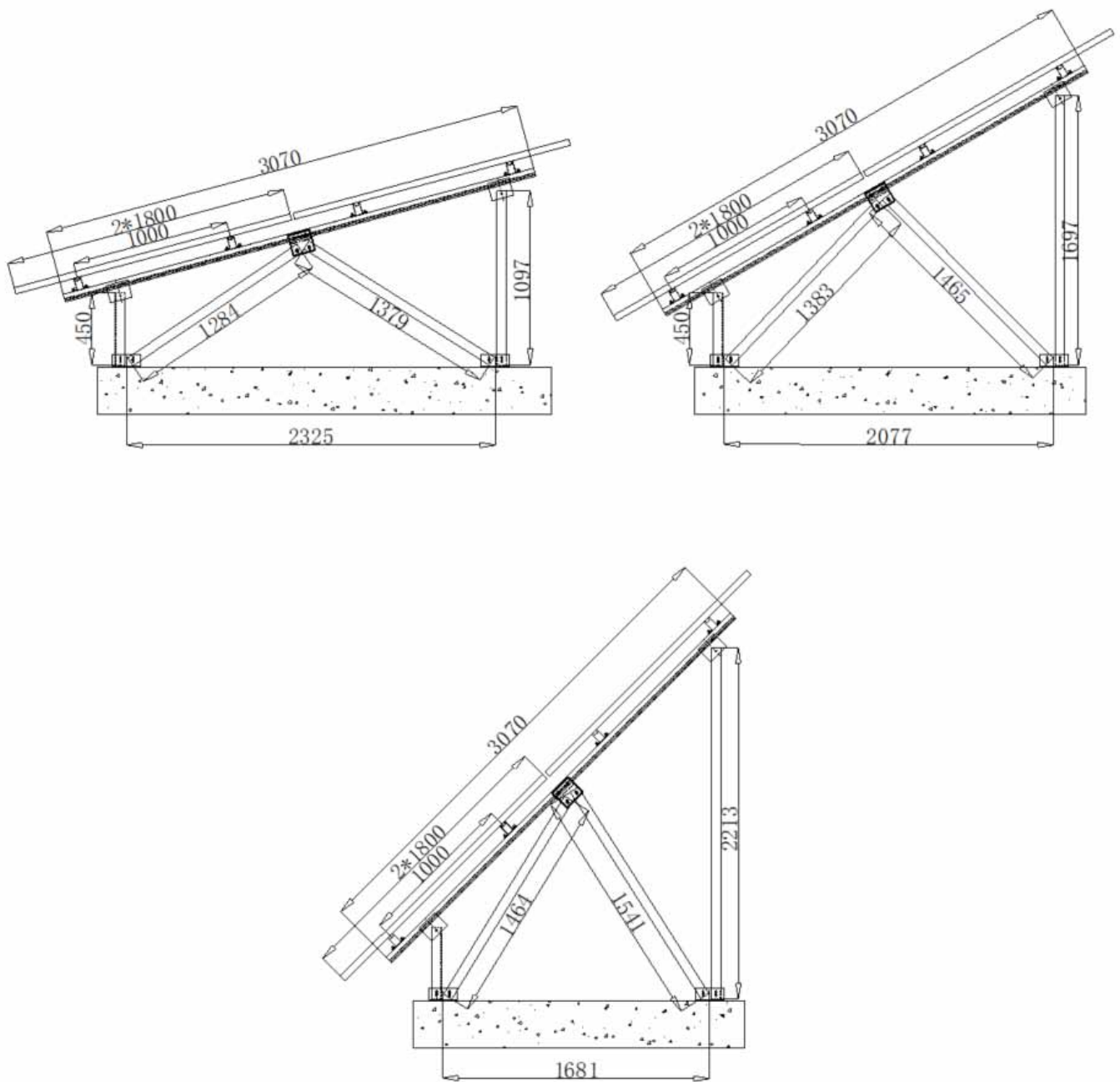


Figure 1 – PV Panel 1800x1100mm with Concrete Footing Details

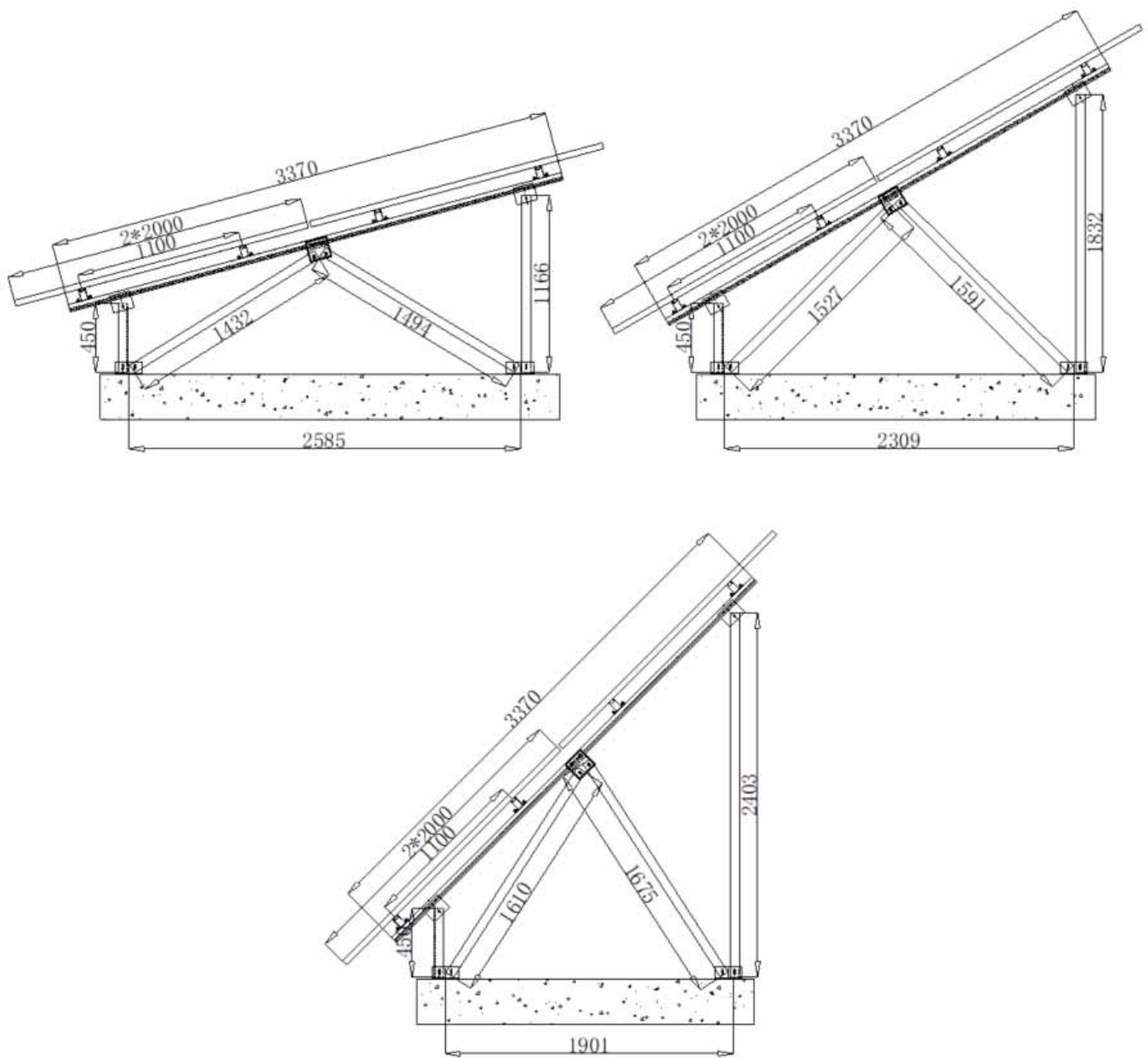


Figure 2 – PV Panel 2000x1100mm with Concrete Footing Details

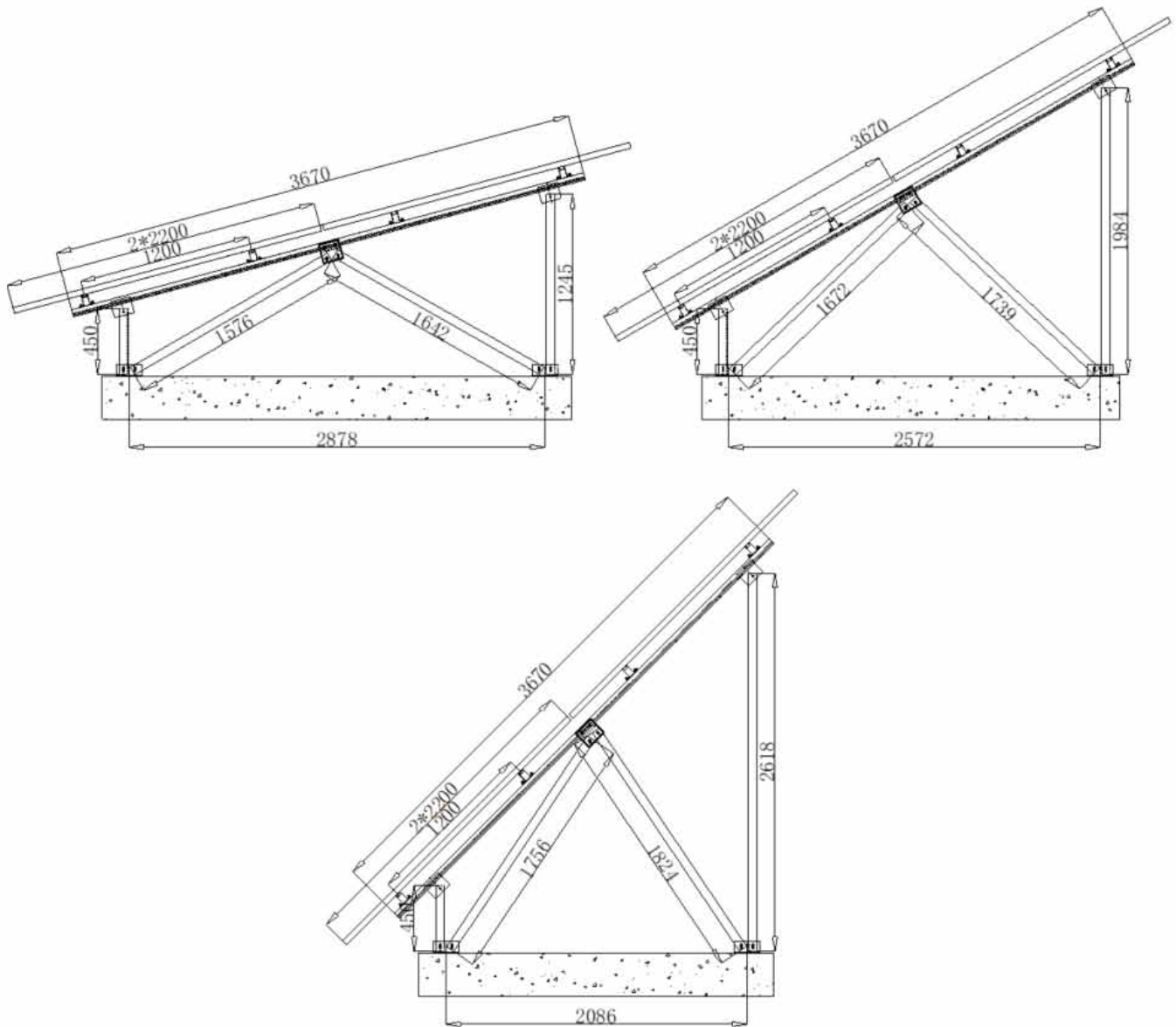


Figure 3 – PV Panel 2200x1200mm with Concrete Footing Details

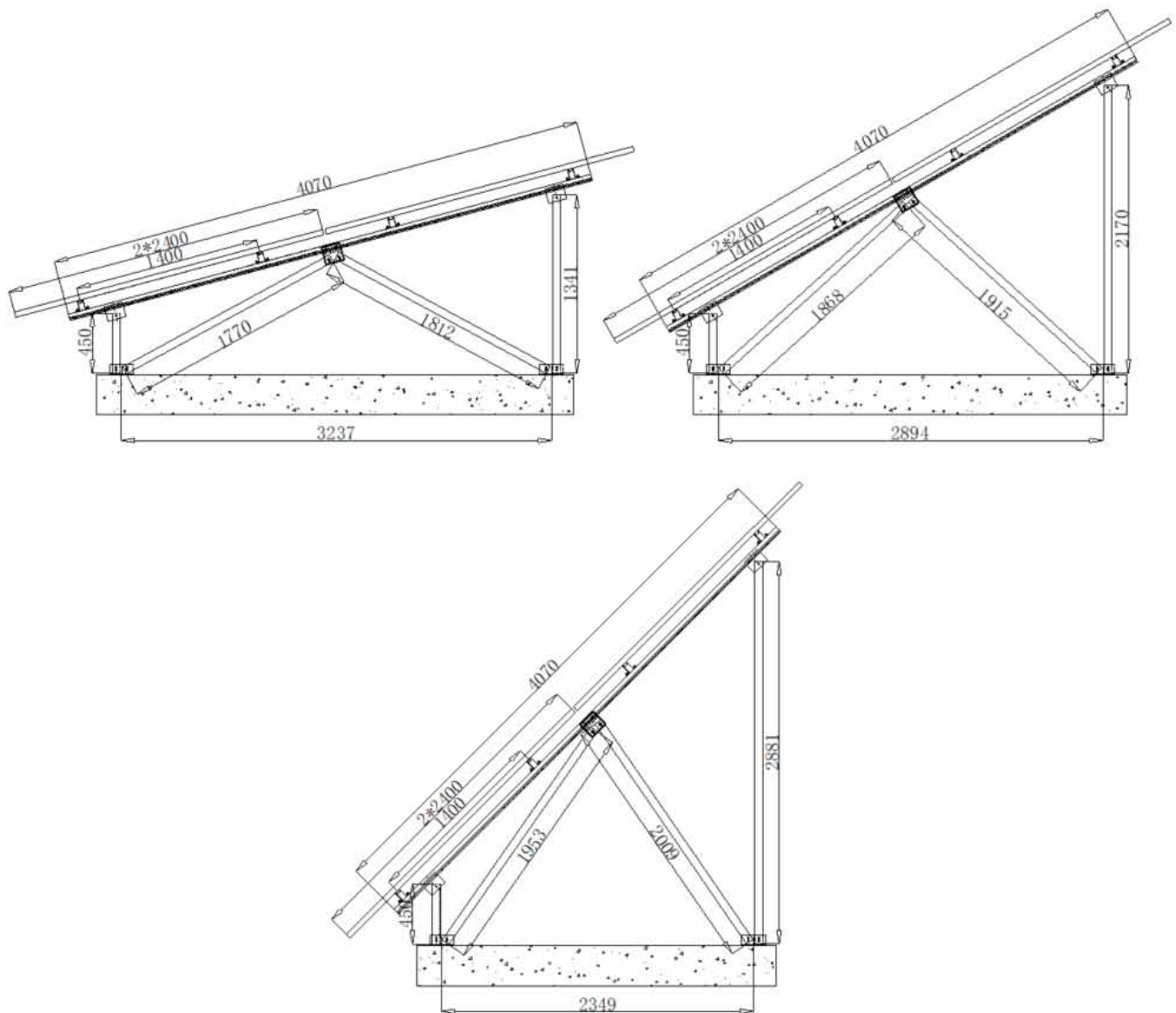


Figure 4 – PV Panel 2400x1200mm with Concrete Footing Details

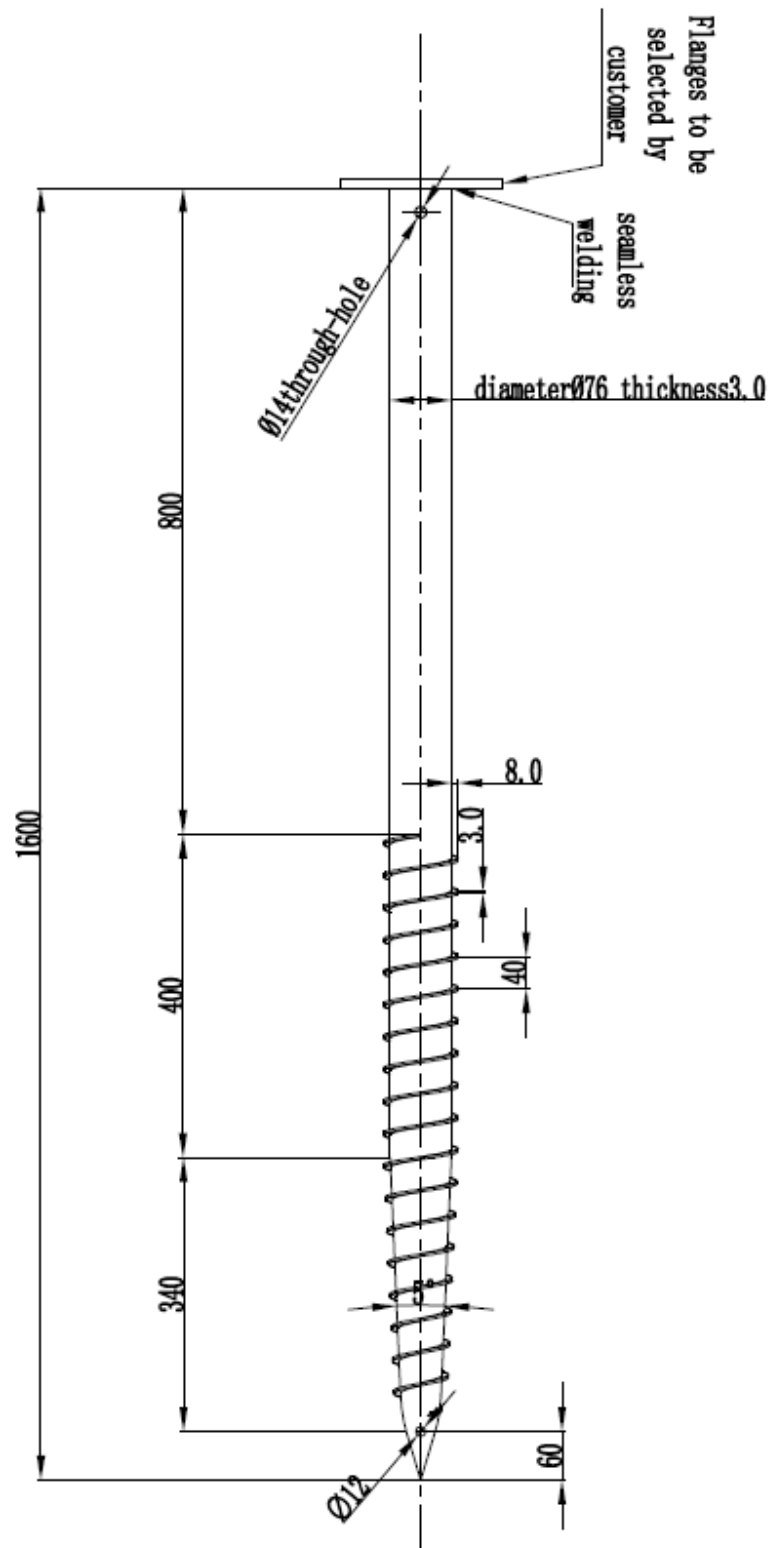


Figure 5 – 1600mm Ground Screw Details