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General Certification

Tilt Mounted System on Tin (Penetrative) Roof
with Titan Solar TTV2 Rail

For: JIANGYIN TITANERGY CO. LTD

No.11 Wuxiang Road
Yunting Street, Jiangyin
China 214422

Job No.: 14690-RM10

Date: 30/05/2024

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Report Title		General Certification for Titanergy Tilt Mounted System on Tin (Penetrative) Roof with Titan Solar TTV2 Rail				
Document ID		14690-RM10/BL		**Job No.**	14690	
File Path		G:\Shared drives\14000\14600 - 14699\14690\03 CERTIFICATION				
Client		JIANGYIN TITANERGY CO. LTD		**Client Contact**	Tina Nie	
Rev	**Date**	**Revision Details**	**Prepared By**	**Author**	**Verifier**	**Approver**
0	30/05/2024	Certificate date updated of 11323 - RM10	BL	BL	LvS	LvS
Current Revision		0				

Approval			
Author Signature	biancaliu	Approver Signature	
Name	Bianca Liu	Name	L. Van Spaandonk
Title	Structural Engineer	Title	Principal Engineer

Our Ref: 14690-RM10/BL
30 May 2024

JIANGYIN TITANERGY CO. LTD

No.11 Wuxiang Road
Yunting Street, Jiangyin
China 214422

RE: General Certification for Titanergy Tilt Mounted System on Tin (Penetrative) Roof with Titan Solar TTV2 Rail

Gamcorp Pty Ltd, being Structural Engineers within the meaning of Australian Building Regulations, have carried out a structural design check of Titanergy Tilt Mounted System on Tin (Penetrative) Roof with Titan Solar TTV2 rail within Australia. The design check has been based on the information and test reports provided by JIANGYIN TITANERGY CO. LTD.

Components of the system covered in this certificate shown in the table below:

Component	**Part No.**
Rail	Titan Solar TTV2 Rail
L-Feet	Titan Solar L-Feet set
Mid Clamp	Titan Solar Mid Clamp Kit 40mm
End Clamp	Titan Solar End Clamp Kit 40mm
Tilt Roof System	Titan Solar Tilt Roof System

This certificate is **only valid** for Titanergy Tilt Mounted System on the Tin (Penetrative) Roof with Titan Solar TTV2 rail. The roof structure or the building structure shall be assessed separately and accordingly.

This certificate is **only valid** when fixing into minimum 1.9mm thick steel purlin or JD4 seasoned timber. If the fixing condition is different from this conditions, interface spacing shall be reviewed and validated.

This certificate is **only valid** as a whole. Any information extracted from this certificate is not valid if standing alone.

We find the Installation of Tilt Mounted System on Tin (Penetrative) Roof 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**
- Maximum building height **20m**
- The PV panel dimensions to be **1800mm x 1100mm**, **2000mm x 1100mm, 2200mm x 1200mm**, **2400mm x 1200mm**
- Maximum weight of the PV panel and array frame to be **15 kg/m^2**
- Rails to be **Titan Solar TTV2** rails
- Material of rails and other components to be **AL/6005-T5** UNO

- The spacings are determined based on fixings into minimum JD4 seasoned timber and 1.9mm thick steel purlins
- Each PV panel to be installed using **2 rails** minimum in all circumstances
- No PV panel to be installed within 2xs from edges and ridge. "s" is the maximum gap between the underside of the panel and the roof surface when installed on the roof (50mm≤s≤300mm)
- Installation of PV panels to be done in accordance with the PV panels installation manual
- The certification **excludes** assessment of roof structure and PV panels

Refer to attached summary table for interface spacing (unit: mm)

NOTES:

- **The recommended spacing nominated in this certification is based on the capacity of the array frame and the fixing of array frames to the roof, not the roof structure and PV panels. It is the responsibility of the installer to adopt the most critical spacing.**

- **If any of the above conditions cannot be met, the structural engineer must be notified immediately.**

- **The spacing shown in the interface tables shall be adjusted based on the assessment and requirement of the roof structures.**

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

This certification is only valid till **30/06/2026**. 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 Pty Ltd

L. Van Spaandonk

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

Attachments:

- Summary table for interface spacing - tilt mount installation on tin (penetrative) roof with Titan Solar TTV2 rail

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Structural Design Documentation

Tilt Array Frame System Spacing Table

According to AS/NZS 1170.2-2021
with Titan Solar TTV2 Rail – Tin (Penetrative) Roof
within Australia
Terrain Category 2 & 3

For: Jiangyin Titanergy Co. Ltd
No.11 Wuxiang Road
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Job Number: 14690 - RM10
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Job No: **14690 - RM10**
Client: **Jiangyin Titanergy Co. Ltd**
Project: **Tilt Array Frame System Spacing Table with Titan Solar TTV2 Rail – Tin (Penetrative) Roof**
Address: **within Australia**
Wind Terrain Category: **Terrain Category 2 & 3**

Australian/New Zealand Standards

AS/NZS 1170.0:2002	Structural design actions Part 0: General principles
AS/NZS 1170.1:2002 (R2016)	Structural design actions Part 1: Permanent, imposed and other actions
AS/NZS 1170.2:2021	Structural design actions Part 2: Wind actions
AS/NZS 1664.1:1997 (R2020)	Aluminium structures Part 1: Limit state design
AS/NZS 4600:2018	Cold-formed steel structures
AS 4100:2020	Steel structures

Designed: **BL**
Checked: **LvS**
Date: **May-24**

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Project: **Tilt Array Frame System Spacing Table with Titan Solar TTV2 Rail – Tin (Penetrative) Roof**
Address: **within Australia**

Job: **14690 - RM10**
Date: **May-24**
Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	1.8mx1.1m
Terrain category	**3**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	675	1035	1325	1555	675	1035	1325	1555	580	890	1215	1470	520	795	1080	1405
B1	505	770	1050	1550	505	770	1050	1550	435	665	900	1395	--	595	805	1240
B2	--	625	845	1310	--	625	845	1310	--	540	730	1125	--	485	650	1000
C	--	405	545	835	--	405	545	835	--	--	470	720	--	--	420	645
D	--	--	390	590	--	--	390	590	--	--	--	510	--	--	--	455

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	540	735	1135	--	540	735	1135	--	470	635	975	--	420	565	870
B1	--	405	550	840	--	405	550	840	--	--	475	725	--	--	425	645
B2	--	--	445	680	--	--	445	680	--	--	385	585	--	--	--	525
C	--	--	--	485	--	--	--	485	--	--	--	420	--	--	--	375
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	415	560	865	--	415	560	865	--	335	485	740	--	--	435	665
B1	--	--	420	640	--	--	420	640	--	--	360	555	--	--	--	495
B2	--	--	--	520	--	--	--	520	--	--	--	450	--	--	--	400
C	--	--	--	370	--	--	--	370	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Address: **within Australia**

Job: **14690 - RM10**
Date: **May-24**
Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	1.8mx1.1m
Terrain category	**2**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	560	855	1160	1445	460	700	945	1340	--	630	850	1290	--	595	805	1240
B1	--	635	860	1330	--	525	705	1085	--	470	635	975	--	445	600	920
B2	--	515	695	1070	--	425	575	875	--	--	520	790	--	--	490	745
C	--	--	450	690	--	--	--	565	--	--	--	510	--	--	--	480
D	--	--	--	485	--	--	--	400	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	450	605	930	--	370	495	760	--	--	450	685	--	--	425	645
B1	--	--	450	690	--	--	370	570	--	--	--	510	--	--	--	480
B2	--	--	370	560	--	--	--	460	--	--	--	415	--	--	--	390
C	--	--	--	400	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	465	710	--	--	380	580	--	--	--	525	--	--	--	495
B1	--	--	--	530	--	--	--	435	--	--	--	390	--	--	--	370
B2	--	--	--	430	--	--	--	--	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Address: **within Australia**

Job: **14690 - RM10**
Date: **May-24**
Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	2mx1.1m
Terrain category	**3**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	605	930	1270	1505	605	930	1270	1505	525	800	1090	1420	470	715	975	1360
B1	455	695	945	1465	455	695	945	1465	395	600	810	1255	--	535	725	1120
B2	--	565	760	1180	--	565	760	1180	--	485	655	1010	--	435	585	900
C	--	360	490	750	--	360	490	750	--	--	425	650	--	--	380	580
D	--	--	--	530	--	--	--	530	--	--	--	460	--	--	--	410

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	490	660	1020	--	490	660	1020	--	420	570	875	--	375	510	780
B1	--	360	495	755	--	360	495	755	--	--	425	650	--	--	380	580
B2	--	--	400	615	--	--	400	615	--	--	--	530	--	--	--	470
C	--	--	--	435	--	--	--	435	--	--	--	380	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	375	505	775	--	375	505	775	--	--	435	670	--	--	390	595
B1	--	--	380	580	--	--	380	580	--	--	--	500	--	--	--	445
B2	--	--	--	470	--	--	--	470	--	--	--	405	--	--	--	360
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Address: **within Australia**

Job: **14690 - RM10**
Date: **May-24**
Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	2mx1.1m
Terrain category	**2**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	500	770	1045	1395	410	630	850	1295	--	565	765	1185	--	535	725	1120
B1	--	570	775	1195	--	470	635	975	--	425	575	880	--	400	540	825
B2	--	465	625	965	--	380	515	790	--	--	465	710	--	--	440	670
C	--	--	405	620	--	--	--	510	--	--	--	460	--	--	--	435
D	--	--	--	440	--	--	--	355	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	405	545	840	--	--	445	685	--	--	405	615	--	--	380	580
B1	--	--	405	620	--	--	--	510	--	--	--	460	--	--	--	435
B2	--	--	--	505	--	--	--	415	--	--	--	375	--	--	--	--
C	--	--	--	360	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	415	640	--	--	--	525	--	--	--	470	--	--	--	445
B1	--	--	--	475	--	--	--	390	--	--	--	--	--	--	--	--
B2	--	--	--	385	--	--	--	--	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Address: **within Australia**

Job: **14690 - RM10**
Date: **May-24**
Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	2.2mx1.2m
Terrain category	**3**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	550	845	1155	1455	550	845	1155	1455	475	730	990	1375	425	650	885	1315
B1	415	630	855	1330	415	630	855	1330	--	545	735	1140	--	485	660	1015
B2	--	510	695	1070	--	510	695	1070	--	440	595	920	--	390	535	820
C	--	--	445	685	--	--	445	685	--	--	--	590	--	--	--	525
D	--	--	--	485	--	--	--	485	--	--	--	415	--	--	--	--

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	445	600	925	--	445	600	925	--	--	515	795	--	--	460	710
B1	--	--	450	690	--	--	450	690	--	--	--	590	--	--	--	530
B2	--	--	--	555	--	--	--	555	--	--	--	480	--	--	--	430
C	--	--	--	395	--	--	--	395	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	460	705	--	--	460	705	--	--	390	605	--	--	--	540
B1	--	--	--	525	--	--	--	525	--	--	--	450	--	--	--	405
B2	--	--	--	425	--	--	--	425	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Date: **May-24**
Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	2.2mx1.2m
Terrain category	**2**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	455	700	950	1350	--	570	775	1200	--	515	695	1075	--	485	660	1015
B1	--	520	705	1085	--	425	575	885	--	--	520	800	--	--	490	750
B2	--	420	570	875	--	--	470	715	--	--	425	645	--	--	395	610
C	--	--	--	565	--	--	--	460	--	--	--	415	--	--	--	390
D	--	--	--	395	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	495	760	--	--	405	620	--	--	--	560	--	--	--	530
B1	--	--	--	565	--	--	--	465	--	--	--	420	--	--	--	390
B2	--	--	--	460	--	--	--	--	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	--	580	--	--	--	475	--	--	--	430	--	--	--	405
B1	--	--	--	430	--	--	--	--	--	--	--	--	--	--	--	--
B2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Client: **Jiangyin Titanergy Co. Ltd**
Project: **Tilt Array Frame System Spacing Table with Titan Solar TTV2 Rail – Tin (Penetrative) Roof**
Address: **within Australia**

Job: **14690 - RM10**
Date: **May-24**
Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	2.4mx1.2m
Terrain category	**3**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	505	775	1060	1415	505	775	1060	1415	435	670	910	1335	365	595	810	1265
B1	--	580	785	1220	--	580	785	1220	--	500	675	1045	--	445	605	930
B2	--	470	635	980	--	470	635	980	--	405	545	845	--	--	490	750
C	--	--	410	625	--	--	410	625	--	--	--	540	--	--	--	480
D	--	--	--	445	--	--	--	445	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	405	550	850	--	405	550	850	--	--	475	730	--	--	425	650
B1	--	--	410	630	--	--	410	630	--	--	--	545	--	--	--	485
B2	--	--	--	510	--	--	--	510	--	--	--	440	--	--	--	390
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	420	645	--	--	420	645	--	--	--	555	--	--	--	495
B1	--	--	--	480	--	--	--	480	--	--	--	415	--	--	--	--
B2	--	--	--	340	--	--	--	340	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Designed: **BL**
Checked: **LvS**

Tilt Array Frame System Spacing Table for Tin (Penetrative) Roof (mm)

Type of Rail	Titan Solar TTV2 Rail
Type of Interface	Tin Roof L Feet
Solar Panel Dimension	2.4mx1.2m
Terrain category	**2**

Tilt angle to roof surface (α), α ≤ 15°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	420	640	870	1310	--	525	710	1100	--	470	640	985	--	445	605	930
B1	--	475	645	995	--	390	530	815	--	--	475	730	--	--	450	690
B2	--	--	520	805	--	--	430	655	--	--	--	595	--	--	--	560
C	--	--	--	515	--	--	--	425	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 15° < α ≤ 30°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	455	700	--	--	--	570	--	--	--	515	--	--	--	485
B1	--	--	--	515	--	--	--	425	--	--	--	--	--	--	--	--
B2	--	--	--	420	--	--	--	--	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Tilt angle to roof surface (α), 30° < α ≤ 60°

Wind Region	Building Height – h (m)															
	h≤5				5<h≤10				10<h≤15				15<h≤20			
	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal	Corner	Edge	Intermediate	Internal
A	--	--	--	530	--	--	--	435	--	--	--	390	--	--	--	--
B1	--	--	--	390	--	--	--	--	--	--	--	--	--	--	--	--
B2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
C	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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General Notes

Note 1 Following components are satisfied to use according to AS/NZS 1170.2:2021

Components	Part Number	Description
Rail	Titan Solar TTV2 Rail	As per drawing or test report provided by client
Mid Clamp	Mid Clamp Kit 40mm	
End Clamp	End Clamp Kit 40mm	
L-Feet	Titan Solar L-Feet set	
Tilt Roof System	Titan Solar Tilt Roof System	

Note 2 Spacing calculated based on 1.9mm steel purlin or 35mm screw embedment length into timber (JD4 seasoned timber).

Recommended screws

Metal Purlins/Battens	Fasteners to use
1.9mm and above	14g-10 TPI Teks screws or approved equivalent
Timber Purlins/Battens/Rafters	**Fasteners to use**
Softwood / Hardwood (35mm embedment and above)	14g-10 TPI T17 screws or approved equivalent

Note 3 Maximum uplift wind pressure is limited to 5kPa.

Note 4 Deflection is limited to Minimum of L/120 and 15mm.

Note 5 Tilt angle is measured from roof surface.

Note 6 "--" states NOT SUITABLE FOR INSTALLATION.

Note 7 Refer section 4.2.1 of AS/NZS 1170.2:2021 for terrain category definition.

Note 8 Wind regions are shown in Figure 3.1(A) of AS/NZS 1170.2:2021.

Note 9 Building height is average roof height of structure above ground. Refer Figure 1 for definition of h, d and b.

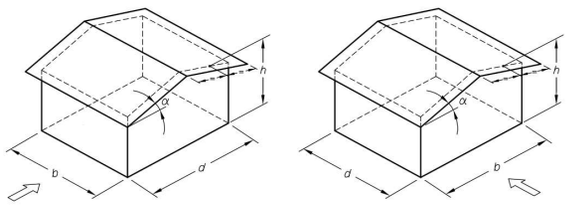
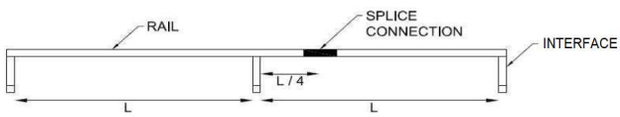


Figure 1 – h, d and b definition

Note 10 Rail splice connection must be placed a quarter length of the spacing of interface. No Splice connection should be placed at the centre of spacing or over the interface.



Note 11 Refer Figure 2 for definition of roof zones.

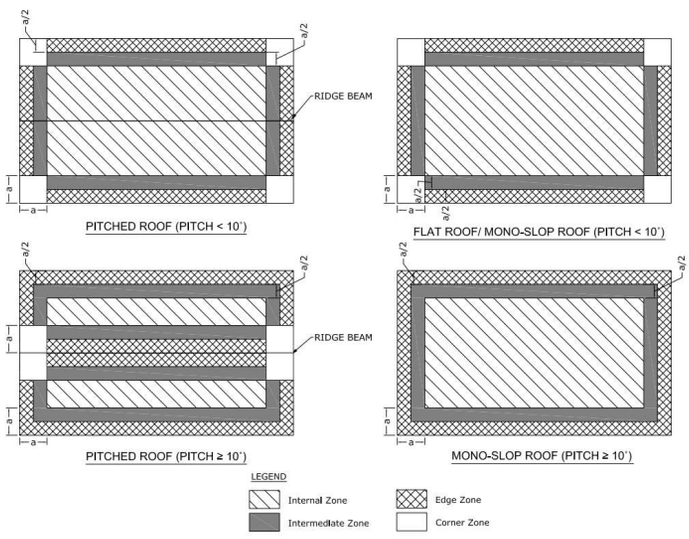


Figure2- Roof Zones Definition

In Figure 2, the value of dimension "a" is the minimum of 0.2b or 0.2d, if (h/b) or (h/d) ≥ 0.2; or 2h if both (h/b) and (h/d) < 0.2
(b & d are building dimensions and h is average roof height, see Figure 1)