

## Array Frame Engineering Certification

For:                    ANTAI SOLAR AUSTRALIA  
                             PTY LTD  
                             Level 1 suite 1.02/309 Pitt  
                             St, Sydney NSW 2000



Job No.:              10166  
Date:                  24/08/2021

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Approval			
Author Signature		Approver Signature	
Name	Yesim Kocabalkan	Name	L. Van Spaandonk
Title	Structural Engineer	Title	Principal Engineer

Our Ref: 10166-05/YK  
24 August 2021

ANTAI SOLAR AUSTRALIA PTY LTD  
Level 1 suite 1.02/309 Pitt St  
Sydney NSW 2000

## PV Array Frame Engineering Certification

### **RE: AS/NZ 1170.2 Certification for Flush Mounted System on Tile/Tin Roof (Pierced Fix Roof)**

Gamcorp (Melbourne) Pty Ltd, being Structural Engineers within the meaning of Australian Building Regulations, have carried out a structural design check of Flush Mounted System on Tile/Tin Roof (Pierced Fix Roof) within Australia. The design check is based on the information and test reports provided by ANTAI SOLAR AUSTRALIA PTY LTD.

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

Component	Part No
Rail	ATL-TYN-355A(ATL-DR-355A); ATL-TYN-355B (ATL-DR-355B)
Rail Splice	ATL-TYN-304/54 (ATL-DR-JOINER)
Tin interface	ATL-FWNY-05 (ATL-IK-TIN)
Tille Hook	AT-TYN-hook01 (ATL-IK-TILE)
Inter Clamp Kit	ATL-GN-003 (ATL-IC-30/35, ATL-IC-35/40)
End Clamp Kit	ATL-CG-018 (ATL-EC-30/35, ATL-EC-35/40)

This certificate is **only valid** for Flush Mounted System on Tile/Tin Roof (Pierced Fix Roof) itself. The roof structure or the building structure and PV panels shall be assessed separately and accordingly.

This certificate is **only valid** when fixing into minimum 1.9BMT steel or minimum JD4 seasoned timber. If the fixing condition is different from those 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 Flush Mounted System on Tile/Tin Roof (Pierced Fix Roof) for Australian use to be structurally sufficient based on the following conditions:

- Wind loads to AS/NZ1170.2:2011(R2016) Wind actions
- Wind region **A, B, C, D**
- Wind terrain category **2 & 3**
- Wind average recurrence interval of **200 years**
- Maximum building height **20m**
- The maximum assessed PV panel dimensions are **2300mm x 1200mm**
- Weight of the PV panel and array frame to be 15 kg/m<sup>2</sup>
- Material of Rails to be **AL6005-T6**
- The spacings are determined based on fixings into minimum JD4 seasoned timber and 1.9mm thick steel purlins
- For purlin thickness  $t=1.5\text{mm}$ , decrease the spacing to 79%
- For purlin thickness  $t=1.2\text{mm}$ , decrease the spacing to 70%
- 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 ( $50\text{mm} \leq s \leq 300\text{mm}$ )
- 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
- For Corrosivity Category C4, decrease the spacing to 92%
- For Corrosivity Category C5, decrease the spacing to 84%

***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.**
- **Tile interface is considered reaching its serviceability limit when then unloaded (residual) displacement reach approx. 30% of loaded displacement.**
- **The capacity of L Feet was obtained from test report no. MT-18/377, dated 16.04.2018 and provided by Melbourne Testing Services.**
- **The capacity of roof tile hook was obtained from test report no. MY-14/473, dated 04.07.2014 and provided by Melbourne Testing Services.**
- **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 manufacturers instructions. This work was designed by **Yesim Kocabalkan** in accordance with the provisions of Australian Building Regulations and in accordance with sound, widely accepted engineering principles. This certificate is only valid till 24/08/2023. Gamcorp should be contacted for future validation. Contact Gamcorp for 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

Attachments:

- Summary table for interface spacing, Flush mount - Tin Roof (Pierced Fix Roof);
- Summary table for interface spacing, Flush mount – Tile Roof



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## Structural Design Documentation

### **Flush Array Frame System Spacing Table For Tile Roof**

#### **According to AS/NZS 1170.2-2011 (R2016)**

with Rail ATL-TYN-355A (ATL-DR-355A)

**within Australia**

Terrain Category 2 & 3

For: ANTAI SOLAR AUSTRALIA PTY LTD  
Level 1 suite 1.02/309 Pitt St  
Sydney NSW 2000

Job Number: 9670-05  
Date: 7 May 2021



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**Job No:** 9670-05  
**Client:** ANTAI SOLAR AUSTRALIA PTY LTD  
**Project:** Flush Array Frame System Spacing Table For Tile  
Roof with Rail ATL-TYN-355A (ATL-DR-355A)  
**Address:** within Australia

## Australian 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 1170.2:2011 (R2016) – Structural design actions, Part 2: Wind actions

AS/NZS 1664.1:1997 – Aluminium structures - Limit state design

AS 4100:2020 – Steel Structures

AS/NZS 4600:2018 – Cold-formed Steel Structures

**Wind Terrain Category:** WTC 2 & 3

**Designed:** JD

**Checked:** AA

**Date:** May-21

Client: **ANTAI SOLAR AUSTRALIA PTY LTD**  
 Project: **Solar Array Interface Spacing Table**  
 Address: **within Australia**  
 Designed: **JD**

Job: **9670-05**  
 Date: **May-21**

Checked: **AA**

### Flush Array Frame System Spacing Table for Tile Roof (mm)

Type of Rail: ATL-TYN-355A(ATL-DR-355A)  
 Type of Interface: Tile Interface AT-TYN-hook01  
 Solar Panel Dimension: 2.3mx1.2m  
 Terrain category: **2**

Roof Angle ( $\Phi$ ) -  $\Phi < 5^\circ$

Wind Region	Building Height - H (m)							
	H $\leq$ 5		5<H $\leq$ 10		10<H $\leq$ 15		15<H $\leq$ 20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>885</b>	<b>1110</b>	<b>715</b>	<b>890</b>	<b>640</b>	<b>795</b>	<b>600</b>	<b>745</b>
<b>B</b>	<b>785</b>	<b>980</b>	<b>635</b>	<b>790</b>	<b>570</b>	<b>705</b>	<b>460</b>	<b>665</b>
<b>C</b>	<b>395</b>	<b>640</b>	--	<b>410</b>	--	<b>260</b>	--	--
<b>D</b>	--	<b>330</b>	--	--	--	--	--	--

Roof Angle ( $\Phi$ ) -  $5^\circ \leq \Phi \leq 30^\circ$

Wind Region	Building Height - H (m)							
	H $\leq$ 5		5<H $\leq$ 10		10<H $\leq$ 15		15<H $\leq$ 20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>885</b>	<b>1335</b>	<b>715</b>	<b>1065</b>	<b>640</b>	<b>950</b>	<b>600</b>	<b>890</b>
<b>B</b>	<b>785</b>	<b>1175</b>	<b>635</b>	<b>945</b>	<b>570</b>	<b>840</b>	<b>460</b>	<b>790</b>
<b>C</b>	<b>395</b>	<b>765</b>	--	<b>620</b>	--	<b>550</b>	--	<b>410</b>
<b>D</b>	--	<b>555</b>	--	<b>270</b>	--	--	--	--

Roof Angle ( $\Phi$ ) -  $30^\circ \leq \Phi \leq 60^\circ$

Wind Region	Building Height - H (m)							
	H $\leq$ 5		5<H $\leq$ 10		10<H $\leq$ 15		15<H $\leq$ 20	
	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal
<b>A</b>	<b>1155</b>	<b>1785</b>	<b>930</b>	<b>1515</b>	<b>830</b>	<b>1335</b>	<b>775</b>	<b>1250</b>
<b>B</b>	<b>1025</b>	<b>1680</b>	<b>825</b>	<b>1330</b>	<b>735</b>	<b>1175</b>	<b>695</b>	<b>1105</b>
<b>C</b>	<b>670</b>	<b>1065</b>	<b>535</b>	<b>855</b>	<b>320</b>	<b>765</b>	<b>235</b>	<b>715</b>
<b>D</b>	<b>370</b>	<b>750</b>	--	<b>615</b>	--	<b>555</b>	--	<b>520</b>



Client: **ANTAI SOLAR AUSTRALIA PTY LTD**  
 Project: **Solar Array Interface Spacing Table**  
 Address: **within Australia**  
 Designed: **JD**

Job: **9670-05**  
 Date: **May-21**

Checked: **AA**

### Flush Array Frame System Spacing Table for Tile Roof (mm)

Type of Rail: ATL-TYN-355A(ATL-DR-355A)  
 Type of Interface: Tile Interface AT-TYN-hook01  
 Solar Panel Dimension: 2.3mx1.2m  
 Terrain category: **3**

Roof Angle ( $\Phi$ ) –  $\Phi < 5^\circ$

Wind Region	Building Height – H (m)							
	H≤5		5<H≤10		10<H≤15		15<H≤20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>1100</b>	<b>1390</b>	<b>1100</b>	<b>1390</b>	<b>935</b>	<b>1175</b>	<b>820</b>	<b>1030</b>
<b>B</b>	<b>970</b>	<b>1220</b>	<b>970</b>	<b>1220</b>	<b>825</b>	<b>1035</b>	<b>730</b>	<b>910</b>
<b>C</b>	<b>635</b>	<b>790</b>	<b>635</b>	<b>790</b>	<b>545</b>	<b>675</b>	<b>305</b>	<b>595</b>
<b>D</b>	<b>305</b>	<b>575</b>	<b>305</b>	<b>575</b>	<b>--</b>	<b>385</b>	<b>--</b>	<b>235</b>

Roof Angle ( $\Phi$ ) –  $5^\circ \leq \Phi \leq 30^\circ$

Wind Region	Building Height – H (m)							
	H≤5		5<H≤10		10<H≤15		15<H≤20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>1100</b>	<b>1690</b>	<b>1100</b>	<b>1690</b>	<b>935</b>	<b>1420</b>	<b>820</b>	<b>1235</b>
<b>B</b>	<b>970</b>	<b>1470</b>	<b>970</b>	<b>1470</b>	<b>825</b>	<b>1245</b>	<b>730</b>	<b>1085</b>
<b>C</b>	<b>635</b>	<b>945</b>	<b>635</b>	<b>945</b>	<b>545</b>	<b>805</b>	<b>305</b>	<b>710</b>
<b>D</b>	<b>305</b>	<b>675</b>	<b>305</b>	<b>675</b>	<b>--</b>	<b>585</b>	<b>--</b>	<b>510</b>

Roof Angle ( $\Phi$ ) –  $30^\circ \leq \Phi \leq 60^\circ$

Wind Region	Building Height – H (m)							
	H≤5		5<H≤10		10<H≤15		15<H≤20	
	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal
<b>A</b>	<b>1455</b>	<b>1900</b>	<b>1455</b>	<b>1900</b>	<b>1225</b>	<b>1810</b>	<b>1075</b>	<b>1745</b>
<b>B</b>	<b>1275</b>	<b>1830</b>	<b>1275</b>	<b>1830</b>	<b>1080</b>	<b>1750</b>	<b>945</b>	<b>1545</b>
<b>C</b>	<b>825</b>	<b>1330</b>	<b>825</b>	<b>1330</b>	<b>705</b>	<b>1125</b>	<b>620</b>	<b>985</b>
<b>D</b>	<b>595</b>	<b>910</b>	<b>595</b>	<b>910</b>	<b>485</b>	<b>785</b>	<b>270</b>	<b>700</b>

Client: **ANTAI SOLAR AUSTRALIA PTY LTD**  
 Project: **Solar Array Interface Spacing Table**  
 Address: **within Australia**  
 Designed: **JD**

Job: **9670-05**  
 Date: **May-21**

Checked: **AA**

### General Notes

Note 1 Following components are satisfied to use according to AS/NZS 1170.2-2011(R2016)

Components	Part Number	Description
Rail	ATL-TYN-355A	As per drawing& test report provided by client
Splice	ATL-TYN-304/54	
Tile Hook	AT-TYN-hook01	

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

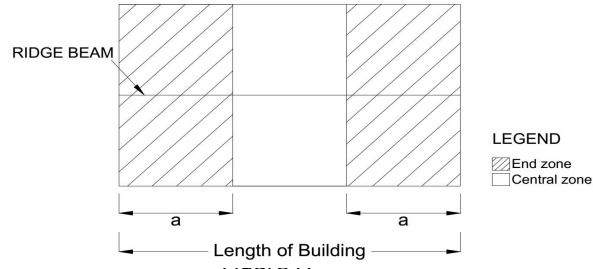
Note 3 Recommended screws

Metal Purlins/Battens 14g-10 TPI Teks screws or approved equivalent  
 Timber Purlins/Battens 14g-10 TPI T17 screws or approved equivalent

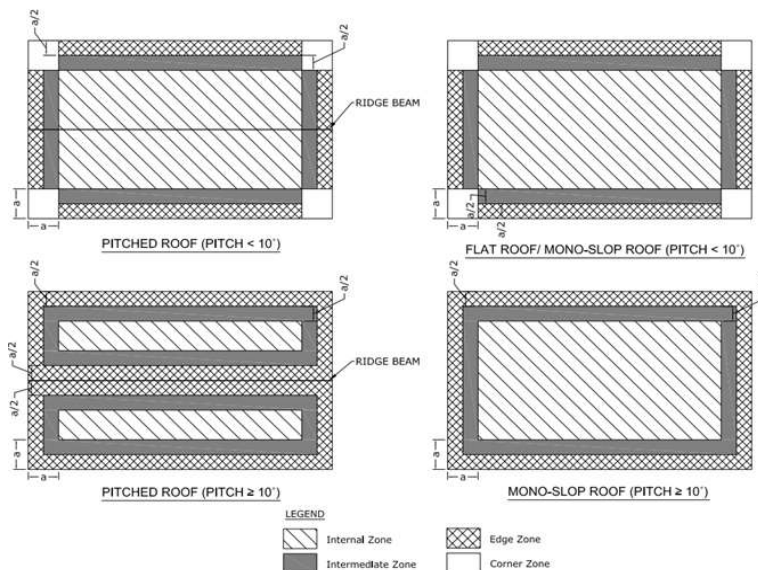
Note 4 Maximum uplift wind pressure is limited to 5 kPa. "--" states more uplift pressure.

Note 5 Deflection is limited to Minimum of L/120 and 15mm

Note 6 For definition of (End/Central) roof zones, Refer Figure D9 of AS/NZS 1170.2:2011 (R2016) or Figure A as below  
 For definition of intermediate and internal roof zones, Refer Figure B as below



In Figure A, the value of dimension "a" is 1/3 of the length of building



In Figure B, the value of dimension "a" is the minimum of 0.2b, 0.2d and h. (b & d are building dimensions and h is its height)

Figure B

Client: **ANTAI SOLAR AUSTRALIA PTY LTD**  
Project: **Solar Array Interface Spacing Table**  
Address: **within Australia**  
Designed: **JD**

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Date: **May-21**

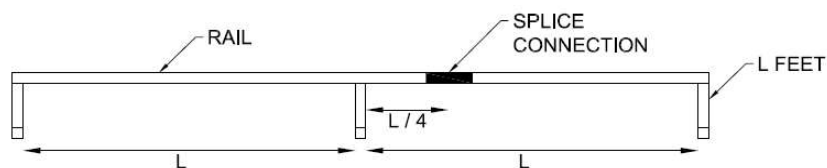
Checked: **AA**

Note 7

Terrain Category 2 (TC2) refers to open terrain, including grassland, with well-scattered obstructions having heights generally from 1.5 m to 5 m, with no more than two obstructions per hectare, e.g. farmland and cleared subdivisions with isolated trees and uncut grass.  
Terrain Category 3 (TC3) refers to terrain with numerous closely spaced obstructions having heights generally from 3 m to 10 m. The minimum density of obstructions shall be at least the equivalent of 10 house-size obstructions per hectare, e.g. suburban housing, light industrial estates or dense forests.

Note 8

The optimised location of rail splice connection is at quarter length of the spacing of the interface. No Splice connection should be placed at the centre of spacing or over the interface.





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## Structural Design Documentation

### **Flush Array Frame System Spacing Table For Tile Roof**

#### **According to AS/NZS 1170.2-2011 (R2016)**

with Rail ATL-TYN-355B (ATL-DR-355B)

**within Australia**

Terrain Category 2 & 3

For: ANTAI SOLAR AUSTRALIA PTY LTD  
Level 1 suite 1.02/309 Pitt St  
Sydney NSW 2000

Job Number: 9670-05  
Date: 7 May 2021



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**Job No:** 9670-05  
**Client:** ANTAI SOLAR AUSTRALIA PTY LTD  
**Project:** Flush Array Frame System Spacing Table For Tile  
Roof with Rail ATL-TYN-355B (ATL-DR-355B)  
**Address:** within Australia

## Australian 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 1170.2:2011 (R2016) – Structural design actions, Part 2: Wind actions  
AS/NZS 1664.1:1997 – Aluminium structures - Limit state design  
AS 4100:2020 – Steel Structures  
AS/NZS 4600:2018 – Cold-formed Steel Structures

**Wind Terrain Category:** WTC 2 & 3

**Designed:** JD  
**Checked:** AA  
**Date:** May-21

Client: **ANTAI SOLAR AUSTRALIA PTY LTD**  
 Project: **Solar Array Interface Spacing Table**  
 Address: **within Australia**  
 Designed: **JD**

Job: **9670-05**  
 Date: **May-21**

Checked: **AA**

### Flush Array Frame System Spacing Table for Tile Roof (mm)

Type of Rail: ATL-TYN-355B(ATL-DR-355B)  
 Type of Interface: Tile Interface AT-TYN-hook01  
 Solar Panel Dimension: 2.3mx1.2m  
 Terrain category: **2**

Roof Angle ( $\Phi$ ) -  $\Phi < 5^\circ$

Wind Region	Building Height - H (m)							
	H $\leq$ 5		5<H $\leq$ 10		10<H $\leq$ 15		15<H $\leq$ 20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>750</b>	<b>1110</b>	<b>620</b>	<b>760</b>	<b>505</b>	<b>680</b>	<b>400</b>	<b>645</b>
<b>B</b>	<b>675</b>	<b>980</b>	<b>490</b>	<b>680</b>	--	<b>620</b>	--	<b>595</b>
<b>C</b>	--	<b>505</b>	--	--	--	--	--	--
<b>D</b>	--	--	--	--	--	--	--	--

Roof Angle ( $\Phi$ ) -  $5^\circ \leq \Phi \leq 30^\circ$

Wind Region	Building Height - H (m)							
	H $\leq$ 5		5<H $\leq$ 10		10<H $\leq$ 15		15<H $\leq$ 20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>750</b>	<b>1335</b>	<b>620</b>	<b>1065</b>	<b>505</b>	<b>945</b>	<b>400</b>	<b>760</b>
<b>B</b>	<b>675</b>	<b>1175</b>	<b>490</b>	<b>945</b>	--	<b>715</b>	--	<b>680</b>
<b>C</b>	--	<b>665</b>	--	<b>490</b>	--	--	--	--
<b>D</b>	--	<b>340</b>	--	--	--	--	--	--

Roof Angle ( $\Phi$ ) -  $30^\circ \leq \Phi \leq 60^\circ$

Wind Region	Building Height - H (m)							
	H $\leq$ 5		5<H $\leq$ 10		10<H $\leq$ 15		15<H $\leq$ 20	
	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal
<b>A</b>	<b>1155</b>	<b>1700</b>	<b>830</b>	<b>1515</b>	<b>710</b>	<b>1335</b>	<b>670</b>	<b>1250</b>
<b>B</b>	<b>1025</b>	<b>1625</b>	<b>705</b>	<b>1330</b>	<b>640</b>	<b>1175</b>	<b>610</b>	<b>1105</b>
<b>C</b>	<b>595</b>	<b>1065</b>	--	<b>725</b>	--	<b>665</b>	--	<b>630</b>
<b>D</b>	--	<b>690</b>	--	<b>580</b>	--	<b>340</b>	--	--

Client: **ANTAI SOLAR AUSTRALIA PTY LTD**  
 Project: **Solar Array Interface Spacing Table**  
 Address: **within Australia**  
 Designed: **JD**

Job: **9670-05**  
 Date: **May-21**

Checked: **AA**

### Flush Array Frame System Spacing Table for Tile Roof (mm)

Type of Rail: ATL-TYN-355B(ATL-DR-355B)  
 Type of Interface: Tile Interface AT-TYN-hook01  
 Solar Panel Dimension: 2.3mx1.2m  
 Terrain category: **3**

Roof Angle ( $\Phi$ ) –  $\Phi < 5^\circ$

Wind Region	Building Height – H (m)							
	H≤5		5<H≤10		10<H≤15		15<H≤20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>1100</b>	<b>1390</b>	<b>1100</b>	<b>1390</b>	<b>930</b>	<b>1175</b>	<b>700</b>	<b>1030</b>
<b>B</b>	<b>970</b>	<b>1220</b>	<b>970</b>	<b>1220</b>	<b>705</b>	<b>1035</b>	<b>630</b>	<b>795</b>
<b>C</b>	<b>490</b>	<b>680</b>	<b>490</b>	<b>680</b>	--	<b>605</b>	--	<b>400</b>
<b>D</b>	--	<b>415</b>	--	<b>415</b>	--	--	--	--

Roof Angle ( $\Phi$ ) –  $5^\circ \leq \Phi \leq 30^\circ$

Wind Region	Building Height – H (m)							
	H≤5		5<H≤10		10<H≤15		15<H≤20	
	End	Central	End	Central	End	Central	End	Central
<b>A</b>	<b>1100</b>	<b>1625</b>	<b>1100</b>	<b>1625</b>	<b>930</b>	<b>1420</b>	<b>700</b>	<b>1235</b>
<b>B</b>	<b>970</b>	<b>1470</b>	<b>970</b>	<b>1470</b>	<b>705</b>	<b>1245</b>	<b>630</b>	<b>1085</b>
<b>C</b>	<b>490</b>	<b>945</b>	<b>490</b>	<b>945</b>	--	<b>690</b>	--	<b>620</b>
<b>D</b>	--	<b>630</b>	--	<b>630</b>	--	<b>450</b>	--	--

Roof Angle ( $\Phi$ ) –  $30^\circ \leq \Phi \leq 60^\circ$

Wind Region	Building Height – H (m)							
	H≤5		5<H≤10		10<H≤15		15<H≤20	
	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal	Intermediate	Internal
<b>A</b>	<b>1455</b>	<b>1815</b>	<b>1455</b>	<b>1815</b>	<b>1225</b>	<b>1730</b>	<b>1075</b>	<b>1650</b>
<b>B</b>	<b>1275</b>	<b>1750</b>	<b>1275</b>	<b>1750</b>	<b>1080</b>	<b>1655</b>	<b>945</b>	<b>1545</b>
<b>C</b>	<b>705</b>	<b>1330</b>	<b>705</b>	<b>1330</b>	<b>620</b>	<b>1125</b>	<b>490</b>	<b>985</b>
<b>D</b>	<b>480</b>	<b>895</b>	<b>480</b>	<b>895</b>	--	<b>725</b>	--	<b>645</b>

Client: **ANTAI SOLAR AUSTRALIA PTY LTD**  
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 Address: **within Australia**  
 Designed: **JD**

Job: **9670-05**  
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Checked: **AA**

### General Notes

Note 1 Following components are satisfied to use according to AS/NZS 1170.2-2011(R2016)

Components	Part Number	Description
Rail	ATL-TYN-355B	As per drawing& test report provided by client
Splice	ATL-TYN-304/54	
Tile Hook	AT-TYN-hook01	

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

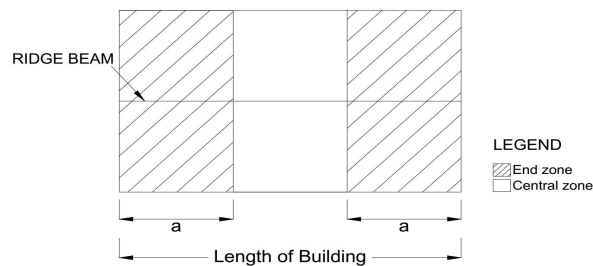
Note 3 Recommended screws

Metal Purlins/Battens 14g-10 TPI Tek screws or approved equivalent  
 Timber Purlins/Battens 14g-10 TPI T17 screws or approved equivalent

Note 4 Maximum uplift wind pressure is limited to 5 kPa. "--" states more uplift pressure.

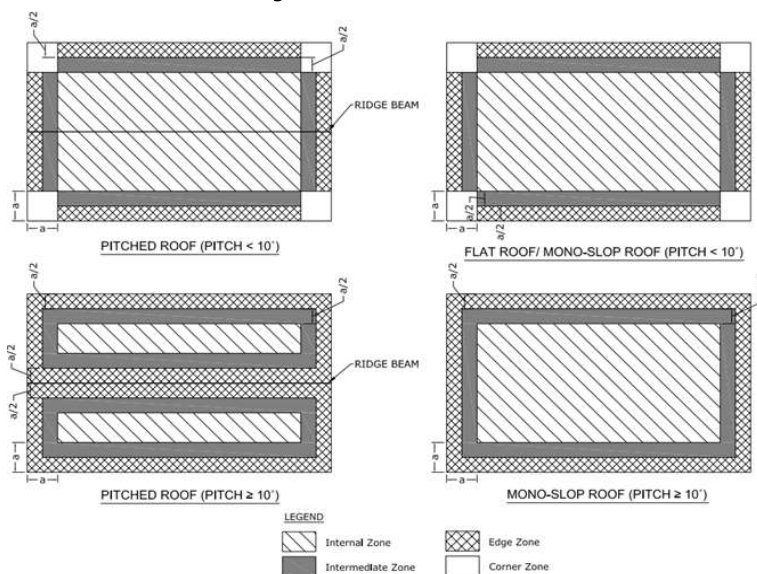
Note 5 Deflection is limited to Minimum of L/120 and 15mm

Note 6 For definition of (End/Central) roof zones, Refer Figure D9 of AS/NZS 1170.2:2011 (R2016) or Figure A as below  
 For definition of intermediate and internal roof zones, Refer Figure B as below



In Figure A, the value of dimension "a" is 1/3 of the length of building

Figure A



In Figure B, the value of dimension "a" is the minimum of 0.2b, 0.2d and h. (b & d are building dimensions and h is its height)

Figure B



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Note 7

Terrain Category 2 (TC2) refers to open terrain, including grassland, with well-scattered obstructions having heights generally from 1.5 m to 5 m, with no more than two obstructions per hectare, e.g. farmland and cleared subdivisions with isolated trees and uncut grass.  
Terrain Category 3 (TC3) refers to terrain with numerous closely spaced obstructions having heights generally from 3 m to 10 m. The minimum density of obstructions shall be at least the equivalent of 10 house-size obstructions per hectare, e.g. suburban housing, light industrial estates or dense forests.

Note 8

The optimised location of rail splice connection is at quarter length of the spacing of the interface. No Splice connection should be placed at the centre of spacing or over the interface.

