

Our Ref: 21170

January 2019

Fujian Antai New Energy Tech. Co., Ltd.

## **ANTAI/NEWAY Adjustable Tilt Legs System for use within Australia - Type T Rail**

Dome Consulting (Aust) Pty Ltd have carried out a structural design check of the Fujian Antai New Energy Tech. Co., Ltd. Adjustable Tilt Legs System for use in Australia. The design check has been based on the information provided by Mortec Industries

### **Australian Standards**

AS 1170. 2011 – Structural Design Actions

Part 0 – General Principles

Part 1 – Permanent imposed and other actions

Part 2 – Wind Actions

Part 3 – Snow and Ice Actions

AS 1664.1 – Aluminium structures - Limit state design

### **Following design criteria has been used for the structural verification**

Wind Region A, B, C, D

Wind Terrain Category 2 & 3

Wind average recurrence interval of 100 years

Maximum Building height 20 m

Max. Solar Panel Dimensions 2000×1000

The design and documentation has determined that all supporting componentry in the above mentioned documentation was found to be acceptable.

### **Refer to attached summary table for interface spacing.**

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

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## **Structural Design Summary Table**

### **Adjustable Tilt Legs System with Type T Rail**

For

Fujian Antai New Energy Tech. Co., Ltd.  
in accordance to AS1170.2 2011 Amdt 5 - June 2017

### **Terrain Category 3**

**Tin Roof**

**10° < a < 15°**  
**Terrain category 3**  
**Roof Angle < 10°**

**Adjustable Tilt Leg**  
**Type T Rail**

For Up To 2000m Long Panels (2 Rails)									
Max. Support Spacing (mm)									
Installation Height (m)	Region A		Region B			Region C		Region D	
	Center	Edge	Center	Edge		Center	Edge	Center	Edge
10 m	1911	1641	1857	1614		1652	1433	1398	964
15 m	1811	1567	1760	1540		1579	1314	1303	842
20 m	1738	1517	1711	1490		1506	1191	1158	747

**Tin Roof**

**15° < a < 30°**  
**Terrain category 3**  
**Roof Angle < 10°**

**Adjustable Tilt Leg**  
**Type T Rail**

For Up To 2000m Long Panels (2 Rails)									
Max. Support Spacing (mm)									
Installation Height (m)	Region A		Region B			Region C		Region D	
	Center	Edge	Center	Edge		Center	Edge	Center	Edge
10 m	1544	1370	1514	1270		1264	826	796	530
15 m	1494	1323	1467	1100		1095	703	698	457
20 m	1444	1273	977	1417		899	631	625	408

**Tin Roof**

**30° < a < 60°**  
**Terrain category 3**  
**Roof Angle < 10°**

**Adjustable Tilt Leg**  
**Type T Rail**

For Up To 2000m Long Panels (2 Rails)									
Max. Support Spacing (mm)									
Installation Height (m)	Region A		Region B			Region C		Region D	
	Center	Edge	Center	Edge		Center	Edge	Center	Edge
10 m	1470	1297	1441	1027		1022	657	651	434
15 m	1397	1250	1344	880		876	584	553	362
20 m	1347	1103	1221	780		776	511	507	336

**Notes**

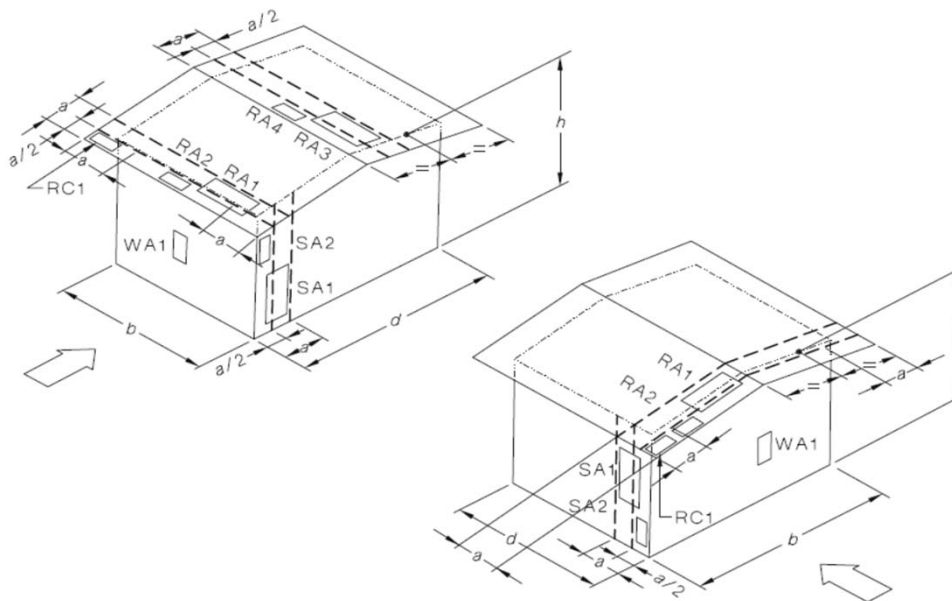
- \* Minimum 35mm embedment length into timber
- \* Please note that the screws provided with our products are designed for mounting in to wooden and metal structures. ANTAI Solar recommend using 13-11x50 RoofStars - Self Drilling Screws from ICONS® to fix to steel purlins.
- \* Above spacing based on 1.9mm steel purlin or F17 Hardwood - Following reductions shall be applied

Material	Wind region C		Wind region C	
	Centre	Edge	Centre	Edge
0.55mm steel batten	22%	25%	30%	42%
0.75mm steel batten	n/a	n/a	10%	5%

- \* Please consult ANTAI Solar for installing PV modules with a greater length than 2000mm.
- \* For PV panels with length of 1700mm, increase the spacing by 15%.

**Terrain Category 2 (TC2)** 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)** 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.



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### **Terrain Category 2**

**Tin Roof**

**10° < a < 15°**  
**Terrain category 2**  
**Roof Angle < 10°**

**Adjustable Tilt Leg**  
**Type T Rail**

For Up To 2000m Long Panels (2 Rails)									
Max. Support Spacing (mm)									
Installation Height (m)	Region A		Region B			Region C		Region D	
	Center	Edge	Center	Edge		Center	Edge	Center	Edge
10 m	1664	1470	1637	1441		1460	1045	1013	651
15 m	1617	1420	1587	1394		1387	922	915	602
20 m	1591	1397	1564	1344		1337	876	869	553

**Tin Roof**

**15° < a < 30°**  
**Terrain category 2**  
**Roof Angle < 10°**

**Adjustable Tilt Leg**  
**Type T Rail**

For Up To 2000m Long Panels (2 Rails)									
Max. Support Spacing (mm)									
Installation Height (m)	Region A		Region B			Region C		Region D	
	Center	Edge	Center	Edge		Center	Edge	Center	Edge
10 m	1397	1003	1320	854		849	558	553	362
15 m	1347	1076	1197	780		776	511	481	313
20 m	1323	1029	1124	734		730	485	457	313

**Tin Roof**

**30° < a < 60°**  
**Terrain category 2**  
**Roof Angle < 10°**

**Adjustable Tilt Leg**  
**Type T Rail**

For Up To 2000m Long Panels (2 Rails)									
Max. Support Spacing (mm)									
Installation Height (m)	Region A		Region B			Region C		Region D	
	Center	Edge	Center	Edge		Center	Edge	Center	Edge
10 m	1323	979	1074	684		680	461	434	290
15 m	1273	882	954	634		631	412	408	263
20 m	1250	832	904	587		584	388	385	240

**Notes**

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