

Our Ref: 30253

January 2020

Fujian Antai New Energy Tech. Co., Ltd.

ANTAISOLAR Flush Roof Mounting System for use within Australia - Type VI Rail

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

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 2200×1100

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

Yours faithfully,

FOR & ON BEHALF OF DOME CONSULTING PTY LTD



Robert Cilia
BE (Civil) RBP RPEQ TBP

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January 2020

Fujian Antai New Energy Tech. Co., Ltd.

Structural Design Summary Table

Roof Mounting System with Type VI Rail

For

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

Terrain Category 3

Tile Roof $5^\circ < a < 10^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1757	1584	1583	1280		1149	802	708	501
15 m	1677	1518	1515	1087		979	686	610	434
20 m	1621	1385	1387	959		867	610	540	386

Tile Roof $10^\circ \leq a < 20^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1632	1399	1430	968		892	615	557	389
15 m	1564	1186	1214	828		762	528	479	336
20 m	1513	1046	1070	735		677	471	425	300

Tile Roof $20^\circ \leq a < 30^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1584	1504	1280	1053		802	666	501	420
15 m	1518	1294	1087	899		686	573	434	364
20 m	1385	1140	959	797		610	511	386	325

Tile Roof $30^\circ \leq a < 60^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1595	1456	1509	1138		1132	810	792	512
15 m	1558	1311	1399	1019		1011	700	683	442
20 m	1530	1203	1288	931		923	621	607	392

Tin Roof $5^\circ < a < 10^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1757	1584	1583	1438		1394	1273	1229	1125
15 m	1677	1518	1515	1382		1341	1225	1181	1086
20 m	1621	1470	1467	1339		1298	1191	1148	1055

Tin Roof $10^\circ \leq a < 20^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1632	1473	1478	1342		1310	1194	1156	1058
15 m	1564	1413	1419	1291		1259	1149	1114	1019
20 m	1513	1370	1376	1251		1222	1115	1081	991

Tin Roof $20^\circ \leq a < 30^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1584	1504	1438	1370		1273	1217	1125	1078
15 m	1518	1444	1382	1316		1225	1171	1086	1039
20 m	1470	1399	1339	1277		1191	1138	1055	1011

Tin Roof $30^\circ \leq a < 60^\circ$ TG.3 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1595	1487	1509	1396		1389	1279	1265	1131
15 m	1535	1447	1470	1356		1349	1233	1218	1092
20 m	1530	1419	1441	1328		1321	1197	1181	1061

Notes

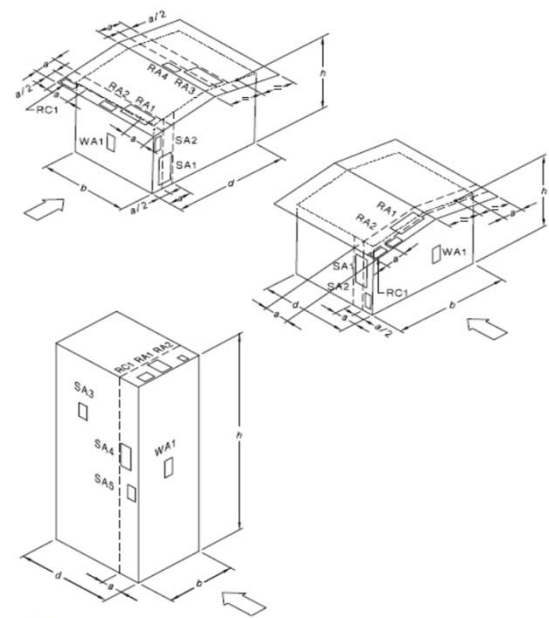
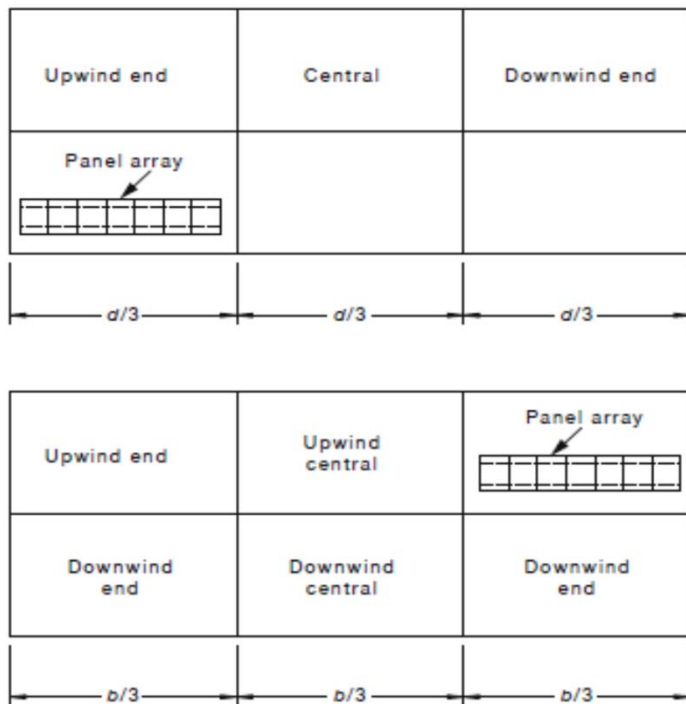
- * Minimum 35mm embedment length into timber
- * Please note that the screws provided with our products are designed for mounting in to wooden and metal structures. ANTAI Solar recommend using 13-11x50 RoofStars - Self Drilling Screws from ICONS® to fix to steel purlins.
- * Above spacing based on 1.9mm 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 2200mm.

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.



- NOTES:
1 The value of dimension a is the minimum of $0.2b$, $0.2d$ and h .
2 The side ratio of any local pressure factor area on the roof shall not exceed 4.

Refer Figure 5.3 of AS/NZS 1170.2:2012 for definition of roof edge and middle zones.

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Fujian Antai New Energy Tech. Co., Ltd.

Structural Design Summary Table

Roof Mounting System with Type VI Rail

For

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

Terrain Category 2

Tile Roof $5^\circ < a < 10^\circ$ TG.2 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1558	1197	1200	837		754	533	473	339
15 m	1513	1072	1072	749		677	480	428	305
20 m	1453	1004	1004	706		638	452	403	288

Tile Roof $10^\circ \leq a < 20^\circ$ TG.2 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1339	910	931	641		593	412	375	263
15 m	1194	816	834	576		533	373	339	238
20 m	1120	768	783	542		502	350	319	224

Tile Roof $20^\circ \leq a < 30^\circ$ TG.2 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1197	989	837	695		533	446	339	286
15 m	1072	887	749	624		480	404	305	258
20 m	1004	833	706	587		452	378	288	244

Tile Roof $30^\circ \leq a < 60^\circ$ TG.2 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1490	1089	1169	837		833	545	532	344
15 m	1387	1006	1081	766		762	491	479	311
20 m	1328	961	1033	721		714	463	451	294

Tin Roof $5^\circ < a < 10^\circ$ TG.2 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1558	1416	1416	1294		1256	1152	1111	1022
15 m	1513	1376	1376	1257		1222	1121	1083	997
20 m	1487	1356	1353	1240		1202	1104	1067	980

Tin Roof $10^\circ \leq a < 20^\circ$ TG.2 Type VI Rail Flush Roof Mounting

For Up To 2200m 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	1456	1322	1328	1209		1180	1078	1047	960
15 m	1416	1288	1291	1177		1152	1053	1022	935
20 m	1393	1268	1271	1160		1132	1036	1005	921

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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	1416	1350	1294	1234		1152	1101	1022	977
15 m	1376	1314	1257	1203		1121	1073	997	952
20 m	1356	1294	1240	1183		1104	1056	980	941

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For Up To 2200m Long Panels (2 Rails)									
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Installation Height (m)	Region A		Region B			Region C		Region D	
	Center	Edge	Center	Edge		Center	Edge	Center	Edge
10 m	1495	1385	1404	1294		1287	1157	1142	1025
15 m	1470	1356	1379	1265		1259	1126	1114	999
20 m	1453	1339	1362	1246		1239	1109	1097	985

Notes

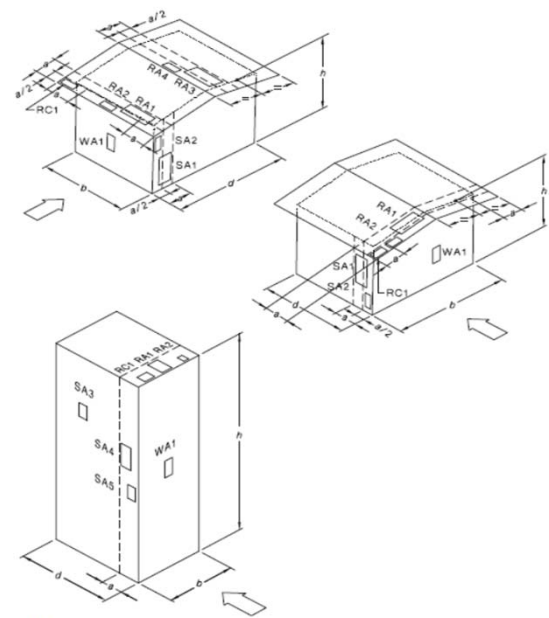
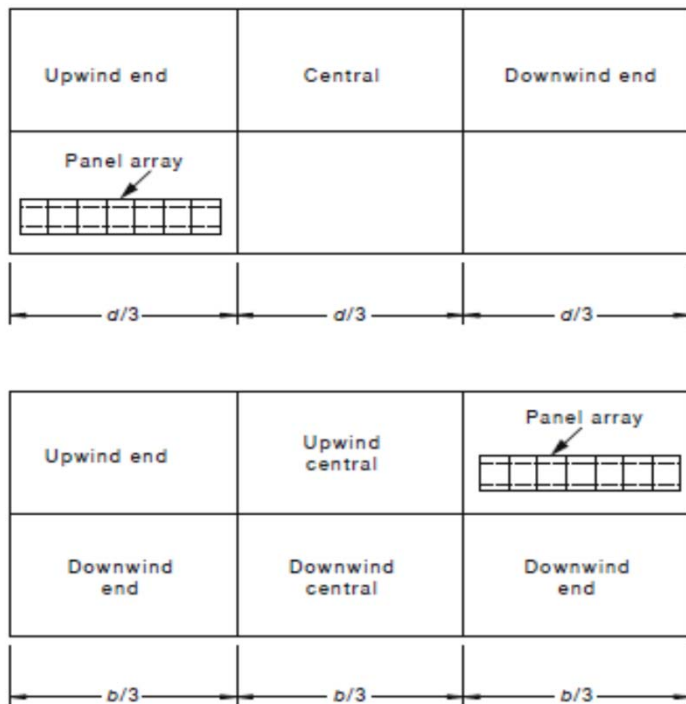
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