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Our Ref: 2242/K.Z

14 September 2016

Xiamen Hopergy Photovoltaic Technology Co. Ltd.
No.630, Tonghong Road
Tongan District, Xiamen 361100
China

PV Array Frame Engineering Certification

Installation of Hopergy Single Tripod Roof Mount Solar System with HOP-SLR03 Rails (Base rail parallel to Support Structure)

Gamcorp (Melbourne) Pty Ltd, being Structural Engineers within the meaning of Australian and New Zealand Building Regulations, have carried out a structural design check of Hopergy Single Tripod Roof Mount Solar System installation within Australia and New Zealand. The design check has been based on the information in the schematic drawings of the system components and new drawings of tripod frame V2.0 provided by Hopergy Australia (IMSOLAR).

We find the Installation of Hopergy Single Tripod Roof Mount Solar System for Australian and New Zealand use to be structurally sufficient based on the following conditions:

- Wind loads to AS/NZ1170.2:2011 Admt 3-2013
- Wind region A, B, C, D, W
- Wind terrain category 2 & 3
- Wind average recurrence interval of 500 years
- Maximum building height 20m
- The PV panel dimensions to be 1640mm x 992mm and 2000mm x 1000mm
- Maximum weight of the PV panel and array frame to be 15 kg/m^2
- Rails to be HOP-SLR03
- Rails material to be aluminium graded AL6005-T5 or higher
- The assessment of the rail is based on a deflection limit of 20mm specified by Hopergy Australia (IMSOLAR) as per the test report provided
- The roof interface to be Hopergy Single Tripod V2.0
- The assessment is based on an assumption that the tripod frame meet the industrial standard requirements
- This certification is applicable only when using 2 rails in all circumstances
- Rails and top beam must intersect within 30mm from the top beam supports
- Minimum 4 screw fixings to be spaced evenly at the base rail. 2 screws must be placed at two ends of the base rail respectively at 30mm from the ends. Screws need to be minimum of 100mm apart.
- Installation of PV array to be done in accordance with the PV installation manual
- The certification **excludes** assessment of roof structure and PV panels

Refer to attached summary table for interface spacing

ISO 9001:2008 Registered Firm
Certificate No: AU1222

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NOTES:

- **The recommended spacing nominated in this certification is based on the capacity of the array frame, not the roof structure and PV panel. It is the responsibility of the installer to adopt the most critical spacing.**
- **This certification is only applicable when the A-frame base rail is installed parallel to the support structure.**
- **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 manufacturers instructions. This work was designed in accordance with the provisions of Australian and New Zealand Building Regulations and in accordance with sound, widely accepted engineering principles.

Yours faithfully,
Gamcorp (Melbourne) Pty Ltd

Martin Gamble
Managing Director
MAICD

Mudi Ariyarathna
B.Eng(Civil)(Hons)Monash, M.Eng&Mgt, MIEAust, CPEng, NPER, RBP EC-39699, RPEQ- 15899

ISO 9001:2008 Registered Firm
Certificate No: AU1222

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Structural Design Documentation

Single Panel A-frame Solar Racking System Spacing Table

According to AS 1170.2-2011 Amdt 3-2013
with HOP-SLR03 Rails
within Australia & New Zealand

Terrain Category 2 & 3
Base Rail parallel to Support Structure

For: Xiamen Hopergy Photovoltaic Technology Co. Ltd.

Job Number: 2242
Date: 13 September 2016

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ISO 9001:2008 Registered Firm
Certificate No: AU1222

Job No: **2242**
Client: **Xiamen Hopergy Photovoltaic Technology Co. Ltd.**
Project: **Single Panel A-frame Solar Racking System Spacing Table**

Address: **within Australia & New Zealand**

Australian Standards

AS/NZS 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/NZS 1252 – High Strength Structural Bolting
AS 4055 – Wind Loads for Housing
AS 4100 – Steel Structures
AS/NZS 4600 – Cold-Formed Steel Structures

Wind Terrain Category: WTC 2 & 3

Designed: **K.Z**

Date: **Sep-16**

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Client: **Xiamen Hopergy Photovoltaic Technology Co. Ltd.** Job: **2242**

Project: **Single Panel A-frame Solar Racking System Spacing Table** Date: **Sep-16**

Address: **within Australia & New Zealand**

Designed: **K.Z** Checked: **M.A**

Single Panel A-frame Solar Racking System Spacing Table (Base Rail parallel to Support Structure)

Only apply the tables when using 2 rails and rail interfaces on top beam are within 30mm to the top beam supporting points

Type of Rail HOP-SLR03

Type of Interface HOP-AFK01-1400 Single Tripod Frame

Solar Panel Dimension 1.64m x 0.99m

Terrain category 2

Refer to Note 4 for Screw Fixing Requirements

Tilt Angle to Roof 15°-20°

Roof Angle (Φ) – ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1347**	**1659**	**1794**	**2012**	**1223**	**1508**	**1704**	**1906**	**1163**	**1433**	**1660**	**1855**	**1130**	**1392**	**1617**	**1826**
B	**1057**	**1301**	**1511**	**1870**	**960**	**1181**	**1370**	**1692**	**914**	**1124**	**1302**	**1608**	**888**	**1092**	**1265**	**1561**
C	**867**	**1065**	**1234**	**1522**	**788**	**968**	**1120**	**1380**	**750**	**921**	**1066**	**1312**	**729**	**895**	**1036**	**1275**
D	**681**	**836**	**967**	**1189**	**619**	**760**	**879**	**1080**	**589**	**723**	**836**	**1027**	**573**	**703**	**813**	**998**
W	**1185**	**1460**	**1653**	**1847**	**1076**	**1324**	**1537**	**1753**	**1023**	**1259**	**1461**	**1707**	**994**	**1223**	**1419**	**1681**

Tilt Angle to Roof 21°-25°

Roof Angle (Φ) – ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1184**	**1459**	**1675**	**1873**	**1075**	**1324**	**1537**	**1777**	**1023**	**1259**	**1461**	**1730**	**994**	**1223**	**1418**	**1704**
B	**930**	**1144**	**1326**	**1637**	**845**	**1039**	**1203**	**1484**	**805**	**988**	**1145**	**1410**	**782**	**961**	**1112**	**1370**
C	**763**	**937**	**1085**	**1336**	**694**	**852**	**986**	**1213**	**661**	**811**	**938**	**1153**	**642**	**788**	**912**	**1121**
D	**600**	**736**	**851**	**1046**	**546**	**669**	**774**	**950**	**519**	**637**	**736**	**904**	**505**	**619**	**716**	**879**
W	**1042**	**1282**	**1488**	**1724**	**946**	**1164**	**1349**	**1638**	**901**	**1107**	**1283**	**1584**	**875**	**1076**	**1247**	**1538**

Tilt Angle to Roof 26°-30°

Roof Angle (Φ) – ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1069**	**1315**	**1527**	**1771**	**971**	**1194**	**1385**	**1683**	**924**	**1136**	**1316**	**1625**	**898**	**1103**	**1279**	**1578**
B	**840**	**1032**	**1196**	**1474**	**764**	**938**	**1086**	**1337**	**727**	**893**	**1033**	**1272**	**707**	**867**	**1004**	**1235**
C	**690**	**847**	**980**	**1205**	**627**	**769**	**890**	**1094**	**597**	**732**	**847**	**1041**	**580**	**712**	**823**	**1012**
D	**542**	**665**	**769**	**944**	**493**	**605**	**699**	**858**	**470**	**576**	**666**	**817**	**457**	**560**	**647**	**794**
W	**941**	**1157**	**1341**	**1633**	**855**	**1050**	**1217**	**1501**	**814**	**999**	**1158**	**1426**	**791**	**971**	**1125**	**1385**

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Client: **Xiamen Hopergy Photovoltaic Technology Co. Ltd.** Job: **2242**
Project: **Single Panel A-frame Solar Racking System Spacing Table** Date: **Sep-16**
Address: **within Australia & New Zealand**
Designed: **K.Z** Checked: **M.A**

Single Panel A-frame Solar Racking System Spacing Table (Base Rail parallel to Support Structure)

Only apply the tables when using 2 rails and rail interfaces on top beam are within 30mm to the top beam supporting points

Type of Rail HOP-SLR03
Type of Interface HOP-AFK01-1400 Single Tripod Frame
Solar Panel Dimension 2m x 1m
Terrain category 2
Refer to Note 4 for Screw Fixing Requirements
Tilt Angle to Roof 15°-20°
Roof Angle (Φ) – ≤10°

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	1220	1507	1707	1915	1107	1365	1588	1814	1053	1298	1508	1765	1023	1261	1464	1737
B	957	1179	1368	1693	870	1070	1240	1532	828	1017	1179	1456	804	989	1146	1414
C	785	965	1118	1378	713	876	1015	1250	679	834	965	1188	660	810	938	1154
D	616	757	876	1077	561	688	796	978	534	655	757	930	519	636	736	904
W	1073	1322	1537	1758	974	1199	1392	1668	927	1140	1323	1625	901	1108	1285	1589

Tilt Angle to Roof 21°-25°
Roof Angle (Φ) – ≤10°

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	1072	1322	1536	1782	974	1199	1391	1691	926	1140	1323	1636	900	1107	1284	1588
B	842	1036	1201	1483	766	941	1090	1344	729	895	1037	1277	708	870	1007	1241
C	691	849	983	1210	628	771	893	1098	598	734	849	1044	581	713	825	1015
D	543	666	771	947	494	606	701	860	470	577	667	819	457	561	648	796
W	943	1161	1347	1640	857	1054	1222	1509	816	1003	1162	1434	793	974	1129	1392

Tilt Angle to Roof 26°-30°
Roof Angle (Φ) – ≤10°

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	968	1191	1383	1686	879	1081	1254	1549	836	1028	1192	1472	813	999	1158	1429
B	761	935	1083	1335	692	849	983	1211	658	808	936	1151	640	786	909	1119
C	625	767	887	1091	568	697	806	991	541	663	767	943	526	645	746	916
D	491	602	696	855	447	548	633	777	425	521	603	740	413	507	586	719
W	852	1047	1214	1500	774	951	1102	1359	737	905	1048	1292	716	879	1018	1255

General Notes

Note 1 Screws minimum embedment length into timber 35 mm

Note 2 Recommended screws

Metal Purlins/Battens	**Fasteners to use**
0.55 mm – 1.5 mm	M6-11 TPI RoofZips
1.9 mm	M6-11 TPI RoofZips OR 14g-10 TPI Teks screws
2.4 mm and Above	14g-10 TPI Teks screws
Wood purlins and Rafter	**Fasteners to use**
Pine and Hardwood (35mm embedment and above)	M6 (14g) with 10 TPI

Note 3 Following components are satisfied to use according to AS1170.2011

Components	**Part Number**	**Description**
HOP-SLR03 Rail	HOP-SLR03	HOP-SLR03 Rail
Adjustable Tripod Frame	HOP-AFK01-1400	HOP-AFK01-1400 Single Tripod Frame

Note 4 Number of fasterners recommended per frame - single panel frame

Roof Frame Material	**Region**				
	A	B	C	D	W
0.55-0.74 Batten	5	5	5	5	5
0.75-1.4 Batten	4	4	4	4	4
1.5 Purlin	4	4	4	4	4
1.9 Purlin	4	4	4	4	4
2.4 and Above Purlin	4	4	4	4	4
F7 Pine *	4	4	4	4	4
F17 Hardwood *	4	4	4	4	4
*** Minimum 35mm Embedment for Timber**					

The screws need to be spaced evenly at the base rail. 2 screws must be placed at two ends of the base rail respectively at 30mm from the ends. Screws need to be minimum of 100mm apart.

Note 5 Refer Figure 5.3 of AS/NZS 1170.2:2011 for definition of roof zones.

Note 6 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 obstruction per obstructions per hectare.

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Client: **Xiamen Hopergy Photovoltaic Technology Co. Ltd.** Job: **2242**
Project: **Single Panel A-frame Solar Racking System Spacing Table** Date: **Sep-16**
Address: **within Australia & New Zealand**
Designed: **K.Z** Checked: **M.A**

Single Panel A-frame Solar Racking System Spacing Table (Base Rail parallel to Support Structure)

Only apply the tables when using 2 rails and rail interfaces on top beam are within 30mm to the top beam supporting points

Type of Rail HOP-SLR03
Type of Interface HOP-AFK01-1400 Single Tripod Frame
Solar Panel Dimension 1.64m x 0.99m
Terrain category 3
Refer to Note 4 for Screw Fixing Requirements
Tilt Angle to Roof 15°-20°
Roof Angle (Φ) – ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1482**	**1744**	**1889**	**2125**	**1482**	**1744**	**1889**	**2125**	**1379**	**1679**	**1816**	**2039**	**1303**	**1608**	**1762**	**1975**
B	**1162**	**1431**	**1663**	**2059**	**1162**	**1431**	**1663**	**2059**	**1081**	**1332**	**1546**	**1914**	**1023**	**1259**	**1460**	**1806**
C	**952**	**1170**	**1357**	**1676**	**952**	**1170**	**1357**	**1676**	**886**	**1090**	**1263**	**1558**	**839**	**1031**	**1194**	**1472**
D	**747**	**917**	**1062**	**1307**	**747**	**917**	**1062**	**1307**	**696**	**855**	**989**	**1217**	**659**	**809**	**936**	**1150**
W	**1302**	**1607**	**1738**	**1946**	**1302**	**1607**	**1738**	**1946**	**1212**	**1494**	**1673**	**1870**	**1146**	**1412**	**1625**	**1814**

Tilt Angle to Roof 21°-25°
Roof Angle (Φ) – ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1301**	**1606**	**1761**	**1973**	**1301**	**1606**	**1761**	**1973**	**1211**	**1494**	**1695**	**1896**	**1145**	**1411**	**1639**	**1839**
B	**1022**	**1257**	**1459**	**1804**	**1022**	**1257**	**1459**	**1804**	**952**	**1170**	**1357**	**1676**	**900**	**1107**	**1282**	**1583**
C	**838**	**1029**	**1192**	**1470**	**838**	**1029**	**1192**	**1470**	**781**	**959**	**1110**	**1367**	**739**	**907**	**1050**	**1292**
D	**658**	**808**	**934**	**1149**	**658**	**808**	**934**	**1149**	**613**	**753**	**870**	**1070**	**581**	**712**	**824**	**1012**
W	**1144**	**1410**	**1624**	**1813**	**1144**	**1410**	**1624**	**1813**	**1066**	**1312**	**1523**	**1745**	**1008**	**1240**	**1439**	**1693**

Tilt Angle to Roof 26°-30°
Roof Angle (Φ) – ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1174**	**1447**	**1668**	**1864**	**1174**	**1447**	**1668**	**1864**	**1093**	**1346**	**1563**	**1793**	**1034**	**1272**	**1476**	**1740**
B	**922**	**1134**	**1315**	**1623**	**922**	**1134**	**1315**	**1623**	**859**	**1056**	**1224**	**1509**	**813**	**999**	**1157**	**1426**
C	**757**	**929**	**1076**	**1325**	**757**	**929**	**1076**	**1325**	**705**	**866**	**1002**	**1233**	**668**	**819**	**948**	**1166**
D	**595**	**730**	**844**	**1037**	**595**	**730**	**844**	**1037**	**555**	**680**	**786**	**966**	**525**	**644**	**744**	**914**
W	**1033**	**1271**	**1475**	**1716**	**1033**	**1271**	**1475**	**1716**	**962**	**1183**	**1372**	**1652**	**910**	**1119**	**1297**	**1601**

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Client: **Xiamen Hopergy Photovoltaic Technology Co. Ltd.** Job: **2242**
Project: **Single Panel A-frame Solar Racking System Spacing Table** Date: **Sep-16**
Address: **within Australia & New Zealand**
Designed: **K.Z** Checked: **M.A**

Single Panel A-frame Solar Racking System Spacing Table (Base Rail parallel to Support Structure)

Only apply the tables when using 2 rails and rail interfaces on top beam are within 30mm to the top beam supporting points

Type of Rail: HOP-SLR03
Type of Interface: HOP-AFK01-1400 Single Tripod Frame
Solar Panel Dimension: 2m x 1m
Terrain category: 3
Refer to Note 4 for Screw Fixing Requirements
Tilt Angle to Roof: 15°-20°
Roof Angle (Φ) – : ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1342**	**1659**	**1797**	**2022**	**1342**	**1659**	**1797**	**2022**	**1249**	**1543**	**1728**	**1940**	**1180**	**1456**	**1677**	**1879**
B	**1052**	**1296**	**1506**	**1868**	**1052**	**1296**	**1506**	**1868**	**979**	**1206**	**1400**	**1733**	**926**	**1140**	**1323**	**1636**
C	**862**	**1060**	**1229**	**1518**	**862**	**1060**	**1229**	**1518**	**803**	**987**	**1143**	**1411**	**759**	**933**	**1081**	**1333**
D	**676**	**831**	**962**	**1184**	**676**	**831**	**962**	**1184**	**630**	**774**	**896**	**1102**	**597**	**732**	**847**	**1042**
W	**1179**	**1455**	**1654**	**1852**	**1179**	**1455**	**1654**	**1852**	**1097**	**1353**	**1573**	**1780**	**1038**	**1278**	**1485**	**1726**

Tilt Angle to Roof: 21°-25°
Roof Angle (Φ) – : ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1179**	**1455**	**1676**	**1878**	**1179**	**1455**	**1676**	**1878**	**1097**	**1352**	**1572**	**1805**	**1037**	**1278**	**1485**	**1750**
B	**925**	**1138**	**1321**	**1634**	**925**	**1138**	**1321**	**1634**	**862**	**1060**	**1229**	**1518**	**815**	**1002**	**1161**	**1433**
C	**759**	**932**	**1080**	**1331**	**759**	**932**	**1080**	**1331**	**707**	**868**	**1005**	**1238**	**669**	**821**	**951**	**1170**
D	**596**	**731**	**846**	**1040**	**596**	**731**	**846**	**1040**	**555**	**681**	**788**	**969**	**526**	**645**	**746**	**916**
W	**1036**	**1277**	**1483**	**1725**	**1036**	**1277**	**1483**	**1725**	**965**	**1188**	**1379**	**1660**	**913**	**1123**	**1303**	**1611**

Tilt Angle to Roof: 26°-30°
Roof Angle (Φ) – : ≤10°

Wind Region	Building Height – H (m)															
	H≤5				5<H≤10				10<H≤15				15<H≤20			
	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal	Corner	Edge	Interm ediate	Internal
A	**1063**	**1310**	**1523**	**1774**	**1063**	**1310**	**1523**	**1774**	**990**	**1219**	**1415**	**1706**	**936**	**1152**	**1337**	**1654**
B	**835**	**1027**	**1191**	**1470**	**835**	**1027**	**1191**	**1470**	**778**	**956**	**1108**	**1366**	**736**	**905**	**1048**	**1291**
C	**685**	**842**	**974**	**1200**	**685**	**842**	**974**	**1200**	**639**	**784**	**907**	**1116**	**604**	**742**	**858**	**1056**
D	**539**	**661**	**764**	**939**	**539**	**661**	**764**	**939**	**502**	**616**	**712**	**875**	**475**	**583**	**674**	**827**
W	**935**	**1151**	**1336**	**1633**	**935**	**1151**	**1336**	**1633**	**871**	**1072**	**1243**	**1535**	**824**	**1013**	**1174**	**1450**

General Notes

Note 1 Screws minimum embedment length into timber 35 mm

Note 2 Recommended screws

Metal Purlins/Battens	**Fasteners to use**
0.55 mm – 1.5 mm	M6-11 TPI RoofZips
1.9 mm	M6-11 TPI RoofZips OR 14g-10 TPI Teks screws
2.4 mm and Above	14g-10 TPI Teks screws
Wood purlins and Rafter	**Fasteners to use**
Pine and Hardwood (35mm embedment and above)	M6 (14g) with 10 TPI

Note 3 Following components are satisfied to use according to AS1170.2011

Components	**Part Number**	**Description**
SLR03 Rail	SLR03	SLR03 Rail
Adjustable Tripod Frame	AFK01-1400	AFK01-1400 Tripod Frame

Note 4 Number of fasterners recommended per frame - single panel frame

Roof Frame Material	**Region**				
	A	B	C	D	W
0.55-0.74 Batten	5	5	5	5	5
0.75-1.4 Batten	4	4	4	4	4
1.5 Purlin	4	4	4	4	4
1.9 Purlin	4	4	4	4	4
2.4 and Above Purlin	4	4	4	4	4
F7 Pine *	4	4	4	4	4
F17 Hardwood *	4	4	4	4	4
*** Minimum 35mm Embedment for Timber**					

The screws need to be spaced evenly at the base rail. 2 screws must be placed at two ends of the base rail respectively at 30mm from the ends. Screws need to be minimum of 100mm apart.

Note 5 Refer Figure 5.3 of AS/NZS 1170.2:2011 for definition of roof zones.

Note 6 Terrain category 3(TC3) refers to numerous closely spaced obstructions having heights generally from 3 m to 10 m. For example suburban housing or light industrial estates. Refer clause 4.2.1 of AS/NZS 1170.2-2011 Amdt 2-2012 for definition of Terrain category 3.