

Structural Design Documentation

PV-eZRack® SolarRoof Interface spacing Table **According to AS 1170.2011 for all wind region** **All around Australia**

For:
Clenergy Australia

Job Number: 23939
Date: 4 September 2012



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Job No: 23939

Client: Clenergy Australia

Project: PV-eZRack® SolarRoof Interface spacing Table

Address: According to AS 1170.2011 for all wind region

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 1252 – High Strength Structural Bolting
- AS 3600 – Concrete Structures
- AS 4055 – Wind Loads for Housing
- AS 4100 – Steel Structures
- AS 4600 – Cold-Formed Steel Structures

Wind Terrain Category: WTC 2

Designed: M.S

Date: Sep-12

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REV G

PV-eZRack® SolarRoof Interface spacing Table for Tile Roof

Type of Rail ER-R
 Type of Interface ER-I-01
 Solar Panel Dimension 2mx1m
 Terrain category 2

Roof Angle (Φ) - 20° - 25°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle		
A	1775	1875	1700	1825	1575	1775	1500	1775		
B	1550	1850	1325	1725	1200	1600	1150	1525		
C	1100	1450	925	1250	850	1150	800	1075		
D	750	1025	625	850	575	775	550	750		

Roof Angle (Φ) - 25° - 30°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle		
A	1550	1800	1325	1750	1200	1725	1150	1650		
B	1175	1675	1000	1450	925	1325	875	1275		
C	825	1200	700	1025	625	925	600	875		
D	550	825	475	700	425	625	400	600		

Roof Angle (Φ) - ≥ 30°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle		
A	1325	1775	1125	1675	1025	1550	975	1475		
B	1000	1500	850	1275	775	1175	750	1125		
C	700	1050	575	900	525	825	500	775		
D	475	725	400	600	350	550	350	525		

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PV-eZRack® SolarRoof Interface spacing Table for Tin Roof

Type of Rail ER-R
 Type of Interface ER-I-05
 Solar Panel Dimension 2mx1m
 Terrain category 2

Roof Angle (Φ) - ≤10°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle		
A	1575	2000	1500	1850	1450	1800	1425	1775		
B	1550	1950	1475	1825	1425	1775	1400	1725		
C	1425	1750	1350	1650	1300	1600	1250	1575		
D	1200	1600	1100	1525	1025	1475	1000	1450		

Roof Angle (Φ) - 10° - 20°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle		
A	1725	2225	1625	2075	1575	2000	1550	1950		
B	1700	2175	1600	2025	1575	1950	1525	1925		
C	1550	1925	1450	1800	1425	1750	1400	1700		
D	1400	1750	1275	1650	1200	1600	1175	1575		

Roof Angle (Φ) - 20° - 30°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle		
A	1675	1800	1600	1750	1575	1725	1550	1700		
B	1650	1800	1600	1725	1550	1700	1550	1675		
C	1550	1675	1475	1625	1450	1575	1425	1575		
D	1450	1600	1400	1525	1350	1500	1325	1475		

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PV-eZRack® SolarRoof Frame spacing Table for Adjustable Tilt Leg

Type of Rail ER-R
 Solar Panel Dimension 2mx1m
 Terrain category 2

Type of Interface 10°-15° Adjustable Tilt Leg
 Roof Angle (Φ) - ≤10°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle
A	1500	1725	1400	1600	1350	1550	1325	1525		
B	1325	1675	1200	1525	1125	1425	1100	1375		
C	1075	1325	950	1200	900	1125	875	1100		
D	850	1050	775	950	725	900	700	875		

Type of Interface 15°-30° Adjustable Tilt Leg
 Roof Angle (Φ) - ≤10°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle
A	1150	1400	1025	1300	975	1225	950	1175		
B	975	1200	875	1075	825	1025	800	1000		
C	775	950	700	875	675	825	650	800		
D	625	775	575	700	525	650	525	650		

Type of Interface 30°-60° Adjustable Tilt Leg
 Roof Angle (Φ) - ≤10°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle
A	1025	1275	925	1150	875	1100	850	1050		
B	875	1075	775	975	750	925	725	900		
C	700	875	625	775	600	750	575	725		
D	550	700	500	625	475	600	475	575		

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PV-eZRack® SolarRoof Frame spacing Table for Adjustable Reverse Tilt Leg

Type of Rail ER-R
 Solar Panel Dimension 2mx1m
 Terrain category 2

Type of Interface 30°-65° Adjustable Tilt Leg
 Roof Angle (Φ) - ≤10°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle
A	1025	1275	925	1150	875	1100	850	1050		
B	875	1075	775	975	750	925	725	900		
C	700	875	625	775	600	750	575	725		
D	550	700	500	625	475	600	475	575		

Type of Interface 30°-65° Adjustable Tilt Leg
 Roof Angle (Φ) - ≤20°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle
A	1150	1400	1025	1300	975	1225	950	1175		
B	950	1200	875	1075	825	1025	800	1000		
C	775	950	700	875	675	825	650	800		
D	625	775	575	700	525	650	525	650		

Type of Interface 30°-65° Adjustable Tilt Leg
 Roof Angle (Φ) - ≤30°

Wind Region	Building Height - H (m)									
	H≤5		5<H≤10		10<H≤15		15<H≤20			
	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle	Edge	Middle
A	1475	1675	1400	1575	1350	1525	1300	1500		
B	1325	1650	1200	1500	1125	1425	1100	1375		
C	1050	1325	950	1200	900	1125	875	1100		
D	850	1050	775	950	725	900	700	875		

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	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 12g-14 TPI Teks screws			
	2.4 mm and Above	12g-24 TPI Teks screws			
	Wood purlins and Rafter	Fasteners to use			
	Pine and Hardwood (35mm embedment and above)	M6 (12g) with 10 TPI			
Note 3	Above Spacing calculated based on 1.9mm steel purlin OR F17 Hardwood For Wind region C & D spacing for Tin Roof can be reduced as follows,				
	Material	Wind Region C		Wind Region D	
		Middle	Edge	Middle	Edge
	0.55 mm steel Batten	18%	54%	64%	45%
	0.75 mm steel Batten	0%	24%	10%	43%
	1.2 mm steel purlin	0%	0%	0%	25%
	F7 pine timber	0%	0%	0%	13%
Note 4	ER-R-ST railing also can be used. Spacing need to be reduced as follows,				
	Material	Region A		Region B	
		Middle	Edge	Middle	Edge
	Tile roof interface	7.0%	7.0%	7.0%	7.0%
	Tin roof interface	7.0%	7.0%	7.0%	7.0%
	Adjustable tilt leg	7.0%	7.0%	7.0%	7.0%
Note 5	Following components are satisfied to use according to AS1170.2011				
	Components	Part Number	Description		
	MT-base Rail	ER-R-MT2560	MT-Rail 2560 mm		
	Corrugated Adapter	ER-AD-C110	Adapter for corrugated iron roof		
	Tilt Legs	ER-TL-30	Tilt Legs Kit fixed 30° (front and back leg)		
	Hanger Bolt	ER-HB-200/WOMP	Hanger Bolt without mounting plate M10x200. Fixed to timber purlin only		
	Roof extender	ER-RE-200	Roof Hook Extender 200mm		
Note 6	For adjustable tilting leg, Maximum back leg angle to horizontal - 90° Minimum back leg angle to horizontal - 30°				
Note 7	Figure shows the building dimension (b,d & h)				
					