



PoleLock Installation Manual

Version 1 – updated September 2011

www.sunlock.com.au



INTRODUCTION

Thank you for choosing the PoleLock solar photovoltaic (PV) module pole-mounted framing system, part of the SunLock family of solar framing products.

PoleLock is suitable for a wide variety of commercial and remote installations.

PoleLock is backed by a 10-year warranty and are compliant with the Australian / New Zealand Standard on Wind Actions (AS/NZS1170.2.2011).

Each PoleLock frame can support either two 85W Suntech STP085 or 80W BP380J PV modules, providing a peak power of 160W-170W. If required, multiple PoleLock frames can be installed on one site to provide increased power.

**WARNING****WARNING**

Indicates a hazardous situation which, if not avoided, can result in death or serious injury or moderate injury.

**CAUTION****CAUTION**

Indicates a hazardous condition which, if not avoided, can result in minor or moderate injury.

SAFETY

Wind loads

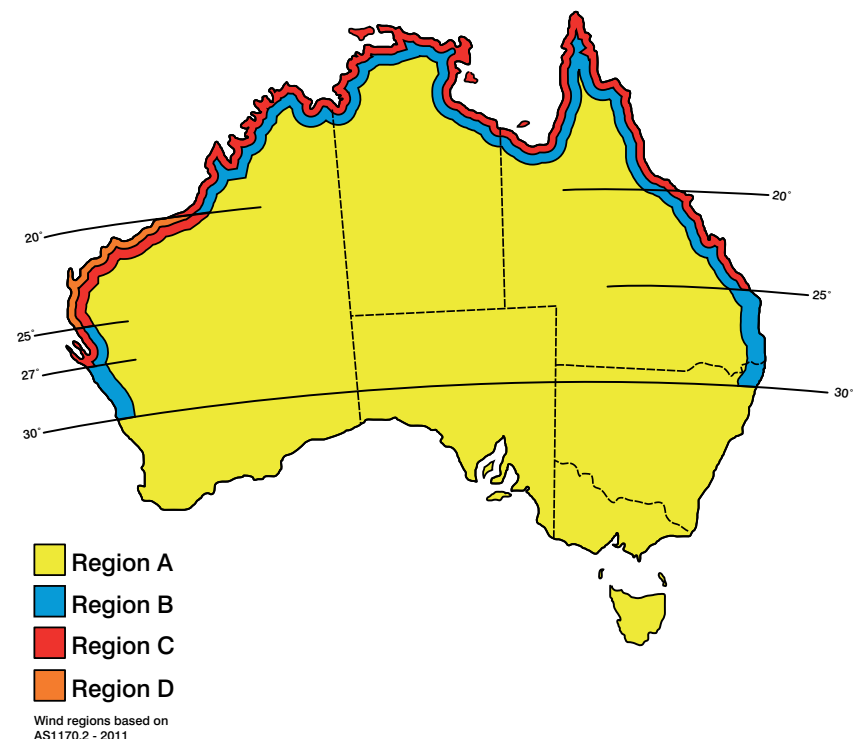
The PoleLock frame has been assessed and rated to be in compliance with AS/NZS1170.2.2011 on Wind Actions, for the following regions:

- Wind region A and B (most of Australia)
- Terrain Category 2, 3, 4
(sites with few obstructions, or built up areas)
- Topographic factor MT = 1.0
(on level or near level ground)
- Topographic factor MT = 1.2
(located on a hill with an upwind slope of up to 7 degrees)

Note: MT 1.2 specified in Region A only.

AS/NZS1170.2.2011 provides guidance on determining the wind pressures applicable to your PoleLock installation site, taking in local terrain and topography. Sufficient guidance is given in this document, but you may wish to procure a copy of these standards if your company installs Australia wide.

Any attempt by an unqualified person to install this product could result in death or serious injury.



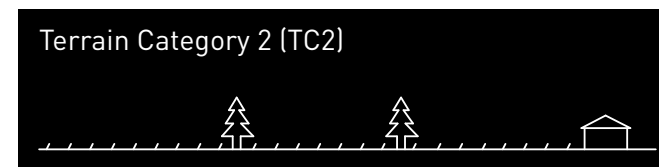
Footings

The footings for PoleLock have been designed by a registered structural engineer, and are appropriate for natural ground, not topsoil, fill, or disturbed ground.

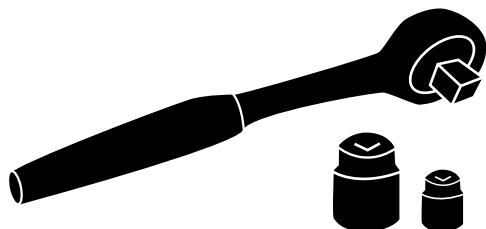
Check that the soil at the install location is appropriate for this footing design. If it is not appropriate, you will need to get the footing checked by a registered structural engineer.

Handling

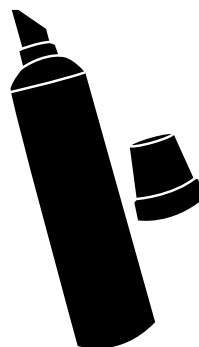
The materials used in the PoleLock frame can have sharp corners or edges. Wear personal protective equipment such as safety glasses, hearing protection and gloves during cutting and handling.



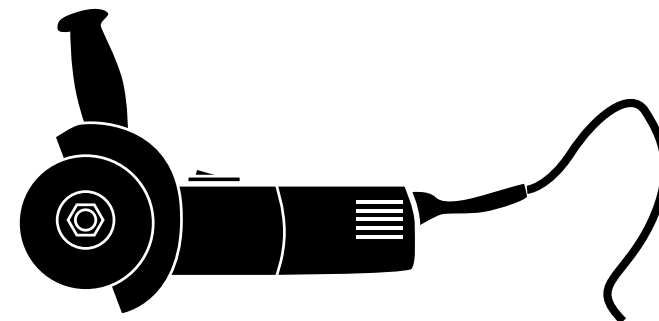
TOOLS REQUIRED FOR INSTALLATION



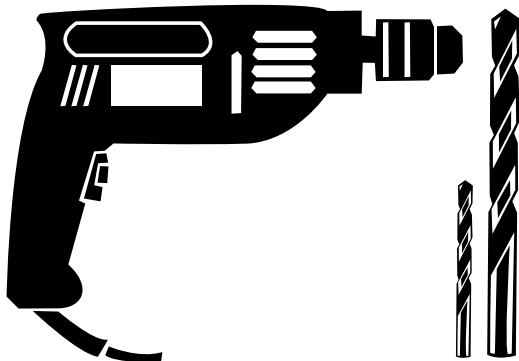
Socket and ratchet (A 13mm & 19mm socket and ratchet for tightening supplied fasteners)



Permanent marker (A permanent marker is required to provide guidance when drilling holes in the mounting post)



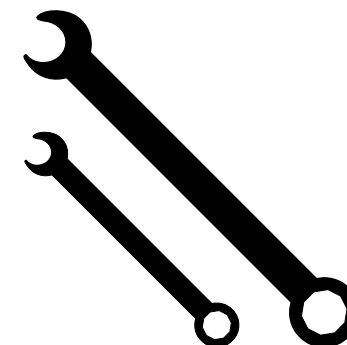
Angle grinder (If required, an angle grinder with a metal cutting blade can be used to trim the mounting post to the desired length)



Hand drill (An electric hand drill for drilling mounting holes in preparation for attaching the frame to the mounting post)
Drill bits (A 6mm & 13mm drill bit is required to drill holes in the mounting post)



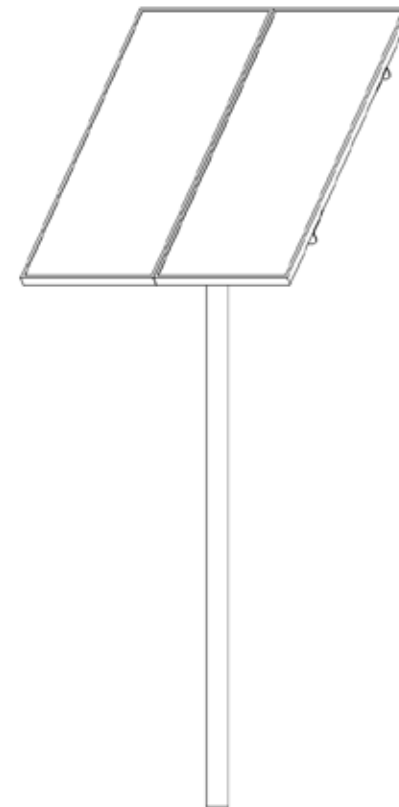
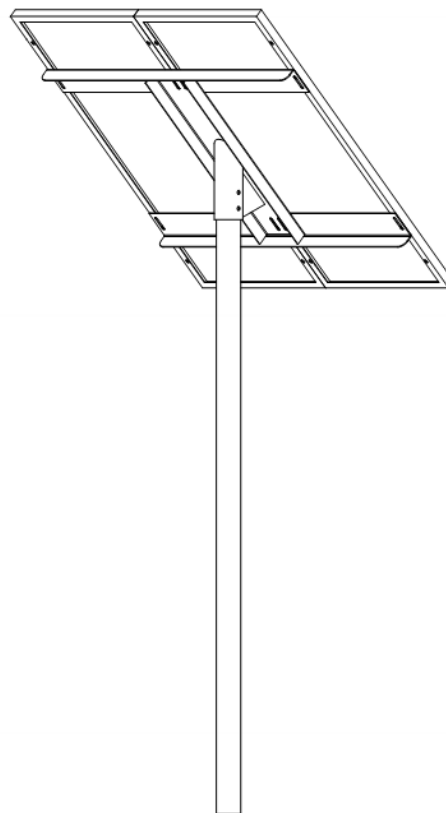
Centre punch (A centre punch is required to accurately mark out the location of the holes on the post and to provide guidance for the drill bit)



Ring spanner (A 13mm & 19mm ring spanner for tightening supplied fasteners)

TYPICAL INSTALLATION

PoleLock can be installed on level ground or on slopes of up to 7 degrees.



INSTALLATION

The PoleLock frame consists of three parts which are bolted together. The frame is then bolted to the top of a mounting post.

Frame assembly

1. Lay both modules face down ensuring that the glass surfaces are protected from damage. The longer sides of each adjacent module should butt up against each other and the mounting holes should face upwards.

Note: When installing BP380J modules, a 4 mm gap is needed between the modules.

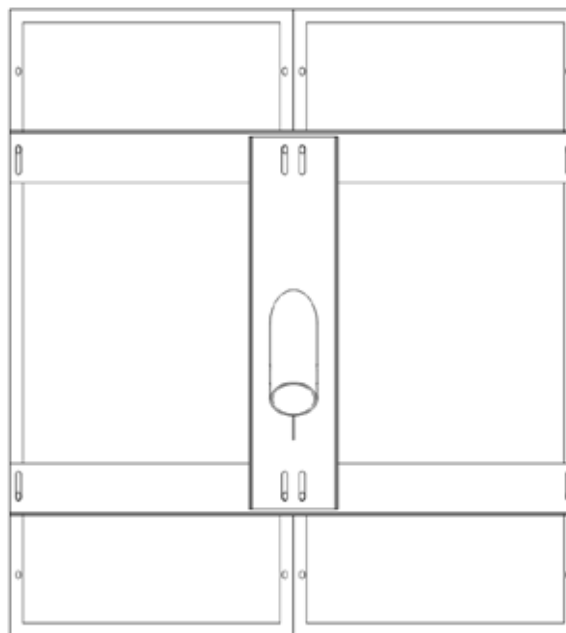
2. Place the galvanised angle sections on the back of the modules ensuring each angle crosses over both modules. Loosely attach M8 fasteners through each of the outer slots on the angle brackets.

Note: For ease of installation, the head of the bolts should be located on the inside of the module frame and should protrude towards the user.

3. Position the welded channel on top of the angle brackets ensuring all respective slots line up correctly. Loosely attach M8 fasteners through each mating part.

4. Tighten all fasteners once in position.

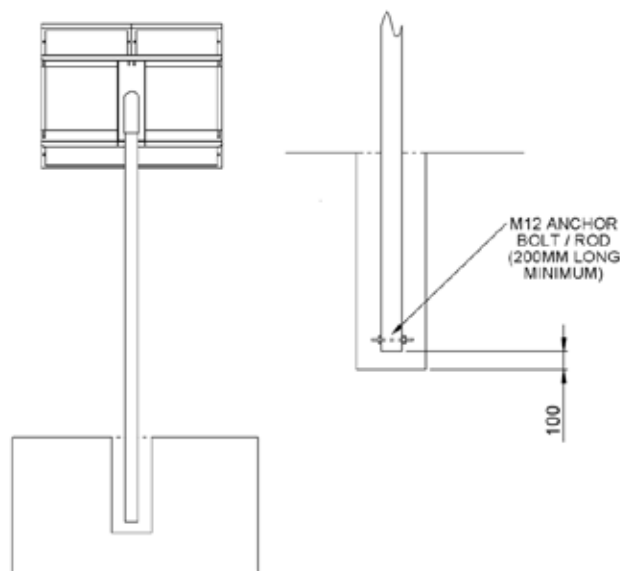
Note: Only the inner mounting holes on the modules are used to mount both the BP380J and Suntech STP085 modules to the frame.



Installing post

Note: PoleLock is certified for use with a 65DN DuraGal pole (76.1 mm outer diameter & 3.2 mm wall thickness) 350 MPa 3200mm–3600mm length (dependent on diameter of pier and wind region)

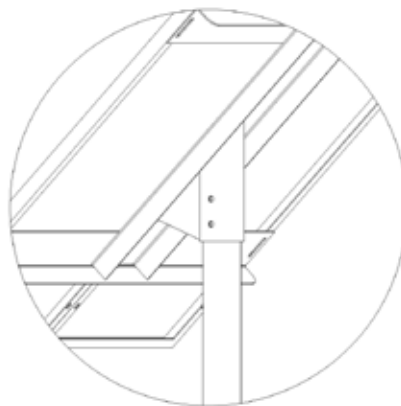
1. Ensure location is suitable for pole mounted solar installation.
2. Ensure no buildings/trees are shading the modules.
3. Dig holes to the following specifications:
Region A:
 300 diameter pier - 1400mm depth
 450 diameter pier - 1200mm depth
Region B:
 300 diameter pier - 1600mm depth
 450 diameter pier - 1400mm depth
4. Drill hole in end of pole, insert M12 bolt/rod and fasten.
5. Place galvanised pole in hole and fill with required amount of 25 MPa concrete. Ensure pole is orientated plumb. Ensure pole is raised 100mm above the bottom of the excavated hole.



Fastening panel frame assembly to post

Note: For safety reasons, it is advised that two people lift the panel frame assembly on top of the post using a properly supported ladder or platform.

1. Carefully hoist the panel frame assembly on top of post.
2. Ensuring that the modules are facing north, use the holes in the outer sleeve as a template to mark the locations of the required holes in the galvanised post.
3. Using the marks in the pole, use a centre punch to accurately set the hole location.
4. Drill a 6mm pilot hole in the prescribed locations.
5. Enlarge the pilot holes by using a 13mm drill bit.
6. Insert supplied M12 fasteners through holes in the sleeve and post and fasten securely.



MAINTENANCE AND CLEANING

Galvanised steel is largely maintenance free. Only in highly polluted or marine conditions is rinsing with clean water required, during scheduled panel cleaning.

WARRANTY CONDITIONS

Energy Matters Pty Ltd (trading as Energy Matters and Apollo Energy) (Energy Matters) warrants that its PoleLock and SunLock Solar Panel Mounting System (Frame) is free from defects in materials and workmanship for a period of 10 years from the date on which the Frame is purchased from Energy Matters (Warranty Period), on the terms set out in this warranty.

In the event that the Frame does not conform to this warranty during the Warranty Period, Energy Matters will, at its option, either repair or replace the Frame or pay the cost of having the Frame repaired or replaced.

To the extent permitted by law, Energy Matters's total liability under this warranty will in no circumstances exceed the repair or replacement of the Frame or payment of the cost of having the Frame repaired or replaced. In the event of replacement of the Frame, any remaining part of the Warranty Period will be transferred to the replacement Frame.

This warranty will not apply to any defect or damage to the Frame arising directly or indirectly from:

1. shipment or storage of the Frame;
2. improper installation, maintenance, repair or use of the Frame;
3. normal wear and tear;
4. misuse, neglect, abuse, accidental damage or modification to the Frame;
5. failure to observe the instructions set out in the System Manual; or
6. power failure, power surges, lightning, fire, explosion, flood, extreme weather conditions, environmental disasters or other causes outside Energy Matters' control, as determined by Energy Matters in its sole discretion.

This warranty does not cover, and under no circumstances will Energy Matters be liable for, any costs associated with the removal, shipping, handling or re-installation of the Frame or the costs of sending personnel to any site to repair or replace the Frame.

This warranty is only provided to the original purchaser of the Frame from Energy Matters (Purchaser) or, where the Purchaser is an installer or builder who on-supplies the Frame to another party, to that other party (End-User).

This warranty is not transferable. Where an End-User wants make a claim under this warranty, the End-User must in the first instance contact the installer or builder from whom the Frame was purchased.

All warranty claims must be made in writing and addressed to the Customer Service Officer, Energy Matters, PO Box 5265, South Melbourne, Victoria, 3205; and accompanied by proof of purchase of the Frame in a form acceptable to Energy Matters.

This warranty will not apply to any claims received by Energy Matters after the expiration of the Warranty Period. Energy Matters makes no warranties, express or implied, other than the warranties made herein, and specifically disclaims all other warranties, representations and conditions to the extent permitted by law.

To the extent permitted by law, in no circumstances will Energy Matters be liable for direct, indirect, special or consequential damages arising from a defective Frame or for any damage or injury to persons or property. Energy Matters' aggregate liability, if any, in damages or otherwise, will not exceed the invoice value of the Frame at the time of purchase from Energy Matters.

Any provision contained in this warranty which is prohibited or unenforceable in any jurisdiction will be deemed to be ineffective to the extent of such prohibition or unenforceability and will not invalidate the remaining provisions nor affect the validity or enforceability of that provision in any other jurisdiction.

This warranty will be governed and construed in accordance with the laws of Victoria, Australia and the parties irrevocably submit to the exclusive jurisdiction of the courts of Victoria.

REFERENCES

AS/NZS1170.2.2011, structural design actions,
Part 2: Wind actions


CONTACT DETAILS

For further information contact Apollo Energy
on 1300 855 484 (local call from anywhere in Australia)
or at info@sunlock.com.au

CERTIFICATE

AS/NZS1170.2.2011 certificate of structural adequacy
from registered structural engineer, Partridge Partners:

Engineering Consultants
Level 4, 1 Chandos Street
St Leonards NSW 2055 Australia
T 02 9460 1000 F 02 9460 1000
E partridge@partridge.com.au
W www.partridge.com.au



Partridge Partners

Vision into reality
Structural Engineers
Domestic Commercial
Facade Forensic Events

September 21st 2011

Energy Matters Pty Ltd
Level 2, 101-105 Clarke Street
South Melbourne VIC 3205

Attention: Mr James Mumford


CERTIFICATE OF STRUCTURAL ADEQUACY

**Project Description: PoleLock Pole Mounted Solar Panel Mounting System
PoleLock Installation Manual Version 1, September 2011**

We, Partridge Partners Pty Limited, being professional Structural Engineers within the meaning of the Building Code of Australia, hereby certify that we have reviewed the structural design of the PoleLock Solar Panel Mounting System and associated footings as detailed in the PoleLock Installation Manual Version 1, dated September 2011, and that this work is in accordance with the relevant provisions of the Standard Building Codes and in accordance with accepted engineering practice and principles.

This certification is subject to the limitations imposed on the system as detailed in the Manual. This document does not constitute certification of the adequacy of the ground or soil in which the footings are placed.




This certificate shall not be construed as relieving any other party of their responsibilities, liabilities or contractual obligations.



Rob O'Reilly
BEng(Hons) MIEAust CPEng NPER(Structural) RPEQ

For and on Behalf of:
Partridge Partners Pty Ltd

J2011-0063.006

Partridge Partners Pty Ltd
ABN 75 002 401 925

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under Professional Standards Legislation