

Subject S02: Solar Install**Common defects:**

Note: this is not an exclusive list, please refer to AS/NZS 3000, 5033, 4777 etc.

Design issues:

- Incorrectly sized panels. V_{OC} and temperature coefficients need to be taken into account
- Cable sizing issues AC and DC
- Must have a Certificate of Electrical Safety with switchboard. (Upgrade new 600 x 600 box = upgrade of switchboard)
- BCA class 2 - 9 requires Building Approval
- String protection when required
- Not exceed 5kW export

Cable issues:

- Lack of cable ties (steel)
- Mechanical protection (conduit) in the roof must be fit for purpose and labelled
- Standard electrical (AS/NZS 3000) mistakes, e.g. cables installed between roofing material and mounting structure

Isolator issues:

- Isolator sizing issues, information that comes with isolators needs to be understood consistently
- Isolator termination/wiring issues

Switchboard issues:

- Incorrect neutral
 - Don't connect to RCD protected neutral
 - Connect to correct tariff
- PV array main switch must be accessible and on the outside of the building

Panel/mounting system issues:

- Spacing of solar panel supports (wind loading) – must be as per manufacturers instructions
- Prohibited inverter locations, check with building codes (BCA)
- Terminate cables with boot laces – better

Water proofing issues:

- Roof penetrations – leak
- Use of glands – need one hole per cable
- IP rating of isolators

Labelling issues:

- Reflective tape – awareness of variations between jurisdictions
 - Permanently fix label (pop rivet/bolt/screw)
- Hazardous Voltage for systems in excess of 600V
- UV rated labels
- Shut procedure doesn't match the labels/signage (issue with some label packs)
- Verify earth/water bond and label location at switchboard

Earthing

- EQ bond comes from main earth not protective earth of the installation
- Earth stakes required for switchboard upgrade