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WSH INSIGHTS

Protecting Solar Panel Installers from Electrocution

The [Singapore Green Plan 2030](#) aims to deploy enough solar energy to power 350,000 households annually by 2030. To support this goal, more solar panels will be installed and workers must be kept safe while doing such works. Along with falling from height risks, electrocution is a major workplace safety and health (WSH) concern during solar panel installation and maintenance.

There are several good practices companies can adopt to protect workers from solar panel-related electrocution risks:

- Install solar panels as per design, e.g. a photovoltaic (PV) single line diagram.

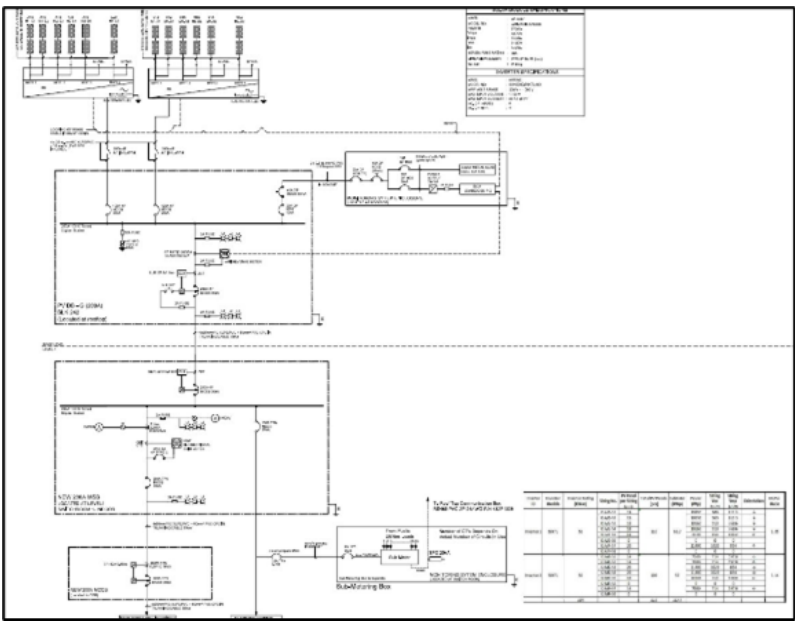


Figure 1: Example of a PV single line diagram.

- Place and secure an opaque cover over each solar panel to prevent the panel being energised while not plugged in.
- Cover all exposed electrical parts such as cables and connectors with an insulated cap to isolate the wire ends/terminals. Workers have been electrocuted even when solar panels were not plugged in, due to exposed cables.



Figure 2: Example of a connector with insulated end cap.

- Secure loose cables and connector ends away from the conducting medium (such as metal or water), e.g. by securing them under the solar panel.



Figure 3: Example of cables secured under a solar panel.

- Provide workers with electrical-resistant personal protective equipment, such as arc-rated protective clothing, insulated gloves and rubber-soled shoes.
- Report any PV system breakdown or abnormality, or damaged cables/connector to the licensed electrical worker immediately.

For more information:

Singapore Standard

[SS 601-1: 2020 Photovoltaic \(PV\) systems – Requirements for testing, documentation and maintenance – Part 1: Grid connected systems – Documentation, commissioning tests and inspection](#)

Ministry of Manpower

[Circular on Safe Installation of Photovoltaic \(PV\) System](#)

Building and Construction Authority (BCA) and Energy Market Authority

[Handbook for Solar Photovoltaic \(PV\) Systems](#)

Workplace Safety and Health Council

[Article on Addressing WSH Risks for Safe Installation of Solar Photovoltaic Systems](#)

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