

Safety Considerations

During Solar Installations

Situational Awareness

Always ask yourself :






- Are the working conditions are safe?
- Am I in Danger?
- Are the methods being used safe?
- Can I get struck?
- Can I get caught in between something?
- Can I get Electrocuted?

Appropriate clothing

- Always wear long pants – NO SHORTS allowed
- Long sleeves made out of flame retardant material when working with Aluminum and steel and around electrical equipment
- During hot weather wear light colored clothing to protect your skin
- AVOID loose clothing, jewelry, or unsecured hair can potentially become tangled in moving parts, resulting in injury
- Steel-toed boots protect your toes when heavy things such as inverters fall



Personal Protective Equipment (PPE)

PPE	Requirements
Hard Hats 	ANSI z89 approved supplied by Sunstall. Worn by all workers and visitors except in office or off-site Metal hard hats prohibited
Safety Glasses 	ANSI Z87 approved, with side shields Prescription lenses must be covered by over-safety glasses Worn by all workers and visitors. Additional face shield required for grinding or cutting metal
Gloves 	The right Gloves for the right Job.
Hearing Protection 	Required around loud machinery and post installer, within <u>100ft</u>
Respirators 	Protection required when air contaminants are outside prescribed limit Respirators must be fit tested

PPE	Requirements
High Visibility * 	Class 2 high visibility safety vest or equivalent high visibility Shirt Worn by all workers and visitors* <i>When performing specific electrical tasks, other PPE required.</i>
Clothing* 	Long pants, <u>Shorts not allowed</u> Long or short sleeve shirts <i>When exposed to flame or electrical arc, flame resistant rating required.</i>
Boots* 	Safety Toe, over the ankle Worn by all workers and visitors performing work <i>Visitors NOT performing work may wear closed-toe shoes</i>



Electrical Hazards

- PV modules, inverters, transformers, generators, all cabling
- Be cautious **everywhere**. It's an electrical power plant.
- Photovoltaic solar modules convert light energy from the sun into direct-current electrical energy: Modules can be energized **even if they are not connected**.

Working with PV Modules

- Never walk on modules, this can damage the module.
- Under no circumstances should you disconnect module cables that have been connected.
- Notify the Project Supervisor if there is a need to disconnect any wires.
- When disconnecting wires connected to a photovoltaic module that is exposed to sunlight, an electric arc may occur. Arcs can cause burns, start fires or otherwise create safety problems

Environmental Hazards

- Dress appropriately for the weather conditions you will be working in.
 - Heat, cold, rain, wind, etc.



- Lightning within 20 miles of the site STOPS all work.

Source: Sunstall LLC

Biological Hazards

- Snakes, spiders, insects, poison ivy, ticks



Rattle Snake



Black Widow Spider



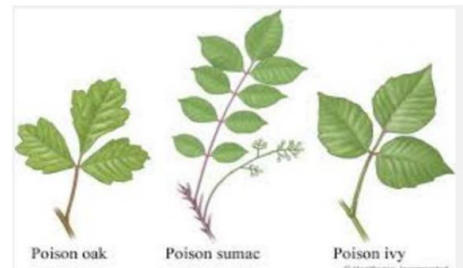
Brown Recluse Spider



Centipede



Yellow Jacket and Wasps



Poison Oak and Ivy



Ticks

Snake Safety

DO:

- If you see a snake, leave it alone
- Alert others to the location of snakes on the site (especially if determined to be poisonous)
- Wear leather gloves when handling materials on the field or in the lay down area where snakes could be present.
- Always look before you reach
- If you are bitten, remain calm and call 911 and/or get to an emergency room as soon as possible

DON'T:

- Attempt to capture or kill any snakes on site. Snakes will typically only bite when they feel threatened. People are most often bitten on the hands while trying to capture or kill a snake.
- Under any circumstances, put any dead snakes out for display

Racking Installation Safety

- Gloves are necessary PPE.
- Lift and raise with proper technique and within your limit.
- Stretch and hydrate – repetition can cause injury.



Module Install

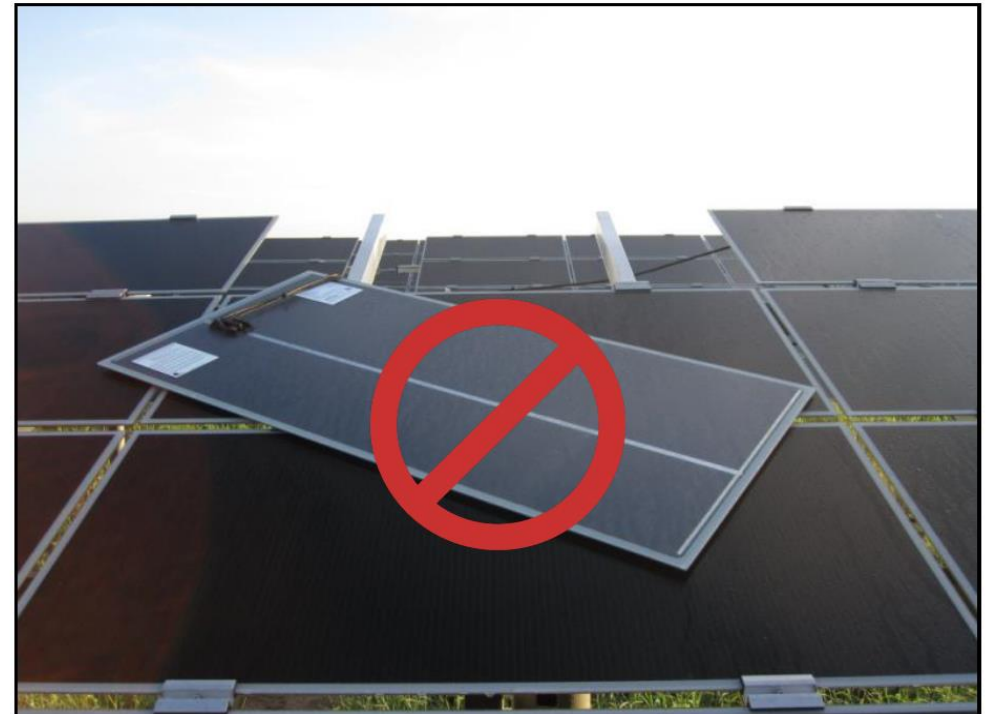
- Lift and raise with proper technique and within your limit.
- Modules are glass
Gloves are required.
- Modules are fragile
handle with care.
- **Modules for most projects weigh approx. 40 lbs.**
- **LIFT WITH YOUR LEGS**



Module Install



All modules must be secured and torqued at the end of **each** shift.



Electrical Safety

- Treat all cabling and connectors as energized until verified to be dead and tagged out by competent personnel.
- Only authorized and competent personnel may perform work on electrical connections.
- **DO NOT** handle any wires that you are not trained to do so.
- **DO NOT** make any connections, or disconnections, without the authority and supervision of a competent person (ELECTRICIAN).



Site Safety Activities

- Daily morning stretch & flex routine.



- Daily safety meeting will be held every morning



- Job Hazard Analysis required for each major task on site.
Each crew member should contribute and review, initial.



- **Hydrate** and work safely.

How to Prevent Injuries from

- **Tense and tight muscles from**
 - Lifting
 - Carrying
 - Pushing
 - Pulling of heavy objects
- **Awkward positions**
 - Tool Operations
 - Such as Drills and Grinders
- Use proper ERGONOMIC techniques
 - Take time to stretch
- Take Time to Stretch, especially before the job
- Talk to your Supervisor and get assign a different task
- Wear correct PPE
- Get help if necessary