

Hazard Fact Sheet - Power Tools on Solar Construction Farms

What is the Hazard?

Power tools such as drills, grinders, impact drivers, saws, crimpers, and torque tools pose risks including cuts, amputations, eye injuries, electric shock, burns, vibration exposure, and struck-by hazards. On solar farms, these risks increase due to high-volume repetitive work, variable ground conditions, environmental exposure, and inexperienced workers.

Types of Injuries / Health Effects

- Lacerations, punctures, amputation, crushed fingers/ hands
- Eye injuries from flying metal, dust, or shards
- Electric shock or burns from damaged cords or improper use
- Hearing loss from prolonged noise exposure
- Musculoskeletal injuries from poor ergonomics and repetitive use
- Hand–arm vibration syndrome (HAVS) from extended use of vibrating tools
- Fatigue-related errors due to long shifts and harsh site conditions



Causes/Scenarios

- Using damaged, untested, or untagged tools
- Incorrect tool for the task
- Lack of guarding or guards removed
- Inexperienced workers using high-powered tools without training
- Improper lifting/handling of heavy battery-powered tools
- Loose clothing or gloves caught in rotating parts
- Fatigue leading to reduced concentration and judgment

Control Measures

- Before using any power tool (drill, grinder, impact driver, crimper, torque tool), ask a competent person to show you how to hold it, start/stop it, and what can go wrong.
- Before you start, look for missing guards, loose parts, damaged cords, cracked discs, or worn bits, and don't use the tool if anything looks wrong.
- Make sure the tool, blade, bit, or disc is correct for the material and task (e.g. no cutting discs for grinding, no "near enough" sized bits or sockets).
- Wear safety glasses or a face shield, hearing protection, and suitable gloves when there is a risk of flying debris, sharp edges, or vibration.
- Position yourself upwind where possible, use on-tool extraction or water/dust control if provided, and keep others clear of your line of fire.
- Work from stable, non-slippery ground, keep two hands on the tool where designed, and avoid overreaching, twisting, or working above shoulder height for long periods.
- Keep cords out of water, mud and traffic routes, avoid trip hazards, and only use charged batteries and leads that are tagged and in good condition.
- Take regular breaks from high-vibration tools, swap tasks where possible, and report tingling, numbness, or loss of grip in your hands.
- Before changing blades, bits or discs, or clearing jams, disconnect power or remove the battery and wait for all moving parts to stop.
- Do not use power tools if you are very tired, unwell, affected by alcohol or drugs, or distracted; stop and reset if you feel your concentration slipping.



Case Example:

Repetitive Power Tool Use Leading to Strain and Fatigue

Guidance for Australian solar farm construction highlights that workers often use drills, impact drivers, and fastening tools repeatedly while bent over racking or reaching awkwardly. This can lead to muscle strain, fatigue, and vibration related discomfort, especially when rushing to meet deadlines.

Key Lessons Learned:

- Take breaks and switch tasks, when possible, repetitive tool use can cause strain.
- Use proper body position. Keep your back straight and avoid over reaching.
- If your hands start tingling or feel tired, pause and tell your supervisor.

https://www.safeworkaustralia.gov.au/sites/default/files/2023-12/dec_2023_-_code_of_practice_-_managing_the_risks_of_plant_in_the_workplace.pdf

Safe Work Australia – Managing the risks of plant in the workplace