

Portable Tools and Extension Cords

Portable tools and extension cords are essential for construction work, but improper use or poor maintenance can pose serious safety risks. All tools and equipment must be used according to manufacturers' instructions and maintained in good condition to prevent hazards.

NCC T&D leaders must educate and train workers in the proper use, inspection, and maintenance of portable tools and extension cords. Workers must report any defects or hazards to their supervisors immediately.

PPE, including proper tool handling procedures, is the last means of protection, so it is vital to ensure that:

- The hazard is controlled at the source, and employees understand that safe tool use is essential.
- All employees have a full understanding of the need for proper care, maintenance, and use of tools and extension cords.
- Tools and cords are inspected regularly to ensure they are in safe working condition.
- The use of safe and compliant tools is consistently enforced where needed.

Key Responsibilities

NCC T&D Management Must:

- Ensure that all portable tools and extension cords are inspected and maintained according to safety regulations.
- Provide training and instruction on the proper use, inspection, and maintenance of tools and extension cords.
- Remove defective or hazardous tools from service immediately and ensure they are properly tagged.
- Ensure the use of ELCB, ground fault circuit interrupters (GFCIs) and other appropriate device in required conditions.
- Maintain records of tool inspections and ensure compliance with all safety standards.

Workers Must:

- Use tools and extension cords according to their operating manuals.
- Inspect tools before use and report any defects, damage, or hazards immediately.
- Never use damaged or defective tools and ensure all tools are properly grounded.
- Avoid using tools in wet conditions unless plugged into a GFCI-protected receptacle.
- Keep cords organized and free from tripping hazards on the worksite.

Safe Use of Portable Tools and Extension Cords

Portable tools and extension cords must be used safely to prevent electrical hazards, equipment failure, and injuries.

Portable tools and extension cords must not be used if:

- They are defective or hazardous.
- Weather or environmental conditions make their use dangerous.
- They are being repaired or serviced unless operation is required for testing.
- Workers who are not qualified electricians may plug in or unplug electrical equipment from a receptacle but must not attempt any repairs.

Inspection and Maintenance Requirements

NCC T&D leaders must ensure that all portable tools and extension cords are regularly inspected and maintained in compliance with safety regulations.

Portable tools rated at more than 10 horsepower must:

- Have operating manuals readily available on-site.
- Be inspected by a competent worker to verify they can handle their rated capacity and to identify defects or hazards.
- Be inspected before first use on a project and at least once a year or more frequently if recommended by the manufacturer.
- Replacement parts for portable tools and extension cords must:
- Have at least the same safety factor as the original parts.

- Not be modified, extended, repaired, or replaced in a way that reduces their safety factor.

Electrical Safety and Grounding

- Proper grounding, as specified by the manufacturer, is essential for all tools and equipment. Under no circumstances shall portable tools or extension cords come into contact with energized electrical equipment, installations, or conductors.
- Extension cords are strictly for temporary tasks and must not be used as a permanent power source.

Extension cords must:

- Have a grounding conductor and at least two other conductors.
- Have cord connections that are grounded and either polarized or double-insulated with no cracks or defects.

When using a portable electrical tool outdoors or in wet conditions:

- The tool must be plugged into a Class A ground fault circuit interrupter (GFCI).
- If the power source is an ungrounded portable generator (maximum 1.8 kW output), a Class A GFCI must be installed in the cord as close to the tool as possible.

Tagging and Removing Unsafe Tools

If a tool is found to be defective or unsafe:

- Immediately disconnect and remove it from service.
- Tag it as “Out of Order” to prevent further use until it is repaired or replaced.

Additional Considerations for NCC T&D Projects

- **Weather Conditions:** Portable tools must not be used in extreme weather conditions where exposure to moisture, dust, or heat could create hazards.
- **Voltage Safety:** Extension cords and portable tools should be rated for the voltage and load they will be used for. Overloading cords can lead to overheating and fire hazards.
- **Proper Storage:** Tools and extension cords should be stored in dry, designated areas when not in use to prevent damage.
- **Safe Routing of Cords / Proper Cable Management:** Extension cords must be routed to prevent damage from foot traffic, sharp edges, or contact with moving equipment.

Key Takeaways

- Portable tools and extension cords must be properly maintained, inspected, and used according to safety standards.
- Defective tools must be immediately removed from service and tagged as “Out of Order.”
- When working in wet or outdoor conditions, the use of GFCIs, ELCBs, and other appropriate safety devices is mandatory to prevent electrical hazards.
- Workers must be trained on safe tool use, hazard identification, and proper inspection procedures.
- Management must enforce compliance with tool safety regulations and ensure a safe work environment.

For more information, refer to NCC T&D's relevant IMS procedures or consult our HSE Department for expert guidance and training resources.

