

SAFETY ALERT

November 15, 2022

“Cord and Plug” Hazardous Energy Control

Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other sources in machines and equipment can be hazardous to workers. The unexpected startup or release of stored energy during the servicing and maintenance of machines and equipment can cause injury. There is a lock-out/tag-out (LOTO) exemption for servicing and maintenance activities on “cord and plug” equipment. Cord and plug equipment refers to equipment that uses a single flexible cord and plug to connect to a source of electrical energy. Personnel working under the cord and plug exemption are not required to be LOTO Authorized Persons. Cord and plug procedures are found in PUB-3000 Chapter 18 “Lockout/Tag-out Program”, Work Process C: [PUB-3000 Chapter 18 Work Process C](#)

Important Note: *Persons that perform work on electrical equipment may need to be Qualified Electrical Workers (QEW). See the flowchart below for what is considered “electrical work”.*

Cord and plug equipment is exempt from LOTO controls when:

1. There is a single energy source.
2. Unplugging the equipment controls all hazardous energy.
3. There is no stored energy such as capacitors 100 volts or greater and 10 Joules or greater.
4. The plug remains under the *continuous and exclusive control* of the person performing the work **at all times**.
 - a. Positive Control- This requires the plug to be within arms reach of the worker.
 - b. Exclusive Control- This requires that the worker can prevent (exclude) other individuals from re-energizing the equipment while performing the servicing or maintenance activity.

If the above conditions cannot be met, then the LOTO process must be followed. This includes completion of EHS0370 “LOTO Authorized Persons Training” and application of an approved LOTO control device, lock and tag.

If you have any questions about this exemption, please contact the ETA Safety Manager, Ron Scholtz at (510) 495-8137 for assistance.



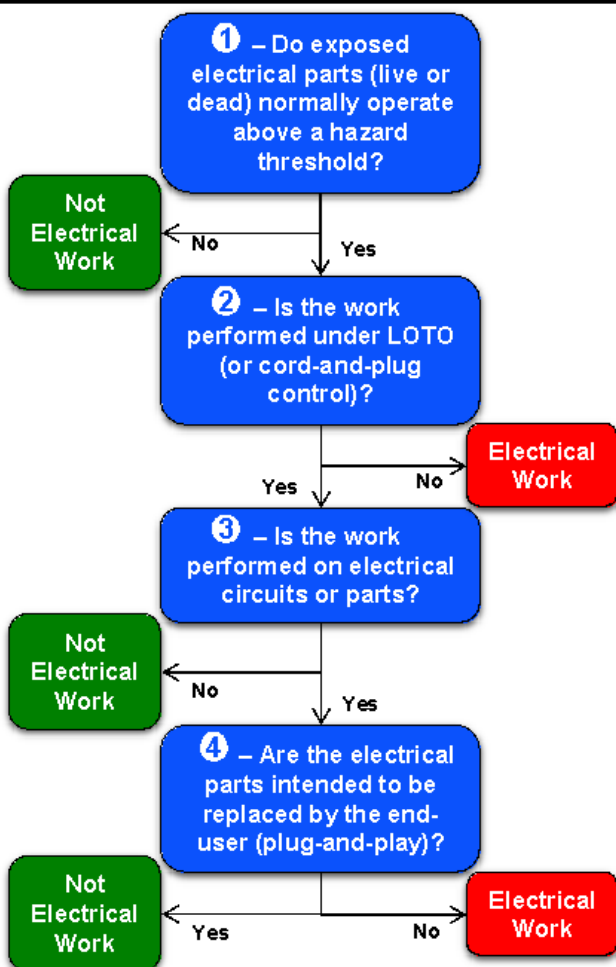
Field Guide 1

What is “Electrical Work”?



Electrical work is any task that involves a shock or arc flash hazard or that could create potential shock or arc flash hazards for future users, and therefore requires a Qualified Electrical Worker (QEW).

For clarification or special circumstances, always refer to the Electrical Safety Manual and/or speak with an Electrical Safety Officer or Electrical Safety Advocate.



Electrical Hazard Thresholds

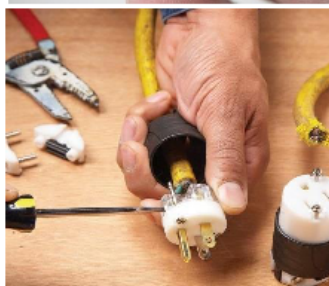
Source	Includes	Thresholds
AC	50-60 Hz nominal	≥ 50 V and ≥ 5 mA
DC	All	≥ 100 V and ≥ 40 mA
Capacitors	All	≥ 100 V and ≥ 10 J, or
Batteries	All	≥ 100 V
Sub-RF	1 Hz to 3 kHz	≥ 50 V and ≥ 5 mA
RF	3 kHz to 100 MHz	A func of frequency

Examples



**Not
Electrical
Work**

Changing a cartridge fuse (plug-and-play)



**Electrical
Work**

Wiring up a new plug

Exceptions Under QEW Supervision

Personnel are not required to be QEWs for electrical work if:

- A QEW provides direct field supervision, and
- Personnel are trained and authorized to perform the work on that specific equipment, and
- (A) Cord-and-plug or (B) hard-wired requirements are followed

(A) Cord-and-plug:

- The equipment is unplugged and under continuous and exclusive control.
- Equipment meets the cord-and-plug exemption to LOTO (no stored energy).

(B) Hard-wired:

- A QEW establishes an Electrically Safe Work Condition.
- All persons join the LOTO.
- QEW performs Test Before Touch every time job continuity is interrupted.