

DuPage County Environmental, Safety, Health & Property Loss Control Program

Electrical Safety Rules for Unqualified Personnel

Purpose:

This program specifically outlines the purpose, authorization and rules to be utilized by our employees to guard against electrical hazards that could cause injury or property damage. This is not intended to cover all electrical safety requirements. Utilization of the current standard of the National Fire Protection Association Standard 70E (Electrical Safety in the Workplace) should be referred to for a more comprehensive description of DuPage County's electrical safety requirements.

Policy:

- Only properly trained, authorized and qualified persons are allowed to perform work on or near energized electrical equipment and conductors, and only in accordance with established electrical safe work practices.
- Unqualified staffs are not permitted inside an Arc Flash Boundary as determined by a Qualified Electrician.
- Work on energized electrical equipment is not permitted by unqualified personnel. (**Exceptions are listed below**)
- Personnel Protective Equipment for the Exceptions are :
 1. No-melting long sleeve shirt and pants.
 2. Safety glasses or goggles

Definitions:

Arc Flash Hazard: A dangerous condition associated with the possible release of energy caused by an electric shock.

Boundary-Arc Flash: When an arc flash hazard exists, an approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur.

Arc Flash Protection Boundary: Boundary shall be determined by either an Electrical Engineer or using the current edition of NFPA's 70E calculation tables and formula's.

Boundary-Limited Approach: An approach distance from an exposed energized electrical conductor or circuit part within which a hazard exists. Defines the approach limit for unqualified staff and to eliminate the risk of contact with an exposed energized electrical conductor.

Boundary-Prohibited Approach: An approach limit at a distance from an exposed energized electrical conductor or circuit part within which work is considered the same as making contact with the electrical conductor or circuit part.

Boundary-Restricted Approach: An approach limit from and exposed energized electrical conductor or circuit part within which there is an increased risk of shock, due to electrical arc-over combined with inadvertent movement, for personnel working in close proximity to the energized electrical conductor or circuit part.

Qualified Person: One who has demonstrated skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved. This person must be deemed Qualified by the County Electrical Manager and the work identified as to what the Qualification is for.

DuPage County Environmental, Safety, Health & Property Loss Control Program

Electrical Safety Rules for Unqualified Personnel

Mandatory Procedures:

- De-energize the system or equipment prior to performing work per the County's Lock Out Tag Out program.
- Use appropriate electrical protective equipment, safety equipment, and clothing, as specified in electrical safe work practices and procedures.
- Use the right tools for each job.

Qualified / Non-qualified Persons:

- Employees are categorized as "qualified" or "unqualified" based on their training. Qualified persons have been trained to avoid electrical hazards of working on or near energized parts. Qualified persons must be capable of working safely on energized circuits, as determined by their electrical knowledge and skills ascertained by the County's Electrical Manager.
- Qualified persons are familiar with:
 - Skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment;
 - Skills and techniques necessary to determine the nominal voltage of exposed live parts;
 - Minimum approach distances corresponding to the voltages to which they will be exposed;
 - Proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools; and
 - The installation, construction and/or operation of apparatus or equipment and the associated electrical hazards involved;
 - Other electrical safe work practices that are necessary for safety, in addition to OSHA rules.
- It is likely that an individual may be considered "qualified" with regard to certain equipment (i.e. low voltage electrical equipment), but "unqualified" with regard to other equipment (i.e. high voltage electrical equipment).
- An employee who is being trained on the job who has demonstrated an ability to perform certain duties safely at his/her level of training, and who is under the direct supervision of a qualified person, is considered a qualified person for the performance of those specific duties.

DuPage County Environmental, Safety, Health & Property Loss Control Program

Electrical Safety Rules for Unqualified Personnel

Exceptions for Unqualified Persons:

May perform the following tasks:

- Changing Light bulbs
- Resetting circuit breakers up to 200amps and only if tripped because of an overload, not a short circuit.
- Placing or removing a electrical plug by the plug cap (not by pulling the cord).
- Once trained by Supervisor can replace lighting ballast(s).

Unqualified Persons must:

- Are only allowed to work on de-energized electrical equipment after it has been locked out and tagged in accordance with the County's Lock Out Tag Out (LOTO) policy.
- Unqualified persons are not allowed to perform contact testing work on energized electric circuits or equipment.
- Unqualified persons are not allowed to approach conductors or equipment closer than the limited approach boundary.
- Unqualified persons are not allowed to cross the arc flash protection boundary unless they are wearing appropriate personal protective clothing and are under the close supervision of a qualified person.
- Shall not perform housekeeping duties within the limited approach boundary.
- Not leave hinged doors to electrical equipment open.
- Not use flammable material near electrical equipment that can create a spark.
- Not use damaged (fixed or portable) equipment, cords, cables, connectors or receptacles.
- Have a basic understanding and recognition of potential hazards.
- Report all damaged electrical equipment to a Supervisor.
- Know to stay outside arc flash boundaries.
- Proper distance to keep elevated vehicles form overhead power lines.

DuPage County Environmental, Safety, Health & Property Loss Control Program

Electrical Safety Rules for Unqualified Personnel

Responsibilities:

- The Director of Public Works (Program Administrator) has overall responsibility for implementing this procedure through the Chief Electrical Manager; however, supervisors and managers are responsible for cooperating with the Electrical Manager and Electrical Supervisor to ensure that specific procedures are developed when necessary, and to ensure that employees are trained in accordance with program requirements.
- The Chief Electrical Manager is responsible for ensuring that electrical equipment is frequently and systematically inspected and maintained in safe condition.
- Managers shall ensure that adequate electrical protective equipment and safety equipment are readily available for use where they are needed and that authorized employees use them as outlined in this policy.
- Employees shall conscientiously and consistently comply with electrical safe work practices and procedures.

GENERAL ELECTRICAL SAFETY PROCEDURES

Job Briefing:

- Before starting each job, the Supervisor in charge shall conduct a job briefing with the employees involved. The briefing shall cover:
 - The hazards associated with the job;
 - Work procedures and special precautions;
 - Energy source controls; and
 - Personal protective equipment requirements.
- If the work or operations to be performed during the workday or shift are repetitive and similar, at least one job briefing shall be conducted before the start of the first job of the day or shift. Additional job briefings shall be held if significant changes that might affect the safety of the employees occur during the course of the work.

Training:

Training Prior to Assignment & As Needed:

- An employee shall receive additional training whenever it is determined through normal supervision, an incident investigation or periodic inspection that an employee is not adhering to safety rules.
- All affected employees shall be trained when new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use.

DuPage County Environmental, Safety, Health & Property Loss Control Program

Electrical Safety Rules for Unqualified Personnel

- Refresher training must be provided prior to performing non-routine tasks that are performed less than once a year.
- Safe work practices shall be reviewed during safety meetings held throughout the year.
- The Chief Electrical Manager or qualified instructor shall certify that employee training has been accomplished and is being kept up-to-date.
- Classroom training will be conducted by the Risk Management Coordinator or his/her designee using lecture, discussion, videotape or computer-based training or any combination thereof.

REGULATORY REFERENCES

- 29 CFR 1910.333-335
- NFPA 70E Current edition