

Safety Circular

July 2019

Electrical Safety

Working with electricity can be dangerous if precautions are not taken. Engineers, linemen, electricians, and others work with electricity directly, including overhead lines, cable harnesses, and circuit assemblies. Office personnel and offenders work with electricity directly or indirectly and may also be exposed to electrical hazards. Accidental contact with electrical currents can cause injury, fire, extensive damage and even death. It is very important to remember that working with and around electricity requires your full attention and respect.

Examples of common electrical hazards:



Identification of electrical hazards is key to a safe working environment:

To ensure a safe working environment, you should routinely inspect your work area for any types of electrical hazards or faulty equipment which could include:

- Damaged or broken electrical outlets.
- Defective or exposed wires.
- Unsafe use of surge protectors or too many plugs plugged into one outlet.
- Defective plugs or plugs that have ground plugs removed from cords.

General Electrical Safety Tips:

- Turn off the power source before working on electrical components.
- Ensure that the power is disconnected, and wires are tested before beginning work.
- Consult a licensed electrician to complete repairs.
- Avoid standing in wet areas while working on electrical items or using electrical tools.
- Avoid running extension cords across doorways or under carpets.

Water and Electricity do not mix!

Ground Fault Circuit Interrupter (GFCI):

You must have a GFCI if an outlet is within 6 feet of a water source and for all coin operated vending machines. This can be accomplished by installing a GFCI outlet or replacing the plug with one that is GFCI protected.

A GFCI is a fast-acting circuit breaker that senses small imbalances in the circuit caused by current leakage to ground and, in a fraction of a second, shuts off the electricity. The GFCI continually matches the amount of current going to an electrical device against the amount of current returning from the device along the electrical path. Whenever the amount "going" differs from the amount "returning" by approximately 5 milliamps, the GFCI interrupts the electric power within as little as 1/40 of a second.

The GFCI, however, does not protect from line-to-line contact hazards such as a worker holding two "hot" wires or a hot and a neutral wire in each hand. It protects against the most common form of electrical shock hazard, the ground fault, and protects against fires, overheating, and destruction of insulation on wiring.

According to Risk Management (RM) Policy RM-48 Control of Potentially Hazardous Energy (Lockout/Tagout) procedure, all Texas Department of Criminal Justice (TDCJ) departments shall adhere to the policy and established procedures to control potentially hazardous energy (Lockout/Tagout). Each unit shall establish a written program utilizing procedures for affixing appropriate lockout devices or tagout devices to energy isolating equipment or devices. Employees or offenders should disable machines or equipment to prevent unexpected energization, start-up, or release of stored energy in order to prevent injury.

Put an effective lockout/tagout on live, energized circuits. Lock or tag at the point of disconnect utilizing a lockout device. The lockout/tagout devices should be applied to areas such as:

- Power cords
- Power panels (primary or secondary voltage)
- Breakers
- Operator's station



Communication, Training, and Personal Protective Equipment (PPE):

Communication is essential to the success of any work project or task. Staff must communicate with other staff and offenders regarding specific duties, expectations, tasks, and procedures that are to be followed while working with electricity. This shall be conducted prior to working on any equipment, lights, outlets, or any other items that may contain hazardous energy.



Another key to effective communication is to inspect, isolate, and control any unsafe conditions that may exist at the work site and report it to a supervisor. It is the responsibility of staff and offenders to identify any unsafe conditions and report them to their supervisors. Communication also involves the prevention of unsafe acts when possible. If staff or offenders notice someone committing an unsafe act they should immediately tell them to stop and report the unsafe act.

Training:

Training concerning electricity and safety shall be provided to staff and offenders **prior** to electrical work being completed. This training shall provide staff and offenders direction concerning the established policies, procedures, and expectations regarding the job they are assigned to complete. Staff and offenders shall sign and date the training documentation.

In regards to RM-06, TDCJ Employee/Offender Safety training, all employees and offenders of the TDCJ shall receive initial job training from a qualified department head, supervisor, or other designated personnel prior to performing a job/task for the first time. The training shall include a demonstration of the job/task. Acknowledgement and understanding of the demonstration by the employee or offender shall be documented.

Initial job training provided to employees and offenders shall include the following:

- Sequence of basic job steps.
- Hazards and potential hazards associated with each step of the job/task.
- Safe operating procedures.

Personal Protective Equipment (PPE):

In accordance with RM-42 on PPE, all department heads and supervisors shall assess the workplace to determine if hazards or potential hazards that require the use of PPE are present. If hazards or potential hazards are found, supervisors must have staff and offenders use properly fitted PPE suitable for protection from these hazards.

PPE equipment such as, but not limited to, gloves, hard hats, safety glasses, insulated boots, and other items that help protect the worker from health and safety hazards. Use the proper PPE when working on electricity as it could save your life.



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The Safety Circular, a publication of the Texas Department of Criminal Justice Risk Management Department, is published monthly in an effort to promote and enhance risk management awareness on issues relating to TDCJ employees. Design and layout of the Safety Circular is performed by Cliff Prestwood, Risk Management. Comments, suggestions and safety related items are welcome.

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References: ♦ osha.gov ♦ electricalsafety.org ♦