Section C.2  
University of South Carolina Safety Program Guide  
ELECTRICAL SAFETY-RELATED WORK PRACTICES

Introduction

The purpose of an Electrical Safety-Related Work Practices Program is to protect workers from the hazards of exposed electrical circuits through training, procedures such as lockout/tagout, and the use of personal protective equipment.

Scope and Application

If you have employees working near exposed electrical circuits that operate at 50 volts or more, the Occupational Safety and Health Administration (OSHA) requires that Electrical Safety-Related Work Practices must be followed. Occupations generally affected by this regulation include, but are not limited to:

- Electrical and electronic engineers
- Electrical and electronic equipment assemblers
- Electrical and electronic technicians
- Electricians
- Industrial machine operators
- Mechanics and repairers
- Painters
- Riggers
- Stationary engineers
- Welders
- Supervisors of the groups listed above

Program Description

Under this rule, OSHA separates workers into two broad groups, "qualified persons" and "unqualified persons". Qualified persons are those who have been trained in avoiding the electrical hazards of working with exposed energized parts, while unqualified persons have little such training. Supervisors should be aware that the training requirements differ for each group, as do the tasks each is allowed to perform.

Training

Training is required for anyone who faces a risk of electric shock that is not reduced to a safe level by OSHA's electrical installation requirements. In addition to training in safety-related work practices, unqualified persons should be trained in the inherent hazards of electricity. Qualified persons should receive additional training that allows them to distinguish live parts from other electrical equipment, measure the voltage of exposed live parts, Personal Protective Equipment (PPE) requirements and determine minimum clearance distances.
Selection and Use of Work Practices

Safety-related work practices should be used to prevent electric shock or other injuries that may result from contact with an energized circuit. Live parts should be deenergized before work begins unless it introduces additional hazards or is unfeasible to do so. Circuits should not be deenergized if it would cause the interruption of life support equipment, deactivation of emergency alarm systems, shutdown of ventilation equipment in hazardous locations, or removal of illumination for an area.

The University of South Carolina Lockout/Tagout Program should be used to isolate deenergized equipment and circuits (see Program Guide C.3, Lockout/Tagout). Only qualified persons may apply lockout or tagout procedures and test circuits to verify deenergization.

Special procedures should be followed whenever work is done near energized equipment and circuits, especially overhead power lines. Consideration should be given to housekeeping procedures, lighting, and the conductivity of materials and equipment. The hazards of confined spaces should be considered when work is done in manholes or underground vaults.

Use of Equipment

Safety-related work practices should be followed when using cord and plug connected equipment and extension cords. Equipment should not be raised or lowered by its electrical cords. All electrical equipment should be inspected before use and, if found defective, removed from service until repaired.

The environment in which electrical equipment is to be used should also be considered. Ground Fault Circuit Interrupters (GFCI) or low voltage tools should be used in conductive work locations. Examples when (GFCI) protection is required: such as outdoors and indoors on wet or damp concrete floors. Special equipment may also be required in areas that may contain flammable or ignitable material or vapors.

Safeguards for Personnel Protection

Personal protective equipment, such as nonconductive head protection, eye and face protection, insulating gloves, and clothing requirements which may apply under the Nation Fire Protection Association (NFPA) 70-E may be necessary for protection against electrical hazards (see Program Guide B.4, Personal Protective Equipment).

Insulated tools and handling equipment, such as protective shields, barriers, or insulating materials, should be used when working near exposed electrical conductors.

Safety signs, tags, or barricades can be used to warn and protect workers. When these techniques do not provide sufficient protection, an attendant should be used.
Roles and Responsibilities

Department

- Provide specific training for qualified and unqualified workers.
- Provide and maintain necessary protective equipment and materials.
- Develop and maintain written Electrical Safety-Related Work Practices.

Supervisors

- Ensure workers receive training appropriate to their assigned tasks.
- Ensure workers are provided with and use protective equipment and materials.

EHS

- Provide general training.
- Provide assistance with evaluation of electrical hazards in the workplace.
- Provide a periodic audit of this program.

Individual

- Attend training.
- Use appropriate electrical safety-related work practices, including all necessary protective equipment and materials.

For More Information

- Contact USC Employee Safety Manager (Buddy Harley) at 777-5255
- A copy of 29 CFR 1910, Subpart S, Subpart II is available through EHS or the OSHA Website
- An Electrical Safety Self-Audit Checklist is available through EHS.
- The following reference(s) are available through EHS:

National Fire Protection Association (NFPA) 70-E

National Fire Protection Association (NFPA) National Electrical Code (NEC)