The following is a sample electrical safety program. You should modify it as needed to suit your organization’s specific operations.

### Objectives
This section of the ABC Company Safety & Health Policy & Training Manual addresses electrical safety. Safety-related work practices will be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contact, when work is performed near or on equipment or circuits which are or may be energized. The specific safety-related work practices will be consistent with the nature and extent of the associated electrical hazards.

### References
2. ABC Company Safety & Health Policy & Procedures Manual,
   Section 9: Life Safety
   Section 16: Lockout/Tagout

### Definitions
- **Fixed equipment** – refers to equipment fastened in place or connected by permanent wiring methods.
- **Portable electric equipment** – applies to the use of cord- and plug-connected equipment, including flexible cord sets (extension cords)
- **Qualified person** – one familiar with the construction and operation of the equipment and the hazards involved. Note that qualification is specific to workplace and equipment. Persons undergoing on-the-job training who have demonstrated the ability to perform duties safely at his/her level of training and who is under the direct supervision of a qualified person is considered to be qualified for the performance of those duties.
- **Unqualified person** – one who has little or no training or familiarity working on, near or with premises wiring, wiring for connections to electrical supplies and other wiring.

### Electrical safety program overview
- **Scope**
  This section applies to all ABC Company facilities worldwide.

- **Responsibility**
  Plant Managers are responsible for ensuring that all employees and contractors who work with electrical wiring are familiar with safety-related work practices.

  Employees who are expected in their routine duties to be engaged in facility electrical work, including contractor employees, will be familiar with this section.
Electrical safety procedures

Selection and use or work practices

The following applies to work on exposed de-energized parts or work near enough to de-energized parts to expose the employee to any electrical hazards:

- Live parts to which an employee may be exposed will be de-energized before the employee works on or near them, unless the employer can demonstrate that de-energizing introduces additional or increased hazards or is not feasible due to equipment design or operational limitations.

- Live parts that operate at less than 50 volts to ground need not be de-energized if there will be no increased exposure to electrical burns or to explosion due to electrical arcs.

- While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts will be locked and/or tagged out in accordance with the applicable requirements of the next section of this procedure.

- Conductors and parts of electric equipment that have been de-energized but not locked out or tagged will be treated as energized parts. The next section of this procedure applies to work on or near them.

Work practices when working on or near exposed energized parts:

- If the exposed live parts are not de-energized (i.e., for reasons of increased or additional hazards or non-feasibility), other safety-related work practices will be used to protect employees who may be exposed to the electrical hazards involved.

  a) Examples of work that may be performed on or near energized circuit parts because of non-feasibility due to equipment design or operational limitations include:

    i) testing of electric circuits that can only be performed with the circuit energized and

    ii) work on circuits that form an integral part of a continuous industrial process in a chemical plant that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment.

- Work practices shall protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object.

- The work practices that are used will be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electric conductors or circuit parts.

- Only "qualified" persons may work on electric circuit parts of equipment that have not been de-energized.

- Such persons will be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials and insulated tools.

- Portable ladders will have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized parts.

- Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metallic aprons, cloth with conductive thread or metal headgear) may not be worn if they might contact exposed energized parts.
**Procedures (continued)**

- Where live parts present an electrical contact hazard, employees may not perform housekeeping duties at such close distances to the parts that there is a possibility of contact unless appropriate protective shields, protective barriers, or insulating materials are used to protect employees from shocks, burns or other electrically related injuries.

- Approach distances for "qualified" employees to alternating current appear in Table S-5 of reference (1) (Part 1910.333).

**Lockout and tagout:**

- A written copy of all lockout/tagout procedures will be maintained and readily available.

- Lockout/tagout procedures will comply with Section 16 of this Manual.

- If the circuit to be tested is over 600 volts, nominal, the test equipment will be checked for proper operation immediately before and immediately after this test by a "qualified" person.

**Training**

**Training requirements**

The training requirements apply to all employees who face a risk of injury due to electric shock or other electrical hazards that are not reduced to a safe level. Employees in occupations in Table S-4 of reference (1) (Section 1910.332) face this risk and are required to be trained. Other employees may also require training.

**Content of training**

- Employees will be trained in and familiar with the safety-related work practices that pertain to their respective job assignments.

- Employees who are covered above, but who are not "qualified" persons, will also be trained in and be familiar with any electrically related safety practices which are necessary for their safety.

- "Qualified" persons will, at a minimum, be trained in and familiar with the following:
  
  a) The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment
  
  b) The skills and techniques necessary to determine the nominal voltage of exposed live parts
  
  c) The training needed to meet the requirements of the following section, when working on energized equipment that involves either direct contact or contact by means of tools, test equipment or materials
  
  d) The type of documented training required by this section will be of the classroom or on-the-job type. The degree of training provided will be determined by the risk to the employee.
Safeguards for personnel protection

Use of protective equipment

- Employees working in areas where there are potential electrical hazards will be provided with, will be trained in the proper use of and will use appropriate electrical protective equipment.

- Rubber protective equipment will be maintained in a safe, reliable condition and will be periodically inspected or tested, as required by American Standard for Testing of Materials (ASTM) standards.

- If the insulating capability of protective equipment may be subject to damage during use, the insulating material will be protected (for example, an outer covering of leather).

- Employees will wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.

- Employees will wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion.

General protective equipment and tools

- When working near exposed energized conductors or circuit parts, each employee will use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts.
  
  a) Fuse handling equipment, insulated for the circuit voltage, will be used to remove or install fuses when the fuse terminals are energized.
  
  b) Ropes and handiness used near exposed energized parts will be non conductive.

- Protective shields, protective barriers, or insulating materials will be used to protect each employee from shock, burns or other electrically related injuries while that employee is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur.

- When normally enclosed live parts are exposed for maintenance or repair, they will be guarded to protect "unqualified" persons from contact with the live parts.

Alerting techniques

- The following alerting techniques will be used to warn and protect employees from hazards which could cause injury due to electric shock, burns or failure of electric equipment parts:
  
  a) Safety signs, safety symbols or accident prevention tags will be used where necessary to warn employees about electrical hazards.
  
  b) Barricades will be used in conjunction with safety signs to prevent or limit employee access to work areas exposing employees to un-insulated energized conductors or circuit parts. Conductive barricades may not be used.
  
  c) If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant will be stationed to warn and protect employees.
Exhibit 1

Electrical safety-related work practices checklist

Name: _____________________________________________ Date: ________________

Location: _______________________________________________________________________

I. Electrical safety-related work practices program

Yes  No

___  ____  A. Has an Electrical Safety-Related Work Practices Program been developed and documented?

___  ____  B. As a minimum, does this program cover the following requirements?

___  ____  1. Scope of program and employees covered by it?

___  ____  2. Definitions of "qualified" and "unqualified" personnel?

___  ____  3. Work-related safety practices for the following activities:

   ___  ____  a. Working on or near energized parts?

   ___  ____  b. Lockout/tagout?

   ___  ____  c. Working in the vicinity of overhead lines?

   ___  ____  d. General practices?

   ___  ____  e. Using protective equipment?

   ___  ____  f. Using electrical test equipment?

   ___  ____  g. Using portable cord/plug equipment?

   ___  ____  h. Alerting personnel?

___  ____  4. Training programs developed for the following groups:

   ___  ____  a. "Qualified" personnel?

   ___  ____  b. "Unqualified" personnel?

   ___  ____  c. "Other personnel" exposed to electric shock or other electrical hazards?
Electrical safety program sample

Electrical safety-related work practices checklist (continued)

II. Scope

A. This checklist covers any person who works on, near or with the following installations:
   1. Premises wiring
   2. Wiring for connections to electrical supplies
   3. Other wiring

   Yes  No

B. Personnel and training

   1. "Qualified" personnel

   a. Have persons been identified who will be "qualified" to work on, near or with exposed parts? If yes, how have this been documented?

   ____________

   b. Have these "qualified" persons been trained in the following:

   ____________

   (1) Skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment?

   ____________

   (2) Skills and techniques necessary to determine the nominal voltage of exposed live parts?

   ____________

   (3) The clearance distances for working in the vicinity of overhead lines?

   ____________

   (4) Use of special precautionary techniques?

   ____________

   (5) Proper techniques of the following:

   ____________

   (a) Personal protective equipment?

   ____________

   (b) Insulating & shielding materials?

   ____________

   (c) Insulated tools?

   2. "Unqualified" personnel

   ____________

   a. Has a determination been made as to those employees who face a higher than normal risk of electrical accident?

   NOTE: Review occupational categories in Table S-4 of 1910.332 and determine which groups work on or near exposed parts operating at 50 volts or more. This is not an all-inclusive list.

   b. Does the training include the following:

   ____________

   (1) Safety-related work practices related to their jobs?

   ____________

   (2) Other pertinent electrical safety information necessary for their safety?
III. Safety-related work practices

A. Working on or near deenergized equipment

Yes No

___ ___ 1. Are live electrical parts required to be de-energized before being worked on?

NOTE: All live parts should be de-energized unless the employer can demonstrate that de-energizing introduces additional or increased hazards. (Refer to 1910.333(a))

___ ___ 2. Is the lockout/tagout procedure required to be followed when de-energizing parts?

   a. Is this procedure formally documented?

   b. Does the procedure include the following minimal requirements:

      (1) De-energizing equipment?

      (2) Applying locks and tags?

      (3) Verifying that equipment is d-energized?

      (4) Verification required to be done by qualified persons using appropriate test equipment?

      (5) Energizing equipment?

NOTE: Lockout and tagging procedures that comply with Section 16 of this manual will satisfy this safe work practice if they address electrical safety hazards. If either locking or tagging only is used, additional requirements apply.

B. Working on or near energized equipment

___ ___ 1. Are only “qualified” persons allowed to work on, near or with live electrical parts?

___ ___ 2. Is equipment that is de-energized but not locked/tagged out considered “energized”?

C. Cord/plug equipment

___ ___ 1. Are the following safety-related work practices established for cord and plug connected equipment, including flexible cord sets (extension cords):

   a. Proper handling of equipment to prevent damage?

   b. Visual inspection before use on each shift?

   c. Appropriate grounding continuity?

   d. Equipment approved for use in highly conductive work locations (if applicable)?

   e. Proper connecting (plugging/unplugging) of equipment in highly conductive work environments?
### Electrical safety-related work practices checklist (continued)

#### III. Safety-related work practices (continued)

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<th>D. Operating electric power and lighting circuits</th>
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<td>1. Are safety-related work practices established for operating electric power and lighting circuits including:</td>
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<td>a. Only load rated devices used to open/close circuits under load?</td>
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<td>b. Reset protective devices only after determination of safe operation?</td>
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<td>c. Over current protection is not modified?</td>
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<th>E. Test instruments and equipment</th>
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<td>1. Are safety-related work practices established for using test instruments and equipment including:</td>
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<td></td>
<td>a. Testing work on electric circuits or equipment is limited to &quot;qualified&quot; persons?</td>
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<td>b. Test instruments, including cables are visually inspected before use?</td>
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<td>c. Test instruments are checked for proper rating and designed for the environment?</td>
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<td>d. Test equipment is not used where flammable materials are present on a temporary basis?</td>
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Note: If yes, are protective measures used to prevent hazards?

#### F. General practices for working on or near exposed energized parts

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<th>1. General illumination provided for persons to perform work safely?</th>
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<td></td>
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<td>2. Are protective shields, protective barriers or insulating materials available and required to be used when working in confined spaces?</td>
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<td>3. Are safe practices established to prevent conductive materials/equipment from contacting exposed energized parts?</td>
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<td>4. Do portable ladders have non-conductive side rails?</td>
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<td>5. Are conductive articles of clothing not worn unless insulated from contacting exposed energized parts?</td>
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<td>6. Are distances established for persons conducting housekeeping activities to prevent their contacting live electrical parts?</td>
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<td>a. If conductive electrical cleaning materials are used, have procedures been established to permit electrical contact?</td>
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<td>7. Are only &quot;qualified&quot; persons allowed to remove electrical interlocks?</td>
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Electrical safety program sample

Electrical safety-related work practices checklist (continued)

IV. Safeguards for personal protective equipment

A. Protective equipment

1. Indicate all protective equipment provided and inspection frequency:

<table>
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<tr>
<th>Available?</th>
<th>Inspection frequency</th>
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<tbody>
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<td>Yes</td>
<td>No</td>
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2. If the insulating capability of the equipment is subject to damage, is it required to be protected?

3. Is the protective equipment inspected and tested in accordance with the appropriate ASTM standards?

4. Who is required to maintain the equipment in a safe, reliable condition?

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