 Portland Community College Health & Safety Manual	Dept: Environmental Health & Safety	
	Topic: Chapter 6 — Electrical Safety Program	
	Board Policy: B507	Revised Date: September 2025

Authority	PCC Board Policy—B507
	Portland Community College is committed to providing a safe and healthy work and educational environment for our employees, students and visitors.

Summary	This chapter, <i>Electrical Safety Program</i> , has been developed to protect College employees from the hazards of electricity, including electrical shock, burns, electrocution and fire. It is PCC's goal to reduce or eliminate workplace injuries and illnesses through the procedures delineated in this chapter. This chapter references several other sections of PCC's <i>Health & Safety Manual</i> , including Chapter 1- <i>General Safety Program & Responsibilities</i> , Chapter 10- <i>Control of Hazardous Energy-Lockout/Tagout</i> , and Chapter 12- <i>Personal Protective Equipment (PPE)</i> . The reader is hereby referred to these chapters and other applicable, but lesser referenced, sections of PCC's <i>Health & Safety Manual</i> for assistance with referenced topics.
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I. PURPOSE

Portland Community College (PCC) is committed to reducing the risk of injury or fatality from exposure to electricity; such events are both costly and preventable. This program aims to convey basic electrical safety requirements that are applicable to all PCC employees.

Electrical work performed by qualified and authorized employees with the applicable licensures is not covered under this chapter. This chapter references several other sections of PCC's *Health & Safety Manual*, including Chapter 1-*General Safety Program & Responsibilities*, Chapter 10-*Control of Hazardous Energy-Lockout/Tagout*, and Chapter 12-*Personal Protective Equipment (PPE)*. The reader is hereby referred to these chapters and other applicable, but lesser referenced, sections of PCC's *Health & Safety Manual* for assistance with referenced topics.

II. AUTHORITY

PCC Board Policy – B507 (See *Appendix A: PCC Board Policy B507*)
OAR 437, Division 2/S Electrical (1910.301-399)

III. RESPONSIBILITY

A. Supervisors/Managers/Deans:

- Perform *Hazard Assessments* on electrical equipment used by department employees;
- Create *Job Safety Analyses* for tasks involving work with electrical equipment;
- Perform a *Personal Protective Equipment (PPE) Assessment* for employees when other hazard controls do not eliminate or fully control electrical hazards;
- Ensure employees are trained for the tasks they are required to perform;
- Designate employees as qualified persons when necessary to complete tasks safely based on the following factors: training, knowledge, and experience related to working with electricity;
- Ensure only qualified persons work on exposed energized electrical conductors and circuit parts;
- Evaluate electrical equipment and develop written energy control procedures for safely servicing, repairing or maintaining electrical equipment;
- Perform periodic inspections for adherence to developed energy control procedures;
- Ensure only qualified persons work on exposed energized electrical conductors and circuit parts
- Ensure employees are familiar with the contents of this program and adhere to the procedures contained within it

B. Employees:

- Inspect electrical cords and plugs on small electrical appliances, tools, etc. prior to use;
- Obtain authorization from supervisor/manager/dean for using convenience appliances;
- Alert supervisor/manager/dean of defective equipment and do not use such equipment unless it has been repaired;
- Do not access electrical panels, rooms, systems;

- Use ReADY on the Facilities Management Services (FMS) Make a Request webpage for reporting blown/tripped fuses or circuits or unlabeled electrical equipment;
- Contacting third party service providers for maintaining or repairing department specific equipment;
- Participate in department or Safety Committee facility inspections when available;
- Complete PCC and department-specific safety training curricula, as required.

C. Environmental Health & Safety (EH&S):

- Periodically review this Plan for compliance to OR OSHA regulations or industry best practices

IV. PROCEDURES

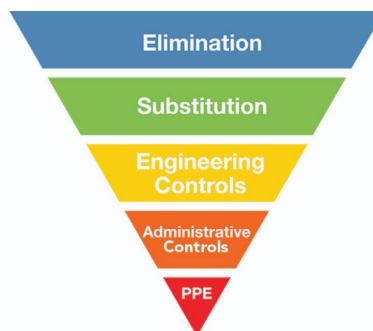
A. Electrical Hazards and Hazard Controls:

1. Electrical Hazards – Working with electrical equipment and/or systems can subject employees to a myriad of hazards associated with electricity, including:

- Contact with exposed energized conductors and circuit parts
- Short-circuiting of equipment
- Overloaded current
- Electrical shock
- Fire and/or explosion
- Resistive heating
- Arc flash
- Arc blast

1. Hazard Assessment Tools – Department managers are required to conduct hazard assessments of the equipment and processes in their areas of control. (See Reference Form i *Hazard Assessment* and Reference Form ii *Job Safety Analysis* from H&SM Ch 1.

2. Hazard Controls – Once hazards are known, they must be eliminated or controlled using the Hierarchy of Controls. The priority and effectiveness of each hazard control is shown in the infographic below, as well as the text that follows:



- **Elimination** – This is the most effective means of control and the highest priority activity in the implementation of hazard controls. Not all hazards can be eliminated but the best time to try is during the electrical system design stage.
- **Substitution** – This is the second most effective means of controlling hazards. It involves substituting a hazard for something less hazardous.
- **Engineering Controls** – These protect employees by removing hazardous conditions or by placing a barrier between personnel and the hazard. Examples include completely enclosing and securing sources of electrical energy and preventing the entry of moisture into such enclosures.
- **Administrative Controls** – These are changes to work procedures or behaviors that aim to reduce the frequency, duration, and severity of exposure to hazards. Examples include: Signs and labels, limiting access to hazards and employee training.
- **Personal Protective Equipment (PPE)** – This is the least effective control measure as it's focused on controlling the person not the hazard. Examples of PPE include using non-conductive footwear or PPE specific to arc flash / arc blast hazards.

Note: Department managers are required to perform assessments of the PPE required to be used by their employees. Such assessments should be documented on Reference Form iii: *PPE Assessment and Training*. This document and guidance for performing such an assessment can be found in H&SM Ch 12 – Personal Protective Equipment.

B. Safe Work Practices Applicable to All PCC Employees

1. **Prohibited Activities** – Only trained and qualified personnel are permitted to access and work in electrical utility rooms, within walls or panels, below floors or above ceilings. Electrical equipment, machinery and appliances that are not portable cord and plug devices should not be maintained or repaired by employees that do not possess the appropriate training and licensures. This also applies to equipment and machinery that is hard wired via conduit into PCC's electrical distribution system.
2. **Portable Electrical Devices** – The power cords and plugs for these devices must be visually inspected before use on any shift for external defects such as loose parts, deformed and missing pins, and damage to the outer jacket or insulation. They should also be inspected for any potential internal damage resulting from a pinched or crushed outer jacket. Defective cords or cord-and-plug connected equipment should be removed from service immediately and no person should use it until it is repaired and tested by a qualified person to ensure it is safe to use. Care should be taken in handling portable equipment. Never handle such equipment using the cord as this may cause damage. Flexible electrical cords connected to equipment should not be used for hoisting or lowering equipment.

- 3. Extension Cords** – Extension cords must be appropriate for the environments in which they are used, e.g., indoors vs. outdoors, gauge, etc. Extension cords that service equipment within six feet of a water source, or those that are used open to the weather, must be equipped with Ground Fault Circuit Interrupters (GFCIs). Extension cords may be used on a temporary basis (not exceeding 60 days) for remodeling, maintenance or repair work, or for seasonal lighting. Additionally, employees are required to comply with several recognized prohibitions that apply to extension cords. These include, never:
- Using extension cords as a substitute for fixed wiring in a structure;
 - Running extension cords through holes in walls, ceiling, or floors;
 - Running extension cords through doorways or windows;
 - Attaching extension cords to building surfaces;
 - Concealing extension cords behind building walls, ceilings or floors; and,
 - Fastening or hanging extension cords in a way that could cause damage to their outer covers or insulation.
- 4. Outlet Adapters** – These should not be used to convert single outlets into multiple outlets. Instead, employees should use breaker-protected multiple outlet strips aka power strips.
- 5. Daisy Chaining** – This is a connection of two or more extension cords or power strips in a series with only one connected to a power outlet. Daisy chaining can result in an overload to electrical circuits and can pose a fire risk. Although power strips are able to power multiple items, daisy chaining results in too much power being delivered from a single outlet. Consider using power strips or extension cords of appropriate length for a given use, or change the location of workstations and equipment to be in closer proximity to a power outlet.
- 6. Pendant Drops** – These are receptacle boxes suspended with a cord from a junction box are used for portable power sources. The following requirements apply to pendant drops:
- Only specific types of receptacle boxes are permitted to be hung from a junction box. Receptacle boxes with knockouts that are designed to be mounted to a wall are not allowed to be hung from a pendant drop. Boxes must be solid and closed without knockouts on the sides;
 - Strain relief must be present at the point where the wire originates and at the wire's entrance into the receptable box;
 - Tension relief must be provided where the cable enters the box;
 - The cable used must be rated and labeled for use as a pendant drop;
 - The circuit must be capable of withstanding the load from the equipment; and
 - Receptacle boxes must never rest on the floor.
- 7. Heat-Generating Appliances and Circuit Overload** – The installation and use of heat-generating appliances such as portable space heaters, coffee makers, cup

warmers, microwave ovens and other non-essential electrical appliances that generate heat, draw a large amount of current from electrical circuits. Employees should not overload circuits with such appliances. Overloaded circuits can generate heat and cause fires. If too much current is drawn because of a multitude of devices, a fuse may blow or a circuit breaker may be tripped to protect the circuit. A sudden, unexpected and localized loss of power may be due to a tripped circuit. Should this happen, employees are not to attempt to reset the circuit or replace a fuse. Rather, they should contact FMS through ReADY and report the power disruption. FMS may provide guidance on electrical appliances that are contributing to such power losses. The use of portable space heaters is not allowed at the College without FMS review and support.

- 8. Grounding and Bonding** – Pouring flammable liquids, such as gasoline or solvents, from one container to another can result in the buildup and discharge of static electricity. To prevent any resulting ignition of flammable vapors, care should be taken to ground and bond the two containers. Grounding involves connecting the set of containers to an established earth ground with a conductive wire or strap to dissipate the buildup of static charges. Bonding involves connecting the two containers together with a conductive wire to eliminate electrical potential differences between them.
- 9. Working Space Around Electrical Equipment & Panels** – Access and working space must be provided and maintained around all electrical equipment to allow for the safe operation and maintenance of the equipment. Electrical panels must remain accessible and kept free of obstructions for a minimum of three feet around the entire panel.
- 10. Equipment Markings, Signs & Labels** – Applicable safety signs, symbols or accident prevention tags must be used where necessary to alert and warn employees about electrical hazards associated with panels, rooms, spaces, equipment. Circuit breakers must all be labeled to denote what each breaker controls.
- 11. Work at Elevation** – Employees must be aware of the presence of power lines in their work area. Employees should maintain a distance of at least ten (10) feet from overhead power lines. This applies to work from ladders or mobile platforms. Employees operating powered industrial trucks will maintain a distance of at least ten (10) between any part of the equipment they are operating or the load they are carrying and overhead power lines. Employees working on ladders must only work from ladders constructed from non-conductive materials, e.g., wood or fiberglass.
- 12. Wet/Damp Environments** – Water is an excellent conductor of electricity and employees must remove water in damp or wet locations prior to working with any electrical equipment. The following requirements apply to such work:

- Only use electrical cords that have GFCIs;
- Place a dry barrier over any wet or damp work surface;
- Remove standing water before beginning work (working in standing water is prohibited);
- Do not use electrical extension cords in wet or damp locations; and
- Keep electrical cords away from standing water

C. Safe Work Practices Applicable to Employees Working on or Near De-Energized Electrical Equipment

1. General – Only trained and authorized employees may service, maintain and repair de-energized electrical equipment and machinery owned or maintained by their department by following the College's written *Control of Hazardous Energy (Lockout/Tagout) Program* which can be found in Chapter 10 of the PCC Health & Safety Manual. Additionally, employees must adhere to any applicable department specific procedures established by their management for working on de-energized equipment. Employees must complete all components of the curriculum entitled *Control of Hazardous Energy and Lockout/Tagout* on PCC's learning management system to be considered trained. Trained employees must be authorized by their manager to perform such work.

2. Work in Confined Spaces – Employees that need to work in spaces that meet the definition of either a confined space or a permit-required confined space must complete all components of the curriculum entitled *Confined Space Entry* on PCC's learning management system. The College's written *Confined Space Entry Plan* can be found in Chapter 5 of the PCC Health & Safety Manual.

D. Emergencies and Incident Reporting

1. Emergencies – All emergencies resulting from exposure to electricity are to be reported immediately to Public Safety or 911. Public Safety can be reached at (971) 722-4444. Such emergencies include, but are not limited to:

- Person who remains in contact with energized electrical components
- Unconscious person
- Person that is not breathing
- Electrical burns
- Power outages
- Fire

Personnel that are trained in CPR and First Aid should render assistance during the time it takes for Public Safety or local emergency responders to arrive. This should only be done after verifying the injured person is not in contact with energized electrical components.

2. **Incident Reporting** – Employees should report all workplace injuries to their manager as soon as possible. Additionally, injured employees should complete the [Online Injury/Illness/Near-Miss Report](#) on the Risk Services Injury or Property Incident webpage as soon as possible. Online reporting can be completed by the department manager if the employee is unable to complete the report themselves.

V. TRAINING

General – Managers are responsible to train their employees about workplace hazards and the safe performance of their jobs. This includes using small electrical appliances, extension cords, electrical adapters, pendant drops and heat generating appliances.

Information about electrical hazards, recognized by managers through the performance of either a *Hazard Assessment* or *Job Safety Analysis*, should be conveyed to employees by training generated and conveyed by department managers. Department managers are free to present materials in a variety of ways so long as there is a written record of the topic, the date presented, and the employees completing the training.

Specialized Topics - Training curricula developed and offered by EH&S can be found on the PCC's learning management system. This includes training for employees that will be performing work on de-energized electrical equipment or work in confined spaces.

VI. RECORDKEEPING

- A. **General:** All records are to be retained by the applicable departments for the duration established by the Oregon State Archives in conjunction with government regulations.
- B. **Training records:** Information regarding employee health & safety training offered by EH&S is maintained in the College's learning management system. Departments that conduct their own employee health & safety training should maintain the original documents but forward copies of the documents to the EH&S department.
- C. **Forms Referenced in this Plan:**
 1. **Hazard Assessments:** Completed copies of the *Hazard Assessment* form should be maintained by the department that completed the assessment.
 2. **Job Safety Analyses:** Completed copies of the *Job Safety Analysis* form should be maintained by the department that completed the analysis.
 3. **Personal Protective Equipment (PPE) Analyses:** Completed copies of the *PPE Assessment & Training* should be maintained by the department that completed the analysis.