

Electrical

Purpose

This section provides electrical safety requirements that are necessary for the practical safeguarding of employees involved.

Definitions

1. Circuits - A closed path through which electric current flows or may flow.
2. Competent Person – One who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
3. Flexible Cord - The ability to bend or be flexed, but not to include Romex type of wiring.
4. GFCI (Ground Fault Circuit Interrupter) - A device used to protect personnel from electrical shock by measuring the amount of current going to and returning from equipment along the circuit conductors. When the amount going differs from the amount returning, the GFCI interrupts the current and acts as a breaker.
5. Periodic Inspections - A regular examination or look for flaws or defects not to exceed 30 days.
6. Temporary - Not part of a permanent wiring system (including extension cords used between permanent wiring and tools).

References

29 CFR 1910.301	Applicability
29 CFR 1910.303	General Requirements
29 CFR 1910.304	Wiring Design
29 CFR 1910.305	Wiring Methods
NEC 210.8	Commercial Occupancies
NEC 210.8(B)(1)(2)(3)	GFCI

Electrical

NEC 406.3(D)(3)	Receptacle Replacement
NEC 511.12	Commercial Garages
NEC 525.23	Circuses and Fairs
NEC 527.6	Temporary Installations

Procedures

1. General Requirements:

- a. All electrical work shall be performed by an employee who is certified and licensed in the state where the work is being performed.
- b. Work on energized equipment is prohibited.
- c. All wiring and accessories shall be of proper size for the load and be grounded.
- d. Wiring and cords must be protected from vehicle traffic.
- e. Do not hang wiring over nails, rebar, or metal objects.
- f. Protect and weatherproof all temporary cords and circuits, using GFCI.
- g. Name and label all panel boxes and ensure the panel schedule of each panel box is complete and legible.
- h. All temporary power and lighting installation shall be on a separate circuit. Protect all bulbs by using cages or guards. Ground metal case sockets.

2. Repairs and Maintenance:

- a. Repair of electrical cords and equipment shall be performed by a licensed electrician, or contracted service in accordance with the National Electrical Code (NEC), and within manufacturer's recommendations.

3. Flexible Cords:

- a. Protect flexible cords and cables from damage.
- b. Avoid sharp corners and projections.

Electrical

- c. Flexible cords and cables may only traverse non-emergency doorways, or other pinch points, when provided additional protection to avoid damage to the cord/cable.
- d. Extension cord sets used with portable electric tools and appliances shall be of three-wire type and shall be designed for hard or extra-hard usage.
- e. Examples of hard and extra-hard cord types are types S, ST, SO, STO, SJ, SJO, SJT, and SJTO.
- f. Flexible cords used with temporary and portable lights shall be designed for hard or extra-hard usage. Single strand wire types are prohibited.
- g. Flexible cords shall be provided with attachment plugs and shall be energized from a receptacle outlet.
- h. Properly ground all power tools.
- i. Unless a power tool is provided with double insulation, and the tool is clearly marked that it is double insulated, all flexible extension cords and cables must be provided with a continuous ground conductor.
- j. Do not use flexible cords and cables where they would be:
 - i. A substitute for the fixed wiring of a structure;
 - ii. Run through holes in walls, ceiling, or floors;
 - iii. Run through doorways, windows, or similar openings, except where cords and cables are protected from damage;
 - iv. Attached to building surfaces;
 - v. Concealed behind building walls, ceilings, or floors.
- k. Use flexible cords only in continuous lengths, without splices or tape.
- l. Connect flexible cords to devices and fittings so that strain relief is provided which will prevent pull from being directly transmitted to joints or terminal screws.
- m. Protect flexible cords and cables by bushings or fittings where passing through holes in covers, outlet boxes, or similar enclosures.
- n. Do not use worn or frayed electrical cords or cables.

Electrical

- o. Flexible extension cords shall not be fastened with staples, hung from nails, or suspended by wire.
- p. Do not raise and lower the equipment using the flexible cords and cables connected to the equipment.
- q. Energized cords and cables shall only be handled with dry hands and while standing on a dry surface.

Inspections

1. A competent person shall perform inspections.
2. Inspect all electrical equipment, hand tools, and cords before each use. This inspection shall include the attachment ends, outer sheathing, covers, strain relief, bulbs and guards, GFCI's, and labels.
3. Inspect any piece of electrical equipment which has malfunctioned or been involved in an incident or accident.
4. If the equipment is found in need of repair, through either inspection or malfunction, it shall immediately be removed from use and tagged "Out of Service" until approved repairs can be completed as outlined in the above section, "Procedures – Maintenance and Repair." If the equipment cannot be repaired, tag and dispose of it in accordance with College's "Fixed Asset Management and Disposal Procedures" outlined in the Administrative Procedures manual located on the College portal.

Training

Carroll Community College will train employees in the electrical safety requirements applicable to their job duties. This training shall be completed before an employee performs related tasks and shall be conducted by a person competent in the subject matter. The training will be refreshed at intervals stipulated by the current and applicable OSHA standard.

All third-party contractors are responsible to ensure their employees are trained, certified, and/or licensed as required by the industry standards and all applicable OSHA standards related to the scope of work.

Record Keeping and Certification

1. Safety Training records for Carroll Community College employees shall include the following:
 - a. Names of training attendees.
 - b. The dates of the training sessions.
 - c. The contents or a summary of the training sessions.
 - d. The name(s) and title(s) of person(s) conducting the training sessions.
2. Safety Training records shall be maintained for a length of time in accordance with industry and OSHA standards.
3. All third-party contractors are responsible to maintain safety training records for their employees in accordance with industry and OSHA standards.

Revision Notes:

Publication – February 2022