

# Electrical Safety at Fairs, Field Days, and Other Public Events

Mitch Ricketts, CSP

Health, Safety & Environmental Quality Coordinator

785-532-7068

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Protecting people from injury is an important consideration at all public events. This is especially true at outdoor activities where conditions may bring people in close contact with electricity. Some of the conditions that create electrical hazards at outdoor events include overhead power lines, environmental conditions that facilitate the flow of electric current, the use of extension cords and portable electric appliances, and the presence of livestock and children near sources of electricity.

## Overhead Power Lines

Contact with overhead power lines is one of the most common causes of electrocution. Most overhead power lines are NOT electrically insulated. The following issues must be considered when planning outdoor public events:

- Many people are electrocuted when they contact power lines with ladders, pipes, grain augers, flag poles, antennas, tent poles, and other long objects. High voltage electricity can jump (arc) from a power line to an object that is several feet away, so people are sometimes electrocuted even when they do not actually touch the power line. Recommendations: Ladders, pipes, flagpoles, equipment, and other objects should not be allowed within 10 feet of any overhead power line. If it is necessary to erect a structure or work with long objects within that 10-foot zone, always call the electric company to have power shut off before beginning work. (Note: 10 feet is the minimum clearance allowed by OSHA standard 29 CFR Part 1910.333 for employees working near power lines that carry 50,000 volts or less. For higher voltages, the distance should be increased.)
- People are often electrocuted when they use a board or other object to raise a power line so that equipment can pass underneath. High voltage electricity can travel through wood, metal, and many other materials. Anyone touching this material may be electrocuted. Recommendations: Always contact the electric company so that power can be shut off if equipment is too tall to pass beneath a power line. Never try to push a power line out of the way with a board or any other object.
- People can be electrocuted if they touch a vehicle that has come into contact with a power line. When a vehicle touches a power line, electric current travels through the vehicle's metal body and frame to the ground. Rubber tires do NOT

provide reliable protection from electricity. Persons inside the vehicle will usually be safe as long as they stay inside and do not attempt to get out. The ground in the immediate vicinity of the vehicle may be electrified, so other persons should stay away. Recommendations: If a vehicle contacts a power line, call the electric company to shut off power before anyone attempts to leave the vehicle. Keep all other persons away. If the vehicle catches fire before the electric company arrives, occupants should jump as far away from the vehicle as possible, making sure that all parts of the body are clear of the vehicle before touching the ground.

- People can be electrocuted if they approach a downed power line. Recommendation: The ground near a downed power line may be electrified, so all persons should be kept away until the electric company arrives to shut off power.

## **Hazardous Environmental Conditions, Extension Cords, and Electrical**

### **Equipment**

Environmental conditions may create hazards at outdoor events by providing dangerous pathways for electric current. Electrocutions are more likely to occur where electricity exists together with dampness and “grounded” objects. Electricity is present at outdoor events in electrical cords, radios, power tools, and other equipment. Dampness is common due to rain, humidity, and water from livestock pens. People may also be damp from perspiration and wet clothing. The combination of dampness and electricity can be fatal, especially if a person is in contact with soil, concrete, metal fences, gates, pipes, conduit, or other grounded objects.

#### Recommendations:

- Do not allow electrical cords, fans, radios, tools, or appliances to be in contact with damp or wet surfaces.
- Make sure all electrical equipment and cords are undamaged, with no splices and in good working order.
- Keep cords out of traffic so people don’t walk or trip over them.
- Any extension cord used outdoors should bear a manufacturer’s label stating that it is approved for outdoor use.
- Make sure all outlets are grounded and will accept 3-prong plugs without using adaptors.
- Ensure that all cords and equipment are also grounded with 3-prong plugs or marked with the words “double insulated.”
- Inform participants not to bring any electrical cords or equipment that violate these rules.
- Do not touch electrical equipment if it does become wet. Instead, unplug the cord from the outlet while standing on a dry surface.
- Install ground fault circuit interrupters (GFCIs) at outlets. GFCIs are designed to

sense the leakage of current and to shut off power to the outlet almost instantly in the event of an electric shock. This is especially important in the following areas: (1) outdoors, (2) in areas that are likely to become damp or wet, (3) in locations with concrete, rock, or dirt floors, and (4) around metal fences, gates, and pipes. GFCIs are available in the form of individual outlets, circuit breakers, and extension cords. If properly installed at the correct location, a single GFCI outlet can protect all of the outlets on an electrical circuit at a cost of about \$10.00 plus labor. GFCIs and other electrical equipment should be installed only by qualified personnel.

## **Children and Livestock**

Children and livestock do not understand the hazards of electricity. Children may put electrical cords in their mouth or place their fingers through holes in electrical boxes. Animals may chew through cords, kick over appliances, or damage cords with their feet. Recommendations: Keep electrical cords, fans, and equipment out of reach of animals. Make sure there are safety covers or closures on all outlets and extension cords that are accessible to children. Do not allow cords to hang over countertops where children can pull electric equipment down on themselves. Covers should be closed on breaker boxes, and there should be no openings in any electrical equipment. Doors to mechanical rooms should be locked.

## **Inspecting Your Facilities**

Two types of inspections are appropriate for facilities that host public events: (1) regular informal inspections conducted by facility personnel and (2) formal inspections by a qualified electrical inspector.

Through informal inspections, facility personnel can identify damaged equipment and unsafe practices that might otherwise lead to serious injury. Recommendation: Facility personnel should conduct an informal inspection before every major public event. A [practical inspection checklist](#) is provided.

As facilities age, it is important to ensure that the electrical system is maintained and updated as necessary. This is especially important in livestock buildings and in outdoor and semi-enclosed locations. Recommendation: Older facilities should be inspected every few years by a qualified electrical inspector to determine if any components of the electrical system need to be updated. Ask the inspector if any of the guidelines of NEC Article 525 (Carnivals, Circuses, Fairs, and Similar Events) or Article 547 (Agricultural Buildings) are appropriate for your facility.

