

Shocking Safety Facts

Electricity is a vital part of today's modern world, and sometimes it can be easy to forget just how dangerous it can be. Given the correct conditions, it can kill. But it can also shock you painfully, damage sensitive equipment, and ignite combustible materials. The National Safety Council estimates 600 people die every year of electrical causes. Most of these accidents involve low voltage (600 volts or less). So the voltage needed to kill doesn't have to be the high voltage carried in overhead power lines. In addition to fatalities, another 3,600 disabling electrical contact injuries occur every year in the United States, along with another 4,000 non-disabling injuries.

The best way to avoid becoming one of these statistics is to avoid energized circuits whenever possible. Unfortunately, in the construction industry, this is not always an option available to our employees. An alternative method to keeping employees safe around electricity is to have them STOP. This doesn't mean they should stop the task at hand, but remember the acronym: STOP:

- Stop- Before the employees take any action on any electrical system they should take a moment and
- Think- Employees should be trained to think about what risks and hazards are present in each jobsite.
- Options- Employees need to compile a list of options available to them, such as an individual control, simple LOTO (Lock Out/Tag Out) or complex LOTO then determine which the most practical, safest choice is for them and those working around them.
- Protection- Once the work plan has been determined, it is important to also include the correct PPE (Personal Protection Equipment) that is needed to increase the level of safety for the employees.

Unfortunately, asking employees to remember STOP doesn't ensure they will or guarantee that all working with electricity will end the work day unharmed. To help increase the likelihood of someone surviving an electrical accident it is important that personnel working near or on energized parts be trained in Cardiopulmonary Resuscitation (CPR). These individuals must be identified and available when there is work being done on or near energized parts.

When training the employees in CPR it is imperative that all personnel that may be working in energized areas be trained. Accidents happen to everyone and if the CPR trained individual or individuals are the employees involved in the electrical accident there may be no one trained left to administer CPR.

The first step for anyone responding to an electrical accident after calling emergency services or 911 for help is to turn off the electrical power to the area where the accident occurred. If a victim is touched by another employee with the power still connected, this employee will also be shocked because they will be included in the circuit. Sometimes this is not feasible, the equipment involved cannot be quickly deenergized or the survival of others relies on the electricity and prevents immediate shutdown of the circuits. In this case the injured person should be pulled free of contact with the energized equipment. This can be done safely by protecting the rescuing employee with dry insulating material like paper or using a dry board, belt or other available nonconductive material to free the victim from the electrical contact. It is imperative to remember to NEVER touch the victim until the source of electricity has been removed. Any fire that may be present needs to be extinguished as soon as possible.

While waiting for emergency services to arrive there is quite a bit that can be done to help the victim. The first thing is to check for signs of breathing and a pulse. If neither is found, trained personnel should immediately begin CPR and/or mouth-to-mouth resuscitation.

Another common occurrence during an electrical accident is that the victim goes into shock. This includes keeping the victim lying down, maintaining the body's normal temperature by covering the victim with blankets or coats to help keep the body warm. Do not move the victim unless absolutely necessary. If you must move the victim to prevent further injury, move them as little as possible, especially if you suspect head and neck injuries could have occurred.

Do not give a victim you suspect in shock anything to eat or drink until the emergency personnel arrive and determine if the victim is, in fact, in shock. When treating the burn area, never attempt to remove burned clothing, this could further damage the underlying burned tissue and make healing more difficult. It is important to elevate a burned limb to a position where it will be above the victim's heart. This will help return fluids to the circulatory system and prevent body fluids from pooling in the damaged tissue, this is called edema. It is important to remember to handle a burn victim with care, to minimize the amount of movement of the victim and that someone should remain with the victim until the emergency personnel arrive.

It can often be helpful to the emergency personnel if the points of contact formally referred to as entry and exit wounds, can be located. The entry wound will be found anywhere on the body that came in contact with the electrical source. A burn is present at the site due to the high temperature at the surface. The heat can evaporate the water on skin leading to a sunken or hollowed area. The exit wound is where the current comes to the skin's surface. A small hole or large abnormal area can be present depending on the size of the current and tissue resistance. The wound may look small but remember the damage is from the inside out and is therefore the damage is very deep.

It must be stressed that the best way to deal with an electrical accident to for them not to ever have happened in the first place. When training your employees on electrical work it can be very helpful to remind them to always STOP before working on an energized circuit.

For additional help with safety and OSHA compliance, take advantage of the resources available through NCMA. These resources include the NCMA Block Plant Safety Software. The software is available from NCMA at (703) 713-1900 at a cost of \$150 for up to 3 plants/year (nonmember \$450).