

News-Safety Total Awareness Report:

What you
need to know



N3 Safety Q4 2011

Topic: ELECTRICAL SHOCK



An electric shock is the tingling sensation or muscular contraction that a person experiences when an electrical current passes through the body. An electric shock can severely burn or kill if the muscle contraction is severe enough to stop the heart. This muscle contraction can cause the victim to remain firmly gripped to the source of electrocution, particularly when power tools or leads are being used. The human body conducts electricity. Even low currents may cause severe health effects. Spasms, burns, muscle paralysis, or death can result depending on the amount of the current flowing through the body, the route it takes, and the duration of exposure.

In the event that a worker receives an electric shock, it is vital that fellow workers act swiftly to limit the damage caused to the victim. Call emergency services immediately — prior to trying to release the victim.

Releasing a Victim from a Live Electric Current

When a person comes into contact with a live electrical circuit of sufficient voltage to cause an electric shock, the first priority is to eliminate the flow of current.

This typically is *not just* turning off the machine, equipment or tool . . . you must break the current at the source by switching off the circuit or by removing the plug from the socket in the case of a power tool.

If this is not possible to do quickly, you should break the contact between the current and the person. This can be done by either moving the victim or moving the electrical source (wire) so they are no longer in contact. To do this safely, without harm to yourself, you must **insulate yourself** by using electrical or dry gloves or by covering your hands with cloth and standing on dry, insulating material like cardboard, wood or clothes.

Effects of Electrical Shock

Effect DC Current (mA)

Death 120+
Ventricular Fibrillation 50-120
Paralysis of Diaphragm 20-50
Makes hands "clamp-on" 16-20
Involuntary Reflexes 4-9
Perception 1-4

Examples of insulating materials:

- Professional non-conductive release hook (best option and relatively inexpensive)
- Long piece of lumber (2x4, etc)
- Broom Handle
- Leather belt (cut off buckle)
- Dry Rope
- Blanket, clothes or other dry non-conductive materials

Utilize something non-conductive to release the victim or move the source from the victim.

Once the victim is released from the live current, check for vital signs and begin first aid, rescue breathing or CPR if needed. Use blankets to keep the victim warm, and raise the victim's legs slightly above the level of the head to lessen the effects of shock.