



Policy Source: Gwinnett Tech	Owner: Chief of Police	Effective: 1999
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7.3.5 GT Electrical Shock Emergency Response

1. Major Causes of Electrical Shock

- a. There are two major causes of electrical accidents (in industry, in the home and in the laboratory). The first is carelessness. This generally occurs when a person becomes too familiar with a process and does not pay attention to what the details of what they are doing. Having become used to working with live circuits on extremely low voltage equipment, a person begins to forget the small important details of safety procedures. Such familiarity tends to put aside the possibility of danger until the accident occurs.
- b. The second cause of electrical accidents is inexperience and ignorance. Many electrical tests and measurements seem to be simple, especially when carried out under the guidance of the teacher. However, when an inexperienced student attempts the same tests, some of the safety steps of the safety rules may be overlooked.
- c. Most students are unaware that current (rather than voltage) determines shock intensity. Of course, Ohm's law still prevails and there must be a potential to cause current as well as body resistance to oppose it. The overall resistance of the human body, as well as the point of resistance of several hundred thousand ohms, and only a small current enters the body. However, if the skin is wet, resistance may be less than 500. In this case, low voltage may be fatal.

2. Currents and Voltage

- a. Currents as low as 2mA cause a slight sensation of shock
- b. Currents above 20mA introduce pain
- c. Paralysis occurs above 50mA
- d. Severe shock occurs at 60mA
- e. The possible range of death begins at 100mA
- f. Breathing stops at 400mA due to fibrillation of the heart muscles
- g. Severe electrical burns are produced above 500mA
- h. Currents of more than 0.5 and less than 1A are fatal. Quite frequently, in almost all our laboratories, we deal with currents higher than these values.

3. Emergency Procedure

- a. Call 911 and campus police at 678-226-7377Lawrenceville campus, 470-282-5440 Alpharetta North Fulton campusadvise: Medical Assistance needed: Electrical Shock Victim”: Give the location and condition of the victim.
- b. Remove the victim from live equipment. Take care not to become a victim yourself. Switch off the supply if possible. If not, pull the victim away using insulating material.
- c. Trained personnel should commence artificial respiration if breathing stops or is weak.
- d. When breathing and pulse is restored, apply a simple dressing to any burns or cuts.
- e. Place victim in a comfortable position and cover him/her to maintain body warmth.
- f. Remain with victim until qualified medical help arrives.