

Laboratory work #1. Safety in the workplace.

Abstract.

Laboratory work #1 include general introduction about safety in the workplace. Also study and understand attached material.

Description.

Safety is the number one priority in any job. Every year, electrical accidents cause serious injury or death. Many of these casualties are young people just entering the workplace. They are involved in accidents that result from care- lessness, from the pressures and distractions of a new job, or from a lack of understanding about electricity.

A safe work environment is not always enough to control all potential electrical hazards. You must be very cautious and work safely. Safety rules help you control your and others risk of injury or death from workplace hazards.

If you are working on electrical circuits or with electrical tools and equipment, you need to use following safety rules.

Don't be too smart. Don't try your luck.

Always disconnect the power FIRST.

Rule #1

Disconnect the power source before servicing or repairing electrical equipment. ***The only way to be sure.***

Rule #2

Treat all electrical devices as if they are live or energized. You never know.

Avoid contact with energized electrical circuits. Don't make fun – you probably won't have second chance. ***That's not funny.***

Rule #3

Never touch another person's equipment or electrical control devices unless instructed to do so.

Rule #4

Never shorten the battery leads - it can cause fire. Never shorten ANY power supply leads.

Rule #5

Use only tools and equipment with non-conducting handles when working on electrical devices.

Rule #6

Never use metallic pencils or rulers, or wear rings or metal watchbands when working with electrical equipment. This rule is very easy to forget, especially when you are showing some electrical part pointing with metallic pencil. ***Always be aware.***

Rule #7

When it is necessary to handle equipment that is plugged in, be sure hands are dry and, when possible, wear nonconductive gloves, protective clothes and shoes with insulated soles.

Rule #8

If it is safe to do so, ***work with only one hand***, keeping the other hand at your side or in your pocket, away from all conductive material. This precaution reduces the likelihood of accidents that result in current passing through the chest cavity.

When it is necessary to touch electrical equipment (for example, when checking for overheated motors), *use the back of the hand*. Thus, if accidental shock were to cause muscular contraction, you would not “freeze” to the conductor.

Never handle electrical equipment when hands, feet, or body are wet or perspiring, or when standing on a wet floor.

Rule #9

If water or a chemical is spilled onto equipment, shut off power at the main switch or circuit breaker and unplug the equipment. *NEVER try to remove water or similar from equipment while energized.*

Rule #10

If an individual comes in contact with a live electrical conductor, do not touch the equipment, cord or person. Disconnect the power source from the circuit breaker or pull out the plug using a leather belt. Tricky situation, and you must be very calm in order not to make the situation even worse.

Rule #11

Equipment producing a “tingle” should be disconnected and reported promptly for repair.

Rule #12

Do not rely on grounding to mask a defective circuit nor attempt to correct a fault by insertion of another fuse or breaker, particularly one of larger capacity.

Rule #13

Drain capacitors before working near them and keep the short circuit on the terminals during the work to prevent electrical shock.

Rule #14

Enclose all electric contacts and conductors so that no one can accidentally come into contact with them. If applicable do it always, if not be very care-full.

Rule #15

When it is necessary to touch electrical equipment (for example, when checking for overheated motors), use the back of the hand. Thus, if accidental shock were to cause muscular contraction, you would not “freeze” to the conductor.

Rule #16

Do not store highly flammable liquids near electrical equipment.

Rule #17

Minimize the use of electrical equipment in cold rooms or other areas where condensation is likely. If equipment must be used in such areas, mount the equipment on a wall or vertical panel.

Rule #18

Be aware that interlocks on equipment disconnect the high voltage source when a cabinet door is open but power for control circuits may remain on.

Read the single line diagram and wiring schemes – know your switchboard.

Rule #19

De-energize open experimental circuits and equipment to be left unattended.

Rule #20

Do not wear loose clothing or ties near electrical equipment. Act like an electrical engineer, you are not on the beach.