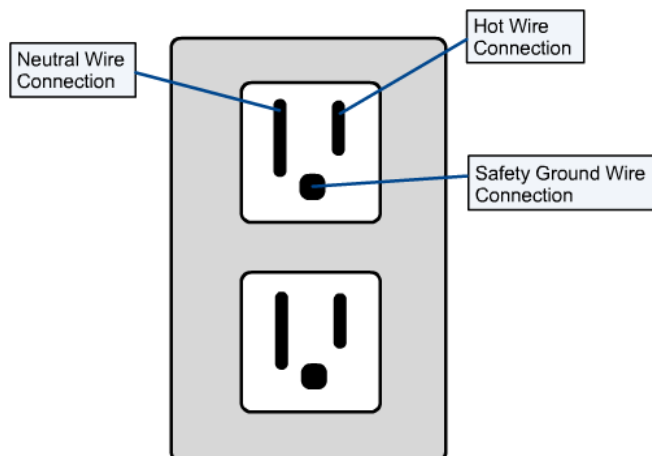


## TEJ Computer Technology

**Basic Lab Safety** - Observe this list of guidelines to help create a safe, efficient work environment.

- The workspace should be large enough to accommodate \_\_\_\_\_, \_\_\_\_\_, the testing equipment, and the electrostatic discharge (ESD) prevention equipment. Near the workbench, power outlets should be available to accommodate the system unit power and the power needs of other electrical devices.
- The optimal level of \_\_\_\_\_ in the workspace should be between \_\_\_\_\_ to reduce the likelihood of ESD. The \_\_\_\_\_ of the workspace should also be controlled to avoid too much heat.
- The workbench should be a \_\_\_\_\_ surface, which is flat and cleanable.
- The workspace should be distant from areas of heavy electrical equipment or concentrations of \_\_\_\_\_. For example, a workspace should not be near a building's heating, venting and air-conditioning (HVAC) or phone system controls.
- The workspace should be cleaned of \_\_\_\_\_. Dust can contaminate the workspace, causing \_\_\_\_\_ to computer components. The work area should have a filtered air system to reduce dust and contaminants.
- Lighting should be adequate to see small details. Two different illumination forms are preferred, such as an adjustable lamp with a shade and fluorescent lighting.
- Temperatures should be maintained so they are consistent with the specifications of the components. Extreme variations of temperature can affect computer components.
- \_\_\_\_\_ should be properly grounded. Following are the components of an outlet. Power outlets should be tested with an outlet tester for proper grounding.

### AC Outlet



## **Static Electricity**

Static electricity is \_\_\_\_\_. This buildup may end up zapping something that it can \_\_\_\_\_. A zap is known as an electrostatic discharge (ESD). ESD is the \_\_\_\_\_ found in computer systems.

At least \_\_\_\_\_ volts must be built up before a person can feel an ESD. If the discharge \_\_\_\_\_ or \_\_\_\_\_, then the charge was probably above \_\_\_\_\_ volts.

Most computer chips run on less than \_\_\_\_\_ of electricity. A computer component could be damaged by less than \_\_\_\_\_ of static buildup.

### **Do's and Don'ts of Static Electricity:**

Do's	Don'ts
Work at an antistatic workstation equipped with tiled floors, a grounding strap, and a grounding mat.	Walk across the room then handle an electronic component without grounding yourself.
If possible, make sure the relative humidity is between 20 and 50 percent.	Touch pins or leads on a circuit board.

## **Workplace practises that help reduce ESD**

The workspace should be situated away from carpeted areas because carpets can cause \_\_\_\_\_. If distance from carpeting is not possible, the carpeted surface could be covered with a \_\_\_\_\_ such as those commonly used under desk chairs. The use of ESD protection tools such as a \_\_\_\_\_ and a mat, which are commonly sold in kits, can largely eliminate this type of danger.

Always handle all components by \_\_\_\_\_. Avoid touching pins, chips, or anything else made of \_\_\_\_\_. This practice will reduce the chance of producing a damaging electrostatic discharge.

## Use of a Wrist Strap

A wrist strap, is a device that is attached to the technician's wrist. This device is then clipped to the system chassis, on which work is being performed on. The wrist strap prevents ESD damage by \_\_\_\_\_.

Wrist Strap



A wrist strap can only offer protection from ESD voltages \_\_\_\_\_. ESD charges on \_\_\_\_\_ can still cause damage. Therefore, avoid making contact between electronic components and clothing. If static shocks are still being experienced in the workspace while working near a computer, try using \_\_\_\_\_.

Be certain to spray clothing and not the computer. A wrist-grounding strap does not discharge electrostatic charges that have built up on \_\_\_\_\_. Take precautions to ensure that \_\_\_\_\_ does not rub across any of the components.

ESD potential can also be reduced by not wearing clothing made of silk, polyester, or wool. These fabrics tend to build static charges.

A wrist strap is never worn when working on \_\_\_\_\_. Monitors and power supplies are considered \_\_\_\_\_ components. Only highly skilled professionals will attempt to \_\_\_\_\_. Components inside a monitor can \_\_\_\_\_, even after the monitor has been \_\_\_\_\_ from its external power source. The amount of voltage that a monitor can contain, even when turned off and unplugged \_\_\_\_\_. The risk of contacting the dangerous electric charge in the monitor is heightened when a wrist strap is worn. The \_\_\_\_\_ in the monitor is charged to \_\_\_\_\_ volts or more. This charge can remain for weeks after the monitor is turned off.

## Antistatic bags



Special packing materials are used with \_\_\_\_\_ and Printed \_\_\_\_\_ (PCBs). These packing materials range from special moulded plastics and foams for microchips to antistatic bags for PCBs. Do not remove any component from special packaging until \_\_\_\_\_. An \_\_\_\_\_ can temporarily store parts and components when disassembling a computer for cleaning or other types of preventive maintenance.

Electronic components or circuit boards should be stored in shielded antistatic bags, which are easily recognized by a shielding characteristic. These bags usually have a \_\_\_\_\_ color and a shiny, transparent appearance.

### Display Maintenance

Monitor



hp p930 monitor

Since the display unit is the most visible piece of computer equipment, it should be kept clean for both appearance and functionality. The information in this section applies to both CRT and LCD screen types.

When cleaning a display, make sure the device is \_\_\_\_\_. Use a \_\_\_\_\_ to wipe down the entire display unit and remove any dust buildup. Dampen another cloth with water to remove any cleaner residue on the surface of the monitor. Avoid using too much water to prevent drips. After cleaning the display, use a dry cloth to complete the job. Be careful when

cleaning to avoid scratching the screen portion of the monitor.

After cleaning the monitor, make sure the power cord is plugged in securely.

**NOTE:** If liquid drips inside a CRT display while it is being cleaned, it is best to \_\_\_\_\_

### Keyboard

#### Keys on the Keyboard



A keyboard receives more \_\_\_\_\_ abuse than any other component of a computer system. Keyboards are also \_\_\_\_\_, which allows dust to build up on the keyboard over time. Periodic cleaning of the keyboard will prolong the lifespan and prevent malfunction. The keys on a keyboard can be removed. This allows easy access to the areas where dust collects. A soft brush or \_\_\_\_\_ can be used to remove dirt from under the keys. \_\_\_\_\_ can be used to blow out dust from below the keys. The keyboard should be held vertically or in an inclined position while using the air to blow out the dirt and dust. This will prevent large dirt and dust particles from remaining stuck in the interior corners, springs, and foam material beneath the keys.