2.1.2 Safety Measures

Personal safety is your top priority when working with computer components. Keep in mind the following issues that can be hazardous:

Hazards	Description
Power	Power hazards can cause electrical shock and burns. ▪ Before handling a system component, make sure that it is powered off and that the main power cord is unplugged from the wall socket. ▪ Ensure that the grounding pin on a PC power plug is intact. ▪ Unplug the system before working on internal components. Newer power supplies constantly pull power from the socket. ▪ Be aware that the power inverter (power supply) converts AC current to DC current. Also be aware that the power supply can retain an electrical charge, even when not plugged in. Replace faulty power supplies instead of trying to repair them. ▪ Avoid opening the power supply which houses a capacitor (stores a large charge of electricity).
Capacitor	Be sure to discharge capacitors or turn the equipment over to qualified personnel for servicing. Similarly, exercise caution when working with the DC converter in a laptop display.
ESD and High Voltage	Exercise great care when working with electricity. ▪ Use ESD wrist straps not only protect components, but to reduce the chance of accidental electrical shock. Properly ground yourself before working with components. ▪ Do not use an ESD wrist strap when working with monitors, power supplies, laptop LCD panels, or other high-voltage components. ▪ Exercise caution when wearing jewelry, because it readily conducts electricity and could cause burns or even electrocution.
Peripherals	Peripherals can present a safety hazard to you. ▪ Do not use a regular multimeter or other electrical testing equipment to measure charge inside a monitor. ▪ Never clean the monitor's glass with a liquid solvent while the monitor is powered on. ▪ Some studies suggest that laser printers emit tiny particles which could be dangerous when inhaled. As a precaution, do not locate laser printers immediately next to desks, and keep the area ventilated. ▪ Avoid handling leaky batteries. The leaking electrolytes can be harmful if they get into your eyes. ▪ Never look into the end of a fiber optic networking cable. Laser light can damage your eyes.
Thermal	Components such as the CPU heat sink and fan, the printing head of a dot matrix printer, or components inside a laser printer can be hot. After turning off a computer or printer, allow components to cool sufficiently before servicing to prevent burns.
Physical	Make sure the room and the building are properly set up to ensure your safety. ▪ Keep work areas and floors clear of clutter to help prevent accidents. ▪ Do not route cables across the floor in pathways. This can lead to tripping accidents, and could also result in worn cables. ▪ Provide adequate ventilation in any enclosure to remove toxic fumes. ▪ Protect yourself from airborne particles by using an air filter mask. ▪ Wear safety goggles. ▪ Replace worn or frayed power cords.
Lifting	Be careful when lifting heavy objects. ▪ Bend your knees and keep your back straight, using your legs to lift objects. ▪ Wear a back brace for added protection if your job requires frequent lifting. ▪ Use carts and other tools when moving heavy objects for any significant distance. ▪ Ask for help, if necessary, when lifting or moving heavier objects. ▪ Follow the weight limitation guidelines defined by your employer.
Cleanliness	Clean hardware regularly to avoid problems caused by built-up dust. ▪ Use compressed air to clean delicate components. ▪ Use a specialized vacuum to clean dust from other hardware. ▪ Avoid blowing dust into other hardware or all over your office.
Fire	Every room in which you work should be fire suppressed. ▪ Have at least a Class C fire extinguisher available. A Class C fire extinguisher is made for electrical fires. ▪ Make sure fire extinguishers and fire suppression methods (e.g., sprinklers) are properly implemented and maintained. ▪ Promptly report any potentially hazardous situations.

- Make the safety of others your top priority in responding to any incident. In the event of a hazardous situation, clear people from the area or remove the danger before attempting other actions such as preventing or repairing damage to components.

Also periodically review and update your Material Safety Data Sheets (MSDSs). An MSDS describes safe handling and disposal procedures for dangerous materials and can provide you with the knowledge to resolve an uncertain situation.