

Safety Guidelines

Introduction

Using N3D is a privilege. Adhering to these guidelines is essential to ensure that N3D remains a safe, clean, effective workspace. Every user of N3D has a personal responsibility to behave safely and manage risk.

General Rules

Respect the Equipment

- Students are not permitted to operate any equipment alone. A spotter must be on hand at **all** times.
- Safety glasses must be worn when using any power tools, cutting tools, chemicals including glue, or working on energized circuits.
- Remain alert. Alertness is your best friend. Sometimes tasks in the N3D can become tedious. This is the FASTEST way to get hurt. If you feel yourself nodding off or if your mind starts to wander, STOP the task you're performing and take a break.
- If you suspect that a piece of equipment is broken, out of calibration or not functioning properly, let the lab technicians know so that it may be corrected.
- Be aware of and follow hazard/warning labels and signs. Be especially mindful of “stored energy devices” such as capacitors, magnets, springs, shock absorbers, servo hydraulic systems, pneumatic systems, batteries and bottled gases, which can be dangerous if not handled properly.

Respect the Space

- Keep work area neat and organized. Put away all tools and test equipment when not actively in use.
- All materials must be stored on or under tables. It is not permissible to lean large objects on table or lay large pieces of wood, pipe, etc. extending into aisles around tables.
- Keep floor areas clear to reduce trip hazards; make sure the areas between the tables are clear so people may maneuver around the prototype area safely.
- Before you leave, make sure that you have cleaned and organized your work area and have returned any equipment or tools to the appropriate storage areas.

Specifics

Specific safety information for each piece of equipment is addressed in the user tutorial for that equipment, however, general safety guidelines all equipment found in the N3D.

Hand and Power Tools

The N3D has many hand and power tools readily available to its users. But these tools also have the potential for accidents and injury if not used or handled correctly. Here are a few simple guidelines on using hand and power tools.

- Select the appropriate tool for the job. If you are unsure which tool to use, please ask a lab technician.
- Use the designated tool station, which is equipped with clamps and vices, when doing any drilling, cutting or grinding. All materials must be clamped safely to the table. Holding materials by hand while using power tools is not acceptable.

- Appropriate use of protective glasses and closed-toe shoes is expected when doing any cutting, drilling, grinding, etc. Please notify your peers around you that you are using any power tool that may produce flying debris.

Machine Shops (216 & 217)

The Machine Shop is an area where even more safety awareness is needed. Virtually every aspect of the shop could have some hazard associated with it. However, with cognizance and precautions, these hazards can be reduced.

- Students may NOT work alone in the shop. No Exceptions. At least one other person MUST be present in the machine shops for equipment to be used. Additionally, a technician/TA must be present for work in 216.
- Safety glasses are located just outside the entrance to the machine shops. These must be worn AT ALL TIMES while in the shops.
- Know where the shut-off switch for the machine is.
- Closed toe shoes are to be worn at ALL times. Leather shoes are preferred over tennis shoes.
- Long sleeves, ties or other loose fitting clothing must be worn in such a manner to avoid entanglement in machinery. This includes loose jewelry.
- Long hair must be secured, worn in a bun or tucked in a hair net or cap in such a manner to avoid entanglement in machinery. This includes beards.

A few things to think about while using the Machine Shop:

- ✓ Am I certified and do I know how to operate the machine?
- ✓ Are all the guards in place?
- ✓ Am I doing something I should not do?
- ✓ Have I tightened all bolts and clamps?
- ✓ Is the work piece properly secured?
- ✓ Am I wearing proper safety gear?
- ✓ Do I know where the stop switch is?

Conclusion

Safety is everyone's responsibility. Respect the equipment, respect the workspace, and remember that using N3D is a privilege.

In Case of Emergency

Before beginning work on a project, take the time to locate any and all safety equipment. Be sure to note the location of the fire extinguisher, automated external defibrillator (AED) unit, emergency eyewash station and first aid kits.

Although we strive for the utmost in safety, it is understandable that mishaps do occur. If they do, report ANY and ALL accidents to the N3D staff member on duty.

In case of emergency, CALL NDSP at 574-631-5555.