

**Michigan Technological University
Department of Physics**

SAFETY CHECKLIST

The following checklist should be used as a starting point to evaluate your laboratory for proper storage, labeling, wiring, etc. *This is not an exhaustive list.*

Also included is the safety audit checklist which will be used by the department to conduct safety audits and for the laboratories to conduct self-audits. Audits will be conducted as often as four times per year. An effort must be made to improve areas found wanting by an audit.

mtu/jpm/5-09

Laboratory Safety Checklist

Please use the following as a check list to perform safety inspections. This is similar to what is used when our OSH office conducts safety inspections throughout the campus.

Hazardous Substances

Chemical Storage

- Updated chemical inventory
- Chemicals dated upon receipt
- Chemical containers labeled, capped and in good condition
- No chemicals on, above or next to a desk
- No corrosive chemicals stored above "eye level"
- Chemicals segregated by hazard (organics from oxidizers, flammables from acids)

Solvent Storage

- Excess solvent stored in approved safety cans or solvent storage cabinets and not high up on shelving
- Approved safety cans equipped with self-closing lids and flame arrestors intact
- Safety can lids closed
- Safety cans/wash bottles properly labeled

Infectious / Chemical Waste

- Waste containers labeled and chemical composition identified
- Biohazard containers used properly where needed (i.e. autoclave bags, sharps containers)

Electric Powered Apparatus

Refrigerators and Freezers

- Only "explosion proof" or "explosion safe" refrigerators/freezers may be used in labs to store flammables
- Refrigerators/freezers not "explosion proof" or "explosion safe" labeled NO FLAMMABLES ALLOWED
- Refrigerators/freezers labeled for "CHEMICAL USE ONLY" or "FOOD USE ONLY" and used accordingly
- Interior sound and free of chemical spills or contamination; containers stoppered or tightly closed

General

- Electrical apparatus equipped with ground plugs or properly grounded
- Extension cords in good condition (no splices)
- Extension cords for temporary use only, not overloaded and no longer than 6 feet
- Two prong appliances not within a 5 foot radius or directly located above flammables or sinks
- Appliances properly grounded

Compressed Gases

- All cylinders properly secured in an upright position, with cylinder clamp/chain fastened to solid support
- Stored cylinders tightly capped and kept to a minimum
- Flammable materials stored a minimum of 20 feet from cylinders containing oxidizers
- Regulators, proper connections, and tubing in good condition
- Flammable gas tubing secured and labeled
- Flame arrestors on flammable gas supply
- If toxic gases in use; proper leak sensors/alarms in place and regularly checked and calibrated
- If toxic gases or gases with poor warning qualities used (i.e. odorless); redundant systems; shutoffs in place in case of leaks/emergencies

Laboratory Hoods Local Exhaust

Exhaust hoods working, date of last inspection
Hood sashes open and close and glass intact
Hood free of excess chemical storage/equipment
Hood sashes down (panels closed) when not accessing

Emergency Equipment

Fire Extinguishers

Extinguishers in designated location and area labeled
Extinguishers accessible and free from obstruction
Current year and date of last inspection indicated on tag

Safety Showers and Eyewashes

Labeled, accessible and free from obstruction
Eye washes and drench hoses flushed weekly
Safety showers flushed annually

First Aid

Kits in designated areas
Inventory lists inside of First Aid kit
First aid kit properly stocked
Emergency PHONE# decals on telephone

Protective Equipment

Personal

Safety glasses with side shields
Substantial shoes, no sandals, open toes
Protective clothing worn while working at bench
Gloves selected according to hazard
Chemical splash goggles where appropriate

Equipment

Aisles and exits free from obstruction
Benches and shelves not overloaded with unused equipment and/or chemicals and no combustibles stored within three feet of ceiling
No damaged glassware in use (broken, chipped)
Lab apparatus properly assembled and used in a safe manner
No bikes in labs

Vacuum Equipment

Vacuum pump belt guard in place
Glass Dewars wrapped or shielded
Protective shatter proof shield in place when in use
Glass desiccators under vacuum stored in metal guards or shielded

Training

Instruct lab personnel in potential hazards and good laboratory safety practices
Provide information on availability of "Right-to-Know"

Signs

Special hazard signs in place (i.e. lasers, cryogenic liquids, biohazards)

DEPARTMENT OF PHYSICS
SAFETY AUDIT CHECKLIST FOR LABORATORIES

DATE: _____ AREA: _____

INSPECTED BY: _____

Chemical Hygiene for Laboratories Checklist	YES	NO	N/A
Lab staff, supervisors, and faculty know where the MTU Dept. of Physics written CHP is kept for their area, have received required training, know the name of their safety chairperson and how to contact their department's safety chairperson?			
Completed CHP awareness certificates are on file in the departments?			
Written Emergency Procedures and SOP's are in place and understood by the lab staff?			
Are shipments of hazardous chemicals sent off-site by your lab coordinated through OSHS?			
Are chemicals NOT stored on the floor? Are containers of liquids stored at eye level or below?			
Is glass apparatus that is under pressure or vacuum either taped or caged?			
Is unobstructed access available to eyewashes and safety showers available from the workstations?			
Are PPE and engineering controls, such as fume hoods, operating properly?			
Are gas cylinders secured, and are incompatible gases stored separately?			
Are rooms or areas designated for use of SPECIAL HEALTH HAZARDS labeled?			
Is every laboratory door posted with names and phone numbers of responsible personnel to be contacted in case if emergency?			

Chemical Waste Management Checklist	YES	NO	N/A
Does this location generate hazardous wastes ?			
Are wastes stored in a designated area and segregated according to their compatibilities and physical characteristics?			
Are waste containers correctly labeled with the words HAZARDOUS WASTE, the container ingredients, date started, and waste code?			
Are waste containers and waste collection containers tightly capped or closed?			
Are containers not leaking and safe for transportation?			
Is the volume of waste stored less than 50 gallons or 1 quart of acutely toxic waste?			
Are MSDSs available for waste trade/brand name products?			

Laser Safety Checklist	YES	NO	N/A
Are laser use areas identified by the proper signage?			
Have personnel using the laser been appropriately trained?			
Are laser beams appropriately terminated and has specularly reflective surfaces been removed from the beam path?			
Is appropriate eyewear available and worn by personnel?			
Are written SOP's and beam alignment procedures available?			

General Safety Checklist	YES	NO	N/A
<u>Housekeeping</u>	X	X	X
Are the aisles clear and at least three feet wide? Area well lit?			
Are floors free of oil, grease, liquids, broken and uneven surfaces, or sharp objects?			
Is all trash placed in proper containers? Is it disposed of properly? (examples: sharps, used toner, empty chemical containers, broken glass)			
Are materials stored so they don't stick out and can't fall?			
<u>Machinery and Equipment</u>	X	X	X
Are machine guards in place and in use?			
Are electrical cords not frayed and do outlets match? Are outlets not overloaded?			
Are ladders in good condition and suited for the job?			
<u>Personal Protective Clothing and Equipment</u>	X	X	X
Have hazard assessments been completed and readily available for the tasks?			
Is PPE readily available to protect against area hazards?			
Have employees been trained on correct use, care, donning and doffing of PPE and are training records available?			
<u>Emergency Protection</u>	X	X	X
Are fire extinguishers unobstructed?			
Are the fire exits unobstructed and identified?			
Are non-exit doors identified?			
Are sprinkler heads unobstructed? (at least 18" clearance surrounding the head)			

Radioactive Material Management Checklist

	YES	NO	N/A
Is there a sign on door of room where radioactive materials are used?			
Are the containers of radioactive material secure from unauthorized use or removal and properly labeled?			
Are eating and drinking policies being followed in radioactive materials labs as designated by the room classification sticker on the door?			
Are the records for radioactive material use, area surveys, and inventory up to date and kept by the principal investigator?			
Are work surfaces covered with absorbent paper or are trays used?			
Have all personnel using radioactive material been trained by REM?			

COMMENTS OR ISSUES FOR FOLLOW-UP:

