Environmental Health & Safety Center Laboratory Safety Inspection Checklist

__X__ Problem exists, __✓__ Condition is OK, __Δ__ To be inspected / updated by EH&SC, Follow up inspection _____(Date)

Building _____ Department _____ Room _____

Principle Investigator (PI) _____ Phone _____

Items of Inspection Comments

1) ____ Nat. Fire Prot. Assoc. (NFPA) Hazards ID Placarding System (updated) _____
2) ____ Emergency Notification Signs (updated, PI / users names & home phones) _____
3) ____ Other Haz. / Safety signs (updated – biohaz.; restricted access; radioactive; laser; carcinogen; PCB; asbestos; no smoking, eating, drinking; microwave) _____
4) ____ Emergency eye wash (type; location; sign inspected) _____
5) ____ Emergency shower or drench hose (type; location; sign inspected) _____
6) ____ Fume hood & ventilation (inspected; ducts fans; types; locations) _____
7) ____ First aid kit / emergency procedures (location; signs; emergency # @ phone; evac. / fire / spill procedures) _____
8) ____ Fire suppression systems (type; size / capacity; location / signs; inspected) _____
9) ____ Approved personal protection (appropriate lab attire; goggles; gloves; face shields; aprons; lab coats; respirators; foot protection) _____
10) ____ Housekeeping (aisles; corridors; exits; shelves; floors; tripping hazards; cabinets; benchtops; hoods; bikes) _____
11) ____ Hygiene (food / drink; smoking; children & pets; vermin; insect; microwave; plants) _____
12) ____ Storage (compatible hazard class – separate liquids/; flammables / acids / bases / oxidizers / approved cabinets; volume of flammables; explosion proof refrigerators / freezers; chemical dispensing; protective coated containers / glass ware; spill control; shelf lips; items too high / on floor) _____
13) ____ Hazardous & Bio wastes (approved containers; sharps; labeled & tagged; storage; spill contaminant; EH&SC calendar) _____
14) ____ Labels and hazards warnings on containers (full chemical names; hazard class; MSDS) _____
15) ____ Electrical (code compliance; cords; wires; grounding; extensions; lighting; breakers & panels; labeled; ignition sources/flammables) _____
16) ____ Compressed gas cylinders (name & hazard class; status tagged; location; secured; separated by hazard class; type; quantity) _____
17) ____ Guarding and shielding ((pumps; machinery; hazardous operations / location; noise) _____
18) ____ Other areas of concern:

_____
_____
_____

Inspected by: _____ Date: _____

PI copy given to: _____ Date: _____

Print Name Signature

SEE ADDITIONAL INFORMATION ON BACK

(if you have any questions please call 2360)

SAFETY INSPECTION CHECKLIST EXPLANATIONS/CLARIFICATIONS

Items 1 – 3: Updated, an accurate emergency notification signs, and warnings are essential to help assure the safety of laboratory/shop personnel and property. Each lab/shop is required to send a complete chemical inventory to EH&SC in order to establish/update door Placarding. In the event of an emergency (accident, fire, chemical spill, etc.), responding personnel will need to react quickly and proficiently to hazards present in lab/shop. NFPA markings and other properly placed safety signs and labels will enable them to better react to the hazards of the situation. Also, users of the lab./shop need to have emergency notification information at their fingertips so they can respond without delay. Persons unfamiliar with lab/shop (maintenance, custodians, students, and other building occupants) must be adequately advised of the dangers in each these areas.

Items 4 – 5: Emergency eyewash/shower stations are required in areas where chemicals are being used. Eyewash units must supply a continuous flow of clean water to both eyes for at least 15 minutes; squeeze-bottle type eyewashes are unacceptable. Safety showers should be the deluge type because they quickly rinse contaminates from entire body. All emergency wash station must be highly visible, accessible, unobstructed, and in good working condition (inspected regularly). Also, eye washes and drench hoses must be activated every week to remove any contamination or rust build up.

Item 6: Proper laboratory/shop exhaust ventilation is critical to provide a healthful work environment. Airborne contaminate should be removed from work areas and exhausted directly to the outdoors. Numerous considerations must be evaluated in determining the adequacy of ventilation systems, therefore EH&SC should be contacted concerning any questions regarding these issues. Fume hoods are required in labs/shops using hazardous chemicals. Fume hoods and components should be inspected regularly to make sure they provide sufficient airflow, are not restricted by storage (only materials used in ongoing experiments should be in the hood) and that they are in good mechanical condition. Hood users should keep their materials at least 20 cm from the front of the hood, and make sure the fan is working (a fan alarm or an airflow alarm may be used). Approved, older style, chemical fume hoods can be identified by the green EH&SC tag which shows the proper working sash door position. Newer constant velocity hoods (1990 >) exhaust fume sufficiently at any sash height.

Item 7: All labs/shops are required to have a clearly labeled, fully stocked first aid kit mounted in a visible and easily accessible location. These kits may be purchased from EH&SC. Since the contents of the kits supplied at the EH&SC are standard issue, a physician may be consulted to determine if additional materials should be included or removed. Also, specific emergency procedures, phone numbers, etc. (in addition to requirements listed in items 1-3 above), for specialized hazardous operations (i.e. bio-research, chemical baths, neurotoxins, specialized apparatus, etc.) must be posted, implemented, and training provided for all personnel in the labs/shops.

Item 8: Campus buildings require automatic fire suppression systems providing 100% coverage. Each lab/shop must have a proper fire extinguisher. The extinguisher must be located near an exit, or unobstructed with a sign clearly showing its location. In general, class ABC extinguishers are provided for labs/shops to fight multiple hazards (ordinary combustible, flammable liquid, electrical); special class D extinguishers must be provided where reactive metals and metal hydrides are being used. Fire extinguishers need to be inspected every 6 months to make sure they are fully charged and in proper working condition. A used or partially charged extinguisher must be taken out of service immediately and replaced with a fully charged unit. Contact physical plant department ext. 2051 for maintenance, inspection, purchase, and replacement of fire extinguishers.

Item 9: Adequate eye protection is required to be worn by people handling chemicals to prevent splashes and particles from entering the eye. It is important to provide the laboratory staff with good quality comfortable goggles (and face shields where extra protection is needed). Appropriate laboratory attire and protective clothing such as plastic, or neoprene aprons and/or lab. Coats shoes, and long hair restraints must be worn. Proper personnel protective equipment must be selected for the types of hazardous materials being used. Any respiratory protection must be approved by EH&SC.

Item 10: A good housekeeping program is essential for a safe work environment. Work benches, desks, tables, shelves, and fume hoods must be kept free of clutter and unnecessary equipment, chemicals, notebooks, dirty glassware, etc. for safer work environment. Corridors, stairways, exits, exit paths, aisles, floors, and walkways must be kept clean at all times. Boxes, bottles, wires, tipping hazards, and other obstructions are prohibited in these areas.

Item 11: Eating, drinking, smoking, and the application of cosmetics must not take place in the laboratory; consumable item storage shall not be permitted. A separate room or area (preferably with a refrigerator, hand washing facility, and microwave) should be designed solely for such purposes. Plants and pets (which can absorb, harbor, transmit, and/or produce contaminates) are prohibited in the laboratory unless they are part of an ongoing experiment. If insects and/or vermin are a problem in your area, inform the EH&SC or Physical Plant, so arrangement can be made to correct the problem.

Items 12-14: Chemicals must be stored in approved containers and cabinets; all hazardous liquid chemicals must have adequate secondary spill containment devices; and chemicals must be separated by compatible hazard class (flammables/oxidizers/acids/bases/reactives) to avoid unwanted reactions and unnecessary exposure to occupants. Whenever possible, protective coated chemical bottles and glassware should be used to reduce hazardous chemical spills due to breakage. Some extremely dangerous chemicals may require special use/storage controls and quantity restriction. All chemicals, including collected waste, must be clearly and completely labeled with full chemical names at all times; this aids the emergency personnel, lab users (especially where changes of personnel and lab renovations have occurred), waste program personnel, and other building occupants to identify hazards and handle or dispose of chemicals properly. Bottles of chemicals should never be stored on the floor. Lab personnel must be knowledgeable of procedures concerning safe chemical and biological material handling waste disposal; if not, contact EH&SC. Chemicals must not be poured down the drain! Keep flammable chemicals away from heat and ignition sources and never stored in a non explosion proof refrigerators. Any refrigerator or freezer not designed for the storage of flammables must have a sign on the door "*No Flammables in this Refrigerator*". Flammable storage cabinets and dispensing containers must be grounded and/or bonded. The total volume of flammable solvents in the laboratory should be limited to the amount needed for approximately one week of operation or by code. All sharps (needles, razors, broken glass, etc.) should be collected in rigid leak-proof containers. Shelves and cabinets must be anchored solidly to the wall and safety lips should be installed along the front edges of exposed shelves to keep materials from falling. Heavier items should always be stored to the ground.

Item 15: Electrical equipment must be properly grounded; non-ground equipment can cause electric shock, burns, and fire. Extension cords are not allowed except on temporary basis (not as permanent wiring) and if a licensed electrician on a case approves them by case basis (contact physical plant ext. 2015). Electrical cords must not be draped across floors, aisles, doorways, work spaces, etc. keep flammable materials away from electric equipment or other ignition sources. All wiring in the labs/shops must conform to applicable codes.

Item 16: Gas cylinders must be stored by separate hazard class and away from sources of heat and ignition. They must be secured to a wall or bench so they do not fall over and become dangerous projectiles. Cylinders without a pressure regulator must have a valve protection cap attached. Cylinders must also be labeled with status tags to show when they are *full, in use, or empty*. Limited quantity of compressed gases, on hand, to that needed for ongoing experiments. Lab supervisors shall ensure that lab personnel are adequately trained in the safe handling of pressure containers and proper use of the products.

Item 17: Most equipment require some type of guarding. Basically, any apparatus where workers may get their clothing, hair, hands or other parts caught, cut shocked, crushed, pinched, etc. must be protected with approved guarding devices. Also, hazardous operations must be adequately shielded to prevent exposure to lab/shop workers and others. Noise levels must be kept within accepted standards. Contact EH&SC at ext. 2360 for specifics.