

**THE UNIVERSITY OF ALABAMA AT BIRMINGHAM  
SAFETY CODES AND STANDARDS**

The following agencies, codes, and standards are used as a foundation for the General Health and Safety Management Program at UAB.

- a.** National Fire Protection Association Codes
- b.** Applicable State, County, and City regulations
- c.** Occupational Health and Safety Act of 1970
- d.** Southern Building Code Congress International, Inc.
- e.** Environmental Protection Agency
- f.** Guidelines established by the American National Standards Institute, National Institutes of Health, National Institute of Occupational Health and Safety, The National Safety Council, American Conference of Governmental Industrial Hygienists, American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., and other nationally recognized agencies.

## **GENERAL SAFETY POLICIES**

### **Electrical Distribution and Equipment**

#### **A. Policy**

It is the policy of UAB to assure that the electrical power distribution system as well as all electrical, electromechanical, and electronic equipment remain safe and effective.

#### **B. Purpose**

To assure that regular testing and preventive maintenance are provided for the proper distribution system and all non-clinical electrically powered equipment.

#### **C. Interpretative Guidelines**

1. All new elements of the electric power distribution shall be evaluated for safety and performance prior to being put into service.
2. All elements of the power distribution system shall be periodically evaluated for safety and performance, and calibrated or repaired if required.
3. Acceptance tests, scheduled service procedures and establishment of test intervals shall be the responsibility of the Maintenance Department.
4. Tests shall be performed in accordance with written procedures based on applicable safety standards, codes and regulations, and manufacturers' specifications.
5. Test procedures and repairs shall be documented.
6. Installation, repair, alteration, or adjustment of electrical equipment, fuse boxes, circuit breakers, wiring, etc. must be made by properly licensed and authorized maintenance personnel or an approved licensed contractor. All installations must comply with the appropriate sections of the current NFPA 70 *National Electrical Code*®.

## **GENERAL SAFETY POLICIES**

### **Use of Portable Space Heaters**

#### **A. Policy**

It is the policy of UAB to restrict the use of portable space heaters within all areas of the University.

#### **B. Purpose**

To eliminate the fire hazard associated with the use of various types of portable space heaters.

#### **C. Interpretative Guidelines**

1. Portable space heaters are prohibited in sleeping quarters.
2. Only electric space heaters may be used.
3. Portable space heaters used shall be limited to devices where the heating element is limited to not more than 212°F (100°C), and to devices equipped with a safety "tip-over" switch which disconnects power if the device tips over.
4. Space heaters must not be placed or used in a manner that will bring them closer than 12 inches to combustible materials, such as, curtains, furniture, clothes, trash, etc.
5. Only heating units labeled by an approved testing laboratory (U.L. Listed, for example) are approved for use.
6. Space heaters must never be used in rooms with flammable liquids that could produce explosive vapors or in rooms with flammable gases.
7. The use of extension cords with space heaters is not allowed.
8. Space heaters must never be left on over night.
9. Space heaters must be attended at all times.

## GENERAL SAFETY POLICIES

### Use of Adapters and Extension Cords

#### A. Policy

It is the policy of the University of Alabama at Birmingham to restrict the use of adapters and extension cords to emergency use or specific, supervised maintenance activities only.

#### B. Purpose

To assure that adapters and extension cords are not misused within the University because of the inherent hazards of fire, electrical shock and loss of power that are associated with improper electrical connections, and to avoid tripping.

#### C. Interpretative Guidelines

1. Extension cords shall be used only as a temporary means to power equipment and must not be used as a substitute for permanent wiring.
2. All extension cords shall be 16 gauge or heavier. Wire size and insulation must be adequate for the intended purpose and carry the *Underwriters Laboratory*® seal of approval.
3. Only extension cords provided by Campus Maintenance are approved for use at UAB. Requests for supplying or replacing extension cords shall be made through Campus Maintenance.
4. Administrative personnel and staff shall be responsible for the enforcement of this policy. Unapproved adapters or extension cords shall be removed from the UAB campus.
5. Splicing of extension cords or equipment power cords is not permitted.
6. Extension cords must be covered when in use and must be stored in a manner that does not present a trip hazard.
7. Extension cords shall be stored in designated storage cabinets and should be clean, dry and serviceable. Any cords that are frayed, worn or damaged should be discarded to avoid accidental use.
8. All damaged equipment must be reported to departmental supervisors and removed from service.

Title:				
<b>USE AND STORAGE OF COMPRESSED GAS CYLINDERS</b>				
Effective Date:	2/07/2007	Reviewed:		Revised:
UAB Policy Ref. #:				
Approved:				
<div style="text-align: center;">             _____              Max Richard, MPH, Assistant Vice President,              Occupational Health and Safety           </div>				

## USE AND STORAGE OF COMPRESSED GAS CYLINDERS

It is the policy of UAB that special precautions be taken to assure the safe use and storage of compressed gas cylinders in all areas of campus and the Medical Center to minimize the risk of tanks falling or rolling in a manner that could cause the sudden release of high-pressure contents creating a high-speed projectile and the potential for injury and property damage.

This policy does not supersede existing federal, state or local applicable codes but is a supplement to clarify specific UAB requirements for safe handling and storage of compressed gas cylinders. Some hazardous materials may require additional precautions. This policy shall apply to all areas of the University where compressed gas cylinders are used or stored.

1. All compressed gas cylinders are required to be clearly labeled as to the contents and any associated hazards. Deteriorated or corroded labels must be replaced.
2. All cylinders without adequate labeling to identify contents shall be labeled as "Contents Unknown" and returned to supplier. Color coding is not a reliable method of determining contents.
3. Compressed gas cylinders shall be transported on wheeled carts equipped with straps or chains to secure the cylinder to the cart. Rolling or dragging cylinders is not recommended due to the possibility of damage to the cylinder and injury to personnel.
4. Cylinder valve protection caps shall remain in place at all times other than when cylinders are connected for use and secured.
5. All compressed gas cylinders must be secured upright and in place to prevent falling by using approved chains, straps, stands or carts. When delivering new cylinders, if the cylinder can not be safely secured using an approved method the delivery personnel SHALL NOT leave the cylinder.
6. Delivery personnel may not leave tanks unsecured at any time. Tanks must not be left unsecured at the delivery truck or on the truck lift gate, etc.
7. It is the responsibility of the users of the compressed gas cylinders to connect and disconnect cylinders for pickup and delivery. Delivery personnel shall not connect or disconnect cylinders.

8. Cylinders not required for current use should be stored outside of the work area in a protected, fenced, outdoor storage area. If stored indoors, cylinders should be stored in well ventilated areas away from sources of heat and ignition. The area must be secured from unauthorized access with appropriate signage on the outside to inform emergency personnel of potential hazards. Storage rooms must meet the Code requirements of *NFPA 55 Standard for Storage, Use and Handling of Compressed and Liquefied Gases in Portable Containers*.
9. Cylinders shall not be stored in corridors.
10. Automatic pressure regulators or reducing valves shall be used on all gas cylinders to maintain a uniform gas supply at the correct pressure. Only regulators listed by agencies such as *Underwriters Laboratories®* or Factory Mutual should be used. Use only the appropriate, designated regulator for the specific gas to be used.
11. Regulators for oxygen or fuel gas cylinders shall be equipped with a high pressure (cylinder pressure) and a low pressure (delivery pressure) gauge, a flow control valve, and a delivery adjustment screw.
12. Do not use oil around oxygen gauges, valves or connectors. Follow suppliers recommendations for cleaning of the cylinder outlet fittings and openings.
13. Close the cylinder valve when the equipment is not in use or unattended overnight.
14. Cylinders containing toxic or flammable gases must be stored in an approved storage area. The use of the smallest possible cylinder of toxic or flammable gases is recommended.
15. Cylinders containing oxidizing gases, such as oxygen and nitrous oxide, shall be stored separately from flammable gases or liquids in accordance with *NFPA 55 Standard for Storage, Use and Handling of Compressed and Liquefied Gases in Portable Containers*.
16. Empty cylinders shall be so identified and stored separately from full or partially full cylinders.
17. Compressed gas cylinders shall be used only for their intended purposes.

## GENERAL SAFETY POLICIES

### Entry of Confined Spaces

#### A. Policy

It is the policy of UAB that entry and work in areas defined as confined spaces shall be regulated to prevent unauthorized and unsupervised access.

#### B. Purpose

The purpose of this policy is to establish requirements for workers and supervisors to follow when specific work involves a confined space. Because confined spaces offer unique hazards, such as oxygen deprivation, explosive and toxic gases, high voltage electrical equipment, and difficult or slow rescue procedures if a worker is injured, guidelines and procedures must be established and followed in order to maintain the safest possible work environment. This policy sets minimum requirements for entry and work in confined spaces.

#### C. Definition

For the purposes of this policy, confined space refers to relatively small or restricted spaces or compartments with limited openings for entry or exit and unfavorable ventilation that may allow the depletion of oxygen or the build up of toxic, debilitating, flammable or explosive gases and areas not protected against entry of water, gas, sand, gravel, biologicals, radiation, corrosive chemicals, or any other substance which could possibly trap, suffocate, or harm an individual. Examples include but are not limited to; storage tanks, sewers, tunnels, underground utility vaults, trash chutes, pits, vats, de-greasers, boilers, etc.

#### **Classification:**

**Class A:** When any hazard potential or condition exists which presents an immediate threat to life or health.

**Class B:** When any hazard potential or condition exists which is not immediately life threatening, but may cause serious and potentially disabling injury.

**Class C:** When the hazard potential or conditions present no serious health threat and require no change in work procedures.

#### D. Interpretive Guidelines

1. *Entry into a Confined Space.* Only qualified persons designated by his/her supervisor, in writing, as capable (by education and/or specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions shall enter a confined space. This person shall be capable of specifying necessary control and/or protective action to ensure worker safety.

2. *Confined Space Entry Permit.* Employees are required to obtain written authorization (see Appendix A) signed by his/her supervisor prior to entering a confined space. The permit shall include the employee's name, the time, duration, type and location work to be performed, and any special precautions or protective equipment required. The permit shall also certify that all existing hazards have been evaluated by a qualified person and that necessary protective measures have been taken to ensure the safety of each worker. Permits should be kept on file indefinitely.

3. *Atmosphere testing and monitoring.* Prior to entry into a confined space, the atmosphere must be tested for oxygen content, flammability, and toxic materials. In Class A and B confined spaces monitoring must be done continuously while work is ongoing. The Department of Occupational Health and Safety will provide the required training for the use and interpretation of the required monitoring equipment. Class C confined spaces that have been ventilated for a period not less than five minutes prior to entry, and continuously during occupancy do not require testing and monitoring.

*Oxygen requirement - Not less than 19.5% nor more than 25% at 760 mm of Hg.*

*Flammable gases - Concentration not greater than 10% of the lower explosive limit (LEL).*

*Toxic substances - Concentration not greater than the permissible exposure level (PEL).*

4. *Lockout/tagout.* All mechanical, electrical, liquid, and gas systems relating to the confined space that may create a hazard must be secured. Standard lock out/tag out procedures must be used until the space is no longer occupied.

5. *Ventilation.* Confined spaces must be ventilated prior to and during occupancy of the space to prevent the depletion of oxygen and the build up of flammable or toxic gases.

6. *Lighting.* Employees are not permitted to enter poorly lighted confined spaces. Temporary lighting should be equipped with guards, ground fault interrupting circuits, heavy duty electrical cords and be of vapor proof construction. 12 volt (DC) systems should be used in moist or wet environments.

7. *"Buddy system".* Employees are not permitted to enter a confined space without an observer trained in emergency procedures.

8. *Safety equipment.* Those items normally used to protect against traumatic injury include; safety glasses, hard hats, protective clothing and footwear, gloves, and safety belts with life lines. Life lines with proper winching equipment should be used in most instances, this will prevent a second worker from entering a confined space in order to rescue an injured worker.

9. *Respiratory protection .* Requirements will be determined by OH&S based on monitoring results and the work activity. If ventilation cannot reduce the concentration of toxic substances sufficiently and maintain adequate oxygen levels, proper respiratory protective equipment must be worn.



10. *Tools.* All tools and equipment that may be used in a flammable atmosphere should be non-sparking and/or approved as explosion proof. At the time a confined space entry permit is issued, supervisors should inform workers to inspect all equipment and tools for defects before use in a confined space.

11. *Training.* Personnel who work in the vicinity of confined spaces should be made aware of the hazards and restrictions associated with these areas. Personnel required to work in confined spaces, or in support of those working in confined spaces should receive additional training in the following areas;

- a. Safety and rescue equipment and procedures
- b. Lock out/tag out procedures
- c. Permit requirements
- d. Air sampling equipment and methods
- e. Confined space hazards and precautions
- f. The “Buddy System”

12. *Labeling and Posting.* All entrances to any confined space should be posted. Signs should include:

**DANGER**  
**Confined Space**  
**Entry By Permit Only**

## GENERAL SAFETY POLICIES

### Construction by Outside Contractors

#### A. Policy

It is the policy at UAB that all construction by outside contractors on University property will be conducted in a manner that protects the health and safety of faculty, staff, patients, visitors and students, as well as non-project UAB property.

#### B. Purpose

To avoid property damage to non-project areas and personal injury to individuals as a result of construction at UAB.

#### C. Interpretive Guidelines

1. Construction safety, as it relates to construction performed under contract with The Board of Trustees of the University of Alabama System, for the University of Alabama at Birmingham (UAB), or other University entities, is the responsibility of the contractor in charge of the project. These responsibilities are stated in the contract documents and include, but are not limited to, adherence to rules, regulations, and laws established by UAB, local, state, and federal agencies, including the standards and guidelines established under the Occupational Safety and Health Act.

Although the Department of Occupational Health and Safety has no authority, per se, over a contractor, subcontractor, or employees thereof, or within the “job site” of a project, construction areas may be regularly inspected by UAB Safety personnel for unsafe actions, practices, or conditions that may pose an immediate or potential hazard to UAB’s property, staff, faculty, students, patients, or visitors. Observed hazards will be reported to the UAB New Construction Project Coordinator, who will then instruct the architect and contractor to abate the hazard.

2. *Work Stoppage.* If an observed hazard is judged to present eminent danger to UAB property, staff, faculty, students, patients, or visitors, the UAB Director of Occupational Health and Safety or his designees will have the authority to immediately issue a “stop work order” to the contractor through the UAB New Construction Project Coordinator. The UAB New Construction Project Coordinator will be responsible for immediately advising the architect and contractor of the issuance of the “stop work order” and coordinate the abatement of the hazard with the UAB Department of Occupational Health and Safety.

3. *Blasting Operations.* Written notification and description of blasting operations must be received in the office of Occupational Health and Safety at least 7 days prior to the actual operation. Exceptions to this notification period will be considered on a case-by-case basis. Place, time, duration, purpose, type and amount of explosive, and

a contact person and phone number must be included in the notification.

4. *Welding, Cutting, or Other “Hot” Work By Contractors.* Burn permits issued through New Construction are required for all types of burning or welding operations.

- a. Contractors are required to have an appropriate number of 10 lb. ABC type extinguishers, with proof of current inspection, in the immediate area when performing hot work. For roofing operations, there shall be at least one portable fire extinguisher within 30 feet horizontal travel distance of every roofing kettle while such kettle is in operation, one on the roof being covered or repaired, and one within 20 feet horizontal travel distance of torch applied roofing equipment.
- b. Fire alarm equipment and sprinkler heads shall be protected from inadvertent activation and shall remain in service.
- c. Fire resistive coverings, drop cloths, and barriers shall be used as necessary to protect against fire caused by sparks and molten metal, and to protect passersby.
- d. A fire watch or “spotter(s)” must be maintained during hot work and these areas must be observed for a reasonable period of time after completion of the hot work in order to detect possible smoldering fires.
- e. Welding or cutting operations shall not be permitted in or near areas with flammable vapors, gases, liquids or dusts until those hazards have been eliminated.

5. *Emergency Notification.* In the event of fire or medical emergency, contractors must notify UAB Police by calling 934-3535. The dispatcher will then make the appropriate notifications including the Birmingham Fire Department, Paramedics, etc. The contractor will conspicuously post a sign at all project phone sites that will read:

**FOR FIRE OR MEDICAL EMERGENCY  
CALL UAB POLICE AT 934-3535**

Contractors will be responsible for ensuring that all employees and supervisors are aware of this policy.

6. *Site Security.* The contractor is responsible for securing the project area from unauthorized access and ensuring that the area and any loose materials are secure at the end of the work shift. The Birmingham area is subject to sudden changes in weather and unsecured construction materials can cause considerable damage in the event of high winds.

7. *Pedestrian Protection.* The contractor is responsible for providing protection for pedestrians in accordance with all applicable codes and standards.

- a. All signs, i.e., Road Closed, Sidewalk Closed, Emergency Exit Only, etc., shall be of quality construction, clearly visible and legible.

- b. Temporary walkways shall have substantial safety markings and be maintained free of trip hazards. Breaks in walkways for construction traffic shall have a sign posted warning pedestrians to watch for construction traffic. In addition, a flagman shall be posted to direct construction and pedestrian traffic.
- c. OH&S will have final approval for the closure of walkways and sidewalks associated with construction projects.

8. *Dust Protection.* Non-project areas shall be protected from the effects of dust, smoke, vapors and fumes generated from construction activity. Many areas of UAB contain delicate equipment that will sustain considerable damage, even from extremely small amounts of contaminants. Contractors shall be made aware of sensitive areas and shall take all necessary steps to protect the areas in which they are working.

9. Contractors shall insure the integrity of fire rated separations and obtain the approval of the authority having jurisdiction for any interim measure taken that may reduce the level of life and fire safety in UAB buildings.

10. Contractors shall coordinate all construction and related activities with the UAB New Construction Project Coordinator and Building Administrator responsible for the building, area, or space under construction or renovation. Neither the contractor, his subcontractors, nor suppliers shall enter the building, area, space, or other non-project UAB owned space without prior notice and approval of the responsible UAB Administrators and UAB New Construction Department.

11. All construction separations shall be made of non-combustible materials and maintain a smoke tight barrier.

12. In campus areas, construction shall not reduce the level of life safety.

13. During construction activities, all required exits and exit access corridors shall be maintained free and clear of any obstructions.

## **GENERAL SAFETY POLICIES**

### **Welding and Other “Hot” Work By UAB Staff.**

#### **A. Policy**

It is the policy at UAB that all work involving welding, cutting, brazing, soldering and other work involving the use of electric arc or flame shall be done in a manner that protects the health and safety of faculty, staff, patients, visitors, students and UAB property.

#### **B. Purpose**

To avoid injury to personnel and damage to property from the use of welding, cutting, brazing, soldering or other hot work equipment.

#### **C. Interpretive Guidelines**

1. Welding, cutting, brazing, soldering and other work involving the use of electric arc or flame shall not be conducted outside the maintenance shops unless approved by the appropriate maintenance supervisor or superintendent.
2. Fire alarm equipment and water spray sprinkler heads shall be protected to preclude accidental activation or damage and shall remain in service.
3. Fire-resistive coverings, drop cloths, and barriers shall be used as necessary to prevent fire caused by sparks and molten metal and eye injury to nearby personnel.
4. A fire watch will be maintained during the period of the hot work and for at least a half hour after completion to detect and extinguish possible smoldering fires.
5. Process hoses shall be located and protected so they will not be physically damaged.
6. Gas cylinder valves shall be closed when equipment is unattended, and valve caps shall be in place except when cylinders are in service or connected ready for service.
7. Welding and cutting operations shall not be permitted in or near rooms containing flammable or combustible vapors, liquid vapors, liquids, and dusts until all fire and explosion hazards have been eliminated. All surrounding premises shall be thoroughly ventilated and frequently gas tested. Local ventilation shall be provided as needed.
8. Although open-circuit voltage on standard arc-welding units are not high compared to those of other processes, they cannot be neglected as a potential hazard. Normally, the work setup is such that the work is grounded, and unless care is exercised, the welder or operator can easily become grounded. Consistent use of

well-insulated electrode holders and cables, dry clothing on the hands and body, and insulation from the ground will be helpful in preventing contact. Some specific precautions for the prevention of electric shock are:

- a. Arrange cables to prevent contact with falling sparks.
- b. Never change electrodes with bare hands, wet gloves, or when standing on wet floors or grounded surfaces.
- c. Ground the frames of welding units, portable or stationary, in accordance with the National Electrical Code.
- d. Arrange receptacles of power cables for portable welding units so that it is impossible to remove the plug without opening the power supply switch, or use plugs and receptacles which have been approved to break full load circuits of the units.
- e. If a cable (either work lead or electrode lead) becomes worn and exposes bare conductors, cover the exposed portion with rubber or plastic equivalent in insulation to the original cable covering or replace the cable with an undamaged item.
- f. Keep welding cables dry and free of grease and oil to prevent breakdown of the insulation.
- g. Protect cables that must be laid on the floor or ground so that they will not interfere with safe passage or become damaged or entangled.
- h. Take special care to keep welding cables away from power supply cables or high-tension wires.

9. Some items of protective clothing needed by welders include:

- a. Flame-resistant gauntlet gloves, except on very light work.
- b. Aprons of leather or other flame-resistant materials to withstand radiated heat or sparks.
- c. Safety shoes whenever heavy objects are handled. Low-cut shoes should not be used because of spark hazard.
- d. For overhead work, capes or shoulder covers of leather or other suitable material.
- e. Safety hats or other head protection from sharp or heavy falling objects.
- f. Cotton clothing disintegrates rapidly because of the high ultraviolet radiation from arc welding and can be a source of burns if not chemically treated to reduce flammability.

10. Respiratory Protection During Welding

During welding and cutting operations, toxic gases, fumes, and dusts may be involved, depending on the type of electrode used, the base metal being welded or cut, and whether the base metal is coated with such materials as tar, lead, or zinc. Gases - the oxides of nitrogen, carbon, monoxide, ozone, and metallic dust and fumes may, in varying degrees, present inhalation hazards if adequate respiratory protection is not provided. Adequate ventilation should be provided during all welding and cutting activities by the use of local ventilation devices and general ventilation. If gases, dust, and fumes cannot be kept below the threshold limit

value as specified by the American Conference of Governmental Hygienists, welders should wear respiratory protective equipment approved for the exposure by NIOSH. Where oxygen is also deficient, self-contained breathing apparatus or hose masks are necessary. American National Standard Z49.1, *Safety in Welding and Cutting*, gives specifications for local exhaust system, general ventilation, and health protection of workers during various types of welding and cutting.

#### 11. Eye Protection During Welding

Goggles, helmets, and shields that give maximum eye protection for each welding and cutting process should be worn by operators, welders, and their helpers. These items should conform to ANSI Standards Z87.1, *Practice for Occupational and Educational Eye Protection*; and Z89.1, *Safety Requirements for Industrial Head Protection*. Goggles or spectacles should have side shields. Appropriate filter lens of the most suitable shade numbers for the various welding cutting operations shall be used by both welders and helpers.

## **GENERAL SAFETY POLICIES**

### **Use of Ladders at UAB**

#### **A. Policy**

It is the policy at UAB that all ladders used by employees shall be used in a manner that will minimize the chance of accident and injury.

#### **B. Purpose**

To avoid injury to UAB personnel through the misuse of ladders or the use of defective or inappropriate ladders.

#### **C. Interpretive Guidelines**

1. Prior to the use of any ladder, it should be inspected carefully by the user to detect any defects in the uprights, ladder shoes, and hinges.
2. Step ladders must be equipped with a spreader that locks in position when the ladder is opened.
3. The use of conductive metal ladders when working with or near electrical equipment must be avoided due to electrical shock hazards.
4. Only ladders approved by maintenance supervisory personnel and the UAB Purchasing Department are permitted.



## **GENERAL SAFETY POLICIES**

### **Use of Power Machinery and Equipment**

#### **A. Policy**

It is the policy at UAB that the use of power machinery and equipment shall be done in a manner consistent with manufacturers' recommendations and recognized safe work practices.

#### **B. Purpose**

To avoid accidents and injuries caused by faulty equipment or the inappropriate use of power machinery and equipment.

#### **Interpretive Guidelines**

1. Supervisors and managers shall allow only trained and authorized personnel to operate powered machines including hand tools. Supervisors are responsible for providing and documenting adequate training on the hazards and proper use of power equipment and the associated personal protective equipment.
2. All applicable guards and safety power cutoffs must be in place and operational before equipment is used. Stops, overload switches, or other safety devices must not be overridden, bypassed or removed. Guards may only be removed when the power supply has been disconnected, as in appropriate lock-out/tag-out procedures, for servicing.
3. No equipment with faulty or frayed wiring shall be used. All equipment must be visually inspected prior to each use. Any equipment found to be defective must be labeled as such, reported to the appropriate supervisor, and removed from service.
4. Appropriate personal protective equipment, such as safety glasses, face shields, gloves, etc. shall be worn during the operation of any power equipment.
5. Operators of power equipment shall take care to not wear loose fitting clothing, unrestrained long hair, or jewelry that may become tangled in the equipment.

## **GENERAL SAFETY POLICIES**

### **Mechanical Rooms, Electrical Rooms, and Maintenance Facilities**

#### **A. Policy**

It is the policy at UAB that mechanical, electrical, and other equipment rooms must be considered hazardous areas and must be treated as such.

#### **B. Purpose**

To prevent activities or storage of materials in mechanical, electrical or other equipment rooms that may cause or contribute to an incident involving fire, explosion or other hazardous situation.

#### **C. Interpretive Guidelines**

1. Room doors shall be kept locked.
2. Serviceable fire-fighting equipment shall be located in or near mechanical and electrical rooms and shall be of the proper type and adequate capacity.
3. Engines and machinery exhausting toxic vapors shall not be operated in enclosed maintenance areas without a safe exhaust system properly vented to the outside of the building.
4. All equipment, such as air compressors shall be properly grounded, control switches in good repair, and stop switches painted red.
5. Drive belts and drive shafts on all rotating machinery shall be equipped with guards to prevent persons, tools, or clothing from being caught in the drive unit.
6. Flammable liquids must not be used to clean equipment, parts, floors, or materials. Only approved cleaning solutions or plain soapy water will be used for cleaning.
7. Fuels and other flammable liquids must be stored in approved flammable storage rooms, in approved cabinets, or in safety cans. Open containers, cans, buckets, etc., without flash screens shall not be used. Rags soiled with fuel, oil, or lubricants shall be kept in self-closing metal containers and removed from the area daily or when capacity is reached. Under no conditions shall containers be left uncovered.
8. Drop lights shall be of an approved type and should be equipped with vapor-proof globes and shields.
9. Storage in Mechanical Rooms, Electrical Rooms, and Closets
  - a. Storage in mechanical rooms shall not include combustible items unless it is in fire-resistive cabinets or lockers in minimum quantities necessary for the maintenance of the equipment.

- b. Passageways shall be kept clear of obstructions.
- c. Spilled fluids and greases shall be removed from floors and other surfaces promptly.
- d. Storage in electrical closets and electrical rooms is prohibited.

## **GENERAL SAFETY POLICIES**

### **Use of Classroom Buildings and Academic Areas**

#### **A. Policy**

It is the policy at UAB that classrooms, common areas in classroom buildings and academic areas shall be maintained reasonably free of hazards.

#### **B. Purpose**

To ensure that all classroom buildings and academic areas are reasonably free of physical and fire hazards and to ensure a healthful and safe environment in which faculty, staff and students may work and study.

#### **C. Interpretive Guidelines**

1. Movement of seating to locations obstructing aisles and exit access or stacking of furniture in a manner that may pose a hazard is prohibited.
2. Smoking is restricted to designated areas and is not permitted in any UAB building.
3. Emergency evacuation plans and routes shall be maintained in good condition and prominently displayed in all common areas.
4. Faculty and staff shall conduct annual fire drills with the assistance of Occupational Health and Safety.
5. Faculty shall be responsible for informing all students at the beginning of any school term of the emergency exits, corral points, location of safe areas in the event of severe weather and any other pertinent safety precautions.

## GENERAL SAFETY POLICIES

### Use of Assembly Areas

#### A. Policy

It is the policy at UAB that all areas of assembly shall be maintained and used in a manner that protects the safety and health of faculty, staff, students, and visitors.

#### B. Purpose

To ensure that gatherings of large numbers of people do not create unnecessary hazards for groups using UAB facilities.

#### C. Interpretive Guidelines

Places of assembly are defined as those portions of a building used for gathering together 50 or more people. Typical areas may include large classes, theaters, auditoriums, gymnasiums, waiting areas, and cafeterias. In addition to fire safety concerns in these areas, the safe movement of large groups of people from an area or room under normal and emergency conditions is of prime concern.

1. Direct, clear and unobstructed routes to exits must be maintained at all times.
2. Exits must be of sufficient number (as per applicable codes) , adequately marked, lighted, and unobstructed. Standing, sitting, or blocking isles with moveable seating is prohibited.
3. Occupancy loads shall be determined by referring to NFPA 101®, *Life Safety Code 1991*.
4. Smoking is prohibited inside assembly areas.
5. It is recommended that those in charge of programs begin each session by pointing out the emergency egress routes and other appropriate safety information.
6. Emergency lighting must meet or exceed the requirements stated in NFPA 101®, *Life Safety Code 1991* Sections 5-8 and 5-9.
7. Outdoor Assembly seating, tents, membrane structures, bleachers, grandstands, and stadiums shall comply with *NFPA 102 Standard for Assembly Seating, Tents, and Membrane Structures*.

## **GENERAL SAFETY POLICIES**

### **Student Housing**

#### **A. Policy**

It is the policy at UAB that all student housing buildings shall be maintained in a way that protects the health, safety and security of the occupants.

#### **B. Purpose**

To provide those students living on campus a safe and secure place in which to live and study.

#### **C. Interpretive Guidelines**

1. The Housing Office shall make available to each student occupant of campus dormitories and garden apartments written information regarding fire safety and emergency evacuation.
2. Any hazardous condition or security violation shall be reported to the resident assistant and/or manager.
3. Tampering with fire alarm equipment, sprinklers, or fire extinguishers is prohibited. In some instances tampering is considered a Federal offense.
4. Fire doors in elevator lobbies and at exits shall not be wedged open at any time.
5. Corridors are not to be used for storage at any time and must be maintained clear and unobstructed.
6. Combustible decorations, unprotected candles, oil lamps, kerosene heaters, or barbecue grills shall not be used inside the buildings.
7. Small charcoal grills in good condition may be used on the balconies of the student dormitories, however, no lighter fluid may be stored in apartments or rooms. Small quantities (16 oz. or less) of lighter fluid may be stored on the balcony or patio. Rusted grills should not be used at anytime. Care must be taken to ensure hot coals do not fall from balconies.
8. Propane fueled grills may be used if the tank does not have a capacity greater than 1 pound of LP gas. Propane tanks may not be stored inside the building at any time.
9. Fire drills shall be conducted quarterly and all residents are required to participate.

## **GENERAL SAFETY POLICIES**

### **Housekeeping**

#### **A. Policy**

It is the policy at UAB that all campus areas shall be maintained clean, neat and ready for service.

#### **B. Purpose**

Housekeeping is one of the most important factors in accident prevention. For the purposes of the Safety program, the term "housekeeping" refers to responsibilities of each individual department maintaining cleanliness and order in their assigned area, as well as those departments whose primary responsibilities include cleaning and sanitation of University buildings. These units are charged with broad areas of work, more extensive and technical than the traditional "housekeeping" tasks, and are known as Building Services in the academic and research buildings, and Environmental Services in the University buildings. The following practices shall be observed in order to reduce "housekeeping" related accidents:

#### **C. Interpretive Guidelines**

1. Supplies and equipment, including waste materials and machines, shall not be allowed to remain on floor surfaces where they may become obstructions to exit travel and may unnecessarily impede rapid evacuation of the room or building during a fire or another emergency.
2. Placing of electrical cords or similar objects in such a manner as to cause a trip hazard for people walking in aisles, on steps, stairs, sidewalks, or corridors, shall not be permitted. Temporary placement of these items for the purposes of maintenance or cleaning shall require the use of warning signs to alert pedestrians of the dangers.
3. The storage of combustible or flammable materials shall be permitted only in suitable, approved containers. Waste paper and other solid waste shall be removed from the building on a daily basis.
4. Shop rags soiled with oil, grease, fuels, paints, solvents, etc., must be stored in approved type of metal storage can that is complete with an automatic closing top. Clean rags also should be stored in metal cans or cabinets. Soiled rags should be removed from the building on a daily basis.
5. Floor cleaning and finishing shall be in accordance with current and approved procedure manuals. The use of warning signs and other safety devices and personal protective equipment shall be used as specified therein.

6. The storage of departmental supplies shall be in adequate cabinets or on shelves in a manner that will provide protection against unstable piling or placement; and such shelves or cabinets shall be bolted down or otherwise secured to floors or walls to prevent them from falling over or collapsing.

7. All materials stored, whether in storerooms or work areas, shall not be placed within 18 inches of a sprinkler deflector or within 36 inches of an unprotected ceiling.



## **GENERAL SAFETY POLICIES**

### **Use of Lock Out / Tag Out**

#### **A. Policy**

It is the policy at UAB that procedures shall be in place to prevent the unexpected energization, start up, or release of energy when servicing and maintaining equipment.

#### **B. Purpose**

To avoid accidents and injuries to personnel cause by the unexpected energization, start up, or release of energy when servicing equipment.

#### **C. Interpretive Guidelines**

The OSHA Lock out/Tag out Standard originally proposed in 1988 became a standard on October 31, 1989. This standard applies to the servicing and maintenance of machines where the unexpected energization, start up, or release of energy could cause injury to employees. UAB has adopted this standard and incorporated its requirements into this manual.

1. The supervisor will establish a program of energy control procedures and also train his employees in the prevention of the release of energy which could cause injury.
2. If an energy isolating device cannot be locked out, a tag out system must be used. If a supervisor can demonstrate a tag out system can be used and provide the same protection as a lockout system, it can be used in lieu of the lockout system.
3. Locks, tags, chains and other hardware used on energy isolating devices will be provided by the employer.
4. The Department of Occupational Health and Safety will review the program at least once yearly to ensure that the requirements of the Lock out/Tag out policy are being met.
5. The Lock out/Tag out of equipment will be performed only by authorized employees or supervisors.
6. Employees affected by the Lock out/Tag out of equipment will be notified by the supervisor or by an authorized employee of the application and removal of the Lock out/Tag out devices.
7. The Lock out/Tag out device will be removed from the energy isolating device by the employee who applied the device after checking the machine and notifying all affected employees.

## GENERAL SAFETY POLICIES

### Two-Point Suspension Scaffolds

#### A. Policy

It is the policy at UAB to regulate the use of two-point suspension scaffolding when used by UAB employees.

#### B. Purpose

To ensure that two-point suspension scaffolding meets specific standards of performance and the use of the equipment is by employees qualified by training and experience.

#### Interpretive Guidelines

1. Two-point suspension scaffold platforms shall be not less than 20 inches nor more than 36 inches wide.
2. Hangers shall be made of mild steel or other equivalent material capable of sustaining four times the maximum rated load and shall be designed with a support for guard rail, intermediate rail and toe board.
3. When hoisting machines are used, they shall be of a design tested and approved by *Underwriters Laboratories®* or Factory Mutual Engineering Corporation.
4. The roof irons or hooks shall be of mild steel or other equivalent material of proper size and design, securely installed and anchored. Tie backs of 3/4 inch manila rope, or the equivalent, shall serve as a secondary means of anchorage, installed at right angles to the face of the building, whenever possible, and secured to a structurally sound portion of the building.
5. Scaffolds shall be suspended by wire, synthetic or fiber ropes capable of supporting six times the rated load. All other components shall be capable of supporting at least four times the rated load.
6. All ropes, slings, hangers, platforms and other supporting parts shall be inspected before every use. Periodic inspections shall be made while the scaffold is in use.
7. On suspension scaffolds designed for a working load of 500 lbs, no more than two men shall be permitted to work at one time. On scaffolds with a working load of 750 lbs, no more than three men shall be permitted to work at one time.
8. Each employee shall be protected by an approved safety life belt attached to a lifeline. The lifeline shall be securely attached to substantial members of the structure (not scaffold) or to securely rigged lines.
9. Scaffolds shall be securely lashed to the building or structure to prevent swaying. Window cleaners' anchors shall not be used for this purpose.

10. Guard rails approximately 42 inches, mid rails, and toe boards shall be installed at all open sides and ends on all scaffolds more than ten feet above the ground or floor.

11. Supervisors of this operation shall establish a program of training, retraining, and documentation to assure that employees using this equipment are fully trained and qualified.

## GENERAL SAFETY POLICIES

### Safety Inspections (Hazard Surveillance)

#### A. Policy

It is the policy at UAB that all areas of the campus will be periodically inspected for hazards related to fire and life safety.

#### B. Purpose

To identify and eliminate fire and life safety hazards caused by the general deterioration of buildings, grounds, and the conduct of individuals.

#### C. Interpretive Guidelines

Several agencies conduct formal inspections of University property. Some inspections are required by State law, others by the City of Birmingham, and still others may be conducted in connection with licenses, permits, or the determination of insurance rates. The Department of Occupational Health and Safety inspections are conducted in an attempt to eliminate unsafe conditions.

Safety inspections will cover the following areas:

- General Safety
- Fire Safety
- Life Safety
- Emergency Preparedness

1. *Safety Inspection Process.* The Campus Safety Officer will perform the Departmental safety inspection. Attached are Safety Inspection Forms which will serve as checklists to be completed during the inspection. Please note that not all Safety Inspection Forms apply to each Department.
2. Deans, directors, and department heads are responsible for working with the Campus Safety Officer and the General Health and Safety Committee to rectify any problems or issues identified during the Departmental Safety Inspection.
3. Summaries of the Departmental Safety Inspections will be presented on a regular basis to the General Health and Safety Committee by the Campus Safety Officer. The GHSC will monitor and evaluate any identified issues or concerns.

**UNIVERSITY OF ALABAMA AT BIRMINGHAM  
DEPARTMENTAL SAFETY INSPECTION FORM**

DATE of SURVEY: \_\_\_\_\_ SURVEYOR: \_\_\_\_\_

LOCATION: \_\_\_\_\_ DEPARTMENT: \_\_\_\_\_

<b>SECTION I PHYSICAL SURVEY</b>	<b>YES</b>	<b>NO</b>	<b>COMMENTS</b>
1. Warning signs used to identify hazards?			
2. All defective equipment properly tagged?			
3. Are furnishings safely arranged?			
4. Is lighting adequate?			
5. Are sharps containers utilized?			
6. Is trash properly segregated (i.e., broken glass in broken glass containers, biohazardous waste in red barrels)?			
7. Is trash removed in a timely manner?			
8. Is assistance available for heavy lifting (i.e., mechanical lifting aids)?			
9. Is equipment properly guarded?			
10. Is No Smoking Policy posted?			
11. Are No Smoking Policy restrictions being observed?			
12. Are electric cords and plugs in good condition?			
13. Are stairways kept free and unobstructed?			
14. Is personal protective equipment being used where necessary?			

**UNIVERSITY OF ALABAMA AT BIRMINGHAM  
DEPARTMENTAL SAFETY INSPECTION FORM**

DATE of SURVEY: \_\_\_\_\_ SURVEYOR: \_\_\_\_\_

LOCATION: \_\_\_\_\_ DEPARTMENT: \_\_\_\_\_

<b>SECTION II LIFE SAFETY MANAGEMENT</b>		<b>YES</b>	<b>NO</b>	<b>COMMENTS</b>
1.	Do all fire doors close and latch properly?			
2.	Do all stairwell doors close and latch properly?			
3.	Are all smoke, fire, and stairwell doors unobstructed and free to close (i.e., doorstops or wedges present)?			
4.	Are all stairwells free of storage?			
5.	Are all smoke detectors and sprinkler heads free of paint, dust, etc.?			
6.	Are all exit lights visible, legible, and properly illuminated (both bulbs burning)?			
7.	Are all corridors free from obstruction?			
8.	Are emergency exits marked?			
9.	Are electrical cords arranged to prevent tripping hazards?			
10.	Are electrical distribution rooms and mechanical rooms locked at all times?			
11.	Are electrical and mechanical rooms free of stored items?			
12.	Are all fire extinguishers certified within the last year?			

**UNIVERSITY OF ALABAMA AT BIRMINGHAM  
DEPARTMENTAL SAFETY INSPECTION FORM**

DATE of SURVEY: \_\_\_\_\_ SURVEYOR: \_\_\_\_\_

LOCATION: \_\_\_\_\_ DEPARTMENT: \_\_\_\_\_

<b>SECTION III EMERGENCY PREPAREDNESS</b>	<b>YES</b>	<b>NO</b>	<b>COMMENTS</b>
1. Are fire extinguishers obstructed?			
2. Are Emergency Procedures present in the Department?			
3. Are all faculty and staff familiar with the emergency procedures?			
4. Does the Department have a Fire Plan?			
5. Are all faculty and staff familiar with the fire plan?			
6. Are emergency procedures, the fire plan, and evacuation routes posted?			
7. Are all faculty and staff familiar with fire extinguishers?			
8. Are all faculty and staff familiar with action to take upon discovery of fire or other disaster?			
9. Are all faculty and staff familiar with emergency telephone numbers?			

**UNIVERSITY OF ALABAMA AT BIRMINGHAM  
DEPARTMENTAL SAFETY INSPECTION FORM**

DATE of SURVEY: \_\_\_\_\_

SURVEYOR: \_\_\_\_\_

LOCATION: \_\_\_\_\_

DEPARTMENT: \_\_\_\_\_

<b>SECTION IV STOREROOMS</b>	<b>YES</b>	<b>NO</b>	<b>COMMENTS</b>
1. Are storerooms well-lit?			
2. Are exits and aisles of storerooms clear at all times?			
3. Are rubbish, empty cartons, and paper disposed of immediately?			
4. Are spillage items stored below eye level?			
5. Are heavy items stored on the lower shelves?			
6. Are stored materials clear of both sprinkler heads (at least 18 inches) as well as other fire-fighting equipment?			
7. Are flammable liquids: a) Stored in approved containers? b) Stored in safe quantities? c) Stored in approved cabinets?			
8. Are storage shelves adequate for the weight involved?			
9. Are stepladders, rather than "makeshifts", available for use?			
10. Are all stepladders in safe condition?			
11. Is No Smoking Policy being observed?			



**UNIVERSITY OF ALABAMA AT BIRMINGHAM  
BUILDINGS & GROUNDS SAFETY INSPECTION FORM**

DATE of SURVEY: \_\_\_\_\_ SURVEYOR: \_\_\_\_\_

BUILDING: \_\_\_\_\_

INSPECTION ITEM	YES	NO	COMMENTS
1. Do the building parking lots and roads have any potholes?			
2. Is the building exhibiting any deterioration?			
3. Are the building sidewalks, curbs, and driveways in good condition?			
4. Is the grass in orderly and well-groomed condition?			
5. Are there any hanging or rotting tree limbs apparent?			
6. Are the building entranceways clear and in good condition?			
7. Are stairways kept free and unobstructed?			
8. Do all fire doors close and latch properly?			
9. Do all stairwell doors close and latch properly?			
10. Are all smoke, fire, and stairwell doors unobstructed and free to close?			
11. Are all stairwell landings properly identified (per <i>Life Safety Code</i> )?			

## GENERAL SAFETY POLICIES

### Medical Emergency Reporting

#### A. Policy

It is the policy at UAB to provide faculty, staff, students, visitors and patients a means by which they may report and be assisted with medical emergencies.

#### B. Purpose

To facilitate the treatment of injuries and illness in order to minimize their impact on faculty, staff, students, visitors and patients.

#### C. Interpretive Guidelines

1. Emergency medical service is provided 24 hours a day, 7 days a week in the University Hospital Emergency Department. In the event of an accident with injuries or a sudden illness, individuals should contact ***UAB Police at extension 4-3535***. The dispatcher will then contact the other necessary emergency response authorities, including an ambulance for transport.
2. The Emergency Department is also available for walk-in treatment of injuries or illness sustained while working at or visiting UAB.

## **GENERAL SAFETY POLICIES**

### **Building Mechanical Systems**

#### **A. Policy**

It is the policy at UAB to monitor all building service mechanical systems to ensure that they are safe and effective.

#### **B. Purpose**

To ensure that all building service mechanical systems (heating, ventilation, and air conditioning) as well as the electric, hydraulic, and pneumatic power sources and equipment servicing such systems are safe and effective.

#### **C. Interpretative Guidelines**

1. All applicable systems and equipment shall be periodically evaluated for safety and effectiveness and calibrated or repaired as required.
2. All new elements of the mechanical system shall be evaluated for safety and performance prior to being put into service.
3. Acceptance tests, scheduled service procedures and establishment of test intervals shall be the responsibility of Campus Maintenance.
4. Tests shall be performed in accordance with written procedures based on applicable safety standards, codes and regulations, and manufacturers' specifications.
5. Test procedures and repairs shall be documented.
6. Biological safety cabinets and chemical or radioactive fume hoods shall be tested and certified at the appropriate intervals by the Laboratory Ventilation Specialist in the Department of Occupational Health and Safety.

## GENERAL SAFETY POLICIES

### Pre-Maintenance Evaluation Procedures for Radioisotope Hoods, Chemical Fume Hoods, and Biological Safety Cabinets

#### A. Policy

It is the policy at UAB that all biological safety cabinets, chemical and radioisotope fume hoods shall be certified as safe prior to servicing by any UAB personnel.

#### B. Purpose

To ensure the safety and health of UAB personnel when working with biological safety cabinets, chemical or radioactive fume hoods.

#### C. Interpretive Guidelines

The following program will be utilized in the Occupational Health & Safety Department to ensure the safety of maintenance workers involved in the repair or maintenance of fume hoods in which radioisotopes and chemicals are normally contained and used, and biological safety cabinets (BSC) where etiological agents are normally stored and used. The **Laboratory Ventilation Specialist (LVS)** will be involved in the inspection and maintenance control of these hoods and cabinets.

1. The LVS must be notified *prior* to any work required on an isotope or chemical fume hood (including filter changes) or biological safety cabinet (filter changes on BSCs will be performed by the LVS). Notification may be generated either by the Maintenance Department or by an investigator.
2. The LVS will be the initial contact person regarding any maintenance to be conducted on any radioisotope or chemical fume hood or biological safety cabinet. He will schedule an appointment to meet with the laboratory worker or investigator at the fume hood site to determine the nature of the problem.
3. Once this has been done, the LVS will determine what precautions will be required prior to maintenance starting work. At this time appropriate surveys will be performed to ensure the equipment is hazard free. Maintenance and the investigator will be notified of these results and the equipment will be tagged with a safety release form(s) as ready for servicing.
4. If the work performed is extensive enough, the LVS will re-certify the equipment as ready for use. If the fume hood meets the minimum safety requirements, then the hood will be certified, labeled, and the safety release form removed by the LVS.
5. The LVS will report any deviation from the above procedure to the appropriate Safety Officer.
6. The extension for the LVS is 4-9181.



## **GENERAL SAFETY POLICIES**

### **Decorations**

#### **A. Policy**

It is the policy at UAB to prohibit the use of combustible decorations at any time.

#### **B. Purpose**

To assure that the potential for fire is minimized by prohibiting the use of combustible ornaments or decorations.

#### **C. Interpretative Guidelines**

1. Live Christmas trees are prohibited from use in the UAB buildings.
2. Electric lights or electrically operated ornaments shall not be used on aluminum or any other similar metal tree due to the risk of electrical shock. Remotely mounted flood lights may be used for illumination of such trees.
3. All ornaments, decorations and displays shall be of fire resistant material.
4. Any decoration material which is normally considered flammable, such as cotton, paper, cloth paper and crepe paper must be of fire resistant quality and should bear the seal of approval of the Factory Mutual Company (F.M.) or *Underwriter's Laboratory*® (U.L.)

## GENERAL SAFETY POLICIES

### Laboratory Refrigerators

#### A. Policy

It is the policy at UAB that all laboratory refrigerators shall be labeled to indicate whether or not they are safe for storage of flammable liquids.

#### B. Purpose

To ensure that each laboratory refrigerator used for storage of flammable liquids at the University of Alabama at Birmingham is in compliance with the NFPA specifications for a Flammable Materials Storage Refrigerator.

#### C. Interpretative Guidelines

1. All laboratory refrigerators shall be labeled as safe or unsafe for the storage of flammable liquids.
2. Existing domestic refrigerators to be used for storage of flammable liquids can be modified to eliminate sources of ignition within the storage compartment. However, the modification process can be applied only to manual defrost refrigerators; the self-defrosting models cannot be successfully modified to provide even minimum safeguards against vapor ignition. The Safety Officer should be contacted to determine feasibility and the minimum procedures for modification.
3. Subsequent to the date of this policy, each refrigerator procured for laboratory use or for the purpose of flammable liquid storage must be in compliance with the specifications for a Flammable Materials Storage Refrigerator as described in the NFPA Code 45, "Fire Protection for Laboratories Using Chemicals" and NFPA 56C, "Laboratories in Health Related Institutions.

## GENERAL SAFETY POLICIES

### Use and Storage of Flammable or Combustible Liquids

#### A. Policy

It is the policy at UAB that special precautions shall be taken in areas of the campus where flammable or combustible liquids are used or stored.

#### B. Purpose

To reduce fire and explosion hazards associated with improper use and/or storage of flammable or combustible liquids.

#### C. Interpretative Guidelines

1. *Flammable Storage Cabinets*. All flammable storage cabinets used at UAB shall comply with all sections of NFPA 30-1991 *Flammable and Combustible Liquids Code*, Section 4-3 except;

- a. All flammable storage cabinets, including under hood flammable storage, shall be non-vented. The vent holes shall be sealed with a properly fitted metal bung.
- b. Flammable storage cabinets made of wood are not permitted.

2. *Flammable Storage Rooms*. The design, construction, and operation of a separate indoor flammable storage area shall be in compliance with NFPA 30-1991 *Flammable and Combustible Liquids Code*, Section 4-4.

#### Maximum Allowable Size of Containers and Portable Tanks

F l a m m a b l e   L i q u i d s				C o m b u s t i b l e L i q u i d s	
Container Type	Class IA	Class IB	Class IC	Class II	Class III
<b>Glass</b>	1 pint*	1 quart*	1 gallon	1 gallon	5 gallons
<b>Metal</b> (other than DOT drums) or approved plastic	1 gallon	5 gallons	5 gallons	5 gallons	5 gallons
<b>Safety Cans</b>	2 gallons	5 gallons	5 gallons	5 gallons	5 gallons
<b>Metal Drum</b> (DOT Spec)	60 gallons	60 gallons	60 gallons	60 gallons	60 gallons
<b>Approved Portable Tanks</b>	660 gal.	660 gal.	660 gal.	660 gal.	660 gal.



### Maximum Allowable Size of Containers and Portable Tanks (Cont'd)

Flammable Liquids				Combustible Liquids	
Container Type	Class IA	Class IB	Class IC	Class II	Class III
Glass	1 pint*	1 quart*	1 gallon	1 gallon	5 gallons
Polyethylene DOT Spec 34, or as authorized by DOT Exemption	1 gallon	5 gallons	5 gallons	60 gallons	60 gallons

\* Class IA and Class IB liquids may be stored in glass containers of not more than 1 gallon capacity if the required liquid purity (such as ACS analytical reagent grade or higher) would be affected by storage in metal containers or if the liquid would cause excessive corrosion of the metal container.

### Maximum Quantities of Flammable and Combustible Liquids in Laboratories

Laboratory Unit Classification	Flammable or Combustible Liquid Classification	Excluding quantities in storage cabinets	Including quantities in storage cabinets
		Max. Quantity Per 100 sq. ft. of Lab Unit	Max. Quantity Per 100 sq. ft. of Lab Unit
A <sup>1</sup> (High Hazard)	I I,II, and IIIA	10 gallons 20 gallons	20 gallons 40 gallons
B <sup>2</sup> (Intermediate Hazard)	I I,II, and IIIA	5 gallons 10 gallons	10 gallons 20 gallons
C <sup>2</sup> (Low Hazard)	I I,II, and IIIA	2 gallons 4 gallons	4 gallons 8 gallons

<sup>1</sup> Class A laboratory units may **not** be used as instructional units.

<sup>2</sup> Maximum quantities of flammable and combustible liquids in Class B and C instructional laboratory units shall be 50% of those listed in this table.

3. Total quantities of flammable or combustible liquids in a laboratory, up to 5000 square feet, shall not exceed 70 gallons (264.05 L).

4. Flammable or combustible liquids in 55 gallon drums are not permitted in laboratories without prior approval of the Director of the Department of Occupational Health and Safety.

5. All containers of flammable or combustible liquids must be properly labeled and shall bear the date of receipt or, if transferred from the original container, the date of receipt and the date of transfer.

6. The storage of any quantity of flammable or combustible liquid in a domestic refrigerator is prohibited. Only a refrigerator specifically designated as a Flammable Materials Storage Refrigerator, or domestic refrigerators modified to remove all sparking devices from the storage compartment, are approved for storage of flammable or combustible liquids.

### DEFINITIONS

***Combustible liquids*** shall be defined as having a flash point at or above 100°F (37.8°C) and shall be subdivided as follows:

**Class II** liquids shall include those having flash points at or above 100°F (37.8°C) and below 140°F (60°C).

**Class IIIA** liquids shall include those having flash points at or above 140°F (60°C) and below 200°F (93°C).

**Class IIIB** liquids shall include those having flash points at or above 200°F (93°C).

***Flammable liquids*** shall be defined as having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 lbs. per sq. in. (absolute) and shall be designated as a **Class I** liquid.

Class I liquids shall be subdivided as follows:

**Class IA** shall include those liquids having a flash point below 73°F (22.8°C) and having a boiling point below 100°F (37.8°C).

**Class IB** shall include those liquids having a flash point below 73°F (22.8°C) and having a boiling point at or above 100°F (37.8°C).

**Class IC** shall include those liquids having a flash point at or above 73°F (22.8°C) and having a boiling point below 100°F (37.8°C).

## GENERAL SAFETY POLICIES

### Disposal of Hazardous Chemical Waste

#### A. Policy

It is the policy at UAB that flammable, toxic, and highly reactive chemicals identified as hazardous chemical wastes by the Environmental Protection Agency (EPA) or the Alabama Department of Environmental Management (ADEM) shall not be deliberately discarded with the general waste or by any route into the sanitary sewer system. The disposal of these wastes must be in compliance with federal, state, and local regulations.

#### B. Purpose

To ensure that hazardous chemical waste generated in the activities of the University do not pose a substantial hazard to human health and the environment.

#### C. Interpretative Guidelines

##### 1. Definitions

Hazardous chemical wastes - wastes which are ignitable, corrosive, reactive, acutely hazardous or toxic.

##### 2. Handling and Disposal

- a. These materials and procedures for proper handling and disposal are discussed at length in the Department of Occupational Health and Safety's *Chemical Safety and Waste Management Manual*. Copies are available through OH&S at extension 4-2487.
- b. It is the responsibility of the waste generator to ensure that the disposal of these wastes is in compliance with the UAB policy.

## GENERAL SAFETY POLICIES

### Corridor Utilization

#### A. Policy

It is the policy at UAB to ensure the safe use of corridors in buildings occupied and used by faculty, staff, students, and visitors.

#### B. Purpose

To ensure that corridors provide for:

1. A readily safe and adequate means by which occupants may exit in the event of a fire or other serious emergency;
2. Adequate access and use by emergency personnel;
3. The safe movement of people during normal use of the building
4. The safe transportation of patients, goods and materials.

#### C. Interpretative Guidelines

Corridors shall be maintained in accordance with the Standard Fire Prevention Code-1991, *Exit Obstruction*, Section 802, which states: *In every building or structure, means of egress (i.e., corridor), shall be so maintained as to provide free and unobstructed egress from all parts of the building or structure at all times, and so as to be available for full instant use in case of fire or other emergency.* This code is interpreted as prohibiting the storage of materials or operation of equipment in building corridors.

1. The use of corridors for placement or storage of equipment and supplies shall be eliminated.

#### 2. Responsibility

**Departments:** Each Department Head or Chair is responsible for ensuring compliance with these guidelines in areas that the department occupies.

**Personnel:** Faculty and staff are responsible for understanding both the need for maintaining a readily apparent and adequate means by which personnel may safely exit a building in the event of a serious emergency, and the needs related to the daily use of the corridor. All are expected to adhere to the provisions of this policy.

**OH&S:** The Department of Occupational Health and Safety is responsible for providing additional guidance or interpretation of the provisions of these guidelines. OH&S will conduct periodic inspections of corridors for the purpose of advising Department Chairs of conditions requiring corrective action (within 24 hours) to bring about the removal of items in gross violation that would clearly prevent safe egress of the building occupants and granting temporary exemptions to this policy.

### 3. Implementation

This safety policy shall be implemented in the following manner:

#### Existing Equipment in Corridors

- Departments shall designate individuals to conduct surveys of corridors in cooperation with the Department of Occupational Health and Safety personnel.
- Equipment found in corridors will be tagged and must be relocated within a reasonable time.

## **GENERAL SAFETY POLICIES**

### **Continuing Education on Equipment Use**

#### **A. Policy**

It is the policy at UAB to ensure that all employees are appropriately trained in the use of equipment which they are expected to use.

#### **B. Purpose**

To ensure the safe and effective use of equipment.

#### **C. Interpretative Guidelines**

1. The types of equipment for which this policy is intended include:
  - a. Clinical equipment, either diagnostic or therapeutic;
  - b. Other equipment requiring training for safe and effective use, e.g., Housekeeping , Maintenance, Campus Services, etc.
2. Each departmental policy manual shall include a section entitled "Safe Equipment Use", which shall contain, at a minimum:
  - a. A policy statement regarding the safe use of equipment (see attachment 1).
  - b. A list of types of equipment in the department to which this policy applies.
  - c. An employee instruction guide for each equipment type (see attachment 2).
3. Each department shall maintain a record of each employee's equipment operation training.

## **GENERAL SAFETY POLICIES**

### **Attachment #1**

#### **Sample**

#### **Department Policy Statement**

Title: Safe Equipment Use

Policy: It is the policy of the Department that all equipment is used safely and effectively.

Purpose: To ensure the safety of faculty, staff, students, and visitors with respect to equipment use.

#### **Interpretative Guidelines**

1. A list of types of equipment in the Department to which this policy pertains is maintained as a part of this policy and updated at least annually (see attachment 2).
2. A set of instruction guidelines for each equipment type is maintained as a part of this policy (see attachment 2). Each instruction guide contains the name of the equipment, the manufacturer(s) and model(s) of the equipment in the department, the intended use or purpose of the equipment, the employee position(s) expected to use the equipment, an outline of the training to be provided, the location of operator manuals, the source of additional information, and the source of operator and service assistance.
3. Each employee file will contain a list of equipment types for which the employee is to receive training, and the dates upon which this training was provided.

## GENERAL SAFETY POLICIES

### Attachment #2

#### Sample

#### Department Equipment Use Instruction Guide

##### Example 1

Type Designation:

Personal Computer

Manufacturers and Models:

IBM, models include PC, PC-AT, PC-XT;

Digital Equipment Corp. (DEC), model Rainbow 100.

Intended Use:

Word processing, financial records, budget preparation

Operators:

Administrators, Asst. Administrators, Secretaries, Clerks

Instruction Outline:

1. Electrical connections and switches
2. Use of applications (programs)
3. Use of printers

Operators Manuals:

Located with each computer

Additional Operator Information:

ISD, ext. 58740

Repair Service:

XXXXXXXXXX



## **GENERAL SAFETY POLICIES**

### **Incident Investigation**

#### **A . Policy**

It is the policy at UAB to review all incidents concerning the health and safety of employees, students, patients and visitors. Detailed incident investigations will be conducted if the incident resulted or had the potential to result in a serious injury or property loss, or might be indicative of situations or practices which could impact areas throughout the campus.

#### **B. Purpose**

To prevent the reoccurrence of similar incidents in the future. The investigations may identify those employees with a need for additional training or physical hazards that are in need of corrective action. Trends may be identified and acted upon, helping to improve the overall safety and health program.

#### **C. Interpretative Guidelines**

1. The Department of Occupational Health and Safety (OH&S) will review all "Report of Accident/Incident" forms ( See Attachment B) and investigate those deemed to meet the criteria under section A above. A summary of these investigations will be provided periodically to the University Safety Committee.
2. It shall be the responsibility of the supervisor of an employee involved in an incident to investigate that particular incident. Corrective measures should be instituted by the supervisor as soon as possible and documented on the "Report of Accident/Incident" form. Guidance in the conducting of an incident investigation and resulting corrective measures is available from the OH&S.
4. Documentation resulting from the investigation will be forwarded to the appropriate supervisor and department head, and the Office of Risk Management and Insurance.
5. The OH&S will track the status of the recommendations suggested on the incident investigation and provide updates as necessary.
6. Specific procedures for accident investigations are listed in Section 20.

Attachment B:



## INCIDENT REPORT FORM

(Incidents involving employees, students, visitors)

This is a confidential report and should not be made a part of an employee's personnel or a medical record. It is completed to allow us to obtain advice from legal counsel and for the protection of the university and its employees from potential liability.

\*\*\*\*\* PLEASE PRINT LEGIBLY \*\*\*\*\*

### FOR USE ONLY IF ELECTRONIC REPORTING SYSTEM IS NOT AVAILABLE

INFORMATION ABOUT THE PERSON INVOLVED IN THE INCIDENT:			
Full Name:		Social Sec.#:	
Home Address:			Gender: M F
Circle:	Employee (Full-time, part-time, perm., temp.)	Student (SOM, SON, SOD, Other)	Visitor
Date of Birth:	Home phone:	Campus Phone:	
Department & Campus/home address:			
Job Title:		Supervisor:	

INFORMATION ABOUT THE INCIDENT:			
Date of Incident:	Time:	Police notified: Yes No Case #:	
Location of Incident: (UAB Hosp., TKC, CEFH, other; and specific loc.):			
Describe what happened, how it happened, factors leading to the event, substances or objects involved. <b>Be as specific as possible</b> (attach separate sheet if necessary):			
Were there any witnesses to the incident? Yes No			
If yes, attach separate sheet with names, addresses and phone numbers, or campus depts and phone.			
Was the individual injured? If so, describe the injury (laceration, sprain, etc.), the part of body injured and any other information known about the resulting injury(s):			
Was medical treatment provided? Yes No Refused			
If so, where (circle) : Emerg. Rm. The Workplace Walk In Clinic Other:			
Will the employee miss time from work as a result of this incident? Yes No Unknown Not applicable			

REPORTER INFORMATION	
Print Name of Reporter:	
Reporter Signature	Title:
Date Report Completed:	

UAB Employee Reports - Send to HRM in AB 360G, or fax: 4-7666

V. October 200UAHSF

Employee Reports - Send to Human Resources, 100 JNWB, or fax: 1-9654

CEFH Employee Reports - Send to CEFH Human Resources, Professional Building, Suite 500

All Visitor/Student Incident Reports - Send to Risk Management. 504 JNWB or fax: 4-1267



F#254r (Ref HA# 15) Revised: 8/22/02, 10/15/03 Approved: 9/01/03, 10/15/03

Title: <b>Emergency Eyewash and Shower</b>					
Effective Date:	1/1/2005	Reviewed:		Revised:	9/1/2004
Ref:					
Approved:  _____ Max Richard, MPH, Assistant Vice President, Occupational Health and Safety			Responsible OH&S Division: General Safety Approved:  _____ Randy Pewitt, MPH, Director		
Approved:  _____ Chair, University Safety Committee					

### GENERAL SAFETY POLICY: EMERGENCY EYEWASH AND SHOWER

It is the policy at University of Alabama at Birmingham (UAB) that all areas using materials considered irritating to the eyes and skin must be equipped with an emergency eyewash and shower to minimize injury to faculty, staff and students due to an unexpected splash of materials that are irritating to the eyes and skin.

American National Standard Institute (ANSI) standard for emergency eyewash and shower equipment performance and placement, *ANSI Z358.1 – 2004* has been adopted by UAB Occupational Health and Safety (OH&S) as the single criteria for minimum design and performance requirements of emergency eyewash and shower equipment. (Self contained and personal units as described in *ANSI Z358.1-2004* are not approved for general use at UAB and shall only be approved on an emergent, temporary basis).

1. Every laboratory unit and area that uses materials that are irritating to the eyes must have an eyewash located within that laboratory unit or work area.
2. The location of the eyewash shall be identified with a highly visible sign. The Principle Investigator (PI), director, manager, or designee shall instruct employees in the locations and proper use of the eyewash.
3. The eyewash shall be flushed weekly by the PI, director, manager, or designee and provide evidence of this action with written documentation in the form of a tag attached to the eyewash. This will ensure that the eyewash is operational as well as flush the plumbing to provide clean water in the event of an actual emergency.
4. Generally, one eyewash is required per laboratory or work area, however, travel distance shall not exceed 10 seconds as outlined by *ANSI Z358.1-2004* or approximately 25 feet from any point within the lab or work area. Laboratories and areas considered "high hazard" may require additional eyewash units. The Department of Occupational Health and Safety will make the final decision regarding the need for eyewash units.
5. Wall-mounted or swing-away eyewash units must meet *ANSI Z358.1-2004*. All units shall deliver tepid, potable water.
6. Standard, single-nozzle, hand-held drench hoses may be used as support devices for approved eyewashes and showers but shall not replace them in any manner. However, a model with a double-nozzle, single-action

eyewash attached to a retractable hose mounted to the deck next to a sink is approved provided installation requirements are followed.\*

7. Every area using hazardous materials must have access to a safety shower.
8. Safety showers must meet *ANSI Z358.1 2004* and must deliver tepid, potable water.
9. The location of the safety shower shall be identified with a highly visible sign. The PI, director, manager, or designee shall instruct employees in the locations and proper use of the safety shower. At least one safety shower must be located within 10 seconds of the laboratory or work area where hazardous materials are used. Such a location may be in a corridor and one shower may serve multiple areas.
10. Safety showers shall be tested annually by Campus maintenance. Written documentation of this action must be provided.
11. Installation of eye wash units and safety showers shall meet the manufactures requirements.

## **GENERAL SAFETY POLICIES**

### **Chemical Spills and Accidents**

#### **A. Policy**

It is the policy at UAB to have procedures in place that address the specific problems involved in a chemical spill or accident.

#### **B. Purpose**

To reduce the likelihood of injury to faculty, staff, patients and students and damage to property as a result of a spill or accident involving chemicals.

#### **C. Interpretive Guidelines**

##### **1. Personal Injury**

- a. Eye Contact: Promptly flush eyes with water for 15 minutes and seek medical attention.
- b. Ingestion: Encourage the victim to drink large amounts of water or call Poison Control (4-4606) and seek medical attention.
- c. Skin Contact: Promptly flush the affected area with water and remove any contaminated clothing. Soap may be necessary for non water soluble compounds. If symptoms persist after washing seek medical attention.

Complete the Accident/Injury Report Form and send any cases of injury or suspected injury to the University Hospital Emergency Department.

##### **2. Small Chemical Spills**

Promptly clean up small spills using appropriate protective apparel and equipment. Small spills can generally be absorbed using paper towels, spill pillows or vermiculite. Absorbent materials must generally be disposed of as chemical waste unless the spilled material can be evaporated in a properly functioning fume hood or neutralized prior to clean up.

##### **3. Large Chemical Spills**

In case of a large spill of a known hazardous chemical, contain the spill, if possible, warn others and evacuate the area. Contact the Chemical Safety Officer at 4-2487 immediately and give your name, extension, location of spill, quantity and name of chemical spilled. Decontaminate personnel that may have been splashed with the chemical and take anyone injured to the University Hospital Emergency Department. An Accident/Injury Report Form (Appendix B) should be completed and a copy forwarded to the Occupational Health and Safety Office.

The Chemical Safety Officer will contact the Spill Response Team, which will have full authority over the clean-up operation. The spill response team has been specially trained to handle hazardous chemical spills. Anyone deliberately breaching the authority of the spill response team at the site of a spill, thereby jeopardizing the health and safety of other University employees, may be subject to disciplinary action by the University.

The Chemical Safety Officer or his designee will be responsible for calling any additional personnel needed at the site of the spill, such as UAB Police (4-3535).

#### 4. Mercury Spills

Mercury is commonly used throughout the University and hospital in many technical and diagnostic procedures. When contained properly, it is of little threat to our health. However if spilled, mercury can accumulate over time causing exposure to mercury vapor, making immediate attention to mercury spills important.

When a spill occurs:

- a. Restrict the area-allow no one to enter the room except for urgent treatment of a patient or containment of the spill.
- b. Contact the Chemical Safety Officer (4-2487) in the Department of Occupational Health and Safety. The department is equipped with a special mercury vacuum to effectively remove spilled mercury.
- c. Patients may need to be moved to allow mercury to be cleaned from the bed.
- d. Always wear disposable gloves when cleaning up mercury and dispose of all mercury and mercury-contaminated waste through the chemical waste program. Anyone handling mercury or cleaning up mercury spills should wash hands thoroughly with soap and water when finished. Report all mercury spills to the Chemical Safety Officer.

## GENERAL SAFETY POLICIES

### Use of Personal Protective Equipment

#### A. Policy

It is the policy at UAB that faculty, staff and students shall be equipped with appropriate personal protective equipment for the eyes, face, head, and respiratory system when involved in activities likely to cause personal injury.

#### B. Purpose

To avoid injury to the eyes, face, head, extremities, and respiratory system of faculty, staff and students due to the lack of personal protection when involved in activities likely to cause injury.

#### C. Interpretive Guidelines

1. The University shall provide eye and/or face protection for all employees and students who are required by the nature of his or her job or course to perform certain duties or functions that could cause injury to the face or loss of his or her vision.

a. Design, construction, testing, and use of devices for eye and face protection shall be in accordance with American National Standard for Occupational and Educational Eye and Face Protection, Z87, 1-1968.

b. *Engineering Controls*: Providing eye and face protection should not deter efforts by department heads to eliminate the hazards at the source by engineering design, methods, change, or by substitution or non-hazardous materials.

c. *Enforcement*: Supervisors and/or instructors are responsible for the enforcement of all regulations regarding the wearing of safety glasses.

d. *Wearing Requirements*: Employees or students assigned to jobs or courses, or that are required to enter areas described below shall wear eye and/or face protection.

e. The following is a partial list to serve as a guide in determining the type jobs or courses requiring eye and/or face protection. In general, it is the intent of this policy to protect employees and students from any splashing liquids, chemicals, injurious radiant energies, and projectiles.

- Operating portable power tools
- Handling chemicals
- Soldering
- Grinding
- Chipping
- Using compressed air
- Spraying (paint or chemicals)
- Welding

- Heating plant operations
- Radiant energies
- Wire cutting
- Machine operations

f. *Signs*: Signs indicating "Eye Protection Required" shall be prominently displayed in all areas requiring eye protection.

g. *Contact Lenses*: Employees who wear contact lenses shall conform to the following:

1. Contact lenses shall not be used in lieu of approved safety glasses.
2. Contact lenses shall not be worn under safety glasses without the approval of a physician.

h. Students who wear prescription glasses, and who do not wish to wear safety goggles provided by the University must, at their own expense cover the costs involved in being fitted with safety prescription glasses.

2. The University shall provide helmets for all employees and students who are required by the nature of his or her job or course to perform certain duties or functions that could cause illness caused by impact or penetration from falling and flying objects and from limited burn and shock.

a. Helmets shall meet the requirements and specifications established in American National Standard Safety Requirements for Industrial Head Protection, Z89.1-1969.

b. *Engineering Controls*: Prevention of falling and flying objects shall be accomplished as far as feasible by accepted engineering control measures.

c. *Enforcement*: Supervisors and/or instructors are responsible for the enforcement of all regulations regarding the wearing of helmets.

d. *Wearing Requirements*: Employees or students assigned to jobs or courses, or that are required to enter areas likely to contain falling or flying objects shall wear helmets.

3. The University shall provide respiratory protection for all employees and students who are required by the nature of his or her job or course to perform certain duties or functions that could cause illness caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors.

a. Proper selection of respirators shall be made according to the guidance of American National Standard Practices for Respiratory Protection Z88.2-1969.

b. *Engineering Controls*: Prevention of atmospheric contamination shall be accomplished as far as feasible by accepted engineering control measures, i.e.,



enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials.

c. *Enforcement*: Supervisors and/or instructors are responsible for the enforcement of all regulations regarding the wearing of respiratory protection.

d. *Wearing Requirements*: Employees or students assigned to jobs or courses, or that are required to enter contaminated atmospheres shall wear respiratory protection.

4. All personal protective equipment issued shall remain the property of the University. However, the employee or student is responsible for their proper care and safe keeping, and will be responsible for all costs involved in replacing lost equipment.

## GENERAL SAFETY POLICIES

### Motor Vehicle Safety

#### A. Policy

It is the policy at UAB that occupants of university-owned or leased motor vehicles shall utilize reasonable measures consistent with state laws and university policy to protect themselves from serious physical injury.

#### B. Purpose

To avoid serious injuries to UAB employees caused by the improper maneuvering of motor vehicles or from motor vehicle crashes.

#### C. Interpretive Guidelines

1. All individuals who operate a university motor vehicle shall have a driver's license valid in the State of Alabama.
2. Individuals who drive vehicles requiring a specific driver's license, i.e. commercial driver's license, shall have such license valid in the State of Alabama.
3. All individuals who operate a university motor vehicle shall be eligible for appropriate automobile insurance.
4. All university employees who are operators or passengers in university motor vehicles shall wear their seatbelts at all times. Employees should verify the working condition of seatbelts and report any malfunctions.
5. Any child transported in a university motor vehicle must be appropriately restrained in compliance with state law.
6. No university employee shall ride in a non-passenger compartment of a university motor vehicle (e.g. the bed of a truck, in a trailer towed by a vehicle, etc.).
7. University motor vehicles shall be maintained according to manufacturers' recommendations and the *UAB Vehicle Safety Standards*. As a minimum, vehicles shall be checked frequently for safety-related problems (e.g. brakes, tires, lights, indicators, etc.) during the quarterly A and B preventive maintenance services. Drivers shall perform maintenance checks on a daily basis in accordance with the guidelines on page 10 of the *UAB Fleet Operations and Maintenance Handbook*. It shall be the responsibility of Transportation Services to develop and maintain a safety standard for the maintenance and inspection of university motor vehicles.
8. Employees who are on medication shall heed warning labels regarding the operation of heavy equipment and motor vehicles and inform their supervisors. In such instances, operating a university motor vehicle shall not be attempted.

9. The use of headphones, i.e. Walkman® tape players or radios, etc., or ear plugs that would inhibit the drivers ability to hear horns, emergency vehicles, etc., while driving a UAB vehicle is prohibited. *Exception: Approved earplugs may be worn as hearing protection while operating heavy equipment, etc. that creates excessive noise.*

10. All UAB employees who regularly utilize university motor vehicles in the performance of their duties are required to attend a certified driver training course no less than once every three years. It is recommended that all employees who drive university motor vehicles on an infrequent basis also take the driver training course. The Department of Occupational Health and Safety will coordinate and schedule the classes.

## **GENERAL SAFETY POLICIES**

### **No Smoking Policy**

#### **Background**

The University of Alabama at Birmingham supports the Surgeon General's report on smoking as a major cause of preventable disease. Smoking has been demonstrated to contribute significantly to the health problems of those who engage in the practice and those who are subjected to an environment where smoking is present.

As an institution dedicated to the preservation of health and the prevention of disease, it is important that UAB provide means for protecting the health of its faculty, staff, students, and visitors from the hazards associated with inhaling smoke from tobacco products within the confines of University buildings and facilities.

#### **A. Policy**

Smoking is prohibited throughout the institution.

#### **B. Purpose**

To ensure protection of faculty, staff, students, and visitors against the health and fire hazards of smoking.

#### **C. Interpretative Guidelines**

1. The prohibition includes all University property; specifically, campus buildings, offices, parking facilities, and grounds. This applies to faculty, staff, students, and visitors.
2. Smoking cessation programs are available at UAB for its faculty, staff, students, and community members who need this assistance.
3. Personnel, including Security staff are expected to remind violators of the nonsmoking policy and of their responsibility in maintenance of health and safety.

## **GENERAL SAFETY POLICIES**

### **Use of Radioactive Materials**

#### **A. Policy**

It is the policy of UAB to regulate the use and storage of radioactive materials and equipment in order to ensure compliance with applicable federal, state and local laws and to protect faculty, staff, students, patients and visitors from the potentially harmful effects of the various types of radioactive materials.

#### **B. Purpose**

To ensure proper procedures are in place for the safe handling, storage and disposal of radioactive materials and that employees are trained in the use of radioactive materials and equipment.

#### **C. Interpretive Guidelines**

The many regulations and requirements for the use of radioactive materials are addressed in a series of manuals produced by the Radiation Safety Division of Occupational Health and Safety. Any department or service using radioactive materials or equipment should contact OH&S to receive appropriate copies and training at extension 4-2487.

1. UAB Radiation Safety and Procedures Manual
2. UAB Radiation Safety Training Manual
3. UAB Nuclear Medicine Division Radiology Department Radiation Safety Procedures Manual
4. UAB Enforcement Policy for Personnel Monitoring Control of Radiation
5. UAB Radiation Protection Recommendations Regarding Prenatal Exposure
6. UAB Personnel Radiation Monitoring Protocol

## GENERAL SAFETY POLICIES

### Use of Doorstops and Wedges

#### A. Policy

It is the policy of UAB that exit access corridor and stairwell doors shall not be blocked open by the use of doorstops, wedges, or any other object.

#### B. Purpose

To ensure that corridors and stairwells are protected from fire and smoke.

#### C. Interpretive Guidelines

A fundamental principle of all codes and regulations, which establish requirements for safe and adequate means for emergency egress from buildings, is that the exit path (i.e., corridor) is protected from fire and smoke. This principle is usually interpreted as prohibiting blocking or wedging corridor and stairwell doors open.

Exception: In buildings of **low** hazard contents, corridor doors with a hold-open mechanism shall be permitted provided that:

- a. Upon release of the hold-open mechanism the door becomes self-closing; and
- b. The mechanism automatically releases upon activation of an approved automatic smoke detection system installed to protect the entire building; and
- c. Upon loss of power to the hold-open device, the hold-open mechanism is released and the door becomes self-closing.

## **GENERAL SAFETY POLICIES**

### **Laboratory Emergency Notification Labeling**

#### **A. Policy**

It is the policy of UAB that all laboratories be labeled with the name and the after hours phone number of the principle investigator and two alternates.

#### **B. Purpose**

To ensure that emergency personnel have a method by which to determine the contents of a laboratory should the need arise to enter the laboratory after hours.

#### **C. Interpretive Guidelines**

1. All laboratories shall be labeled with the name and the after hours phone number of the principle investigator and two alternates. (See appendix C)
2. All individuals listed on the label must have knowledge of the contents of the laboratory.
3. One of the three persons listed on the label must be accessible at all times.
4. It is recommended that individuals with rooms or offices containing sensitive materials such as valuable computer information, files, and/or refrigerated samples comply with the laboratory labeling requirement to protect those materials in the event that emergency personnel have a need to enter the area after hours.

## GENERAL SAFETY PROCEDURES

### Handling and Disposal of Used Hypodermic Equipment

A. Needle sticks constitute a large number of work related injuries. Some are due to unpreventable circumstances, but many can and should be prevented by safety awareness on the part of the user. The University has established a uniform system for needle disposal. Two containers are presently stocked in Central Sterile Supply. Both containers are identified as needle disposal containers and are readily recognizable by Environmental Services. The needle sticks involving innocent parties, especially Environmental Services and non-medical staff, can be prevented if these containers are used and used properly.

#### B. Recommendations for Safe Handling of Needles

1. Needles are never to be discarded directly into the trash.
2. Needles must not be left on furniture, on counter tops, wrapped in linens or covered by other materials on trays.
3. Needles are not to be clipped or bent. Destrucclips® and similar devices are not to be used.
4. In most circumstances, needles are not to be recapped. If a situation arises where recapping is unavoidable, the cap should be replaced by touching the needle to the inside of the sheath at a 90° angle and rotating the sheath over the needle, while using the fourth and fifth fingers to brace each hand relative to the other. Alternately, a recapping device may be used.

#### 5. Needle Disposal Containers

Containers, identified as "needle disposal containers", are stocked in Materiel Management Support Services:

- a. Sharps-a-Gator® in-room system, wall-mounted units (Devon #4837) for disposal of needles and blood lancets in all treatment and patient areas.
- b. 3.5 gallon, red, wide-mouth plastic container (Devon #4864-R) for disposal of large needles and needles which are permanently attached to the syringe or cartridge.
- c. 5 gallon, red, wide-mouth plastic container (Devon #4895) for the disposal of materials used in chemotherapy.
- d. 7.5 gallon, red, wide-mouth plastic container (Devon #4808) for use in extremely high volume areas.

Additional approved containers will be stocked after review and approval by the Campus Safety Officer and the General Safety Committee.

#### 6. Placement and Uses of Containers



- a. Sharps-a-Gator® wall-mounted units:
  - 1) Needles and syringe assemblies are deposited directly into the top opening of the container. Do not attempt to detach the needle.
  - 2) Lancets are placed into the opening of the container.
  - 3) Precautions for Hepatitis B, Hepatitis Non A-Non B, AIDS, or suspected Viral Hepatitis etiology unknown, or when chemotherapeutic agents have been in the syringe will require other procedures.
- b. 1 gal. plastic container:
  - 1) Unusually long needles, and infusion devices are discarded into the container.
  - 2) Needles used at a distance from the disposal container are to be carried safely to the disposal container by use of a disposable emesis basin, thermometer boat or other similar basins.

#### 7. Discarding Filled Containers

- a. Disposal containers are to be inspected prior to use to avoid overfilling.
- b. Filled containers are to be capped or closed as appropriate and replaced.
- c. All filled containers are considered to be infectious waste and should be treated as such prior to being transported to the infectious waste holding area by Environmental Services.

8. All needle sticks shall be reported by the filing of an incident report with specific details concerning the type of needle and the actual occurrence to identify practices or specific types of equipment which may need to be modified.

9. Specific problems involving a particular type of needle (e.g. unit dose insulin) or a certain procedure (e.g. flushing heparin lock) which may cause needle sticks shall be brought to the attention of the Campus Safety Officer.

## GENERAL SAFETY PROCEDURES

### UAB Compliance With Medical Waste Treatment Requirements for Alabama Department of Environmental Management (ADEM).

#### I. Definitions

Medical Waste - medical waste, as defined by ADEM shall mean the following:

(a) *Blood and Body Fluids* - all human bulk blood, bulk blood components (serum and plasma, for example), semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid. Precautions do not apply to feces, nasal secretions, sputum, sweat, tears, urine or vomitus unless they contain visible blood. Free-flowing material or items saturated to the point of dripping liquids containing visible blood or blood components would be treated/handled as bulk blood and bulk blood components. Bulk blood equates to 20 ml of fluid.

(b) *Microbiological Waste* - discarded cultures and stocks of human infectious agents and associated microbiologicals; human and animal cell cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; waste from the production of biologicals; discarded live and attenuated vaccines; culture dishes and devices used to transfer, inoculate and mix cultures. Only those animal vaccines which are potentially infectious to humans (Strain 19 Brucellosis Vaccine, Feline Pneumonitis Vaccine, contagious Eczema Vaccine for Sheep, Newcastle Disease Vaccine, Anthrax Spore Vaccine, and Venezuelan Equine Encephalitis Vaccine) shall be considered microbiological waste.

(c) *Pathological Waste* - all discarded human tissues, organs, and body parts which are removed during surgery, obstetrical procedures, autopsy, laboratory, embalming, or other medical procedures, or traumatic amputation. Extracted teeth are not included in this definition.

(d) *Renal Dialysis Waste* - all liquid waste from renal dialysis contaminated with peritoneal fluid or with human blood visible to the human eye. Solid renal dialysis waste is considered medical waste if it is saturated, having the potential to drip or splash regulated blood or body fluids.

(e) *Sharps* - any used or unused discarded article that may cause punctures or cuts and which has been or is intended for use in animal or human medical care, medical research, or in laboratories utilizing microorganisms. Such waste includes, but is not limited to, hypodermic needles, IV tubing with needles attached, scalpel blades, and syringes (with or without a needle attached). Items listed above that have been removed from their original sterile containers are included in this definition. Glassware, blood vials, pipettes, and similar items are to be handled as sharps if they are contaminated with blood or body fluids.

(f) *Surgical Waste* -all materials discarded from surgical procedures which are contaminated with human bulk blood, blood components, or body fluids, including but not limited to, disposable gowns, dressings, sponges, lavage tubes, drainage sets, underpads, and surgical gloves. Discarded surgical material is considered medical waste if it is saturated, having the potential to drip or splash regulated blood or body fluids. Extracted teeth are not included in this definition.

(g) *Animal Waste* - contaminated animal carcasses, body parts, and bedding of animals that were intentionally exposed to pathogens.

## II. Separation of Medical Waste

A. Medical and surgical waste will be separated from the general, non-medical waste stream at the point of generation.

B. Medical waste with multiple hazards will be separated from the medical waste stream if the additional hazards require more stringent special handling or treatment.

C. Medical waste will be placed directly into appropriate containers or **red** plastic bags in closest proximity to the point of generation.

## III. Containment of Medical Waste

A. Medical waste will be placed in appropriate containers at or near the points of generation. Containers will be appropriate for the type of waste being discarded.

1. Sharps will be placed directly into impervious, rigid, puncture resistant containers. Needles will not be recapped, bent, broken, or chipped before discard. Sharps containers will be sealed at three-quarter (3/4) capacity before being placed in **red** plastic barrels for medical waste treatment.
2. **Red** plastic bags will be used to collect solid and semi-solid wastes, either used alone or as liners for rigid receptacles. Plastic bags will be of at least 3 mil thickness.
3. Bulk liquid medical waste will be placed in capped or tightly stoppered bottles or flasks or carefully discharged to the sanitary sewer. Employees will wear gloves, safety goggles, and any other personal protective equipment, as recommended by the supervisor.

B. Containers must be securely closed or sealed prior to collection and transport. Containers must not be over-filled. Over-filling may prevent proper closure or may require hand compression of the waste to permit closure.

#### IV. Medical Waste Packaging and Bar Coding

- A. Medical waste to be transported off-site for treatment and ultimate disposal will be placed in 32-gallon red plastic barrels with snap-on lids.
- B. Barrels containing medical waste will be identified by either the universal biohazard symbol, the color red, or distinctive lettering, e.g., "**Medical Waste**".
- C. Bar code stickers, indicating points of generation, will be placed on each container and dated.

## GENERAL SAFETY PROCEDURES

### Accident and Injury Investigation

The purpose of accident investigations is to determine the manageable causes that led to an accident. Supervisors shall initiate the investigation and notify the Safety Officer, who will assist in the investigation. The investigator must look for all causes. Supervisors are the key persons in accident investigations because they are aware of the pertinent policies, procedures and equipment. If direct or indirect causes are outside the supervisor's responsibility, they should be brought to the attention of the proper superior.

A summary of accident reports will be presented at each Safety Committee meeting by the Office of Risk Management and Insurance or the Safety Officer. Accidents that result in serious injury or property damage shall be reviewed individually by the Committee and specific recommendations concerning policies, procedures, and equipment will be made.

The following steps should be followed in conducting the investigation. The sequence is not intended to be followed in the order below; however, all areas should be considered by the investigator.

- a. Interview the injured person as soon as possible after the accident and secure a written statement of what happened. If the statement is written down by someone other than the victim, the statement must begin with , “According to ...”, or “Jane/John Doe stated that...”, or words to that effect. Questions should be asked as to:

1. Training received
2. Personal protective equipment provided and used
3. Procedures and practices used at the time of the accident
4. Normal work duties and responsibilities

\*If there were no injuries, everyone in the area, such as employees involved in or supervising work in the area should be interviewed.

- b. If applicable, visit the site of the accident and look for physical causes that may have been involved, such as:

1. Poor housekeeping
2. Lack of proper guards
3. Improper apparel
4. Defective equipment
5. Poor working conditions

If conditions require cleanup of the accident site prior to the investigation, it should be supervised with care taken to record or preserve “evidence” that would assist investigators.

- c. Interview any witnesses to the accident.

- d. In cooperation with the appropriate supervisor(s), prepare recommendations for corrective actions.

## **GENERAL SAFETY PROCEDURES**

### **Procedure for the Disposal of Glass**

- A. All glass items such as pipettes, test tubes, beakers, flasks, and disposable glass bottles are to be discarded in rigid, puncture-resistant containers (i.e., cardboard boxes, plastic or metal drums). Disposable glass containers are to be drained prior to being discarded.
- B. Containers are to be marked "Glass Only" and sealed shut.
- C. Glass items are not to be placed in trash receptacles.

## GENERAL SAFETY PROCEDURES

### UAB Hearing Conservation Program

The purpose of the hearing conservation program is to avoid injury to the ears and/or hearing loss to UAB faculty, staff, and students due to the lack of personal protection when involved in activities likely to cause injury.

A. The University shall administer a continuing, effective hearing conservation program for all faculty, staff, and students who are required by the nature of his or her job or course to perform certain duties or functions in areas where sound levels exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response). (An 8-hour TWA 85 decibels shall also be referred to as the action level).

B. When faculty, staff, or students are subjected to sound exceeding an 8-hour TWA of 85 decibels, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels, personal protective equipment shall be provided and used.

C. *Monitoring.* When information indicates that any faculty, staff, or student's exposure may equal or exceed an 8-hour TWA of 85 decibels, a monitoring program shall be developed and implemented.

1. Sampling shall be conducted by the Department of Occupational Health and Safety in accordance with OSHA Regulation CFR 29, 1910.95. The sampling strategy shall be designed to identify faculty, staff, and students for inclusion in the hearing conservation program and to enable the proper selection of hearing protection.

2. Monitoring shall be repeated whenever a change in production process, equipment or controls increase noise exposures to the extent that:

- a. Additional faculty, staff, or students may be exposed at or above the action level

- b. The attenuation provided by hearing protection being used by faculty, staff, and students may be rendered inadequate.

D. *Audiometric testing program.* Departments shall establish and maintain an audiometric testing program by making audiometric testing available to all faculty, staff, and students whose exposures equal or exceed an 8-hour TWA of 85 decibels.

1. Departments shall establish a valid baseline audiogram against which subsequent audiograms can be compared within six months of a faculty or staff member or student's first exposure at or above the action level.

- a. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protection may be used as a substitute for this requirement.



2. Departments shall obtain a new audiogram for each faculty or staff member and student exposed at or above the action level at least annually after obtaining the baseline audiogram.

a. The annual audiogram shall be compared to the baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred.

- A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

b. In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging to the change in hearing level by correcting the annual audiogram.

c. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the faculty or staff member or student shall be notified in writing within 21 days of the determination.

3. Unless it is determined that the standard threshold shift is not work-related or aggravated by occupational noise exposure, Departments shall ensure that the following steps are taken:

a. Faculty, staff, or students not using hearing protection shall be fitted with hearing protection, trained in their use and care, and required to use it.

b. Faculty, staff, and students already using hearing protection shall be refitted and retrained in the use of hearing protection and provided with hearing protection offering greater attenuation if necessary.

4. Faculty, staff, and students shall be referred for clinical audiological evaluation if additional testing is necessary or if the Department suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protection.

5. An annual audiogram may be substituted for the baseline audiogram when the standard threshold shift revealed by the audiogram is persistent, or if the hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

*E. Hearing protection.* Departments shall make hearing protection available to all employees exposed to an 8-hour TWA of 85 decibels or greater. Hearing protection shall be replaced as necessary.

1. Departments shall evaluate hearing protection attenuation for the specific noise environments in which the protection will be used.

2. Hearing protection must attenuate exposure at least to an 8-hour TWA of 85 decibels.

3. For faculty, staff, and students who have experienced a standard threshold shift, hearing protection must attenuate exposure to an 8-hour TWA of 80 decibels or below.

F. *Training*. Departments shall institute a training program for all faculty, staff, and students who are exposed to noise at or above an 8-hour TWA of 85 decibels, and shall ensure employee participation such as a program.

1. The training program shall be repeated annually for each faculty and staff member and student included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

2. The training program should include:

- The effects of noise on hearing
- The purpose of hearing protection, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use and care.
- The purpose of audiometric testing and an explanation of test procedures.

G. *Recordkeeping*. Departments shall maintain an accurate record of all faculty, staff, and students included in the hearing conservation program for the duration of the affected individual's employment.

1. Records shall contain the following:

- Name and job classification
- Date and results of baseline audiogram
- Date and results of annual audiometric tests
- Training dates and topics covered

## GENERAL SAFETY PROCEDURES

### Hazard Communication Program

***NOTE: This Hazard Communication program is part of a larger program contained in the Chemical Safety and Waste Management Manual. Additional information and assistance with this program is available through the OH&S Chemical Safety Division at extension 4-2487.***

#### PURPOSE

The University of Alabama at Birmingham is committed to providing a safe and healthful work environment to its employees. It is important that any employee who has the potential for exposure to a hazardous chemical or chemical product be informed about the hazards and given proper training.

Compliance with the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard is currently recognized by many University granting and accrediting bodies.

The Chemical Safety Officer within the Department of Occupational Health and Safety will be responsible for coordinating the Hazard Communication Program for the University of Alabama at Birmingham.

#### POLICY

It is the policy of the University of Alabama at Birmingham that department chairman and directors shall designate Safety Coordinators within each department to serve as a liaison to the Chemical Safety Officer.

The Safety Coordinator must identify the hazardous chemicals used by department employees and ensure compliance with the UAB Hazard Communication Program.

This includes :

- Compiling a chemical inventory of all hazardous chemicals and chemical products at the worksite
- Maintaining a Material Safety Data Sheet (MSDS) file of all hazardous chemicals for employee review
- Labeling of containers or storage tanks that may contain hazardous substances
- Providing information and training for employees regarding this program as well as procedures for recognition and handling chemical hazards

## **RESPONSIBILITIES**

Department Chairman/Director: This individual has the ultimate responsibility for ensuring compliance with the Hazard Communication Program.

Safety Coordinator: Under the direction of the department chairman, this person is responsible for ensuring compliance with the Hazard Communication Program within the department. He/she functions as a liaison with the Chemical Safety Officer. He/she may appoint a *Designee* to conduct the routine duties outlined below.

Designee: A Qualified individual appointed by the safety coordinator to complete these defined tasks:

- Creating and maintaining a chemical inventory
- Maintaining and updating a MSDS file
- Conducting and maintaining records of training

Employees: Employees are responsible for practicing safe procedures in the workplace.

## **ACCESSIBILITY**

Any employee or their designated representative can review and copy this written Hazard Communication Program, the chemical inventory or the MSDS files by contacting their Safety Coordinator or the Chemical Safety Officer in the Department of Occupational Health and Safety.

## **CHEMICAL INVENTORY**

The Safety Coordinator must create an inventory of every hazardous substance known to be present in the workplace. This Hazardous Chemical Inventory must be updated continuously and will serve as an index to the MSDS file. The inventory must include the chemical name or trade name, the revision date of the MSDS and an MSDS reference number which is placed on the MSDS.

## **HAZARD DETERMINATION**

The manufacturer must supply a MSDS to the Safety Coordinator if a chemical or chemical product is hazardous. If necessary, the Safety Coordinator, with the assistance of the Chemical Safety Officer, will make a hazard determination based on the way the chemical is used. Hazardous substances include:

- Any substance listed in 29 CFR 1910, subpart Z
- Any substance listed in The American Conference of Governmental Industrial Hygienists' Threshold Limit Values for Chemical Substances and Physical Agents in the Workplace

- The National Toxicology Programs' (NTP), Annual Report on Carcinogens
- International Agency for Research on Cancers' (IARC), Monographs
- Any substance otherwise known to be hazardous

Manufacturers, as a minimum, must survey MSDS for all substances on these lists.

### **MATERIAL SAFETY DATA SHEETS (MSDS)**

The Safety Coordinator must obtain a current MSDS from the manufacturer for all hazardous chemicals. These sheets contain information on the health and physical hazards and proper handling procedures for these chemicals. Sometimes the information on the MSDS may be inadequate for the particular situation or may need interpretation. In these cases the Chemical Safety Officer should be contacted for assistance.

The MSDS must be collected and filed in numerical order according to the MSDS reference number used in the Hazardous Chemical Inventory. The corresponding numbers should be clearly written in the upper right hand corner of the MSDS.

The MSDS file must be readily accessible to all employees.

This file must be updated routinely to account for MSDS changes and the addition of new chemicals.

### **LABELING**

All hazardous chemicals are required by law to be labeled by the manufacturer. The Safety Coordinator must ensure that each existing container and any incoming containers are properly labeled. The label must provide the following information:

- The identity of the chemical
- Any warnings
- The manufacturers name and address

Products that are not labeled should be considered hazardous until identification and a hazard evaluation can be completed.

Temporary or transfer containers, intended for immediate use by the person who transferred the chemical, need not be labeled. However, if the chemical remains more than briefly or is to be used by another individual, the container must be labeled.

### **TRAINING**

All employees, including temporary employees, must receive information and training on the following:

- The requirements of the Hazard Communication Program
- Locations where hazardous chemicals are present
- The physical and health hazards of chemicals
- How to read and interpret labels and MSDS'
- Methods and observations used to detect the presence of hazardous chemicals
- The location and availability of the written program, MSDS', and the hazardous chemical inventory
- Methods of protection

Employees must be informed and trained for hazards associated with any new chemicals introduced to the workplace.

Records of training must be kept and must include:

- The name of the person receiving training
- The social security number of the person receiving training
- The length of training
- The content of training
- The date of training

#### **CONTRACTOR POLICY**

All outside contractors must be provided with hazard information for any substance to which exposure is possible.

A list of the hazardous chemicals and a copy of the MSDS' should be provided to the contractor, when exposure is possible.

## GENERAL SAFETY PROCEDURES

### Fire Safety Program

#### GENERAL PROCEDURES FOR ALL AREAS

*If you detect **FIRE** or **SMOKE**, no matter how minor it may appear to be, do this at once:*

- 1) **STAY CALM** and use common sense. Students and visitors will depend on your actions.
- 2) Close all doors to **CONFINE THE FIRE**. As you leave the room where the fire is located, close the room door, fire doors located in the corridors, at elevator lobbies, and stairs. Turn off oxygen equipment.
- 3) **ACTIVATE THE FIRE ALARM** -- a small red box located on the wall near each exit. Follow the instructions on the alarm.
- 4) **REPORT THE FIRE, DIAL 4-3535** (UAB Police). Identify yourself and provide the exact location of fire or smoke and what is burning, if known.
- 5) **EVACUATE** students and visitors immediately.
- 6) Do not use elevators.

#### EVACUATION

Because there are so many buildings on campus, no single evacuation plan will apply to all areas. Supervisors are required to train all employees on the specific evacuation plan for their area of responsibility. This training is to include policies on evacuation routes, gathering points outside the building, smoke doors, stairwell doors, location of fire extinguishers, and fire alarm pull stations. The following are general requirements for all campus areas:

Avoid using elevators during a fire since smoke may travel the shaft and make breathing difficult. In case an electrical failure associated with the fire occurs, the elevator may stop between floors and trap the occupants. Use the exit stair or evacuate to a connecting building.

Do not run, walk as quickly as you can, without interfering with others who are evacuating also.

Fire doors shall be closed at all times, except when in use for the passage of persons or equipment, to prevent the spread of heat or smoke. Exit doors to the outside shall not be allowed to remain open for extended periods.

**FIRE PREVENTION**

The following guidelines have been established in order to maintain a fire safe environment for faculty, staff, students, and visitors:

All stairway and fire doors must be kept closed and unobstructed. Free access to fire hose cabinets, fire extinguishers and other fire fighting equipment must be maintained at all times.

The "No Smoking" policy shall be enforced.

Keep all electrical equipment in good repair. Do not overload electrical circuits by using multiple plugs or unapproved extension cords. Only those extension cords labeled as UL listed and in good condition may be used.

Only approved space heaters may be used. Extension cords must never be used with space heaters. Keep all combustible items at least 18" away from heaters.

Holiday decorations must be made of non-combustible or fire retardant material. Live Christmas trees are not permitted.

Flammable liquids (flash point of 100 degrees F or below) exceeding 10 gallons in quantity in any single room, other than an approved flammable storage room, shall be stored in an approved flammable storage cabinet. Ether must not be stored in a household type refrigerator. An approved, labeled, "explosion-proof" refrigerator manufactured for this purpose is required.

Oxidizing chemicals and acids must be stored separately from flammable liquids and chemicals.

Additional fire prevention measures may be contained in the Policies and Procedures section of the General Safety Manual.

**FIRE SAFETY INSPECTIONS**

The conducting of systematic inspections to locate and eliminate fire hazards is an indispensable element of the Fire Safety Program. The Campus Safety Officer will conduct periodic fire inspections of all University facilities.

Inspection reports will be furnished to the appropriate Dean, Building Administrator, or operating official for information, corrective action to eliminate the hazards reported, and report of action taken. Special fire safety inspections may be conducted when indicated by unsafe or unusual conditions, or when requested by Department Heads.



It is the responsibility of each employee to report conditions believed to be unsafe or a fire hazard as soon after discovery as possible.

### **FIRE DRILLS**

In an actual fire, there will be a great deal of excitement and confusion. The confusion may be compounded by thick smoke and toxic gases. A normally well-marked exit route may appear unfamiliar and disorienting. For this reason, it is essential that fire response procedures be practiced on a regular schedule.

In addition, students may have physical disabilities or other limitations that would reduce their ability to respond quickly in an emergency. Students and visitors are also unfamiliar with campus buildings and the location of emergency exits. They will rely on a trained staff in a fire emergency. Fire drills will ensure that the staff will react automatically and confidently.

The training of personnel to respond effectively to a fire emergency is the heart of any fire safety program. Each person must know exactly what to do and must have enough practice to be able to perform quickly and efficiently. Fire emergency preparedness is monitored by periodic fire drills. Every fire drill is evaluated by the Campus Safety Officer and recommendations are made to correct any deficiencies observed.

Fire drills will be performed as follows:

1. Drills are to be conducted by the Campus Safety Officer.
2. Drills are to be initiated by activating the fire alarm.
3. The Campus Safety Officer will monitor and evaluate the fire drill response. Training will be held at that time if an employee is found to be unfamiliar with procedures.
4. "All clear" is to be called by the Campus Safety Officer.
5. Any real or false alarm in a building or area will be treated as a drill with appropriate evaluation.

### **FIRE EXTINGUISHERS, FIRE HOSES, AND SPRINKLER SYSTEMS**

The Campus Safety Officer is responsible for determining the number, type, and location of fire extinguishers in UAB buildings. Responsibility for periodic inspection, servicing, including recharging and minor maintenance and adjustments, removal and replacement of discharged or unserviceable units and the installation of new fire extinguishers and fire extinguishing systems or fire suppression equipment is assigned to the Director of Maintenance Operations.

- a. Except for use in fighting a fire, fire extinguishers shall not be removed or relocated by any person except assigned Maintenance or Safety personnel.
- b. Fire extinguisher inspection tags shall only be removed by the fire extinguisher shop.

- c. Fire extinguisher and fire hose location must be clearly indicated as per applicable codes and must not be obstructed by furnishings, equipment, or supplies.

#### **FIRE EXTINGUISHER REPLACEMENT**

After an extinguisher has been used, regardless of how small the discharge, or if found to be unserviceable for any reason, it should be immediately replaced. Telephone Campus Maintenance at extension 4-5353, and request a replacement fire extinguisher. Hospital departments should telephone Hospital Maintenance at extension 4-2268 for this service.

#### **REPORTS OF FIRES**

All fires, regardless of size, will be reported to Occupational Health and Safety. As in the case of accident reports, the information derived from these reports will materially assist safety committees and the Safety Department in identifying those areas and conditions which are particularly fire-hazardous. Fire reports shall be forwarded to the Department of Occupational Health and Safety as soon after a fire as possible.

#### **FIGHTING SMALL FIRES**

If you are *certain* that a small or contained fire does not pose an immediate threat to you, your co-workers, students, or the surrounding area, you may be able to put it out with the appropriate fire extinguisher. There are many varieties of fire extinguishers, but each is rated according to the type or types of fires it can put out. Before you use an extinguisher, check to see if it is rated for the type of fire you are confronting. (This information must be prominently listed on the extinguisher itself.) **Don't wait for a fire to learn where fire extinguishers are located and what ratings they carry.**

#### **Four Types Of Fires:**

Type A: Wood, paper, cloth, rubbish, etc.

Type B: Flammable gas/liquids (i.e., oil, grease, paint)

Type C: Electrical fires

Type D: Combustible metals

The majority of fire extinguishers located on campus are ABC type dry chemical and may be used on any type of fire that would normally be encountered.

**Last page of fire plan**

## **GENERAL DESIGN AND CONSTRUCTION REQUIREMENTS FOR LABORATORIES**

The design or renovation of a laboratory space requires far greater planning than in most other areas at UAB. There exists a large body of regulations with the effect of law at the city, county, state and federal levels that dictate many specifications. In addition, the future use of a laboratory space must be considered. Part of what makes a laboratory a unique design problem is the ever-changing function of the space and the evolving needs of its users. Inflexibility in laboratory design is costly when change is required and dangerous when health and safety concerns are sacrificed because of that cost.

The intent of this document is to provide those involved in the design, construction, refurbishment, and conversion of laboratories at UAB with basic guidelines and requirements prepared from a health and safety perspective. It is not all inclusive, nor does it supersede the legal requirements of any regulatory body with authority over UAB. Some situations that may present unusual hazards will have to be evaluated on a case-by-case basis.

### **EXISTING CODES AND REGULATORY AGENCIES**

In general, new or renovated laboratory design shall comply with the appropriate sections of the codes and guidelines of the following:

- Southern Building Code Congress International
- National Fire Protection Association
- American National Standards Institute, Inc.
- American Conference of Governmental Industrial Hygienists
- U.S. Department of Health and Human Services (CDC/NIH/NIOSH)
- U.S. Environmental Protection Agency
- American Society of Heating, Refrigerating, and Air-conditioning Engineers, Inc.
- National Sanitation Foundation
- U.S. Occupational Safety and Health Administration
- Others, as required.

### **GENERAL**

The design needs of a laboratory are far more intricate than for an office space, warehouse, or classroom. For this reason, it is essential that communication and detailed discussions take place between architects, design engineers, the ultimate users, the contractors, UAB's Architecture and Engineering and Occupational Health and Safety.

The "ultimate user" group should be represented by more than just the principal investigator or department chairperson. While these people do control the destiny of the work to be done in the laboratory, they are often not the people actually doing the benchtop work or organizing the placement of equipment and storage of chemicals, etc.

Careful consideration must also be given to ancillary spaces associated with a laboratory's needs and function. Chemical storage, compressed gases, maintenance and mechanical areas, office space, break areas, computer work areas, meeting areas, glassware and equipment storage, copy machines, waste holding areas, and record storage are all essential components.

### **HAZARD EVALUATION**

An evaluation shall be made in the early stages of laboratory design to aid in determining specific construction and safety requirements based on expected hazards. The evaluation will primarily consist of a review of the *Laboratory Pre-design Information Sheet* (see appendix A) filled out by the expected user of the space.

If the laboratory is to be designed in a generic fashion, with no specific user anticipated, it shall be constructed for low to moderate hazards.

### **PHYSICAL CHARACTERISTICS**

Operations and procedures within a laboratory have changed dramatically in recent years and continue to change as new materials and agents are used as research tools. Occasionally, the specific details of the day-to-day operation of a laboratory will change even during the actual design and construction process. It is not uncommon for a laboratory to require renovation the day construction is complete. The infrastructure, or basic elements of the laboratory must be designed in a way that will allow rapid and inexpensive change of short-life components.

### **FURNITURE AND CASEWORK**

Office functions should not be designed into laboratory benchtops. This activity should be done in an area separated from the laboratory space to minimize potential worker exposure to materials in the laboratory. Computers used for word or data processing are susceptible to damage and contamination caused by corrosive or caustic chemicals and their vapors and, if possible, should not be planned for benchtop use. In addition, laboratory casework does not readily lend itself to ergonomic flexibility; what is right for one lab worker may not be for another.

Chairs and stools should be of simple design and made of material resistant to chemicals that may be present. They should also be adjustable to allow for the various needs of multiple users.

Benchtops shall be made of non-porous material that is resistant to the materials and processes to be used in the laboratory.

Walls, ceilings and other painted surfaces should have a high gloss finish that will resist water and be easy to clean.

Floors should be of seamless design, resistant to materials planned to be used, and sealed against water.

## **EXITS**

Exits from all laboratories shall be designed and installed to swing in the direction of exit travel. Arrangement of the laboratory shall also *avoid* the placement of high hazard items, such as flammable storage cabinets or compressed gas tanks, so that it would be necessary to travel toward the hazard when exiting the lab.

A second means of access to an exit shall be provided from a laboratory if a hood is located adjacent to the primary means of exit access. For new installations, laboratory hoods shall not be located adjacent to a single means of access to an exit.

Any laboratory that has an area in excess of 1,000 sq. ft. shall have at least two exit doors remote from each other, one of which will open directly into a means of egress. Travel distance between any point in a laboratory unit and an exit access door shall not exceed 75 feet.

## **EMERGENCY EYEWASH AND SHOWER EQUIPMENT**

American National Standard for emergency eyewash and shower equipment, **ANSI Z358.1 - 1990**, has been adopted by the University of Alabama at Birmingham, Department of Occupational Health and Safety as the single criteria for minimum design and performance requirements of emergency eyewash and shower equipment.

Every laboratory that uses materials that are irritating to the eyes must have an eyewash fountain located within that laboratory unit. Exception to this guideline will only be permitted if written documentation can be provided showing the laboratory will not use any materials irritating to the eyes. Future use of the laboratory space will be considered before granting an exception.

Generally, one eyewash is required per laboratory unit, however, laboratories considered "high hazard" areas may require additional eyewash units. The Department of Occupational Health and Safety will make the final decision regarding the need for eyewash units.

Wall-mounted eyewash units must be Speakman SE 400 or equivalent. Swing away, deck-mounted units must be Speakman SE 572 or equivalent. All units shall deliver potable water.

Hand-held drench hoses may be used as support devices for approved eyewash and shower units, but shall not replace them in any manner.

At least one safety shower must be located within 25 feet of a laboratory entrance. Such a location may be in a corridor and one shower may serve multiple laboratory units. Every laboratory must have access to a safety shower unless written documentation can be provided stating the laboratory will not use any material irritating to the skin or eyes. Future use of the laboratory must be considered before an exception is granted.

Safety showers must be Speakman SE 236-PR or equivalent and must deliver potable water. Floor drains are not required.

## **FIRE PROTECTION**

Fire extinguishers suitable for the particular hazards shall be located and labeled so that they are readily available and in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*. Sufficient numbers shall be provided so that the travel distance to the extinguishers shall not exceed 50 feet.

Automatic smoke detection equipment systems shall be required in all laboratories and shall be designed to notify all potentially endangered personnel and to be compatible with existing alarm systems.

### **Separation Requirements**

<b>Low Hazards</b>	<b>High Hazard</b>
<10 gal flammable liquids or <60 gal flammable liquids stored in a flammable storage cabinet <i>requires:</i> 1-hour separation with "C"-labeled 45-minute doors  <i>or:</i> smoke tight room with automatic fire extinguishing system	>10 gal flammable liquids or >60 gal flammable liquids stored in a flammable storage cabinet <i>requires:</i> 2-hour separation with "B"-labeled 1 1/2- hour doors  <i>or:</i> 1-hour separation with "C"-labeled 45-minute doors and an automatic fire extinguishing system

## **FLAMMABLE STORAGE REQUIREMENTS**

Laboratories using chemicals are required to have a flammable storage cabinet when the volumes of materials present exceeds the amount indicated in the table below. Plans for proper placement of a storage cabinet of sufficient capacity must be made in the design process.

It is strongly recommended that all laboratories be equipped with flammable storage cabinets other than under hood storage areas.

## DEFINITIONS

**Combustible liquids** shall be defined as having a flash point at or above 100°F (37.8°C) and shall be subdivided as follows:

**Class II** liquids shall include those having flash points at or above 100°F (37.8°C) and below 140°F (60°C).

**Class IIIA** liquids shall include those having flash points at or above 140°F (60°C) and below 200°F (93°C).

**Class IIIB** liquids shall include those having flash points at or above 200°F (93°C).

**Flammable liquids** shall be defined as having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 lbs. per sq. in. (absolute) and shall be designated as a **Class I** liquid.

Class I liquids shall be subdivided as follows:

**Class IA** shall include those liquids having a flash point below 73°F (22.8°C) and having a boiling point below 100°F (37.8°C).

**Class IB** shall include those liquids having a flash point below 73°F (22.8°C) and having a boiling point at or above 100°F (37.8°C).

**Class IC** shall include those liquids having a flash point at or above 73°F (22.8°C) and having a boiling point below 100°F (37.8°C).

## FLAMMABLE STORAGE CABINETS

All flammable storage cabinets used at UAB shall comply with all sections of NFPA 30-1987 *Flammable and Combustible Liquids Code*, Section 4-3 except:

- a. All flammable storage cabinets, including under-hood flammable storage, should not be non-vented. The vent holes should be sealed with a properly fitted metal bung.
- b. Flammable storage cabinets made of wood are not permitted.

## FLAMMABLE STORAGE ROOMS

The design, construction, and operation of a separate indoor flammable storage area shall be in compliance with NFPA 30-1987 *Flammable and Combustible Liquids Code*, Section 4-4.

### Maximum Allowable Size of Containers and Portable Tanks

Container Type	F l a m m a b l e   L i q u i d s			C o m b u s t i b l e L i q u i d s	
	Class IA	Class IB	Class IC	Class II	Class III
<b>Glass</b>	1 pint*	1 quart*	1 gallon	1 gallon	5 gallons
<b>Metal</b> (other than DOT drums) or approved plastic	1 gallon	5 gallons	5 gallons	5 gallons	5 gallons
<b>Safety Cans</b>	2 gallons	5 gallons	5 gallons	5 gallons	5 gallons



**Maximum Allowable Size of Containers and Portable Tanks (cont'd)**

<b>F l a m m a b l e   L i q u i d s</b>				<b>C o m b u s t i b l e L i q u i d s</b>	
<b>Container Type</b>	<b>Class IA</b>	<b>Class IB</b>	<b>Class IC</b>	<b>Class II</b>	<b>Class III</b>
<b>Glass</b>	1 pint*	1 quart*	1 gallon	1 gallon	5 gallons
<b>Metal Drum (DOT Spec)</b>	60 gallons	60 gallons	60 gallons	60 gallons	60 gallons
<b>Approved Portable Tanks</b>	660 gal.	660 gal.	660 gal.	660 gal.	660 gal.
<b>Polyethylene</b> DOT Spec 34, or as authorized by DOT Exemption	1 gallon	5 gallons	5 gallons	60 gallons	60 gallons

\* Class IA and Class IB liquids may be stored in glass containers of not more than 1 gallon capacity if the required liquid purity (such as ACS analytical reagent grade or higher) would be affected by storage in metal containers or if the liquid would cause excessive corrosion of the metal container.

**Maximum Quantities of Flammable and Combustible Liquids in Laboratories**

		<i>Excluding</i> quantities in storage cabinets	<i>Including</i> quantities in storage cabinets
<b>Laboratory Unit Classification</b>	<b>Flammable or Combustible Liquid Classification</b>	<b>Max. Quantity Per 100 sq. ft. of Lab Unit</b>	<b>Max. Quantity Per 100 sq. ft. of Lab Unit</b>
A <sup>1</sup> (High Hazard)	I I,II, and IIIA	10 gallons 20 gallons	20 gallons 40 gallons
B <sup>2</sup> (Intermediate Hazard)	I I,II, and IIIA	5 gallons 10 gallons	10 gallons 20 gallons
C <sup>2</sup> (Low Hazard)	I I,II, and IIIA	2 gallons 4 gallons	4 gallons 8 gallons

<sup>1</sup> Class A laboratory units may be used as instructional units.

<sup>2</sup> Maximum quantities of flammable and combustible liquids in Class B and C instructional laboratory units shall be 50% of those listed in this table.

Flammable liquids must be stored and separated according to their chemical characteristics or compatibility from oxidizing agents, reactives and other flammable materials. Only approved types of spark-proof refrigerators shall be used to store flammable liquids.

The chemical safety program is a complementary program designed to facilitate the safe use of chemical products on the University of Alabama at Birmingham campus, in teaching, clinical, and research laboratories. The Chemical Safety and Waste Management Manual should be referred to for additional information on chemical handling and storage.

**VENTILATION**

Proper ventilation is one of the most critical components in laboratory safety. This is due to the wide variety of potentially hazardous materials used. Almost any laboratory will contain materials that are flammable, combustible, corrosive, toxic, carcinogenic, and teratogenic. Even with the use of fume hoods, problems may occur.

It is not necessary for a spill or other accident to occur in a laboratory for problems to result. Virtually undetectable corrosive or caustic vapors can cause significant damage to lab equipment over time when ventilation is poor. Laboratory workers are equally susceptible to low-level exposures.

**AIR CHANGES**

In order to maintain proper dilution of contaminants, laboratories shall maintain an air exchange rate of 10-12 changes per hour. Animal holding areas shall maintain an exchange rate of 12-15 changes per hour (NIH publication 86-23, Guide for the Care and Use of Laboratory Animals). Some specialized areas may require greater rates.

**BALANCE**

All laboratories shall be maintained at an air pressure that is negative relative to corridors and all non-laboratory areas. An exception will be made for those areas designated as “clean rooms” in which materials being used in these areas must be protected from outside contamination. This would include certain cell culture rooms and pathogen-free animal housing areas.

**SUPPLY AIR**

The source for supply air must be remote from the street level and other sources of potentially contaminated air, i.e. hood exhaust stacks, emergency generator exhaust stacks, etc.

**FILTRATION**

Filtration for supply air will vary with the activity planned for the laboratory space. According to ASHRAE guidelines, conventional physics and chemistry laboratories commonly have 85 percent efficient filters for the supply air.

Biomedical laboratories usually require 85 to 95 percent efficient filters. HEPA filters may be required for specialized work that is particularly susceptible to outside contamination.

### **SUPPLY DISTRIBUTION**

Room air currents have a large effect on the performance of equipment in a laboratory, especially a fume hood or biosafety cabinet. Thus the design of the room air supply distribution system is as important in securing good hood performance as is the face velocity of the hood.

The terminal throw velocity of supply air jets should be no more than 1/2 (one half) to 2/3 (two thirds) the hood face velocity; such terminal throw velocities are far less than conventional practice.

Perforated ceiling panels are required to have an average panel face velocity of <66 fpm and must be located away from the hood face. These provide a better supply system than grilles or ceiling diffusers in that the system design criteria are simpler and easier to apply, and precise adjustment of the fixtures is not required. Perforated ceiling panels should be placed so that approximately one-third or more of the panel is more than 4 feet from the hood.

Ceiling diffusers are required to maintain an average terminal throw velocity of <66 fpm and must not be located immediately in front of the hood. The quadrant facing the hood must be blocked off in a way that will prevent re-opening.

Office areas in laboratory buildings or laboratory areas shall be maintained at a pressure that is positive relative to the corridor and adjacent laboratory spaces.

### **EXHAUST AIR**

All air exhausted from chemical, biological and radioactive laboratory spaces, laboratory hoods, and other special local exhaust systems shall not be recirculated because it may expose both personnel and research materials to airborne contaminants and flammable fumes and vapors.

Air exhausted from laboratory work areas shall not pass un-ducted through other areas.

Air exhausted from laboratories shall be discharged through a duct system that is maintained at a negative pressure relative to the pressure of normally occupied areas of the building.

Non-contaminated air within individual laboratory areas may be reconditioned for energy conservation purposes (e.g. fan coil).

Exhaust air shall be discharged remote from the street level, areas of human occupancy, and fresh air intakes.

## LABORATORY FUME HOODS

### DEFINITIONS

For the purpose of this section, the following terms shall have the meanings given below:

**Auxiliary Air.** Supply or supplemental air delivered to a laboratory hood to reduce room air consumption. The balance of supply air in auxiliary fume hoods is essential. Poor designs can blow contaminants out of the hood into the room. It is recommended that the supply air be tempered to avoid worker discomfort. In addition, untreated air as much as 20°F warmer than the room will degrade the room air conditioning. If the laboratory room air is to be maintained at some specified condition of temperature, humidity or perhaps cleanliness, the use of auxiliary air hoods may not be economical or energy-conserving as compared to conventional fume hoods with redesigned room air supply. This hood design is not recommended for use at UAB.

**Bypass Hood.** A fume or isotope hood equipped with an airflow-compensating opening that maintains a relatively constant volume exhaust through a laboratory hood regardless of sash position. It serves to limit the maximum face velocity as the sash is lowered.

**Canopy Hood.** A suspended ventilating device used only to exhaust heat, water vapor, odors, and other non-hazardous materials. This is not a laboratory hood and is generally not effective for exhausting toxic or flammable materials and is not permitted for that purpose.

**Deflector Vane.** An airfoil-shaped vane along the bottom of the hood face which directs incoming air across the work surface to the lower baffle opening. The opening between the work surface and the deflector vane is open even with the sash fully closed.

**Face** (of hood). The hood opening or the plane of the inside surface of the sash. This area is used to calculate the square footage of hood opening, and face velocity is measured in this plane.

**Face Velocity.** The rate of flow or speed of air moving into the laboratory hood face or access opening. At UAB, chemical fume hoods and radioisotope hoods are required to maintain a face velocity of 120 feet per minute (fpm)  $\pm$  20%.

**Certification.** Fume hoods, radioisotope hoods, and biological safety cabinets are required to be certified by the Department of Occupational Health and Safety's Laboratory Ventilation Specialist after installation and prior to use. Annual re-certification is also required. This procedure verifies that the hood or cabinet is performing according to the specifications and the intended use. The hood or cabinet will be labeled as certified with the certifying individual's name and date re-certification is required.

**Biological Safety Cabinet.** A special safety device designed to handle and contain biological materials. This enclosure is *not* a laboratory hood.

### GENERAL REQUIREMENTS

Fume hoods are an integral part of the laboratory ventilation system and as such must exhaust above and outside the building to assure that proper dilution is attained and that exhaust gases

will not be re-ingested by the building fresh air intake and recirculated by the building heating, air conditioning and ventilation systems. Air from laboratory work areas shall not be recirculated.

Local exhaust systems for histology staining set ups, photographic developing laboratories, flame photometers, xenon-lamp spectrophotofluorometers, and similar equipment or locations are efficient, cost effective devices for removing potentially harmful gases or vapors from the breathing zone of the laboratory worker and are at the same time capable of reducing fire danger by removing flammable vapor from the work area.

Hoods must be located in minimum traffic areas of the laboratory and in a manner that would not come between workers and their only exit from the work area should a fire or explosion occur in the hood.

Airflow indicators shall be installed on new laboratory hoods or on existing laboratory hoods, when modified.

Automatic fire dampers shall not be used in laboratory fume hood exhaust systems. Fire detection and alarm systems shall not be interlocked to automatically shut down laboratory hood exhaust fans.

Wood cabinet understructures are prohibited on all new installations.

#### **DUCT REQUIREMENTS**

For most general purposes, duct work should be constructed of galvanized steel. Branch entries into a common duct should be of minimum loss design (30-45 degrees). Entries should be at the top or the side with no two entries on opposite sides and at the same point in the common.

Bends should be of minimal loss design. Bends should be of 5-piece construction for diameters up to 6" and 7-piece construction for larger diameters. Prefabricated or smooth construction may be used.

Duct work should be supported in a manner as to prevent noise and vibration.

Type “B” biological safety cabinets require stainless steel duct construction to the point where a gas-tight damper is installed for decontamination purposes. Galvanized is acceptable downstream from the gas tight damper. The decontamination damper should be installed so that it is easily accessible and as close to the safety cabinet as transition will allow.

In fume hood installations that include a filter box, duct work leading to the filter box shall be stainless steel. Galvanized is acceptable downstream from the filter box. The filter box shall be stainless steel with dimensions of 24” x 30” x 14” and include spaces for a pre-filter and HEPA or charcoal filter.

#### **ROOF EXHAUST STACK ASSEMBLY**

Exhaust fans and their related assemblies shall always be located outside the building. The exhaust fan will discharge into an exhaust stack extending a minimum of seven feet above the roof and be a “no loss” design.

The discharge of exhaust air must be remote from the street area and all areas of human occupancy and fresh air intakes, both present and possible future locations. Although contaminant concentrations in the exhaust air is not of concern if the system is working effectively, odors and particulate matter make this air undesirable in occupied areas. The terminal velocity will be based on the table below:

**Range of terminal velocities for hood exhaust stacks**

<b>Nature of Contaminant</b>	<b>Examples of Exhaust Material</b>	<b>Desired Velocity Range</b>
Vapors, gases, smoke	All vapors, gases, smoke	1,000 to 1,200 fpm
Fumes	Zinc and aluminum oxide fumes	1,200 to 2,000 fpm
Very fine, light dust	Cotton lint, wood flour, litho powder	2,000 to 2,500 fpm
Dry dust and powders	Cotton dust, light shavings	2,500 to 3,500 fpm

#### **PRE-CONSTRUCTION EVALUATION PROCEDURES FOR EXISTING RADIOISOTOPE HOODS, CHEMICAL FUME HOODS, AND BIOLOGICAL SAFETY CABINETS**

The following program will be utilized in the Department of Occupational Health & Safety to ensure the safety of contract workers involved in the renovation or removal of fume hoods in which radioisotopes, chemicals, and biological agents are normally stored and used. The **Laboratory Ventilation Specialist (LVS)** will be involved in the inspection of these hoods.

The LVS must be notified *prior* to any work required on an isotope or chemical fume hood or biological safety cabinet.

The LVS will be the initial contact person regarding removal of any radioisotope or chemical fume hood or biological safety cabinet. He will schedule an appointment to meet with UAB New Construction at the fume hood site to determine the nature of the problem.

Once this has been done, the LVS will determine what precautions will be required prior to starting work. At this time, appropriate surveys will be performed to ensure the equipment is hazard free. The contractor and UAB New Construction will be notified of these results and the equipment will be tagged with a safety release form as ready for servicing.

After the work is performed on new installations, the LVS will certify the equipment as ready for use.

The LVS will report any deviation from the above procedure to the appropriate Safety Officer.

The extension for the LVS is **4-9181**.

**APPENDIX A (CONT'D)**  
**LABORATORY PRE-DESIGN INFORMATION SHEET**

**User Information**

Project No.: \_\_\_\_\_

Building and Floor(s): \_\_\_\_\_

Principal Investigator(s): \_\_\_\_\_

1. Primary function of the laboratory unit(s). List each unit separately.

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2. Chemical information:

- a. Hood requirements. Include room numbers, hood type, hood size, make and model.

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- b. Review this list of high hazard chemicals and indicate items to be used.

- i. Carcinogens (e.g. benzene, benzo[a]pyrene, other polycyclic aromatics; alkylating agents, aziridine, chloromethylether).

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- ii. Cyanides and nitriles (e.g. hydrogen cyanide, acrylonitrile)

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- iii. Acutely toxic or corrosive (e.g. organophosphates [DFP], perchloric acid, picric acid, hydrofluoric acid, osmium tetroxide).

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- c. Storage Requirements, i.e., flammable storage needs, under hood storage, radioactive storage, waste, etc.

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- d. Expected volume of hazardous waste.

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### 3. Radioactive Materials Information:

- a. Types of radioactive materials to be used. (Include amounts)

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- b. Hood requirements. Include room numbers, hood type, hood size, make and model.

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- c. Other equipment, i.e., lasers, particle accelerators, etc.

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### 4. Biological Materials Information:

- a. Infectious materials to be used.

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- b. Recombinant DNA.

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- c. Clean Room requirements.

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- d. Hood requirements. Include room numbers, hood type, hood size, make and model.

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- e. Biological Safety Level.

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5. Will the laboratory require the use of compressed gas tanks?

a. Gases? 

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- b. How many containers will be held in storage and in use?

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## **Appendix A**

### **Confined Space Entry Permit**