5.0 **General Safety**

5.1 Personal Protective Equipment

University students and employees may be required to wear personal protective equipment, PPE, as identified by department safety plans, job hazard analyses, posted signs, written procedures, or regulatory requirements. It is the responsibility of all employees and students to wear the required personal protective equipment. It is the responsibility of the faculty/supervisor to make it available to employees and to ensure that it is worn where required, including students, contractors, vendors, and visitors.

5.1.1 Selection of Personal Protective Equipment

Personal protective equipment requirements must be determined for each job or task assignment and will be determined by the supervisor or faculty member in charge with assistance from OSHS as needed or required. This determination must be documented in writing by the supervisor and a copy kept on file in the OSHS office. Once the appropriate PPE has been determined, its use is mandatory. It is the responsibility of the faculty/supervisor to ensure that proper training or other required pre-qualification has been implemented before the student or employee begins a task for which PPE is required. The following guidelines are intended to assist the faculty member or supervisor in selecting appropriate personal protective equipment. Additional information on the selection of PPE is available from OSHS.

5.1.2 Eye and Face Protection

Each affected person shall use appropriate eye or face protection if a hazard exists due to any of the following:

- Flying objects or particles.
- Moving or dangling objects like slings and chains.
- Dusts and mists.
- Molten metal.
- Liquid chemicals.
- Acids or caustic liquids.
- Chemical gases or vapors.
- Glare.
- Injurious radiation.
- Electrical flash.
- Any combination of the above hazards.

Occupational Safety and Health Services should be contacted for additional information and assistance in the selection of appropriate eye protection.

Following are some of the MIOSHA requirements for eye protection:

Side protection shall be used whenever there is a hazard from flying objects. Spectacles without side shields are allowable for frontal protection only (it should be noted that this situation would be extremely unlikely).

A face or eye protector shall be in compliance with all of the following minimum requirements:

- It shall protect against the particular hazards for which it is designed.
- It shall fit snugly and shall not unduly interfere with movements of the wearer.
- It shall be capable of withstanding sanitizing.

Care shall be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards.

Adequate protection against the highest level of hazard must be provided when multiple hazards are present.

Operations involving heat may also involve optical radiation. Protection from both hazards shall be provided.

Safety glasses or goggles must be worn under face-shields.

Persons whose vision requires the use of prescription lenses shall wear either protective devices fitted with prescription lenses or protective devices designed to be worn over regular prescription eye-wear. Prescription eye-glasses, regardless of lens type or sales claims, do not fulfil the requirements for eye protection unless they comply with American National Standards Institute standard Z87.1-1989.

Wearers of contact lenses shall also be required to wear appropriate eye and face protection devices in a hazardous environment.

Caution should be exercised in the use of metal frame protection devices in electrical hazard areas.

Welding helmets or hand-shields shall be used only over primary eye protection.

5.1.3 Hand Protection

Each affected person shall use appropriate hand protection when their hands are exposed to hazards that may cause any of the following:

- Skin absorption of harmful substances.
- Severe cuts or lacerations.
- Severe abrasions.
- Punctures.
- Chemical burns.
- Thermal burns.
- Harmful temperature extremes.

Selection of the appropriate hand protection shall be based on an evaluation of the performance characteristics of the hand protection relative to all of the following:

- The task to be performed.
- Conditions present.
- Duration of use.
- The hazards and potential hazards identified.

Selection of chemical resistant gloves should be based on manufacturer-specific permeation and degradation data when prolonged contact is expected. Assistance in the selection of chemical resistant gloves is available from most vendors and manufacturers.

5.1.4 Head Protection

Each affected person shall be provided with, and shall wear, head protection equipment and accessories in areas where a hazard exists from falling or flying objects, other harmful contacts or exposures, or where there is a risk of injury from electric shock, hair entanglement, chemicals, or temperature extremes.

Head protection equipment that has been physically altered or damaged shall not be worn or reissued to a student or employee. Protective helmets purchased after July 5, 1994, shall be in compliance with American National Standards Institute standard Z89.1-1986. Protective helmets purchased before July 5, 1994, shall be in compliance with American National Standards Institute standard Z89.1-1969.

Protective helmets or safety hats and caps shall be of the following types:

- Class -A -Limited voltage protection.
- Class -B -High voltage protection.
- Class -C -No voltage protection.

A Class C helmet or any metallic head device shall not be furnished or used for head protection, except where it has been determined that the use of other types of protective helmets or safety hats or caps is impractical, such as where chemical reaction will cause

the deterioration of other types of head protection.

Bump hats or caps or other limited-protection devices shall not be used as a substitute for protective helmets for the hazards described in this section.

A hat, cap, or net shall be used by a person where there is a danger of hair entanglement in moving machinery or equipment, or where there is exposure to means of ignition. It shall be designed to be reasonably comfortable to the wearer, completely enclose all loose hair, and be adjustable to accommodate all head sizes. Material used for a hair enclosure shall be fast dyed, nonirritating to the skin when subjected to perspiration, and capable of withstanding frequent cleaning. It shall not be reissued from one person to another unless it has been thoroughly sanitized.

5.1.5 Hearing Protection

When a noise exposure of 85 dBA (an environment where normal speech levels can not be understood) is exceeded for any 8 hour time period, a hearing conservation program shall be established. If there are concerns that this action level of 85 dBA may be exceeded, OSHS should be contacted to make noise measurements and to assist in selecting appropriate noise abatement measures and establishing a hearing conservation program if necessary.

5.1.6 Foot Protection

Each affected person shall wear protective footwear when working in areas where their feet are exposed to electrical hazards or where there is a danger of foot injuries due to falling or rolling objects or a danger of objects piercing the sole of the shoe. Safety shoes and boots which are not worn over shoes and which are worn by more than one person shall be maintained, cleaned, and sanitized inside and out before being reissued.

Where a hazard is created from a process, environment, chemical, or mechanical irritant which would cause an injury or impairment to the feet by absorption or physical contact, other than from impact, footwear, such as boots, overshoes, rubbers, wooden-soled shoes, or their equivalent, shall be used.

All protective footwear purchased after July 5, 1994, shall bear a permanent mark to show the manufacturer's name or trademark and certification of compliance with the provisions of ANSI standard Z41-1991 (now ASTM F2412-05 and F2413-05). Protective footwear purchased before July 5, 1994, shall bear a permanent mark to show the manufacturer's name or trademark and certification of compliance with American national standards institute standard Z41-1967.

MTU employees who purchase ANSI Z41-compliant footwear are eligible for

reimbursement of up to $40.00, not to exceed the purchase price excluding sales tax, once per year. Reimbursement may be obtained by demonstrating possession of the compliant footwear and providing the original sales receipt to Occupational Safety and Health Services.

5.1.7 Respiratory Protection

Selection of respiratory protection is solely the responsibility of Occupational Safety and Health Services. Any person who suspects the presence of a hazardous air contaminant must request assistance and obtain approval from Occupational Safety and Health Services before selecting, or using a respirator or dust mask. More information about respiratory protection can be found in the written University Respiratory Protection Program.

5.2 Working Alone

Students, contractors, visiting scholars and scientists, and employees may not work alone if the work involves exposure to hazards that: are potentially life threatening, could inhibit self-rescue, could cause injuries requiring immediate assistance, or pose a fire or explosion hazard beyond the person's ability to respond effectively. Appropriate methods to address the need to perform such hazardous operations include the buddy system, intercom communication to a nearby area, periodic supervisor inspections, periodic phone contacts, etc., as long as the method implemented is appropriate to the level of hazard and the required response time in the event of an incident. Each department is responsible for establishing a system and criteria for approving requests to work alone.

5.3 Hot Work

Hot work is any temporary activity involving an open flame or that produces heat, sparks, or hot slag. This includes, but is not limited to brazing, cutting, grinding, soldering, thawing pipes, torch applied roofing, and welding. Such activities will require the issuance of a Hot Work Permit before beginning hot work and adherence to the procedures outlined in the University Hot Work Program.

5.4 Exposure to Bloodborne Infectious Diseases

Each department must determine if they have employees whose required job duties result in actual or reasonably likely exposures to human blood or other potentially infectious body fluids. If so, a bloodborne infectious diseases program must be established to protect them from exposure. The program will include a written compliance plan, employee training, the use of universal precautions, personal protective equipment, engineering controls, and offering the hepatitis B vaccination series.

Employees who believe that their required job duties involve exposure to blood or other infectious materials should contact their supervisor to see if they should be part of the department bloodborne infectious diseases program. If the department does not have an existing bloodborne infectious diseases program, the supervisor should contact Occupational Safety and Health Services for information and assistance in determining whether a program is needed.

Students or employees who are concerned about potential exposure to bloodborne infectious diseases due to good Samaritan activities may also contact Occupational Safety and Health Services for information about protective measures that can be taken.

5.5 Asbestos In Buildings

Several older campus buildings were constructed using a variety of products containing asbestos fibers. These products most commonly include structural steel fire insulation, steam pipe fitting insulation, and floor tiles. Although some of the asbestos-containing materials have been removed, it is not economically feasible nor prudent to attempt to remove it all.

Wherever asbestos-containing insulation is located above a suspended ceiling, only authorized and trained employees may lift or remove the ceiling tiles for any purpose. Maintenance or other procedures that have the potential for releasing asbestos fibers are not allowed except under controlled conditions by trained and authorized employees.

It is the responsibility of each Department to inform employees of the existence and location of asbestos-containing products in their work areas and the health reasons for avoiding contact with or disturbance of asbestos fibers. Department officials should contact Facilities Management for information on the types and locations of asbestos containing materials in their building.

5.6 Safety and Health Training

Each department shall be responsible for providing safety orientation training for each new employee within five days of their start date. Additional training must also be provided as required for specific tasks and, depending on the task, may be required before the employee is permitted to begin work.

5.6.1 Training Responsibilities

- Individual department chairs, deans of schools, and directors are responsible for ensuring that safety training is provided for all employees as appropriate.

- Supervisors and faculty members are responsible for providing training to employees

and students under their supervision and are responsible for requesting OSHS assistance when needed.

- Employee supervisors are required to attend all safety training provided for their employees.

- Occupational Safety and Health Services is responsible for providing the safety portion of the training associated with the use of forklifts, respirators, portable fire extinguishers, shipping and receiving dangerous goods, and asbestos work. Other training may be requested on a case-by-case basis.

5.6.2 Qualifications, Training Content, and Record Keeping

Except where the qualifications of the trainer are specified in a regulation or standard, department chairs may assign training duties to knowledgeable employees as appropriate. Likewise, the content of the training may be determined by the trainer except where specified in a regulation or standard.

Occupational Safety and Health Services should be consulted to determine whether the training content is specified under a particular regulation and can assist with content and training materials and aids.

All safety training shall be documented in writing and a record retained for a period of no less than two years for annual training and for the duration of employment for one-time training.

5.6.3 Training Topics

Every employee, including student, temporary, and part-time employees, shall be given safety orientation training before beginning any job assignments. The safety orientation should include general information about emergency response procedures, how to report injuries, how to obtain emergency assistance, and how to get additional safety information.

Additional training may be required by specific safety and health standards before an employee is assigned to perform tasks covered under the standard. Examples include heavy equipment operation, electrical work, exposure to bloodborne pathogens, work with radioisotopes, chemical laboratory work, respirator use, hazardous materials shipping and receiving, and many others.

Each department is responsible for contacting Occupational Safety and Health Services to assist them in determining what type of safety training is required and appropriate for its employees.

5.7 Incident and Injury Investigations and Reporting

Supervisors, including faculty, laboratory managers, office managers, etc., are responsible for investigating and reporting incidents involving injury or property loss in their area as well as close calls or "near misses." The supervisor will complete a Supervisor's Incident and Injury Investigation Report and submit a copy to Occupational Safety and Health Services. The form also serves as a helpful investigation guide.

Incident investigations typically involve a review of the location as well as interviews of all who were involved in or observed the incident. Emphasis should be placed on identifying the underlying causes of the incident rather than placing blame. The investigation is not considered complete until all actions which will prevent recurrences have been identified. Corrective actions taken as a result of the investigation should be documented.

If the injured employee, including student employees, requires medical attention, a copy of the Workers Compensation Return to Work Form should be filled out by the physician after completing the examination and submitted to Occupational Safety and Health Services. The supervisor may insist that an injured employee be seen by a doctor if in his/her judgement it is prudent to do so. Injuries to students during class activities or on University property should also be reported, however, students may not be forced to accept medical treatment.

All employee fatalities must be reported to OSHS immediately regardless of cause.