Marshall University

Environmental Health and Safety Manual

Date of Preparation – July 1, 2005

Dates of Review:
July 8, 2019

Table of Contents

Marshall University

President's Safety Policy Statement

It is the goal of Marshall University to provide a safe and healthy living, learning, and working environment for the faculty, staff, students, and visitors at all Marshall University locations. To achieve this goal, this Environmental Health and Safety Manual is established to set forth a comprehensive safety program that includes occupational health and environmental protection, assigns safety responsibilities, and defines proper safety procedures and practices for Marshall University.

As President, I have a responsibility to ensure that this university is operated safely and to reduce the risk of injury. I ask that each of you join me in doing your part by making a sincere effort to comply with the safety policies and procedures presented in this Environmental Health and Safety Manual. Our contributions will enhance the overall safety performance of Marshall University and create the safe and healthy environment we all desire.

I wish to emphasize to our staff and supervisory personnel that they share in this safety responsibility with me. Staff and supervisors must see that their employees are properly trained in the safe working procedures; they have safe tools and equipment, and they know how to use them properly; they routinely follow approved safety procedures; and their work environment is as free as possible from safety and health hazards.

I would also like to remind every employee that they also have a personal responsibility to act in a safe manner. Each of us can and must take positive actions that will minimize risks and prevent accidents. These actions should include: maintaining a constant awareness of safety, following University and departmental safety guidelines, and promptly reporting unsafe conditions and accidents regardless of severity.

Safety is everyone's responsibility. The extent of the safety responsibility an individual bears is directly proportional to the overall responsibilities for personnel, facilities, and equipment held by each individual.

By maintaining an effective safety program Marshall University provides a safe environment for the University as a whole while protecting its resources from loss.

Jerome A. "Jerry" Gilbert, President

Marshall University
Employee Safety Agreement

I have read and I understand all of the safety requirements of Marshall University as described in the Environmental Health and Safety Manual.

I agree to take responsibility for my own safety and the safety of those around me by complying with all federal, state, local, and University regulations and policies regarding safety, occupational health, and the environment.

I understand that the University safety rules do not constitute any form of binding promise or contract for my continued employment for any specific period of time or under any specific circumstances.

I understand that failure to comply with all of the safety requirements outlined in the Environmental Health and Safety Manual may subject me to disciplinary action.

I also understand that Marshall University may modify its safety requirements due to regulatory updates as well as in response to changes in work conditions.

NAME (Please print) _____

SIGNATURE _____

JOB TITLE _____

DEPARTMENT _____

EMPLOYEE ID NUMBER 901

DATE _____

Completed and signed Safety Agreement forms should be sent to:

Department of Environmental Health and Safety
Sorrell Maintenance Building

Safety Training Policy

Employee training is a key to the effectiveness of the Marshall University safety program and to the prevention of as many injuries and illnesses as possible.

By reading the Environmental Health and Safety Manual, all employees should understand and be able to follow all university environmental health and safety policies and procedures.

All employees will be instructed to recognize and avoid general workplace hazards, those related to a particular line of work. Certain employees will be required to attend specialized training classes to become certified in particular areas. For example, faculty, staff, and students working in research laboratories where biohazard materials are used must complete annual training in Bloodborne Pathogens.

Safety training is an ongoing process and will be provided annually for all maintenance and housekeeping personnel. It may be conducted in a group setting or with an individual, depending on the topic and circumstances.

When applicable, new hires will be trained prior to task assignment and will, at a minimum, receive 10 hours of initial safety training as part of their new hire orientation.

Documentation will be maintained for each training program and will include: attendance lists, subjects covered, and instructor(s). Unexcused absences from training could lead to disciplinary action.

Progressive Discipline Policy
For
Environmental Health and Safety Policy and Procedure Violations

I. **Purpose**

To set forth guidelines for a corrective action process aimed to document and correct at risk employee safety behavior. Progressive Discipline will be implemented for violation of Marshall University Environmental Health and Safety policies and procedures to:

A. Ensure that counseling is provided fairly and consistently among employees and across departmental lines;
B. Provide clear communication about the problem; and
C. Set forth a plan for improvement to the employee providing the employee a reasonable opportunity to improve.

II. **Scope**

This policy applies to all employees.

III. **Policy**

Marshall University seeks to establish and maintain standards of employee safety conduct and supervisory safety practices that will support and promote safety and health. Supervisory safety practices include administering corrective action when employee safety conduct or safety performance problems arise.

Major elements of this policy generally include:

A. Constructive effort by the supervisor to help employees achieve fully satisfactory standards of safety conduct and safe job performance.

B. Correcting employee's safety performance shortcomings or poor safety behavior to the extent required.

C. Notifying employee that progressive discipline will result from continued violation of employee safety standards of conduct or unsatisfactory safe job performance.

D. Written documentation of progressive discipline efforts taken.

IV. **Progressive Discipline**

Progressive Discipline for all violations of Environmental Health and Safety policies and procedures will follow the guidelines established in the MU Board of Governor's policy, HR-5

Four-Part Counseling, and the Classified Staff Handbook chapter on Employee Relations. Supervisors are encouraged to refer to HR-5 for all documentation and recordkeeping requirements. The four parts of progressive discipline are as follows:

A. First Safety Infraction - Verbal Warning. For safety infractions deemed to be minor, the employee should be issued a verbal warning.

B. Second Safety Infraction - Written Warning. For repeated minor safety infractions after issuance of the verbal warning, or a more substantial infraction, the employee should be issued a written warning.

   The written warning should be prepared using the Employee Safety Violation Notice, and a copy of the completed notice should be forwarded to the Director of Environmental Health and Safety.

C. Third Safety Infraction - Suspension. For repeated safety infractions after issuance of the written warning, or a more substantial infraction, the employee should be suspended a minimum of 5 days without pay.

   Prior to notifying the employee, the supervisor must confer with and receive approval to request the suspension from the President via submission of the request to the chief human resources officer. For more guidance on this process refer to MUBOG HR-5.

D. Fourth Safety Infraction - Discharge. For safety infractions management deems to be sufficiently serious, or continued failure to respond appropriately to prior corrective action, discharge is appropriate.

Supervisors should consult with Environmental Health and Safety to establish the appropriate degree for any safety infraction.

Marshall University
Employee Safety Violation Notice

Employee's Name: _____
Job Title: _____
Job Site and Location: _____

Date and Time of Occurrence: _____
Number of Prior Offenses: _____
Supervisor's Name: _____

This is to advise you that you are hereby placed on written notice that you were observed violating the following Marshall University Environmental Health and Safety policy or procedure (identify policy or procedure in violation by specific Instruction Number or Numbers).

_____

Supervisor's comments: (describe the expected safe behavior, timeframe for improvement, actions taken to prevent the violation from happening again, and consequences of future failure to improve)

_____
_____
_____
_____
_____

Is this written notice necessary because employee failed to comply with a verbal warning?
Yes ☐ No ☐

_____ _____
Supervisor's Signature: Date:

Employee's Comments:

_____
_____
_____
_____
_____

_____ _____
Employee's Signature: Date:

Safety Program Goals and General Safety Rules

I. **Safety Program Goals**

The objective of Marshall University is to provide a comprehensive safety program that reduces the number of injuries and illness to an absolute minimum, not merely in keeping with, but surpassing the best experience of similar operations of other universities. Our goal is zero accidents and injuries.

This Manual is not intended to be an all-encompassing safety document. It is intended to set policy and to be used as a reference guide for common safety concerns encountered during normal operating and maintenance activities.

II. **General Safety Rules**

Failure to comply with the workplace safety rules in this Manual, as well as applicable Federal, state, local and University safety and health policies and procedures will be grounds for the enforcement of progressive discipline.

A. No intoxicating beverages of any kind are permitted.
B. Horseplay, fighting, gambling, possession of fire arms, drinking alcoholic beverages, using unauthorized drugs, or being under the influence of alcohol and/or drugs will not be tolerated.
C. ALL INJURIES no matter how minor must be reported immediately to your Supervisor.
D. No smoking in unauthorized areas.
E. Observe and follow all posted rules.
F. Any and all personally owned safety equipment such as hard hats, safety belts, etc. must be approved by Environmental Health and Safety before being used by the employee.
G. Employees must comply with all University safety policies and procedures while on main campus as well as all other off campus locations.
H. Eye protection equipment shall be worn by maintenance personnel at all times and when you are burning, chipping, welding, grinding or drilling and when job site rules dictate.
I. Orderliness - Scrap, trash, and other wastes go in designated containers. Work areas must be cleaned up continually as the job progresses, with cords and hoses routed across walkways in a manner that will present no tripping hazard. All materials, tools, and equipment must be stored in a stable position (tied, stacked or chocked) to prevent rolling or falling. A safe access way to all work areas must be maintained.
J. Fall protection is mandatory when working at elevations 4 feet or more above a lower level.
K. Make sure you use proper lifting technique at all times.

L. Make sure your grip is secure when moving heavy objects,
M. Watch where you are walking. Be sure scaffolds have proper bearing and look out for overhanging ends that will tip. Running is not permitted anywhere, except in extreme emergency.
N. Know the tools you are using-use the right tool for the right purpose.
O. Employees are expected to report immediately any unsafe conditions including defective tools, equipment or guards.
P. Accidents can be prevented by using good judgment and being constantly alert.
Q. By using the right tools, practicing safe work methods and not taking chances, you will not expose yourself or others to bodily injury.
R. Be your brother's keeper. Consider what you do in terms of the hazard it may create for others.
S. Ask your Supervisor if you do not know or are in doubt as to the safe way of doing your job.
T. Ignorance of safety rules and practices is no excuse for their violation.
U. If you have a known handicap, such as diabetes, impaired sight, hearing, back trouble, hernia, heart trouble, aversion to heights and the like, ADVISE your Supervisor so you will not be required to do a job that may injure you or someone around you.
V. All unsafe conditions shall be reported to the supervisor.

All employees must review this Manual. It shall be the responsibility of the Supervisor to ensure the safety of the persons he/she supervises by:

A. Making certain that each employee understands his work assignment and the associated hazards.
B. Making certain that each employee is issued and receives necessary replacement safety equipment in accordance with the hazards of the work being performed.
C. Observing the work in progress and making necessary on-the-spot corrections for unsafe acts or unsafe conditions.

Supervisors who do not accept the responsibility for the safety of their employees will be subject to progressive discipline.

Reporting Accidents, Injuries and Administration of First Aid

All injuries must be reported immediately to the employee's supervisor.

Minor first aid will be administered on the job. Injuries requiring more than first aid will be referred to the Emergency Department at either Cabell-Huntington Hospital or St. Mary's Hospital in Huntington, or the nearest hospital for injuries occurring off of main campus.

Once the supervisor has been notified and any necessary first aid or medical treatment has been rendered, all injuries must be reported to the Environmental Health and Safety Department and the Department of Human Resources within ***24 hours*** of the injury or illness via the on-line reporting form. The form is available on the Environmental Health and Safety website as an Adobe® form with fields that can be completed and submitted online. The form will transmit electronically to the appropriate parties for processing. http://www.marshall.edu/safety/files/hr-serv-form-31.pdf

Marshall University has partnered with University Physicians & Surgeons' Occupational, Environmental and Disability Division to provide injury care and follow up for Huntington campus employees. This group of physicians specializes in the diagnosis and treatment of occupational related injuries and illnesses and management of worker's compensation claims as well as preventive care and occupational health surveillance. Marshall University employees will receive prompt, efficient quality medical care for acute non-urgent work related injuries as well as any follow up care that is necessary. The clinic is located on the 1st Floor of the Joan C. Edwards School of Medicine on the campus of Cabell Huntington Hospital. **(Note**: This service is offered as an optional courtesy. MU employees are not required to receive care from the Occupational, Environmental and Disability Division in the treatment of work-related injuries. All services offered through the Division will be billed through regular insurance or workers compensation processes, as applicable. Medical records of employees shall remain confidential as per HIPPA requirements).

Records for injuries as required by OSHA will be maintained by Human Resources.

Insurance Claim Reporting

The West Virginia Board of Risk & Insurance Management (BRIM) provides casualty insurance coverage for Marshall University. This includes protection from lawsuits and other liability claims resulting from incidents due to automobile accidents, employment practices, property, flood, general liability, and medical professional liability at the respective teaching institution.

Any employee of Marshall University who either witnesses or is made aware of the occurrence of any insurable incident should gather all available information on the incident and report all insurance claims to the Environmental Health and Safety Department within ***24 hours*** of the incident via the on-line reporting form. The form is available on the Environmental Health and Safety website at as an Adobe® form with fields that can be completed and submitted online. The form will transmit electronically to the appropriate parties for processing.
http://www.marshall.edu/safety/files/BRIM_Insurance_Loss_Report_Notice.pdf

Automobile Incidents

Report all auto accidents immediately to the Marshall University Police Department 304-696-6357 (HELP). All claims should be reported following the above procedures.

Fire Prevention Program

I. General Requirements

A. Access to firefighting equipment shall be maintained at all times.
B. Access for fire control and emergency vehicles shall be maintained at all times.
C. Employees will be familiarized with the methods used at the location for reporting a fire, the location fire alarm systems and the regulations for the conduct of personnel in the event of an alarm.
D. Provide necessary fire extinguishers for protection for permanent/temporary locations.

II. Fire Prevention

A. Electrical wiring shall meet the following requirements:
   1. NFPA 70, "National Electric Code"
   2. ANSI C2, "National Electric Safety Code"
   3. 29 CFR 1910, Subpart S -- "Electrical"
   4. All other applicable regulations

B. Definitions:
   1. Combustible Liquids: Any liquid having a flash point between 100^{o} and 200 ^{o} Fahrenheit (60^{o} - 93^{o} Celsius).
   2. Flammable Liquids: Any liquid having a flash point below 100^{o} Fahrenheit (60^{o} Celsius).

C. Temporary heating devices shall be approved by Environmental Health and Safety.
D. No smoking in unauthorized areas.
E. Approved metal safety cans shall be used for handling flammable liquids in quantities greater than one (1) gallon.
F. Indoor storage of flammable and combustible liquids shall meet the following requirements:
   1. Quantities of 25 gallons or more shall be stored in an approved cabinet and not more than 25 gallons shall be outside of an approved cabinet.
   2. Not more than 60 gallons of flammable or 120 gallons of combustible liquids shall be stored in any one cabinet, and not more than three cabinets shall be in a single storage area.
   3. Flammable materials cabinets shall be labeled "Flammable - Keep Fire Away."

G. Outside storage of flammable and combustible liquids shall meet the following requirements:
   1. Storage of containers (not more than 60 gallons each) shall not exceed 1,100 gallons in any one area and shall not be nearer than 25 feet to a building. Groups containing 1,100 gallons shall be separated by a five foot clearance.
   2. The storage area shall be graded in a manner to divert possible spills away from buildings or shall be surrounded by a curb or earth dike at least 12 inches high.

3. Portable tanks shall not be nearer than 25 feet to any building and individual tanks exceeding 1,100 gallons shall be separated by a five foot clear area.
4. Portable tanks and containers shall be grounded.
5. Storage tanks shall be properly vented. Reference API Standard 2000, "Venting Atmospheric or Low Pressure Tanks."

H. Flammable and combustible liquids shall be dispensed in accordance with 29 CFR 1910.

I. Flammable and combustible liquids shall be kept in closed containers when not in use and shall not be allowed, under any circumstances, within 50 feet of an open flame or ignition source.

J. Tanks and dispensing equipment or pumps and any controls shall be physically protected from vehicle impact and damage. Service and refueling areas shall meet requirements of 29 CFR 1910.

III. **Housekeeping**

A. General Requirements - The following requirements represent the minimum acceptable standard of housekeeping.
1. Daily cleanup of work, fabrication, and personnel areas is required.
2. All equipment and materials shall be stored in an orderly manner.
3. All designated lay down areas utilized for temporary storage of construction materials shall be properly barricaded.
4. All scrap materials and waste shall be picked up and disposed of at least daily. Debris shall be placed into waste containers provided.
5. Form wood and other lumber shall be neatly stored when not in use. All nails shall be removed or bent over to prevent puncture wounds.
6. Stairways, walkway, ladder cages and scaffolds shall be kept clear of all cords, cables, hoses, materials and anything else that might hinder personnel access.
7. Cords, cables and hoses at stairways, walkways and scaffolds shall be supported at least seven feet overhead or laid flat outside of walkways.
8. All spills of oil, solvents, chemicals and any regulated liquids shall be reported immediately. Dumping of these materials into floor drains, sanitary sewers, storm sewers, drainage ditches or other open ground is forbidden.
9. Loose materials on roofs or other overhead structures shall be removed or secured to prevent being blown or bumped off.
10. Accumulation of materials that may create a fire hazard shall not be permitted.

IV. **Entrances, Exits, and Hallways**

A. Marshall University Environmental Health and Safety is responsible for inspecting current facilities and reviewing renovations to ensure compliance with the fire code.

B. Marshall University follows the National Fire Protection Association Life Safety Code as the minimum standard. State agencies and other risk management groups may also impose requirements as a condition for providing insurance on campus buildings and equipment.

C. Hallways
   1. Storage of any kind, or use of laboratory or office equipment, in hallways is not permitted unless approved by Environmental Health and Safety. Normally, only water foundations, fire protection equipment, and safety equipment will be installed in hallways.
   2. Permanently attached lockers, bulletin boards and display cabinets of non-combustible construction may be permitted in some locations, subject to approval. Transparent covers on bulletin boards and display cabinets must be safety glass or other non-splintering material.

D. Stairwells and Landings
   1. Storage of materials on stairs, landings, corridors, or under stairs is strictly forbidden. Items found in these locations will be removed.

E. Doors
   1. Fire doors separating stairwells from hallways and smoke partition doors that are equipped with self-closing mechanisms or automatic release hold-open devices must be maintained in working order.
   2. It is extremely important that these doors are not blocked open by wooden wedges or other devices.
   3. All exit doors must be maintained to permit egress at all times. When two or more doors exist at an exit, all of the doors shall be free to operate when the building is open to the public.

V. **Fire Extinguisher Use**

A. Elements of Fire

Before extinguishing a fire, it is important to understand the elements that make up a fire. In order for fire to occur, four elements must be present: oxygen, fuel, heat, and a chemical chain reaction. This is represented by the Fire Tetrahedron. When any of the four elements are removed, the fire will go out. Fire extinguishers function by removing one of the four components of the Fire Tetrahedron.

B. Types of Fires

Fire Extinguishers are rated based upon the types of fires they are designed to put out. These ratings are identified on the label of the fire extinguisher. Care should be taken to ensure the extinguisher chosen to put out a fire is proper for the type of fire. Listed below are the four main types of ratings.

Class A: Ordinary combustible materials, wood, paper, plastics and clothing
Class B: Flammable Liquids and Gases
Class C: Energized Electrical Equipment
Class D: Combustible Metals
Class K: Cooking Oils and Grease

C. Types of Fire Extinguishers

The University uses the following types of fire extinguishers:

Water (Class A)
Carbon Dioxide (Class BC)
Multipurpose Dry Chemical (Class ABC)
Halotron (Class ABC) for use in computer and telecommunications rooms
Dry powder (Class D)
Wet Chemical (Class K)

D. Operating an Extinguisher

Follow the PASS procedure when operating any fire extinguisher:

P: Pull the pin.
A: Aim at the base of the fire.
S: Squeeze the handle or lever.
S: Sweep from side to side.

E. Rules for Extinguisher Usage

1. Be trained in extinguisher use
2. Use only on small fires that are not spreading;
3. Know what type of fuel is burning;
4. Before extinguishing the fire, position yourself with the exit at your back;
5. Do not attempt to extinguish the fire if you are in jeopardy or feel uncomfortable doing so.

F. Extinguisher Maintenance

1. Missing or discharged fire extinguishers should be reported immediately to Environmental Health and Safety at 304-696-3432.
2. Extinguishers are inspected monthly to ensure they are properly charged and available for use. Inspections are recorded on a tag attached to the extinguisher or are maintained electronically by Environmental Safety and Health.

VI. **Training**

A. Marshall University utilizes trained Building Representatives for each occupied University building to assist in emergency evacuation of their particular building. Typically two Representatives are trained for each floor of every building.
B. Resident Advisors on each floor of University dormitories are also trained to be Building Representatives and to assist with emergency evacuations of their dorm.

C. Environmental Health and Safety provides training to Building Representatives. Phone 304-696-3432 for more information, to request training, or to volunteer to be a Building Representative.

D. The training can also be accessed on the Environmental Health and Safety web site at: http://www.marshall.edu/safety/training/Building_Rep_Safety_Training.ppt

E. A current list of building representatives and training is available at: http://www.marshall.edu/safety/

Personal Protective Equipment

I. Minimum Dress Requirements

A. All Physical Plant and Grounds Department personnel must wear sturdy leather work boot/shoes.
B. Clothing or jewelry must not hang loose to the point where it may be caught in dangerous machinery or snagged on dangerous objects.
C. Personnel who perform welding and cutting must wear long sleeve clothing.

II. Head Protection

A. When there is possible danger of head injury due to impact, or falling or flying objects, employees are required to wear a hard hat. This applies specifically to employees working on elevated platforms or aerial lifts, as well as employees working on the ground below elevated platforms or aerial lifts.

III. Eye and Face Protection

A. Safety glasses are required to be worn during all maintenance and construction work performed on University property by University employees as well as contractors.
    1. All eye and face protection required by this instruction must meet the requirements of ANSI 287.1 standard.
    2. All affected employees will be provided approved safety glasses.
    3. Employees who are required to wear prescription glasses will be provided safety glasses or goggles that fit over their spectacles.
    4. Safety glasses are mandatory if identified by a Job Safety Analysis (JSA) and are required during all phases of each task unless exceptions are specifically granted.

B. Chemical splash goggles or full face shields are required in areas where potential chemical exposure exists. Chemical splash goggles must be worn when work involves corrosive chemicals.
C. Burning goggles and/or welding hoods are required when burning, welding or where flash hazards exist.
D. Impact goggles or face shields are required while grinding or when machines or operations present potential eye injury as a result of falling or flying objects.
E. Any time a face shield is required to be worn, safety glasses must also be worn in addition to the face shield.

IV. Hearing Protection

A. Affected employees are those employees who are subjected to noise levels exceeding those listed in the following table.

1. All Grounds Department employees operating gas-powered equipment are required to wear hearing protection at all times the machine is running.

B. Noise Permissible Exposure Levels (PEL)

Duration Per Day Hours:	Sound Level dBA Slow Response:
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

C. Methods of Protection
1. Engineering Controls: Whenever feasible engineering shall be the first choice in defending against noise levels exceeding the permissible exposure limit (PEL). This may be accomplished by redesigning the equipment or process or by adding a muffler to an exhaust system.
2. Administrative Controls: Administrative controls for noise hearing protection can be reducing the amount of time someone is exposed to the hazard. If noise levels cannot be reduced, the amount of time the employee is exposed shall be lowered in order to meet the requirements.
3. Personal Protective Equipment:
   a. Whenever it is not feasible to use either engineering or administrative controls, or when their use does not result in a sufficient reduction in noise level, personal protective equipment shall be made available.
   b. The use of personal protective equipment to prevent hearing loss is mandatory when levels exceed the table above (Noise PELs).
   c. When ear plugs are used for protection they must be properly fitted to provide adequate protection.
   d. Non-disposable plugs shall be cleaned after each use.
   e. When ear muff type protection is used it must form a perfect seal. Beards, glasses, long hair and even chewing gum can reduce the effectiveness of ear muffs.
   f. Plain cotton shall not be used as hearing protection.
   g. Mp3 players and other portable devices do not qualify as hearing protection devices and shall not be used in place of ear plugs or ear muffs.

V. **Respiratory Protection**

A. This program is intended for employees with present or potential exposures to substances requiring respiratory protection

1. Procedure Elements
    a) Hazard Determination
    b) Engineering Controls
    c) Administrative Controls
    d) Respirator Selection
    e) Physical Fitness Determination
    f) Instruction
    g) Fit Testing
    h) Respirator Use
    i) Respirator Cleaning and Storage
    j) Program Monitoring
    k) Recommendations

B. Hazard Determination
    1. Unidentified Hazards
        a) Contaminant(s) must be identified.
    2. Known Hazards
        a) Level of contamination must be established.
        b) Permissible Exposure Limit must be determined.
        c) Oxygen level in work area must be determined.

C. Engineering Controls
    1. Removing or containing the hazard must be attempted before respirator use is considered.
    2. Respirator use is permitted only when engineering controls are not feasible, while engineering controls are being installed, or in emergencies.

D. Administrative Controls
    1. Evaluate the chemical products that workers must use.
    2. Insure that workers use only that product which presents the least respiratory hazard and still does the job.
    3. Insure that the Time Weighted Average for worker exposure does not exceed the Permissible Exposure Limit.

E. Selection
    1. Selection must be specific to the hazard
    2. Only NIOSH approved respirators may be used.
    3. Employee acceptance of a particular respirator model will be considered
        a) Discomfort
        b) Breathing resistance
        c) Respirator weight
        d) Interference with vision or work

F. Physical Fitness Determination
   1. Workers must be physically and psychologically capable of performing the assigned work and of wearing the selected respirator.
   2. Each employee who is required to wear a respirator must be evaluated by a physician. The physician will rate the employee's ability to wear a respirator.
   3. Unless approval is granted by a physician, no employee will wear a respirator except for emergency escape.
   4. If an employee refuses to complete the questionnaire, the Director of Environmental Health and Safety will be contacted.

G. Training
   1. Each employee required to wear a respirator will be trained in the use and limitations of that respirator.
   2. Training will be given for every respirator.
   3. Training will include:
      a) The nature, extent and effects of respiratory hazards.
      b) Respirator capabilities and limitations.
      c) Proper respirator selection, use and maintenance.
      d) Fitting instructions.
      e) Fitting demonstrations.
      f) Practice wearing the respirator.
      g) Field fit check procedures.
      h) Conditions which prohibit respirator use.
      i) Emergency procedures.
   4. Training will provide the employee with the opportunity to:
      a) Handle the respirator.
      b) Have it fitted properly.
      c) Test its face to mask seal.
      d) Wear it in normal air for a sufficient time to become familiar with it.
      e) Wear it in a test atmosphere
   5. Supervisor training will additionally include:
      a) Hazard determination.
      b) Basic respiratory protection practices.
      c) Issuance of respirators.
      d) Regulations concerning respirator use.
   6. Training will be repeated, at least, annually.

H. Fit Testing
   1. A qualitative respirator-fitting test will be used to determine the ability of each individual required to use a respirator to obtain a satisfactory fit with a negative pressure respirator.
   2. All employees required to wear a negative pressure respirator will have each respirator they will use fit tested by one of the approved protocols.
   3. Under no circumstances will any employee be allowed to use any respirator if the results of the fit test indicate that the employee is unable to obtain a satisfactory fit with that respirator.

a) Environmental Health and Safety will be contacted if none of the available respirators will properly fit an employee who is required to wear a respirator.

4. No employee will be fit tested if beard stubble, sideburns, mustache, or other facial hair interferes with the face to facepiece seal or valves.
5. No employee will be fit tested for a full facepiece respirator if prescription eyeglasses are required for that person to safely perform the work or to see visual warnings given by a signal man.
6. The fit test portion of the Medical Questionnaire/Fit Test Form will be completed. The following must be recorded:
   a) Respirator models and sizes tested
   b) Successful and unsuccessful tests
   c) Protocol used for testing
   d) Date
   e) Instructor
   f) Employee's signature
7. Fit tests will be repeated, at least, annually; and will be conducted more frequently if there is a change in facial configuration.

I. Respirator Use

1. Manufacturer's recommendations for the proper use of respirators will be followed.
2. The wearer will inspect the respirator immediately before donning.
   a) Defective respirators will be returned.
3. Field fit checking will be performed each time a respirator is donned.
   a) Negative pressure respirators will be fit checked by negative pressure or positive pressure seal checks as recommended by the manufacturer.
   b) Pressure demand respirators will be fit checked by checking for air leaking around the facepiece.
   c) No employee will enter the hazardous area until the respirator is properly fitted.
4. If an employee experiences any difficulty with a respirator, that person will leave the hazardous area immediately. Examples of difficulties:
   a) Smell or taste a substance through the respirator
   b) Experience increased difficulty breathing
   c) Dizziness
   d) Increased heart rate
   e) Claustrophobia
   f) Other distress
5. Any difficulty fitting or using the respirator will be immediately reported to supervision.
6. No employee will remove the respirator in the hazardous area until that area has been certified to be free of dangerous levels of contaminants.
7. IDLH atmospheres:
   a) Atmospheres determined to be Immediately Dangerous to Life or Health (IDLH) will not be entered by Marshall University employees.

8. Confined Space:
    a) No employee will enter a permit required confined space without an entry permit.
    b) All the personal protective equipment, including respirators, specified on the permit will be worn.
    c) At least one standby person shall be present outside the confined space.
        (1) The standby will have the proper equipment available to assist the workers inside in case of emergency.
    d) Communication will be maintained between the standby and the workers inside the confined space.
    e) When an employee is wearing an air- line type or hose-type respirator in a confined space, the level of respiratory hazards in the atmosphere of the confined space will be monitored.
    f) IDLH atmosphere in confined spaces:
        (1) Atmospheres determined to be Immediately Dangerous to Life or Health (IDLH) will not be entered by Marshall University employees.
    g) The standby will be equipped with an SCBA or equivalent.

J. Respirator Cleaning, Storage, and Repair
1. Respirators will be cleaned and sanitized after each use by the user.
    a) Strong cleaning and sanitizing agents and many solvents can damage respirator parts. These agents must be used with caution.
    b) High temperatures (>120 degree F) may damage respirator parts.
    c) Respirators may be washed in a detergent solution and sanitized with the following in a 2 minute immersion:
        (1) A hypochlorite (bleach) solution of 50 PPM.
        (2) An aqueous iodine solution of 50 PPM.
        (3) A quaternary ammonia solution 200 PPM
    d) Sanitizing solutions shall be completely rinsed from the respirator.
2. Each respirator shall be inspected to determine if it is in good working order.
3. Respirators shall be stored in a manner that will protect them from dust, sunlight, heat extreme cold, excessive moisture, or damaging chemicals.
4. Respirators shall be stored in a manner that does not distort the facepiece.
5. Repairs to respirators shall only be made by qualified personnel.

K. Program Monitoring
1. Random inspections will be made by Environmental Health and Safety to insure that:
    a) Proper Respirators are selected, used, and worn properly
    b) Respirator wearers are properly trained
    c) Respirators are in good working condition
    d) Respirators are inspected and maintained properly
    e) Storage is satisfactory
    f) Medical surveillance is carried out
    g) Respiratory hazards are monitored

Construction and Renovations

I. **Purpose**

Construction and renovation activities at the University can be performed by either outside contractors or University workers. The work may be done exclusively by one group or the other, or a project may be a collaborative effort. Because of these differing arrangements, it often is unclear who is responsible for a given situation, or who has the authority to ensure that safety and health regulations are followed. The Occupational Safety and Health Administration (OSHA) has addressed this problem by developing rules for multi-employer worksites and defining the responsibility of each employer.

Most of OSHA's regulations for construction work can be found in Title 29 of the Code of Federal Regulation (CFR), Part 1926, entitled "Safety and Health Regulations for Construction." However, there are several instances where a particular job or activity may not be addressed by these regulations. In those cases, the regulations for General Industry, found in Part 1910, may apply. If there are no regulations in either Part for a given activity, then OSHA's "General Duty Clause", which states that an employer must provide a workplace free of recognized hazards, would still be applicable.

II. **Scope**

OSHA defines construction as "work for construction, alteration, and/or repair, including painting and decorating." Examples of activities that could be classified as construction include building renovations, excavation and trenching operations, painting, masonry, and certain activities associated with building systems such as HVAC, plumbing, and electrical supply.

III. **Program Description**

Multi-Employer Worksites and OSHA

OSHA has determined that employers at a multi-employer worksite fall into four basic categories--controlling, creating, correcting, or exposing. The controlling employer is the employer who, by contract or actual practice, has the responsibility and authority for ensuring that hazardous work conditions are corrected. This employer is usually the General Contractor, or GC. When the University acts as the General Contractor for a construction project, it would be considered the controlling employer and would be responsible for the safety and health of all workers at the site. The creating employer would be the employer whose activities actually create a hazardous condition, while the correcting employer would be the employer that has the responsibility for correcting the hazardous condition. An exposing employer is any employer whose workers are exposed to the hazardous condition. Depending upon the situation, any employer at a construction site could fall into one or more of these classifications and could be issued a citation by OSHA.

Departments should consider the multi-employer worksite rule whenever their workers are working at a University construction site, or whenever they are acting as the project manager for such an activity. In those situations where the University acts as the General Contractor, the burden for providing a safe worksite rests with the project manager and every University supervisor involved with the project. However, even on those projects where an outside contractor is acting as the General Contractor, Departments are still responsible for their own workers' safety. Any hazardous condition should be brought to the attention of the General Contractor immediately, through the project manager, along with a request for its correction. If the condition is so hazardous as to be imminently dangerous, Departments should remove their workers from the worksite and contact the Environmental Health and Safety Department immediately.

IV. **Roles and Responsibilities**

Department

- When acting as General Contractor, ensure safe work conditions at worksite.
- At other times, report unsafe work conditions to General Contractor.
- Report imminently dangerous conditions to Environmental Health and Safety immediately.

Supervisors

- Ensure workers report unsafe work conditions promptly.
- Ensure unsafe work conditions are reported to Project Manager.
- Remove workers from worksite if imminently dangerous conditions exist.

Project Managers

- Monitor safety of site work conditions.
- Report unsafe conditions to General Contractor.
- Follow-up with General Contractor to ensure unsafe conditions are addressed.

Environmental Health and Safety

- Provide assistance to Departments, Supervisors, and Project Managers.
- Working with the Project Managers, ensure imminently dangerous conditions are addressed.

Individual

- Report unsafe conditions to Supervisor.

More specific information and guidance about Contractor Safety can be obtained on the Environmental Health and Safety web site:
http://www.marshall.edu/safety/files/Contractor_Environmental_Health_&_Safety_Program.pdf

Receiving Department Safety

I. **Introduction**

Individuals working in shipping and receiving areas face a variety of safety issues each day. Such concerns may include materials handling issues (e.g., safe lifting techniques, use of dock boards), safe handling of chemicals, and radioactive materials shipments. In addition, the U.S. Department of Transportation has special regulations regarding the shipping and receiving of hazardous materials.

In response to these concerns, the Environmental Health and Safety Department has developed procedures and training for shipping and receiving personnel.

II. **Scope**

Individuals with responsibility for shipping and receiving chemicals or radioactive materials at Marshall University are included in this program. Individuals working in chemical stockrooms may be included in all or part of the program.

III. **Program Description**

Since each department or building has diverse operations, the needs of the affected people will vary. A receiving room training program and procedures that incorporate the appropriate topics will be developed, following an assessment by Environmental Health and Safety and the departments involved.

Materials Handling

Mechanical handling devices and equipment should be used whenever possible to minimize manual handling. Environmental Health and Safety may initially review the use of dock boards, forklifts, and other lifting devices to ensure workers are using them properly. Improper operation of such equipment may result in serious injury. Shipping and receiving work may involve lifting of heavy and/or awkwardly shaped packages. If proper lifting techniques are not employed, painful injuries to the back, neck, shoulders or other areas may occur. Training on safe lifting and materials handling is included in the receiving room training program.

Safe Chemical Handling

Although shipping and receiving workers do not normally handle chemicals directly, a basic understanding of the hazards of the various chemical classes may be beneficial. There have been incidents where either a chemical container breaks inside the package during shipment or containers break during transportation within the building. Shipping and receiving personnel are not responsible for chemical spill clean-up, but should know what precautions to take if a spill occurs.

Shipping and receiving personnel must receive Hazard Communication training, preferably customized to their needs. Such training includes:

- interpreting Material Safety Data Sheets and other chemical information
- understanding hazard warnings on packages, labels, and placards health hazards of chemicals
- safe handling of flammable liquids, compressed gas cylinders, and cryogenic liquids
- personal protective equipment
- chemical spill response

In addition to these topics, safe transportation of chemicals should also be reviewed, including use of carts, secondary containers, and safety cans.

Department of Transportation Requirements

The U.S. Department of Transportation regulates the transportation of hazardous substances. There are several complex requirements involved in receipt of chemicals. Some of the training requirements extend to individuals whose responsibilities include unloading or handling of hazardous materials. Such individuals must receive relevant training every three years, including successful completion of an exam to demonstrate adequate understanding of the issues.

Receipt of Radioactive Materials

Radioactive materials are regulated by the Nuclear Regulatory Commission and the West Virginia Department of Health and Human Resources. Individuals whose responsibilities include receiving packages of radioactive materials must receive training from Radiation Safety Office personnel. Such training includes:

- an overview of the hazards of radioactive materials used at Marshall University
- biological effects and risks from radiation exposure
- receipt of radioactive materials packages - normal and damaged
- identifying radioactive materials packages by vendor and labeling
- shipping radioactive materials from Marshall University

Biological Materials

For departments in which biological materials are used, shipping and receiving personnel may come across biological or medical waste. A discussion of the health and safety risks of these materials is provided as part of the receiving room training program.

IV. **Roles and Responsibilities**

Department

- Meet with Environmental Health and Safety to determine what training or other programs may apply to shipping and receiving personnel.
- Ensure personnel attend training at the required periodicity.

Supervisors

- Report potential safety and health hazards to the department of Environmental Health and Safety.
- Assist in developing procedures for safe handling of chemical or radioactive materials.
- Ensure workers attend training.

Environmental Health and Safety

- Develop and implement the Receiving Room Training program.
- Assist in developing procedures for safe handling of chemical or radioactive materials.
- Audit departmental program periodically.

Individual

- Attend training.
- Report potential safety concerns to supervisor or Environmental Health and Safety.
- Follow appropriate procedures.

General Shop and Physical Plant Safety

I. Portable Power and Hand Tools

A. General Requirements - All hand and power tools, electrical cords and pneumatic hoses shall be maintained in a safe condition. Faulty or damaged tools, cords and hoses shall be tagged "Do Not Use" and removed from service immediately.

1. Always use the proper tool for the job. Cheaters and other such devices to increase a tools capacity are not acceptable.
2. When power operated tools are designed to accommodate guards, they shall be equipped with such guards when in use.
3. Cords and hoses shall be protected from damage and shall be routed through the job location, such that they are not tripping hazards.
4. Employees using hand or power tools and exposed to the hazard of falling, flying, abrasive or splashing objects or exposed to harmful dust, fumes, mist, vapors or gases shall be provided with the proper personal protective equipment.

B. Tools

1. Electric power operated tools shall either be of the approved double-insulated type or have cords which have the third wire ground whole and in place. Double insulated tools shall be clearly marked. Protection against electric shock shall be ensured by a using either of the following methods:
   a) All 120 volt single phase, 15 and 20 ampere receptacle outlets on construction sites shall be equipped with approved ground fault circuit interrupters for personnel protection.
   b) Through compliance with the requirements of 29 CFR 1910-304 (a) (1) (ii) and 1926.404 (b) (1) (iii), "Assured equipment grounding conductor program."
2. Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
3. Tools shall not be hoisted or lowered by their hoses.
4. Hand tools shall be kept in good condition - sharp, clean, oiled, dressed and not abused.
5. Tools subject to impact tend to "mushroom" and shall be kept dressed to avoid flying spills.
6. Wooden handles of tools shall be kept free of splinters and cracks and shall be kept tight in the tool.
7. Powder actuated tools shall be operated only by employees who have been trained in the operation of the particular tool in use.
8. When fuel powered tools are used in enclosed places, the applicable requirements for concentration of toxic gases and use of personal protective equipment, as outlined in 29 CFR 1910 shall apply.

II. **Electrical Safety**

A. General Requirements

1. Illumination of areas, ramps, runways, corridors, offices, shops and storage areas shall be lighted not less than the minimum illumination intensities listed in 29 CFR 1910.
2. All lamps for general illumination shall be protected from accidental contact or breakage. Metal case sockets must be grounded.
3. Temporary lights shall not be suspended by their cords, unless they are so designed. Temporary lighting circuits shall be used for lighting only.
4. Extension cords shall be of the three-wire type. Extension cords and flexible cords used with temporary and portable lights must be designed for hard or extra hard use.
5. Employees shall not work near energized electrical circuits, unless the employees are protected against electrical shock by de-energizing the circuit and grounding it or by guarding it effectively by insulation or other means.
6. Worn or frayed electrical cords and cables shall not be used. Extension cords shall not be fastened with staples, hung from nails or suspended by wire.
7. Equipment and circuits that are de-energized shall be rendered inoperative and shall have locks and tags attached at all points where the equipment or circuits could be energized.
8. Stripping of wire insulation shall be performed only with the use of cable strippers or appropriate stripping knives. Use of hunting or jack knives is prohibited. The slicing actions shall be away from the employee.

B. Inspections

1. Equipment, except cord sets and receptacles which are fixed and not exposed to damage, must be inspected before each days use for visible damage or defects.
2. Faulty equipment found on inspection must be removed from service immediately and not to be used until repaired.

III. **Lock Out / Tag Out**

A. Purpose - This procedure establishes guidelines to protect the safety of all personnel involved in maintenance of servicing operations. It shall be used to ensure that the machine or equipment is locked out or tagged out before any servicing or maintenance activities are performed where the unexpected energization, start-up or release of energy could cause injury.

B. Definitions

1. Affected Employee: An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

2. Authorized Employee: A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing maintenance or service on a machine or equipment which must be locked or a tagout system implemented.
3. Capable of Being Locked Out: An energy isolating device will be considered to be capable of being locked out either if it is designed with a hasp or other attachment or integral port to which or through a lock can be affixed, or if it has a locking mechanism built into it. Other energy isolating devices will also be considered to be capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.
4. Energized: Connect to an energy source or containing residual or stored energy.
5. Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following. A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by the conductors of a circuit can be disconnected from all ungrounded supply connectors and, in addition, no pole can be operated independently; a slide gate; a slip blind; a liner valve; a block; and any similar device used to block or isolate energy. The term does not include a push button, selector switch, and other controlled circuit type devices.
6. Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.
7. Lockout: The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.
8. Lockout Device: A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.
9. Tagout: The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and equipment being controlled may not be operated until the tagout device is removed.
10. Tagout Device: A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that energy isolating device and the equipment being controlled may not be operated until the tag is removed.

C. Responsibility and Training

1. Appropriate employees shall be instructed in the safety significance of the lockout (or tagout) procedure. All employees involved in maintenance or servicing operations shall be authorized to lockout or tagout. Each affected

employee or employees whose work operations are in the area of a lockout/tagout, shall be instructed in the purpose and use of the lockout or tagout procedure.

2. When servicing and/or maintenance is performed by a crew, craft, department, or other group, group lockout or tagout devices shall be used in accordance with the requirements set forth in this procedure. Primary responsibility shall be vested in an authorized employee for a set number of employees working under the protection of a group lockout or tagout device.

D. General Procedures

1. Make a survey to locate and identify all isolating devices to be certain which switch(s), valve(s) or other energy isolating devices apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical or others) may be involved.
2. Notify all affected employees that a lockout or tagout system is going to be utilized and the reason therefore. The authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall be knowledgeable of the hazards thereof.
3. If the machine or equipment is operating, shut it down by the normal stopping procedures (depress stop button, turn key to off position, open toggle switch, etc.).
4. Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
5. The authorized employee and/or affected employee shall lockout and/or tagout the energy isolating device.
6. After ensuring that no personnel are exposed, operate the push button or other normal operating controls to make certain the equipment will not operate. Return operating controls to "neutral" or "off" position after the test.
7. Each affected employee who has placed a lockout lock on an energy isolating device shall be the only custodian of his/her key. Where group lockouts are used, the authorized employee shall be the custodian of the group lockout key.
8. If the equipment does not start when it is tried, then all energy source and lockouts must be rechecked. No work may be performed on the equipment until a successful lockout has been confirmed.
9. The equipment is now locked out or tagged out. Where lockout tags are used the tag shall be labeled "DANGER - DO NOT OPERATE" and must be signed and dated by the authorized and/or affected employee.
10. A lockout/tagout record shall be maintained for all shop servicing and maintaining as well as servicing and maintaining performed in the field. This information shall be recorded by the authorized and/or affected employee and shall include:
    a) The date and time of the lockout and/or tagout;
    b) The equipment or machine number (or description);

c) The job number;
d) The energy sources that were locked out or tagged out;
e) The name of the authorized and/or affected employee (the employee implementing lockout/tagout).

11. In the event of a shift change while servicing or maintenance is being performed under the lockout/tagout procedure, the authorized or affected employee(s) shall transfer his/her personal lock(s), key(s) to the oncoming employee who is relieving him/her. This transfer will be recorded in the lockout/tagout record book. When he/she received the lockout key(s), the oncoming employee becomes the authorized and/or affected employee. If locks are not used and equipment is under a tagout procedure, tags shall remain in place and an appropriate entry in the record book shall be made.

E. Lock Out / Tag Out Removal Procedures

1. After the servicing and /or maintenance is complete and equipment is ready for normal production operations, check the area around the machine or equipment to ensure that no one is exposed.
2. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating device to restore energy to the machine or equipment.

F. Procedure Involving More Than One Person

1. In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place his/her own personally assigned lockout device or tagout device on the energy isolating devices(s).
2. When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used.
3. If lockout is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet. As each person no longer needs to maintain his or her lockout protection, that person will remove his/her lock from the box or cabinet.

G. Temporarily Energizing For Testing and Positioning

1. There may also be cases where a piece of equipment that has been serviced under lockout or tagout must be temporarily energized for testing, positioning, etc. In these situations, the authorized employee shall notify all affected employees to clear the area prior to removal of the lockout and startup of the equipment or machine.

H. Basic Rules for Using Lock Out or Tag Out Procedures

1. All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel.

2. Never attempt to operate any switch, valve, or other energy isolating device where it is locked or tagged out.
3. Never attempt to short cut the lockout/tagout procedure. This may endanger your personal safety as well as others.
4. If an affected or authorized employee leaves a lock in place and that lock needs to be removed after they have left the work place:
    a) Every reasonable attempt will be made to contact them;
    b) If they cannot be reached, the authorized employee and his Supervisor will cut the lock off;
    c) The appropriate log book entry will be made;
    d) The employee will be notified when they return to work that their lock was removed.

IV. Heat Stress Safety

A. The likelihood of a heat-related illness (heat stress and heat stroke) is generally low on this campus when compared to industries such as foundries, etc. in which extremely hot working environments are common.
B. Heat stress can occur anywhere within the University system under adverse heat conditions.
C. Situations which might present cause for concern include athletic activities, strenuous outdoor physical activities and indoor working conditions in non-air-conditioned spaces.
D. Protective clothing, required by the activity, also requires consideration of heat conditions.
E. Normally, employees and students who are exposed to seasonal temperature variations become accustomed to the higher temperatures gradually as the weather warms up. This natural acclimatization enables these individuals to perform physical activities under hot conditions with minimal adverse effects.
F. Unseasonably high temperatures of heat waves, however, may stress individuals who might otherwise be able to handle the hotter temperatures under normal conditions. Likewise, persons who are not used to performing physical activities under high heat conditions may suffer ill effects from the heat if not introduced into these activities gradually.
G. It is important that supervisors and instructors be trained in the recognition of potential heat stress conditions, the symptoms and proper first aid treatment for heat-related illnesses.
H. Environmental Health and Safety can provide the necessary training upon request.
I. Failure to provide immediate, proper treatment to a heat stress illness may result in the death of the stricken individual.

V. Manual Materials Handling and Back Safety

A. The main consideration for preventing back injury associated with lifting rests primarily with the weight of the load being lifted rather than any particular lifting method.

B. The total accumulated weight should be considered due to the fact that as fatigue sets in, lifting capability for successive repetitions decreases.
C. Generally, weight in excess of 50 pounds should be handled by two individuals to minimize the possibility of injury.
D. Motions such as twisting, walking and climbing stairs while carrying heavy objects may increase the probability of back injury.
E. Keeping objects close to the body rather than extending them with the arms will help reduce injuries.
F. Heavy objects should not be lifted over the head to be placed on high shelves, etc., without assistance.
G. Questions regarding lifting requirements and recommendations may be referred to Environmental Health and Safety.

VI. Trenching and Excavation Safety

A. Application - Applies to all open excavations made in the earth's surface. Excavations are defined to include trenches. NOTE: All trenches are excavations.

B. General Requirements

1. A competent person shall be assigned to all excavation work. This person shall be clearly identified to all employees assigned to the job.
2. Walls and faces of excavations four (4) or more feet deep must be shored with trench boxes or similar equipment or sloped/benched, to prevent cave in.
3. Utility companies or owners must be contacted to establish the location of the utility underground installations before an excavation can begin.
4. All surface encumbrances must be removed or supported, as necessary, to protect employees.
5. A stairway, ladder, ramp or other safe means of egress shall be located in excavations that are four (4) feet or more in depth so as to require no more than 25 feet of lateral travel for employees.
6. No employee shall be permitted underneath loads handled by lifting or digging equipment.
7. Employees shall be required to stand away from any vehicle being loaded or unloaded.
8. A warning system must be used when mobile equipment is used near an excavation and the operator does not have a clear and direct view of the edge.
9. Where oxygen deficiency or a hazardous atmosphere exists or could reasonably be expected to exist, the atmospheres in excavations four (4) feet or more in depth shall be tested.
10. Employees shall not work in excavations with accumulated water or in excavations in which water is accumulating.
11. Where the stability of adjacent structures are endangered by excavation operations, support systems such as shoring, bracing or underpinning shall be provided to ensure the stability of such structures and for employee protection.

12. Adequate protection shall be provided to protect employees from base rock or soil that could fall or roll from an excavation face. Protection may include scaling, barricades or other means that provide equivalent protection.
13. Daily inspections of excavations, the adjacent areas, and protective systems must be made by a competent person for evidence of possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. The inspection must be prior to start of work and as needed throughout the shift. Inspection results must be recorded on "Competent Person" daily checklist.
14. Inspections also must be made after every rainstorm or other hazard increasing occurrence. If the competent person finds evidence of a hazardous condition after an inspection, employees must be removed from the hazardous areas until necessary precautions are taken for protection.
15. Physical barriers shall be placed around or over excavations. Barriers shall be removed only when necessary to provide access to personnel or equipment. Flashing light barricades shall be provided at night.
16. Walkways or bridges shall be provided when employees or equipment are required or permitted to cross over excavations. Guardrails shall be provided where walkways are four (4) feet or more above lower levels.
17. Back-filling and removal of support systems shall be performed only after employees have cleared the area. All excavations shall be back-filled and graded promptly.
18. The protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

VIII. **Confined Space Entry Safety**

A. Definition - A confined space is a space which has one, or more of the following characteristics:

1. Limited openings for entry and exit.
2. Unfavorable natural ventilation.
3. Not designed for continuous worker occupancy.

Examples of confined spaces include:

a) Storage tanks
b) Pits
c) Pipelines
d) Trenches
e) Sewers
f) Ventilation or Exhaust Ducts
g) Tunnels
h) Underground Utility Vaults
i) Boilers

B. Confined Space Entry Procedures

1. Do not enter a confined space or a gaseous atmosphere until it has been determined to be safe and you have been trained.
2. Always pre-plan the work to be done.
3. Have emergency rescue equipment ready and available as needed and rescue plans made.
4. Review rescue and escape procedures prior to entry.
5. Enter a confined space only after the atmosphere has been thoroughly checked by a qualified person.
6. If an oxygen-deficient atmosphere exists, a self-contained breathing apparatus (SCBA) will be worn.
7. If either a gaseous atmosphere or an oxygen deficient atmosphere exists, a body harness and retrieval lanyard will be worn.
8. Make provisions for continuous monitoring.
9. Constant visual or voice contact with anyone inside a confined space is mandatory.
10. Be sure that there are sufficient personnel or power rescue equipment to retrieve someone from a confined space.
11. Determine the need for any special clothing, equipment or tools.
12. Only authorized employees shall enter restricted areas such as vaults.
13. Do not enter any gas hazardous excavation unless the proper safety equipment is available and a fellow employee is present and ready to assist.

C. Confined Space Policy

1. It is the policy of Marshall University to train affected employees in the safety procedures, precautions, and concerns associated with confined spaces, and confined space entry. It is vital that employees that may encounter a confined space situation be trained at the specific jobsites where confined spaces may be expected to occur.
2. Responsibilities
    a) Environmental Health and Safety is responsible for:
        (1) Establishing, reviewing and updating the confined space program.
        (2) Training supervisors and monitoring that employee training is conducted on a regular basis and as needed to protect the welfare of all employees.
        (3) Conducting periodic inspections at jobsites to evaluate the effectiveness of the confined space procedures and program.
    b) Supervisors are responsible for:
        (1) Receiving detailed training on confined spaces and confined space entry from Environmental Health and Safety
        (2) Training their crew in the safety procedures and concerns of confined spaces and confined space entry.
            (a) Training will be done where confined spaces occur, such as: manholes, deep trenching, sewer line projects, etc.

(3) Understanding the dangers of confined space entry.
(4) Knowing what is considered a confined space.
(5) Having proper safety equipment available, to include: harnesses, air monitoring equipment, ladders, etc.
(6) Initiating a rescue procedure.
(7) The safety of their crew at all times.

c) Employees are responsible to take part in any safety training that is made available to them. They are responsible to ask questions, learn needed procedures, support their supervisor's efforts, and look out for each other.

Cutting and Welding (Hot Work) Safety

I. General Requirements

A. A hot work permit is required for welding, cutting and brazing operations. See Section II below.
B. Suitable fire extinguishing equipment shall be immediately available in all welding, cutting and brazing work areas.
C. A firewatch shall be provided as required by location procedures and shall be maintained for at least 30 minutes after completion of the job.
D. Objects to be welded, cut or heated shall be moved to a designated safe location, or if they cannot be readily moved, all moveable fire hazards in the vicinity shall be taken to a safe place. If fire hazards cannot be removed, positive means shall be taken to confine the heat, sparks and slag and to protect the immovable fire hazards from them.
E. Spark containment shall be utilized during all welding, burning and grinding operations. Spark containment may include laying fire blankets, placing barricades, totally enclosing the spark producing operation, or by the use of fire watch.
F. Employees working around or below the welding, burning or grinding operation shall be protected from falling or flying sparks.
G. Welding, cutting and heating may normally be done without mechanical ventilation or respiratory equipment, but where an unsafe accumulation of contaminants exists, suitable mechanical ventilation or respiratory protective equipment shall be provided.
H. Whenever welding, cutting or heating is performed in a confined space, exhaust ventilation shall be provided. When sufficient ventilation cannot be provided, employees shall be protected by airline respirators.

II. Hot Work Permits

A. Hot work permits should be developed by departments where cutting or welding is performed.
B. Hot work permits can help minimize the risk of fire during cutting and welding activities by serving as a checklist for operators and those performing fire watch duties.
C. The person responsible for issuing permits should be qualified to examine the work site and ensure that appropriate protective steps, such as those listed in this section, have been taken.
D. A hot work permit should be issued at the beginning of each shift for each specific operation.

III. Gas Welding and Cutting

A. All hoses, torches and/or bottles carrying acetylene, oxygen, fuel gas or any substance which may ignite or be harmful to employees shall be inspected at the beginning of

each working shift. Defective hoses and torches shall be tagged "Do Not Use" and immediately removed from service.

B. Torches shall be lighted from friction lighters and not by matches or from hot work.
C. Directional gas flow fittings (back-flow valves) shall be provided on hoses to prevent reverse gas flow or back flow.
D. Torches shall be turned off and removed from confined spaces when not in use.
E. Combustible materials must be moved at least 35 feet from the work site. If this is not possible, protect combustible materials with metal guards or by flameproof curtains or covers (other than ordinary tarpaulins).

IV. Transporting, Moving and Storing Compressed Gas Cylinders

A. Valve protection caps must be in place and secured whenever cylinders are not in use. They may not be used to lift cylinders from one vertical position to another.
B. Cylinders must be secured on a cradle, sling board or pallet when hoisted. They may not be hoisted or transported by means of magnets or choker slings.
C. Cylinders should be moved by tilting and rolling them on their bottom edges. They should not be intentionally dropped, struck or permitted to strike each other violently.
D. When cylinders are being transported by a powered vehicle, the cylinder must be secured in a vertical position.
E. A suitable cylinder truck chain or other steadying device must be used to keep cylinders from being knocked over while they are being used.
F. Cylinders must be secured in an upright position at all times.
G. The cylinder valve must be closed when work is finished, when cylinders are empty or when cylinders are moved at any time.
H. When oxygen cylinders are stored, they must be separated from fuel-gas cylinders or combustible materials (especially oil or grease) either a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet (1.5 m) high, having a fire resistance rating of at least one-half hour.
I. When stored inside a building, cylinders must be placed in a well-protected, well ventilated, dry location, at least 20 feet (6.1m) from highly combustible materials, such as oil or excelsior.
    1. Cylinders must be stored in assigned places, away from elevators, stairs or gangways.
    2. These assigned storage places must be located where cylinders will not be knocked over or damaged by passing or falling objects or be subject to tampering by unauthorized persons.
    3. Cylinders must not be kept in unventilated enclosures, such as lockers and cupboards.

V. Use of Fuel Gas

A. Before connecting a regulator valve to a cylinder, the valve must be opened slightly and closed immediately ("cracked") to clear the valve of dust or dirt that might otherwise enter the regulator. The person cracking the valve must stand to one side of the outlet, not in front of it. When cracking the valve of a fuel gas cylinder, care must

be taken to ensure that the gas does not reach welding work, sparks, flame or other possible sources of ignition.

B. Opening and closing of cylinder valves:
   1. The cylinder valve must be opened slowly to prevent damage to the regulator.
   2. Valves on fuel gas cylinders must be opened no more than 1 1/2 turns, so that they may be closed quickly when necessary.
   3. If a special wrench is required to close a valve, it must be left in position on the stem of the valve while the cylinder is in use so that the gas flow can be shut off quickly in the event of an emergency.
   4. For manifold or coupled cylinder, at least one such special wrench must always be available for immediate use.
   5. While a fuel gas cylinder is being used, nothing that might damage a safety device or interfere with the quick closing of the valve may be placed on top of the cylinder.

C. If fuel gas from a cylinder is being used in a torch or other device equipped with a shut off valve, a regulator attached to the cylinder valve or manifold must be used to reduce the pressure.

D. Before a regulator may be removed from a cylinder valve, the cylinder valve must be closed and the gas released from the regulator.

VI. **Fuel Gas and Oxygen Manifolds**

A. Gas must be clearly identified on the manifold.

B. Fuel gas may not be placed in enclosed spaces.

C. A hose may not be of a type that can be interchanged between fuel gas, oxygen manifolds and supply header connections.

VII. **Arc Welding and Cutting**

A. Arc welding and cutting operations shall be shielded by non-combustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.

B. Arc welding and cutting cables shall be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress.

C. Cables in need of repair shall not be used.

D. When the welder or cutter has occasion to leave work or to stop work for any appreciable length of time, or when the welding or cutting machine is to be moved, the power supply switch to the equipment shall be shut down.

E. All ground return cables and all arc welding and cutting machine grounds shall be made directly to the material being welded.

VIII. **Training**

A. All persons performing hot work should be trained in proper equipment operation, handling and storage of welding materials, compressed gas safety, chemical hazards, and in working procedures, including the written hot work permit.
B. Additional training may also be necessary in the proper selection and use of personal protective equipment.
C. Training in confined space entry is necessary before working in such areas.

IX. **Roles and Responsibilities**

Department

- Develop a hot work permit.
- Provide workers with specific training on hot work procedures.

Supervisors

- Issue hot work permits.
- Ensure procedures are followed.

Environmental Health and Safety

- Provide general training on hot work procedures.
- Provide a periodic audit of hot work procedures.

Individual

- Attend training.
- Follow hot work procedures.

Fall Protection

I. Affected Employees

A. Each employee on a walking/working surface with an unprotected side or edge, which is 4 feet or more above a lower level, shall be protected from falling.

II. Types of Protection

A. Primary Fall Protection Systems
   1. Primary fall protection systems provide walking/working surfaces in elevated areas to be free from unprotected sides or edges (including floor openings). Primary fall protection systems can be accomplished by placing guardrails on unprotected sides or edges and by covering any floor openings.
   2. Guardrail systems shall have a top rail height of approximately 42 inches. The mid-rail height shall be approximately 21 inches and the systems shall be equipped with a 4 inch toe-board whenever necessary. Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds, applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.
   3. Floor opening covers shall be capable of the maximum potential load they may be subject to. They must completely cover the opening and be secured to prevent accidental displacement.
   4. NOTE: Primary fall protection systems shall be used whenever possible and shall always be given first consideration. However, secondary fall protection may be necessary during the installation of primary systems.

B. Secondary Fall Protection Systems
   1. A secondary fall protection system consists of a full body harness and two positive locking shock absorbing lanyards. This system shall be used when employees are exposed to a fall of 4 feet or more and primary systems are not feasible.
   2. Only full body safety harnesses and positive locking shock absorbing lanyards capable of supporting 5000 pounds shall be used. Safety belts shall not be used for fall protection
   3. The tie off point must be at waist level or higher and have the capabilities to support no less than 5000 pounds.

C. Lifelines
   1. Lifelines are points of attachment for fall protection.
   2. Lifeline systems must be capable of supporting 5000 pounds for each person attached to it.
   3. Lifelines may be either horizontal or vertical.
   4. Lifelines shall be protected against being cut or abraded.

5. Horizontal lifelines must be made of at least 3/8 inch wire rope properly supported to withstand at least 5000 pounds impact and pulled tight enough to prevent deflection.
6. Vertical lifelines shall be made of either 5/8 or 3/4 inch nylon rope and equipped with an approved rope grab, lanyard and safety harness.
7. Self-retracting lifelines must limit free fall distances two feet or less and must be capable of supporting 5000 pounds.
8. All equipment must be inspected, by the user, prior to each use.
9. Defective equipment shall be removed from service immediately, to prevent any use.

III. Slips, Trips and Falls

A. Slips, trips and falls are among the most common causes of injury. Nationwide, they are second only to motor vehicles as causes of accidental deaths. These types of accidents occur in many varied types of environments.

B. Individuals walking across campus are presented with hazards ranging from uneven to cracked pavement, tree root, holes, projecting objects, etc. These hazards can cause falls if the pedestrian is not being observant or it is dark.

C. The interior of buildings also present numerous opportunities for injury. The problems range from floors that have been waxed but not buffed (which provide a slippery surface to walk on, to floors with wet spots that have not been wiped dry. Stairways may present many hazards, such as poor lighting, loose handrails and stair treads in a cluttered or poor condition.

D. Additionally, trips and falls can occur when aisles are cluttered with boxes or other items.

E. Loose flooring and carpets that are not tacked down properly may present a risk of injury to individuals walking in buildings on campus.

F. Persons working in or around shop areas should be alert for the problem of oil and grease build up on floors, which present a serious risk of injury due to slipping and falling.

G. It should be noted that injuries can occur not only from a fall, but over-extension of one or more parts of the body may cause strains if an individual attempts to prevent the fall. Injury from slips, trips and falls can be avoided by learning to recognize the causes and taking preventative actions to prohibit their reoccurrence.

IV. Floor and Wall Openings

A. General Requirements
   1. Floor openings shall be guarded by a guardrail and toe-board or a cover. In most cases the railing will be provided on all exposed sides except where employees are using stairways or ladder ways.
   2. Stairway and ladder way openings shall be guarded on all exposed sides. Access through the railing to stairway or ladder way openings shall be provided by a swinging gate. When swinging gates are not used the railings shall be offset to prevent a person from walking directly into the opening.

3. Hatchways and chute floor openings shall be guarded against one of the following.
    a) Hinged covers and a guardrail with only one exposed side.
    b) Removable guardrail with toe-board on not more than two sides and fixed guardrail with toe-boards on all other exposed sides.
4. Wall openings from which there is a drop of 6 feet or more shall be guarded by a guardrail and toe-board.

V. **Standard Specifications**

A. A guardrail shall consist of a top rail, intermediate rail, toe-board, posts and shall have a vertical height of approximately 42 inches.
    1. The intermediate rail shall be half way between the top rail and the floor.
    2. Posts shall be spaced not more than eight feet on centers.
    3. A completed railing structure shall be capable of withstanding a load of at least 200 pounds in any direction, at any point on the top rail, with minimum deflection.

B. Floor opening covers shall be of any material that meets the following strength requirements.
    1. Covers located in the roadways and vehicular aisles must be able to support, without failure, at least twice the maximum axle load of the largest vehicle, expected to cross over the cover.
    2. All other covers must be able to support, without failure, at least twice the weight of employees, equipment and materials that may be imposed on the cover at any time.

C. Wall opening protection shall meet the following requirements.
    1. Barriers shall be of such construction and mounting that, when in place, they are capable of withstanding a load of at least 200 pounds in any direction with minimum deflection.

VI. **Low Pitched Roof Perimeters**

Each employee engaged in roofing activities on low-slope roofs, with unprotected sides and edges 4 feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or a combination of warning line system and guardrail system, warning line system and safety net system, or warning line system and personal fall arrest system, or warning line system and safety monitoring system. Or, on roofs 50-feet or less in width, the use of a safety monitoring system alone (i.e. without the warning line system) is permitted.

A. Safety Monitoring Systems
    1. The use of Safety Monitoring Systems shall comply with the following provisions:

2. The employer shall designate a competent person to monitor the safety of other employees and the employer shall ensure that the safety monitor complies with the following requirements:
    a) The safety monitor shall be competent to recognize fall hazards;
    b) The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;
    c) The safety monitor shall be on the same walking/working surface and within visual sighting distance of the employee being monitored;
    d) The safety monitor shall be close enough to communicate orally with the employee; and
    e) The safety monitor shall not have other responsibilities which could take the monitor's attention from the monitoring function.
3. Mechanical equipment shall not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-slope roofs.
4. No employee, other than an employee engaged in roofing work [on low-sloped roofs] or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.
5. Each employee working in a controlled access zone shall be directed to comply promptly with fall hazard warnings from safety monitors.

B. Warning Line Systems
1. The use of Safety Monitoring Systems shall comply with the following provisions:
2. The warning line shall be erected around all sides of the roof work area and not less than 6 feet from the roof edge.
3. Points of access, materials handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines.
4. When the path to a point of access is not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area, or the path shall be offset such that a person cannot walk directly into the work area.
5. Warning lines shall consist of ropes, wires, or chains, and supporting stanchions erected as follows:
    a) The rope, wire, or chain shall be flagged at not more than 6-foot intervals with high-visibility material;
    b) The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface;
    c) After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge;

d) The rope, wire, or chain shall have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, shall be capable of supporting, without breaking, a load of at least 16 pounds applied horizontally;
e) The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

6. No employee shall be allowed in the area between a roof edge and a warning line unless the employee is performing roofing work in that area.
7. Mechanical equipment on roofs shall be used or stored only in areas where employees are protected by a warning line system, guardrail system, or personal fall arrest system.

VII. **Scaffolds**

A. General Requirements

1. All scaffolds shall be inspected before each use.
2. All scaffolds must be capable of withstanding four (4) times the maximum intended load except for suspended scaffolds which must be capable of withstanding six (6) times the maximum intended load. See 29 CFR 1910 for additional information regarding capacity.
3. Each platform is to be fully decked between the uprights and the guardrails as follows:
   a) Space between units is not more than one (1) inch except where it can be demonstrated that a wider space is necessary.
   b) Where more than one (1) inch is necessary, the platform shall be decked as tightly as possible with no more than a 9 ½ inch space between the platform and the uprights.
   c) Each end of the platform must extend at least six (6) inches over the support or be secured from movement by hooks or cleats.
   d) Each end of the platform must not extend more than twelve (12) inches over the support.
4. Access is required when platforms are more than twenty-four (24) inches above or below the point of access.
   a) Access choices include portable ladders, stairways, stairway type ladders, ramps, walkways, integral prefabricated scaffold access or direct access.
   b) Cross braces shall not be used for access.
   c) Fall protection is required on a scaffold more than ten (10) feet above a lower level. Fall protection consists of either personal fall arrest systems or guardrail systems meeting OSHA requirements.
   d) Fall protection may consist of guardrail systems or personal fall arrest systems.
   e) When working on suspension scaffolds individuals must be protected by both guardrail systems and personal fall arrest systems.

f) Guardrails shall consist of a top-rail and a mid-rail and should be sufficient to hold 200 pounds. When the load is applied the top-rail shall not deflect below 38 inches.
   (1) Cross-bracing may be used as a mid-rail if the crossing point of the two (2) braces is between 20 inches and 30 inches above the platform.
   (2) Cross-bracing may be used as the top-rail if the crossing point at the two braces is between 38 inches and 48 inches above the platform.

B. Falling Object Protection

1. Each employee working on or around a scaffold shall be protected from falling objects by one of the following methods.
   a) The area below is to be barricaded and employees not permitted to enter.
   b) A 4" toe-board is to be installed on the edge of the platform.
   c) If the materials are piled higher than the toe-board, paneling or screening extending from the toe-board to the top of the guardrail shall be installed.
   d) A canopy structure, debris net or catch platform is to be installed.

C. Training Requirements

2. No employee shall be permitted to do any of the following until he/she has received training from a qualified person.
   a) Scaffold Erection
   b) Scaffold Disassembly
   c) Scaffold Moving
   d) Scaffold Operating
   e) Scaffold Repairing
   f) Scaffold Maintenance
   g) Scaffold Inspection
3. All employees involved with the use of the scaffold shall be trained on the following.
   a) The nature of any electrical, fall and falling object hazard.
   b) The correct procedures for dealing with electrical hazards.
   c) The correct procedures for erecting, maintaining and disassembling fall protection systems and falling object protection systems.
   d) The proper use of the scaffold and the proper handling of materials on the scaffold.
   e) The maximum intended load and the load carrying capacities of the scaffolds used.
   f) The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting and maintaining scaffolds.

VIII. **Ladders and Stairways**

A. General Requirements

1. Ladders or stairways shall be provided at all points of access where there is a break in elevations of 19 inches or more and where no ramp, runway, sloped embankment or personal hoist is provided.
2. Employees shall not use any spiral stairways that will not be a permanent part of the structure, on which construction work is being performed.
3. A double-cleated ladder or two or more separate ladders shall be provided when ladders are the only means of access or exit from a working surface of 25 or more employees, or where a ladder is to serve simultaneous two-way traffic.
4. When a building or structure has only one point of access between levels, that point of access shall be kept clear to permit free passage of employees. When work must be performed or equipment must be used such that free passage at that point of access is restricted, a second point of access shall be provided and used.
5. All employees required to use ladders/stairways must be trained in their proper and safe use.

B. Ladders
1. Ladder rungs, cleats and steps shall be parallel, level and uniformly spaced when the ladders are in position for use.
2. Rungs, cleats and steps of portable ladders and fixed ladders shall be spaced not less than 10 inches apart, nor more than 14 inches apart.
3. The minimum clear distance between side rails for all portable ladders shall be 11 ½ inches.
4. The following requirements apply to the use of all ladders.
    a) When portable ladders are used for access to an upper landing surface, the ladder side rails shall extend at least 3 feet above the upper landing surface.
    b) Ladders shall be maintained free of oil, grease and any slipping hazards.
    c) Ladders shall be used only for the purpose for which they are designed.
    d) Non self-supporting ladders with spliced side rails shall be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (4 feet up and 1 foot out, 8 feet up and 2 feet out, etc.).
    e) Ladders shall be secured to prevent accidental displacement.
    f) Portable metal or conductive ladders shall not be used near energized lines or equipment except as may be necessary in specialized work such as in high voltage situations where non-conductive ladders might present a greater hazard than conductive ladders.
    g) Ladders shall not be moved, shifted or extended while occupied.
    h) The user shall inspect ladders for visible defects on a periodic basis and after any occurrence that could affect their safe use.
    i) The user must inspect the ladder before each use.
    j) Defective ladders shall be removed from service and destroyed in a manner to prevent any future use.
    k) When ascending or descending a ladder, the user shall face the ladder.

l) No employee shall carry any object that could cause them to lose balance and fall.
m) Employee must maintain at least three points of contact to the ladder while progressing up or down a ladder.

C. Extension Ladders
1. After the extension section has been raised to desired height, the safety legs or latches must be engaged and the extension rope secured to a rung on the base section of the ladder before use.
2. Extension ladder sections are not to be separated and used individually.

D. Stepladders
1. Stepladders shall not be used as a straight ladder.
2. Stepladders shall be set level on all four feet, with spreaders locked in place.
3. The cross bracing on the rear section of the stepladders shall not be used for climbing.
4. The top or top step of a stepladder shall not be used as a step.
5. When stepladders are used close to the edge of an elevated platform, roof or floor covering, and when location requirements so specify, they must be tied off and employees using such a stepladder shall wear fall protection equipment.

Industrial Lift Trucks (Fork Lifts)

I. **Purpose**

Industrial lift trucks, also known as lift trucks or forklifts, are used for handling materials, parts, products, tools, equipment, supplies and maintenance items. Forklifts are efficient for material handling because they are self-propelled, maneuverable and require only one operator to lift, transport, stack and un-stack material. Forklifts are powered by battery, propane, gasoline or diesel fuel, and may be used for indoor or outdoor use depending on their size, tires and load capacities. The major factors that lead to injuries involving the use of forklifts include unsafe driving and material handling practices.

II. **Scope**

The Occupational Safety and Health Administration (OSHA) requirements for industrial lift trucks apply to all operation, servicing and maintenance of trucks. Departments who own forklifts are responsible for their proper maintenance and care and for ensuring that only authorized operators use the forklift. Departments who employ forklift operators are responsible for ensuring operators are trained and certified and that forklifts are operated in a safe manner.

III. **Program Description**

Training

All lift truck operators must be trained prior to operating a lift truck. Training is provided by Environmental Health and Safety and consists of both formal instruction and practical training. Training is both vehicle- and workplace-specific. The training is a one-time requirement unless the operator is involved in a lift truck accident or is observed operating the truck in an unsafe manner.

Operator Evaluation

All lift truck operators must be evaluated for each truck they will be operating. Operators must be re-evaluated on each truck every three years.

Inspection and Maintenance

Industrial lift trucks must be inspected prior to each day of service. A daily inspection checklist must be completed and any defects should be reported and corrected immediately. A truck may not be placed into service if any defects are found during the inspection.

IV. **Roles and Responsibilities**

Department

- Identify industrial lift trucks and lift truck operators
- Ensure lift truck operators are trained and evaluated
- Ensure lift trucks are maintained in good condition
- Take lift trucks out of service when defects are identified
- Have lift trucks repaired immediately

Supervisors

- Ensure lift truck operators are trained and evaluated
- Ensure lift truck operators adhere to proper/safe operating procedures
- Ensure lift truck operators are completing the daily inspection checklist

Environmental Health and Safety

- Provide training
- Evaluate operators every three years
- Periodically audit the forklift operator program

Individual

- Attend training and evaluation
- Adhere to proper/safe operating procedures
- Complete the daily inspection checklist

Asbestos in University Buildings

I. **Purpose**

Asbestos is a generic term used to describe any of six naturally occurring fibrous minerals. Asbestos-containing materials (ACM) have been used widely in the construction industry. Although use of ACM in buildings is now prohibited, and Marshall University has removed significant quantities of ACM from its campus, ACM may still be present in older building systems. If these remaining ACM are maintained in good condition and are unlikely to be disturbed such that fibers may become airborne, and exposure and health risks are negligible.

There is potential for exposure only when the material becomes damaged (e.g., torn or missing pipe insulation coverings). If powdered or friable forms of asbestos are disturbed, fibers may become airborne resulting in a possible inhalation hazard. In non-friable asbestos products (e.g., floor tiles, roofing materials, etc.) the fibers are bound in a matrix which prevents their release to the air unless the material is cut or abraded. Therefore, these materials present even less of an exposure hazard.

It is not possible to readily distinguish between asbestos and non-asbestos forms of the same product (e.g., pipe insulation, fireproofing, etc.). Laboratory analysis is required to confirm whether or not a material contains asbestos. Samples should only be taken by Environmental Health and Safety personnel, phone 696-2993 for more information or with questions.

II. **ACM Building Components**

Many buildings at Marshall University still have Asbestos Containing Materials (ACM) in certain materials used in their construction. Some University buildings contain intact asbestos materials in public access areas. These materials may include:

- Vinyl asbestos floor tiles or linoleum sheet flooring
- Mastic used to attach flooring, ceiling tiles, carpet, cove base, cork board
- Pipe insulation
- Joint compounds used in sheetrock walls
- Acoustical/decorative plaster
- Spackling
- Fire doors
- Acoustic ceiling tiles
- Baseboards
- Concrete pipes and siding
- Exterior siding
- Window putty

The asbestos in the above listed materials is normally bonded with vinyl, epoxy, cement or other materials.

- Under normal conditions they do not pose a health threat.
- However, if the material is cracked, drilled, sanded, or otherwise disturbed, it could result in the release of asbestos fibers into the air that could present a health risk.
- As long as the outer canvas cover or metal sheathing on the pipes is intact, the insulation does not present a health problem.

In addition, some laboratory and machine shop areas have benches, storage cabinets, or fume hoods constructed with ACM.

ACM such as pipe insulation, gaskets, flex duct connections, and roofing asphalt may be found in areas not normally accessed by the public.

III. **Procedure**

Damaged asbestos-containing material should be reported to Environmental Health and Safety or the Physical Plant. Environmental Health and Safety is available to assist in determining whether a suspect material contains asbestos and to perform hazard assessments.

Prior to building maintenance or renovation projects, Environmental Health and Safety is responsible for arranging for a survey to determine if asbestos-containing building material is present in the work area. Asbestos surveys (bulk sampling) can **only** be conducted by a licensed asbestos inspector. When appropriate, asbestos abatement is performed before the project proceeds.

Asbestos abatement in educational facilities is highly regulated by the West Virginia Department of Health and Human Resources and the Department of Environmental Protection. The requirements include submission and approval of an asbestos abatement design, use of a state-licensed firm to perform the abatement, air monitoring at the perimeter of the abatement area during removal, and inspection and clearance testing of the abated area prior to re-occupancy. If you have any questions concerning asbestos, contact Environmental Health and Safety at 696-2993.

Any work involving ACM must only be performed by personnel who have received asbestos awareness training and are licensed asbestos workers using proper work practices, containment equipment, and personal protective equipment.

To prevent exposure to yourself and/or others observe the following practices:

- Immediately report damaged ceilings, walls, pipe insulation, floor tiles, or other building surfaces to your supervisor and/or Environmental Health & Safety.
- Refer to the Asbestos Management Database before the start of a project that may involve disturbing ACM or Presumed Asbestos-Containing Material (PACM).

- If there is no data on a particular material in a particular building then **all** materials are considered PACM and treated as asbestos until otherwise confirmed as non-asbestos.
- Be careful not to damage building materials and surfaces that may contain asbestos. For example do not:
    1. Disturb walls or ceilings, especially if they are plaster coated
    2. Pound in nails to hang pictures
    3. Put hooks in ceilings for plants
    4. Install wall-hung shelving
    5. Pull up carpeting which is glued down
- Do not enter construction areas.
- Do not enter posted or restricted access areas

IV. **Training**

Asbestos Awareness training is provided to trades employees and is available to others on request.

Hazard Communication

The purpose of this program is to insure that information necessary for the safe use, handling and storage of hazardous chemicals is provided and made available to every employee. The program includes guidelines on identification of chemical hazards through the preparation and proper use of container labels, Material Safety Data Sheets (MSDS), and employee training.

I. Chemical Inventory

A. Marshall University maintains an inventory of all known hazardous chemicals in use at all University facilities. Every department and laboratory that stores, uses, or handles hazardous chemicals is required to submit an annual inventory. The chemical inventory list is maintained by and is available from Environmental Health and Safety.

II. Container Labeling

A. All chemicals will remain in their original container with a proper label attached, except small quantities for immediate use (one work shift only) transferred to approved containers.

B. Workers may dispense chemicals from original containers only in small quantities intended for immediate use (one work shift only). Containers with any amount of remaining chemical after work is completed must be labeled with all of the information from the original container, including the full chemical name and any hazard indications.

C. No unmarked containers of any size are to be left in the work area unattended.

D. Marshall University will rely on manufacturer applied labels whenever possible and will ensure that these labels are maintained. Containers that are not labeled or on which the manufactures label have been removed will be relabeled.

E. Containers without labels and containers with unknown contents should be reported to Environmental Health and Safety for proper disposal.

III. Material Safety Data Sheets (MSDS)

A. Every department or laboratory that stores, uses, or handles hazardous chemicals is required to maintain copies of the MSDSs.

B. MSDSs can be maintained in hard copy or electronic format, or both. If maintained electronically, every employee must have access to a computer during their shift to view the MSDS information. Environmental Health and Safety provides a resource for electronic MSDS searches on its web site: http://www.marshall.edu/safety/. Every

responsible department or laboratory must also ensure that hard copy MSDSs are updated as the chemical manufacturer provides updates.

C. Employees working with or around hazardous chemicals may request a copy of the MSDSs from their supervisor or from Environmental Health and Safety.

D. MSDSs for hazardous chemicals whose use is discontinued must be retained for 30 years in an inactive file.

IV. Employee Training

Employees must be trained to work safely with hazardous chemicals. All employees that work with or around hazardous chemicals should complete *Chemical Awareness and Safety Training* provided by Environmental Health and Safety in person at various times throughout the year, and available anytime on the web site above. This training provides information on the Hazard Communication Standard to include: labeling and warning systems, an explanation of Material Safety Data Sheets, and the University's written Hazard Communication Program.

Every department of laboratory that uses hazardous chemicals is required to provide chemical-specific training to their employees. Employee training will include the following.

A. Methods that may be used to detect a release of hazardous chemical(s) in the workplace.

B. Physical and health hazards associated with chemicals.

C. Protective measures to be taken.

D. Safe work practices, emergency responses and use of personnel protective equipment.

V. Personnel Protective Equipment (PPE)

Required personnel protective equipment (PPE) will be provided to all employees. Reusable PPE will not be taken home for laundering. Employees are responsible for using all required PPE provided to them, and any employee found in violation of PPE requirements will be subject to disciplinary actions.

VI. Emergency Response

Any incident of overexposure or spill of a hazardous chemical or substance must be reported immediately to the Marshall University Police Department, 696-HELP (4357). MUPD and Environmental Health and Safety will be responsible for insuring that proper emergency response actions are taken in leak or spill instances.

VII. **Hazards of Non-Routine Tasks**

Marshall University Environmental Health and Safety will inform employees of any special tasks that may arise which would involve possible exposure to hazardous material.

Review of safe work procedure and use of required personal protective equipment will be conducted prior to the start of such tasks. Where necessary, areas will be posted to indicate the nature of the hazard involved.

VIII. **Informing Other Employees**

Other on-site employers/contractors are required to adhere to the provisions of the University Hazard Communication program.

Information on hazardous chemicals known to be present will be exchanged with available for all employees and other on-site employers/contractors. Employers will be responsible for providing necessary information to the employees.

Other on-site employers/contractors will be provided with a copy of the Marshall University Hazard Communication program upon request to Environmental Health and Safety.

Laboratory Safety

Marshall University has established a Chemical Hygiene Plan that addresses laboratory safety. This plan is available on the Environmental Health and Safety, Chemical Safety web site: http://www.marshall.edu/safety/chemical/Chemical Hygiene Plan.doc.

Safety is a vital concern to all those engaged in service, education and experimental science. The search for knowledge in the laboratory carries risks and uncertainties; and the prudent investigator is aware of these risks and makes contingencies. The vast majority of the work conducted in laboratories on campus has readily identifiable hazards with definable safety precautions.

Strict adherence to these safety precautions, along with the other procedures required to successfully pursue the work, represents a sound scientific approach that helps establish the validity of the results. Although the specific precautions to be considered vary widely from project to project, certain general safety rules have nearly universal applicability to all situations. These general safety rules are presented in the University Chemical Hygiene Plan.

Laboratory safety includes the following considerations, though this list is not all inclusive:

• Consistent use of proper protective clothing such as eye protection, laboratory coats, gloves and their selection, shoes, long sleeves and pants, etc.;
• The proper use of laboratory hoods;
• Chemical handling and storage (including shelf life considerations), disposal, spill notification and clean up, and availability of Material Safety Data Sheets (MSDS);
• Proper handling and storage of compressed gas cylinders, including use of secure restraints;
• Emergency procedures including fires and injuries;
• Availability and maintenance of laboratory safety equipment including emergency showers and eye wash stations, fire blankets, fire extinguishers, first aid kits, etc.;
• Information on additional assistance relating to laboratory safety, safety training, laboratory safety inspections and references relating to laboratory safety, state and federal regulations.

Questions and requests for information or assistance may be directed to Environmental Health and Safety.

Radiation Safety

Marshall University is licensed to use radioactive materials under the conditions of License No. 47-05972-02 and in accordance with regulations of the Nuclear Regulatory Commission (NRC) and the State of West Virginia. NRC License No. 47-05972-02 was renewed on May 2, 2005 and will expire on May 31, 2015. Individuals wishing to use radionuclides or radiation-producing devices at Marshall University must receive prior authorization.

To become an Authorized User, an individual must submit an application to the Radiation Safety Committee for approval. The application must include the specific radionuclides to be used, the amount of radioactivity, the procedures that will be used and a plan for insuring that radioactive materials will be used safely and stored in a secured location. Also, a statement of training and experience must accompany this application. Forms for the application can be obtained online at the Marshall University Radiation Safety Office web site (http://musom.marshall.edu/urso/) or at the University Radiation Safety Office in the Byrd Biotechnology Science Center, room 301J.

The Radiation Safety Program at Marshall University requires that individuals who work with radioactive materials or radiation-producing devices or who frequent laboratories where radioactive materials are used receive training consistent with their potential for exposure. Training for new workers and refresher training for experienced individuals is provided by the University Radiation Safety Office. The training of technicians and students to use specific experimental protocols that require radioactive materials is provided by the Authorized User and must be documented. The User and personnel working in his/her laboratory are expected to follow safe laboratory practices and comply with license requirements and NRC regulations. Activities involving radioactive materials or the use of radiation-producing devices will be monitored for compliance by the University Radiation Safety Office.

For emergencies or the answers to specific questions regarding the use of radioactive materials, call the University Radiation Safety Office (696-6755 or 696-2751) or the Radiation Safety Officer (696-7366). Marshall University is committed to the ALARA concept of keeping exposure to radioactivity to levels that are as low as reasonably achievable.

Bloodborne Pathogen Program

Marshall University is dedicated to providing a safe workplace for employees and students, and to complying with federal and state occupational safety and health standards. It is University policy to comply with the requirements of the OSHA Bloodborne Pathogens Standard and its amendments. All faculty, staff, students, and visitors share responsibility for minimizing their exposure to human blood and other potentially infectious materials.

The Exposure Control Plan shall be implemented for all facilities at Marshall University where performance of employees' duties can be expected to result in occupational exposure to human blood or OPIM.

The Marshall University Exposure Control Plan is available on the Environmental Health and Safety web site:
http://www.marshall.edu/safety.

All Marshall University employees have an opportunity to view this plan at any time during their work shifts by visiting the Environmental Health and Safety web site. If requested, Environmental Health and Safety will provide an employee with a copy and within 15 days of the request.

Support Staff Activities in Laboratories

I. **Purpose**

For many employees not directly engaged in research or teaching, laboratories are an unfamiliar environment. Support staff employees whose job responsibilities require them to work in these areas must communicate with laboratory occupants before beginning work to avoid creating a situation that may be hazardous to one or both parties. Advance planning of projects and effective communication will help to ensure that everyone involved understands all the potential implications of the work.

The classic example is chemical fume hood system maintenance. If the user attempts to work in the hood while maintenance is being performed, the individual working on the system may be exposed to contaminants being exhausted through the hood or to mechanical or electrical hazards. Similarly, laboratory personnel may be exposed if an exhaust fan is shut down without warning during an experiment. Following the procedures given below will help to assure that all necessary precautions are taken and that jobs are completed without undue risk.

II. **Scope**

This procedure applies to any maintenance, repair or renovation activities that may impact laboratory operations or create a potentially hazardous work environment for support staff. Examples of specific circumstances are listed below:

- maintenance on fume hood exhaust systems requiring fan shut down or work involving fan, ductwork, or fume hood interior surfaces
- changing of filters which have been used to trap radioactive materials
- servicing plumbing and traps which may be contaminated with chemical residues such as azides or mercury or radioactive materials
- maintenance of exhaust systems which have been used for perchlorates, radioactive materials, etc.
- working in chemical storage areas
- installation or servicing of cables, telephones, computers, etc.
- cleaning floors, workbench surfaces or shelves in laboratories in which open sources of radioactive materials have been used

More extensive planning may be required for larger projects or complete system shutdowns.

III. **Procedure**

Consult the Lab Occupants

Consult the people responsible for the area where the work will be done before beginning. These are the people who can supply the most information about the hazards likely to be found in the work area. They also are the people who most need to be

informed about the work and how it might impact their work area. Often, the Department Manager can help contact the right people.

Consult Environmental Health and Safety

If consultation with the user concludes that exposure to hazardous materials may occur, contact Environmental Health and Safety as far in advance of the planned work as possible. Environmental Health and Safety will survey the work area and/or provide specific recommendations or precautions relating to the work. When in doubt, consult Environmental Health and Safety.

Notify the Occupants

Notify the occupants of all affected areas immediately before beginning work. Post warning signs on equipment, such as sinks or hoods, which may be affected. Be sure to remove the signs when the work is finished, so there is never any doubt that an "Out of Service" sign truly means that the equipment
cannot be used.

If health or safety problems arise in the course of the work, suspend work and contact your supervisor or Environmental Health and Safety.

Microbial Safety

Wastewater contains "good" microorganisms that break down sewage, but it can also contain disease causing bacteria, viruses, fungi and parasites. Sick and infected individuals or animals shed these organisms into the system; and many of these organisms can thrive in wastewater. Most are transmitted to humans by ingestion (due to contaminated food, hands or cigarettes), but some can enter through intact skin (Leptospirosis) or damaged skin (tetanus).

There is no way to predict if there are dangerous organisms in the wastewater so employees working on or around wastewater plumbing fixtures and pipes must exercise caution, be aware of the hazards, and complete the 3-shot Hepatitis B vaccination series.

Examples of common disease-causing organisms include:

Bacteria

Bacteria are primitive, microscopic, one-cell organisms that can enter a worker's body through ingestion, inhalation, and non-intact skin such as cuts and scrapes. Examples of bacteria include:

> *Staphylococci* can cause stomach and intestinal problems, fever, nausea, vomiting, headache and diarrhea. It can also cause skin infections as well as lung and respiratory disease.
>
> *Salmonella* and S*higella* both can produce intestinal symptoms and distress, including high temperatures, vomiting and bloody stools.
>
> *Leptospira* cause an illness characterized by intestinal symptoms, liver and kidney disease, eye problems and jaundice. It is especially common where rats are present.
>
> *E. coli* can produce diarrhea, vomiting and fever.

Viruses

Viruses are tiny particles of genetic material covered with a protein coating. Workers can absorb viruses into their bodies by inhalation of contaminated water droplets or aerosols, ingestion of contaminated water or food, smoking with contaminated hands, or through non-intact skin contact. Common disease-causing viruses include:

> *Hepatitis A* is a virus that attacks the liver. It is transmitted by the fecal-oral (hand-to-mouth) route. The infectious agent is found in feces that can be ingested if hands are not washed before eating, smoking or drinking. Hepatitis A causes fever, abdominal discomfort, nausea and jaundice (yellowing of the skin). The disease can last from a few weeks to several months, but recovery is usually complete.

Hepatitis B is a bloodborne virus that is transmitted through contaminated body fluids. These fluids include blood, semen, and vaginal secretions. Workers can be infected when infected fluids enter the bloodstream, either by exposure to the mucous membranes of the eyes, nose, or mouth; through a puncture wound; or through contact with non-intact skin, such as a cut. Hepatitis B infection can have a range of illnesses and causes liver damage. Although some people never feel sick, other people become very ill and may die. Workers may be exposed to Hepatitis B in a variety of ways. For example, a worker may cut himself while cleaning sharp objects (such as syringes and needles) out of grates or bar screens, or coming into contact with large amounts of fresh blood or body fluids. Although these types of exposure are uncommon, OSHA recommends that affected workers be vaccinated against Hepatitis B if they are likely to be exposed to blood or body fluids at work.

HIV (Human Immunodeficiency Virus) is the virus that causes Acquired Immune Deficiency Syndrome (AIDS). Transmission of HIV, like hepatitis B, occurs when contaminated body fluids - blood, semen, vaginal secretions - enter the body. HIV destroys the body's immune system, leaving those infected at risk of developing opportunistic infections. The opportunistic infections eventually cause the deaths of HIV-infected persons. Unlike Hepatitis B, there is no vaccine to prevent HIV infection. To prevent transmission of HIV affected workers should wear appropriate personal protective equipment and wash hands frequently, or use hand sanitizer when soap and water is not readily available.

Parasites

Parasites feed off of other living organisms and can cause serious diseases in humans. Infection can occur when workers ingest parasites and their cysts, if they touch their mouths, smoke with dirty hands, or eat contaminated food. Tapeworms, hookworms and roundworms are examples of parasites. The two most common parasites found in urban sewage are:

Entamoeba histolytica causes an illness called "amebiasis." This parasite is commonly found in rural areas. When a worker swallows water containing entamoeba cysts, the parasite may cause dysentery (diarrhea, cramps, fever and malaise) or produce no symptoms at all. In serious infections, entamoeba can break through the bowel wall, circulate through the body and attack other organs, especially the liver. Symptoms include bloody diarrhea, cramps and fever.

Giardia lamblia causes an illness known as giardiasis, and it was once common in rural areas where infected animals contaminate streams. It can cause diarrhea and intestinal distress. Some infected individuals, however, show no symptoms of the disease.

Fungi

Fungi are primitive organisms that grow in decaying material. Workers in dusty sludge composting areas are exposed to fungi that may cause respiratory problems.

Aspergillus fumigates causes farmer's lung, a chronic, debilitating allergic lung disease. Aspergillus can also get into the middle ear and cause a severe infection.

Protecting Workers from Infection

The best protection against infection is to avoid direct contact with sewage water, droplets and aerosols. When workers cannot avoid contact with sewage, they should be provided the following protective equipment and services:

1. Elbow-length rubber gloves;
2. Goggles;
3. Disposable mask to be worn in dusty sludge areas or areas with heavy aerosols;
4. Work clothing commercially washed in high temperature (160^{o}) washing machines;
5. Rubber pants and jackets/aprons;

Workers should also take the following precautions:

1. Wash reusable gloves before removing them; sinks should have pedal controls.
2. Wash hands before smoking and eating; a germicidal (disinfectant) soap should be used.
3. Keep protective clothing and equipment out of eating areas.
4. Keep work clothes and street clothes in separate lockers.
5. Shower and change into street clothes before going home.
6. Consider all cuts or abrasions to be infected. Flush them with large amounts of clean, running water and antiseptic soap, and bandage them with a sterile dressing.
7. Workers should have a tetanus booster every 10 years and workers who have never been vaccinated for polio should consult a physician about getting a vaccination.
8. Workers who are determined to have occupational exposure to blood or body fluids should complete the 3-shot hepatitis B vaccination series.
9. Tools and equipment contacting sewage should be disinfected thoroughly after contact.
10. Seek medical attention when you have diarrhea or are ill. Since doctors are often unaware of the connections between occupation and disease, be sure to inform your personal physician of job exposure to sewage.

Cooking and Kitchen Safety

I. Purpose

In the realm of food service most think primarily of kitchens, however, there are several other areas closely connected to the kitchen that pose hazards as well, such as the area where foods are served and the cafeteria or area where food is consumed. Because the kitchen function is a major segment of the food service operation, they often present the greatest accident prevention challenges.

II. General Guidelines

There are three basic rules to remember when working in the kitchen:

A. Be on the lookout for potential hazards as they are always present.
B. Use safe work procedures as accidents can be prevented by doing things the right way and not taking short cuts.
C. Use personal protective equipment (PPE) when needed as this will also help to prevent accidents and injuries.

III. Specific Safety Practices

A. Hygiene and PPE

1. Always wash your hands before beginning work in the kitchen and at regular intervals while you work (after smoking, using the restroom, touching your face, taking out trash, and handling money).
2. Change gloves frequently, especially before handling ready to eat foods after having handled raw products, handling money, cleaning and bussing tables, or taking out trash.
3. Keep fingernails trimmed and clean to prevent the spread of germs.
4. Cover any cuts or open wounds with waterproof dressings and change the dressings when work in the kitchen is completed.
5. Employees with diarrhea or severe coughing should not be allowed to work.
6. Remove all jewelry, only plain wedding bands are permitted to be worn.
7. Tie back hair and always wear a hair restraint such as a hair net or hat.
8. Never wear dangling sleeves that may get caught in appliances or catch fire.

B. Lifting and Carrying

1. Use proper lifting techniques when lifting and/or carrying heavy loads in the kitchen. Bend your knees, keep your back straight, and lift with your legs.
2. Clear the path you intend to take and be careful when carrying liquids, especially hot liquids.

C. Knives

1. Always cut away from the body on a proper cutting surface.
2. Keep knife blades sharp and clean and keep knife grips clean and in good condition.
3. Never leave knives lying in water as it can injure an unsuspecting dishwasher.
4. When wiping knife blades, always point the cutting edge away from the hand.
5. Always lay knives flat and away from counter edges.
6. If a knife should fall, do not try to catch it, and pick it up after it has fallen.
7. Always return knives to their proper storage areas when done working with them.

D. Falls and Spills

1. Always clean up messes and spills to prevent slips, trips, and falls.
2. Close cabinet doors and drawers when done using them.
3. Use a sturdy step ladder to reach for things and do not step on objects that are unstable.

E. Stoves

1. Always make sure the pilot lights work on gas stoves. If not, call the Physical Plant for assistance.
2. Never leave pan handles over burners.
3. Keep hot dishes and crockery out of reach of others to avoid burns and use caution when working with steam.
4. Use oven mitts or pot holders (preferably round) when handling hot dishes.

F. Fire

1. Keep flammable materials away from ranges and stoves.
2. Do not put napkins, towels, or paper containers on the range.
3. Watch cooking pots and use the lowest practical heat.
4. Make sure that all burners are off when finishing work or closing the kitchen.
5. Never pour water on a pan fire involving grease and never try to carry a burning pan to the sink or outdoors.
6. If the fire is small enough to be put out with a fire extinguisher:
   a) Pull the pin,
   b) Aim at the base of the fire,
   c) Squeeze the handle, and
   d) Sweep from side to side.

7. If the fire is too large to put out with a fire extinguisher, close doors to the affected area, pull the nearest fire alarm pull station, and evacuate the

building. Refer to Building Evacuation procedures and Fire and/or Smoke in the Emergency Procedures section of this Manual.

G. Food Safety

1. Food needs to be prepared, cooked, and stored properly to ensure safety.
2. Fresh foods need to be washed with water before cutting or consuming.
3. Follow package label directions when handling meats.
4. Always clean contaminated surfaces before placing any food on them.
5. If there is any question about the freshness of a food, discard it.
6. Wash the tops of cans before opening them.

H. Receiving Areas

1. Floors should be in safe condition and free from broken tiles, defective floor boards, and unsafe or sliding floor mats.
2. Trashcans should be leak proof and adequate in number and size.
3. Adequate tools should be available for opening crates, boxes, cartons, barrels, etc.

I. Storage Areas

1. Shelves should be adequate to bear the weight of the items stored.
2. Heavy items should be stored in lower shelves.
3. An appropriate step ladder should be available at all times.
4. Cartons and flammable materials should be stored away from light bulbs. All light bulbs should be covered with a screen guard.
5. All materials should be kept at least 18 inches away from the ceiling to allow fire sprinklers to operate properly in case of fire.

J. Preparation Areas

1. Electrical equipment should be properly grounded and inspected regularly by Maintenance.
2. Machinery guards should be used if available and recommended for the type of equipment in use.
3. A pusher or tamp should be provided and used with a grinder.
4. Mixers and beaters must be in safe operating condition and maintained to avoid injury from metal parts and foreign particles getting into food.
5. Machines not working properly should be tagged “out of order” and placed out of service. Notify the supervisor about any malfunctioning equipment.

K. Service Areas

1. Serving counters and tables should be free from broken parts and wooden or metal slivers and burrs.

2. Glassware, plates, silverware, and plastic equipment and utensils should be inspected regularly and chipped or cracked items disposed of.
3. Floors must be in good condition and should be mopped daily as needed.
4. The traffic flow in the serving area should be set so that patrons do not collide while carrying trays or obtaining food.

IV. General Safety Practices

A. Never assign an employee to any machine, mechanical, or electrical device unless they have received training and instruction related to its safe operation.
B. Electrical appliances should be turned off when not in use and disconnected when being cleaned.
C. Horseplay and practical jokes are strictly prohibited.
D. Do not apply force to glass containers. If tight, try hot water on a metal lid. If this fails, wrap the lid with a towel or rubber "lid gripper" before trying to open.
E. Do not overload pushcarts or dollies.
F. Keep sharp protruding objects out of the aisles and away from busy workers. All drawers should be kept closed when not in use. Keep aisles clean and clear at all times.
G. Place all cleaning equipment (e.g. brooms, mops, carts, buckets, etc.) where they will not be a hazard to others and where they are away from food.
H. Make sure the first aid kit is stocked at all times and located in an area where all employees have access to it.
I. All accidents, no matter how minor, should be reported to the supervisor. Refer to *Reporting Accidents, Injuries, and Administration of First Aid* in this Manual.
J. Employees should wear clothing appropriate for working in the kitchen. Sandals and open-toed shoes are not allowed in food preparation areas.
K. Exhaust hoods must be operated at all times when ranges and/or steam kettles are in operation. Filters in hoods should be kept clean and free of accumulation of grease. Call the Physical Plant for assistance if any problem occurs with this equipment.

Office Safety

I. **Purpose**

The purpose of this program is to provide guidance to office staff on the elements of safe office work. The office is like any other work environment in that it may present potential health and safety hazards. Most of these, however, may be minimized or eliminated by designing jobs and workplaces properly, and by taking into account differences among tasks and individuals.

Inadequate environmental conditions, such as noise, temperature, and humidity, may cause temporary discomforts. Environmental pollutants such as chemical vapors released from new carpeting and furniture may also induce discomforts.

II. **Responsibilities of Office Staff**

Report all safety problems immediately.
Do not attempt to repair any office equipment or systems.
Maintain a neat and sanitary office environment.

A. Electrical Safety

Electric cords should be examined on a routine basis for fraying and exposed wiring. Particular attention should be paid to connections behind furniture, since files and bookcases may be pushed tightly against electric outlets, severely bending the cord at the plug. Electrical appliances must be designed and used in accordance with UL requirements.

B. Use of Extension Cords

Extension cords shall only be used in situations where fixed wiring is not feasible. Extension cords shall be kept in good repair, free from defects in their insulation. They will not be kinked, knotted, abraded, or cut. Extension cords shall be placed so they do not present a tripping or slipping hazard. Extension cords shall not be placed through doorways having doors that can be closed, thereby damaging the cord. All extension cords shall be the grounded type, having three conductors on the plug, and the third conductor must not be loose or missing.

C. Housekeeping

Good housekeeping is an important element of accident prevention in offices. Poor housekeeping may lead to fires, injuries to personnel, or unhealthful working conditions. Mishaps caused by dropping heavy cartons and other related office equipment and supplies could also be a source of serious injuries to personnel.

Passageways in offices should be free and clear of obstructions. Proper layout, spacing, and arrangement of equipment, furniture, and machinery are essential. All aisles within the office should be clearly defined and kept free of obstructions. Chairs, files, bookcases and desks must be replaced or repaired if they become damaged. Damaged chairs can be especially hazardous. Filing cabinet drawers should always be kept closed when not in use. Heavy files should be placed in the bottom file drawers.

Materials stored within supply rooms must be neatly stacked and readily reached by adequate aisles. Care should be taken to stack materials so they will not topple over. Under no circumstances will materials be stacked within 18 inches of the ceiling (to allow for fire protection). Materials shall not be stored so that they project into aisles or passageways in a manner that could cause persons to trip or could hinder emergency evacuation.

D. Computer Work Stations

Complaints concerning musculoskeletal problems are frequently heard from computer operators. Most common are complaints relating to the neck, shoulders, and back. Others concern the arms and hands and occasionally the legs. Certain common characteristics of computer operation have been identified and associated with increased risk of musculoskeletal problems. These include:

1. Design of the workstation.
2. Nature of the task.
3. Repetitiveness of the job.
4. Degree of postural constraint.
5. Work pace.
6. Work/rest schedules.
7. Personal attributes of individual workers.

The key to comfort is in maintaining the body in a relaxed, natural position. The ideal work position is to have the arms hanging relaxed from the shoulders. If a keyboard is used, arms should be bent at right angles at the elbow, with the hands held in a straight line with forearms and elbows close to the body. The head should be in line with the body and slightly forward.

E. Monitors

When work is conducted at a computer, the top of the monitor should be at, or just slightly below, eye level. This allows the eyes to view the screen at a comfortable level, without having to tilt the head or move the back muscles. Control glare at the source whenever possible; place monitors so that they are parallel to direct sources of light such as windows and overhead lights, and use window treatments if necessary. When glare sources cannot be removed, seek appropriate screen treatments such as glare filters. Keep the screen clean.

F. Office Chairs

The chair is usually the most important piece of furniture that affects user comfort in the office. The chair should be adjusted for comfort, making sure the back is supported and that the seat pan is at a height so that the thighs are horizontal and feet are flat on the floor. An ergonomically sound chair requires four degrees of freedom - seat pan tilt, backrest angle, seat height, and backrest height.

Operators can then vary the chair adjustments according to the task. In general, chairs with the most easily adjustable dimensions permit the most flexibility to support people's preferred sitting postures. Armrests on chairs are recommended for most office work except where they interfere with the task. Resting arms on armrests is a very effective way to reduce arm discomforts. Armrests should be sufficiently short and low to allow workers to get close enough to their work surfaces, especially for tasks that require fixed arm postures above the work surface.

G. Working Height

The work surface height should fit the task. The principle is to place the surface height where the work may be performed in such a manner to keep arms low and close to the body in relation to the task. If the working height is too high, the shoulders have to be lifted to compensate, which may lead to painful symptoms and cramps at the level of the neck and shoulders.

If, on the other hand, the working height is too low, the back must be excessively bowed, which may cause backache. Generally, work should be done at about elbow height, whether sitting or standing. Adjustable work stations should be provided so that individuals may change the stations to meet their needs. A computer workstation without an adjustable keyboard height and without an adjustable height and distance of the screen is not suitable for continuous work.

H. Office Lighting

Different tasks require different levels of lighting. Areas in which intricate work is performed require greater illumination than warehouses. Lighting needs vary from time to time and from person to person as well. One approach is to use adjustable task lighting that can provide needed illumination without increasing general lighting. Task lamps are very effective to supplement the general office light levels for those who require or prefer additional light. Some task lamps permit several light levels. Since task lamps are controlled by the individual, they can accommodate personal preferences.

I. Waste Disposal

Office personnel should carefully handle and properly dispose of hazardous materials, such as broken glass. A waste receptacle containing broken glass or other hazardous material should be labeled to warn housekeeping personnel of the potential hazard.

J. Chemical Safety

Each office employee must be made aware of all hazardous materials they may contact in their work area. The Hazard Communication program is outlined earlier in this Manual.

K. Emergency Action Plans

Emergency Action Plans are designed to control events and minimize the effects. Through careful pre-planning, establishment of Emergency Action Teams, training, and drills, employees can be safeguarded and potential for damage to Marshall University assets minimized. Emergency Action Plans include:

1. Exits routes, meeting areas and employee accounting
2. Emergency evacuation, incident command and notification to emergency services
3. Personal injury and first aid response, as well as property damage response
4. Protection of Marshall University information, both hard copy and electronic media
5. Bomb threats and facility security
6. Use of fire extinguishers

Note: Personnel that are expected to use a fire extinguisher should be trained annually.

Vehicle Safety Program

This program covers safe operation and maintenance of all Marshall University vehicles except those vehicles regulated by the Interstate Commerce Commission or US Department of Transportation. Examples of vehicles covered include Marshall University-owned or leased passenger vehicles, pickup trucks, light trucks and vans that do not require a commercial driver's license for operation.

I. **Policy**

All University vehicles will be operated only by authorized employees for specific University purposes.

Vehicles will be maintained in a safe condition at all times. In the event of an unsafe mechanical condition, the vehicle will be immediately placed out of service and the appropriate manager notified.

Only qualified vehicle mechanics or approved service facilities are permitted to perform maintenance on University vehicles.

All vehicles will be operated, licensed and insured in accordance with applicable local, state and federal laws.

All authorized employees must possess a valid state driver's license for the class(es) of vehicle(s) authorized.

Authorized employees must have a driving record at least equal to that required for maintaining a commercial driver's license.

II. **Training**

The West Virginia Board of Risk and Insurance Management requires that ***all employees*** who drive a state vehicle or drive their personal vehicle and are reimbursed by the University complete a safe driver training course. To meet this requirement, the Marshall University Environmental Health and Safety Department has developed an on-line safe driver training module. This training is available through MUOnLine: http://www.marshall.edu/wpmu/muonline.

Instructions for accessing the MUOnLine training are available at: http://www.marshall.edu/safety/training/Self%20Enroll.swf

All employees authorized to operate University owned or leased vehicles will participate in specific driver safety training that will include:

Defensive driving
Vehicle inspection
Accident procedures
Hazardous weather driving
Procedure for notification of unsafe vehicle
Backing procedures (light truck and van operators)
Cargo area storage (light truck and van operators)
Loading and unloading (light truck and van operators)

III. **Vehicle Inspection**

Driver Inspections- Prior to each first daily use the driver shall inspect the vehicle for proper operation of the following safety features, as applicable:

Horn
Backup warning
Head, tail, turn signal, and emergency lights
Windshield wipers
Tire inflation (visual check)
Brakes
Steering control
Mirrors
Accident kit in glove compartment
Fire extinguisher (light trucks and vans)
Broken glass

Mechanical Inspections - Every vehicle will be inspected by a qualified vehicle mechanic at least every 6 months. Inspection and maintenance points include:

Road test
Visual inspection of brake system - wheel removal required
Fluid system levels and visual inspection
Brake pad wear
Belts and hoses
Battery condition
Filter replacement
Lubrication
Oil change
Emissions systems visual inspection
Tire tread
All vehicle inspections and maintenance records will be maintained by the department responsible for that vehicle.

IV. **Driving Safely**

Starting:

Conduct pre-use inspection
Use seatbelts at all times
Adjust seat and mirrors before starting vehicle
Allow a 15 second warm up time
Check for warning lights

Driving:

Do not drive if drowsy
Think ahead - anticipate hazards
Don't trust the other driver to drive properly
Don't speed or tailgate
Drive slower in hazardous conditions or hazardous areas
Pass only in safe areas and when excessive speed is not required
No loose articles on floor
Do not read, write, apply make-up, drink, eat or use a phone while driving
Stay at least four seconds behind the vehicle ahead
Do not stop for hitchhikers or to provide roadside assistance

Backing:

Back slowly and be ready to stop
Do not back up if anyone is in path of vehicle travel
Check clearances
Don't assume people see you
Getting out and check if you cannot see from the driver's seat

Stopping:

Park only in proper areas, not roadsides
Use warning flashers and raise hood if vehicle becomes disabled

Accidents:

Do not admit responsibility
Notify your supervisor and the MU Police Department as soon as possible
Cooperate with any law enforcement officers
Move the vehicle only at the direction of a law enforcement officer
Fill out all sections of the accident report form
Do not sign any forms unless required by a law enforcement officer

At the scene get the following information:

Investigating officer name and law enforcement agency
Make, model and license plate number of other vehicles
Names, addresses and phone numbers of all witnesses
Name, address and license of other drivers

Emergency Procedures

The Marshall University Emergency Preparedness Plan provides a management framework for responding to major emergencies that may threaten the health and safety of the University community, or disrupt its programs and operations. The Emergency Plan applies to a broad range of emergency events, including such incidents as fires or explosions, hazardous material releases, extended power outages, floods, or mass casualty events.

The Emergency Plan establishes an **Emergency Management Team (EMT)** that ascertains the scope of an incident and advises the University President. The Emergency Management Team establishes response strategies and tactics, deploys resources, and initiates the emergency recovery process.

Emergency response actions are guided by Marshall University's **overriding emergency goals, which are to**:

1. **Protect life safety**
2. **Secure critical infrastructures and facilities**
3. **Resume the teaching and research program**

The full text of the Marshall University Emergency Management Plan is available at: http://www.marshall.edu/emergency/MarshallUniversityEMP.pdf

Stormwater Management Program

Marshall University has been issued a Municipal Separate Storm Sewer System (MS4) permit by the WV Department of Environmental Protection (WVDEP) agency. A separate storm sewer system collects solely stormwater from rainfall or snow melt. This type of collection system should not be confused with a sanitary sewer system, which collects strictly sanitary waste, or a combined sewer system, which collects both sanitary waste and stormwater. The MS4 permit requires Marshall University to:

- Reduce the discharge of pollutants to the "maximum extent practicable" (MEP);
- Protect water quality; and
- Satisfy the appropriate water quality requirements of the Clean Water Act.

Implementation of the MEP standard will typically require the development and implementation of stormwater control measures (SCMs) and the achievement of measurable goals to satisfy each of the six minimum control measures. Marshall University's program consists of six elements that, when implemented in concert, are expected to result in significant reductions of pollutants discharged into the Ohio River. The six elements, termed "minimum control measures," are:

- Public Education and Outreach
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Pollution Prevention/Good Housekeeping

An important aspect of this program is to find and correct illicit discharges. An illicit discharge is anything that goes down a storm drain that is not stormwater. Some examples of illicit discharges could be cross connections of sanitary sewers and storm sewers; dumping oil or paint; or simply washing your car with detergents and letting the water enter a storm drain. Marshall is hoping to inform the students, faculty, and staff about this concern and prevent these discharges from occurring on campus.

Marshall University has developed an Illicit Discharge Detection and Elimination (IDDE) program to establish procedures for identifying, tracing, abatement, and enforcement of illicit discharges if the need is required. The program can be found on Marshall's stormwater website or by simply clicking the following link:
http://www.marshall.edu/wpmu/stormwater/files/2012/04/IDDE-Program2.pdf