HeleNA COLLEGE
University of Montana

Learning
Success
Community

Helena College’s Guide to Workplace Safety

Access
Growth
Service
The goal of Helena College’s Workplace Safety Program is to prevent occupational injury and illness by avoiding, controlling or eliminating hazards in the workplace.
Introduction

No matter what position or role you fill, safety is as much a part of your job as following instructions or working efficiently. Observing the safety rules and procedures contained in this Workplace Safety Guide will aid in making the work safer--for you, your fellow employees and the public.

Safety measures, training and experience all contribute to a reduction in work injuries. Training is only the first step. Providing guidelines, safety equipment, followed by enforcement, reminders and consequences for not following safety protocol can all serve to improve the safety of the workplace. Employee engagement is also critical to improving safety in the workplace. This is why employees are encouraged to submit suggestions to your supervisor, Human Resources or the Campus Safety Committee. These people are interested in and responsible for job safety, but the person who knows the hazards best, and has the best solutions, is often you--the employee doing the job.

When a workplace injury or illness occurs, employees of Helena College are provided with workers' compensation coverage through the Montana University System (MUS) Self-Funded Workers’ Compensation Program. This coverage is provided at no cost to employees.
Program Overview

Who is Responsible for Ensuring a Safe Workplace?

All Employees
It is the responsibility of all employees to ensure the health and safety of themselves and other employees at Helena College. This requires everyone to follow health and safety rules, as well as report ‘Near-miss Incidents’ to prevent injury to themselves and others.

Supervisors
Providing a safe and healthy work environment for those they supervise is the responsibility of every supervisor/manager. This responsibility cannot be transferred or delegated and includes providing job specific safety training appropriate for employees before they perform their job or tasks without direct supervision.

The Helena College Safety Committee
The Helena College Safety Committee is charged with creating and promoting a safe learning environment for students and employees at the University of Montana – Helena. It reviews all workers compensation claims, maintains the Campus Emergency Action and Crisis Protocol Manual.
Facilities
The employees who work in Facilities are often the first to notice, respond to, or address unsafe work conditions.

The OSHA Compliance Officer
The OSHA Compliance Officer for the University of Montana – Helena is the Director of Human Resources. This individual is responsible for ensuring processes and procedures are in place to support a healthy and safe workplace, as well as compliance with all reporting and record keeping requirements.

Helena College Leadership
The ultimate responsibility for the health and safety of all Helena College employees rests with Helena College’s Dean, the Associate Dean of Academics, Assistant Dean of Student Services, and the Assistant Dean of Fiscal and Plant.
Workplace Safety

The following guidelines are intended to ensure the safety of Helena College employees and reduce the incident of workplace injuries or illness. But the success of these guidelines is entirely dependent on you, the employee. If you don’t place workplace safety first and recognize the importance of these guidelines, it will impact Helena College’s ability to provide a safe workplace for all employees. After reading the guidelines, you will be required to sign and initial an acknowledgement, at the end of this guide, which is turned into Human Resources, and kept in your personnel file.

General Safety Rules

Helena College does not expect you to take any unnecessary chances to work under hazardous conditions. Learn the correct way to do your job safely. If you are not sure you thoroughly understand the job, ask your supervisor/manager for further instruction.

- Work at a speed consistent with safety and do not engage in horseplay or practical jokes on the job.
- Drinking of alcoholic beverages, use of illegal drugs and the excessive use or abuse of prescription drugs, on the job or during assigned work hours, is prohibited.
- Obey warning tags and signs. They are posted to point out hazards.
Operate only the machinery or equipment you have been authorized and trained to operate safely. Never operate machinery or equipment with guards removed.

Report to work in clothing suitable for the type of work you perform, including footwear, and wear protective equipment as required. Its use will be enforced.

Always inspect tools and equipment before use. Report defects to supervisor/foreman and other potential users. Do not use unsafe tools and equipment.

**Helpful Tips for Protecting Yourself from Hazards and Maintaining a Safe Workplace:**

- Follow safe work practices and know about the hazardous materials in your work area.
- Know the Helena College Campus Emergency Action and Crisis Protocol Manual and Policy, as well as two ways out of your work area.
- Follow policies and procedures.
- Be aware of safety signs.
- Report unsafe conditions to your supervisor or Facilities.
- Attend all required safety training, and actively participate in the annual/semester safety self-inspections in your area.

**Fire Protection**

In order to have a fire, oxygen, fuel and a source of ignition (heat) must be present. These three items are referred to as the "fire triangle." Any two of the above can co-exist without a fire as long as the third is not present. Since the atmosphere in nearly all activities is oxygen bearing, either the fuel source or the heat source must be eliminated. Of these, it is usually the most practical to eliminate the heat source. Examples of this include shutting down of heat-producing sources such as gas-operated appliances, electric heaters, welding, soldering or cutting operations in the immediate area.
Fires in the workplace can be prevented by following these four easy steps:

1. orderly planning,
2. sensible arrangement of fire-producing activities in relation to combustible materials,
3. good housekeeping, and
4. enforcement of no-smoking policies when flammable substances are present.

Helena College shops and job-site activities that contain potential fire hazards must have a plan to combat fire. The plan must include all six of the following elements:

1. adequate warning measures for alerting all persons in the fire area;
2. rapid reporting to the Fire Department;
3. evacuation of affected personnel from the fire area;
4. procedures for containing the fire insofar as it is safe to do so and to the extent that it is possible to maintain safe exit for personnel;
5. instruction on duties to perform in a fire situation; and
6. adequate fire extinguishing equipment that is regularly inspected by a responsible authority.

It is far better, of course, to prevent fire from occurring. If it is necessary to use any potential fuel (material or substance) that is more than ordinarily combustible, suitable precautions must be taken to exclude exposure to heat or flame. Proper storage and disposal of flammable liquids or combustible materials will prevent build-up of internal heat and spontaneous combustion. Separation of highly volatile, hazardous substances, such as gasoline, from areas occupied by people or equipment is highly desirable whenever possible. It is necessary that smoking, the introduction of open flames, or the use of electric equipment that may arc, be prohibited in areas where volatile, explosive substances are used or stored.

**Safety Rules for Fire Prevention**

- Use only approved solvents when cleaning and repairing machinery and equipment. Use of gasoline to clean machinery and equipment is prohibited.
- Oily rags and other flammable wastes must be disposed of in approved covered metal containers. Such debris shall be removed from shops and buildings as soon as possible, and in no case shall it be left unattended in a building overnight.
- Fueling of any type of motorized equipment while the engine is running is prohibited.
- Exits shall not be locked (chained or otherwise) from the inside.
• Only UL approved electric flashlights will be used near escaping gasoline or other flammable vapors or when entering an enclosure suspected of containing gas.
• Cleaning solvents used in shops shall be kept only in approved containers.
• Gasoline utilized in small quantities in shops for fueling engines being repaired, tested, adjusted, etc., shall be handled and dispensed only in UL approved, explosion-proof safety cans.
• Smoking is prohibited in all areas where hazardous substances are stored or used.
• When transferring flammable liquids make certain the filler nozzle touches the equipment or can being filled in order to guard against the build-up of static electrical charges.
• Never overfill a tank; rather, under fill it to allow room for expansion of the liquid.

**Fire Fighting Equipment and Procedures**

Automatic fire protection equipment and public fire departments cannot always be depended upon to prevent fire loss. It is very important that each employee understand why, where, and how to use the various types of firefighting equipment: available in the work area.

• Fire extinguishing equipment appropriate for the type of potential exposure shall be maintained in all building work areas. Equipment shall be regularly inspected to ensure that it is in working condition.
• Fire protection equipment shall be prominently displayed and kept clear for easy access at all times.
• Do not use water-type extinguishers on electrical fires because of the danger of electrocution and damage to equipment. They are intended for use on Class "A" fires only (flammables such as wood, paper, rags, etc.).

**Classification of extinguishers for given exposures:**

**Class A**
Extinguishers are suitable for use on fires in ordinary combustibles such as wood, paper, rubber, cloth and many plastics where a quenching cooling effect is required. Extinguishers rated for Class A hazards are: water, loaded stream, foam and multipurpose dry chemical types.

**Class B**
Extinguishers are suitable for fires in flammable gases, liquids, and greases where a flame interruption is essential. Extinguishers rated for Class B hazards are: dry chemical, loaded stream. foam and compressed gas.

**Class C**
Extinguishers are suitable for use on fires involving energized electrical equipment and wiring where the electrical conductivity of the extinguishing agent is of importance. For example, if a water-solution extinguisher was used on energized electrical equipment, the user of the extinguisher would be exposed to hazardous electrical shock. Extinguishers rated for Class C hazards are: compressed gas and dry chemical A-halon 1211 fire extinguisher shall be accessible in all areas where computers are housed or in use.

**Class D**
Extinguishers are suitable for use on fires in combustible metals. The class of extinguisher is usually rated for fires of specific type of metal, not for universal application on all combustible metal fires.

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**Office Safety and Housekeeping**

Typical office hazards include tripping, cuts, punctures, electrical shock, improper illumination, fire, poor ventilation and unstable file cabinets. The biggest office hazard, however, is the belief that there are no hazards.

**Safety Rules for Office Safety and Housekeeping**

- Keep work areas and storage facilities clean, neat and orderly. Office furniture shall be kept in good repair to eliminate splinter injuries. Aisles shall be kept free of obstructions and debris. Employees shall be aware of the location of fire extinguishers in their areas and familiar with the instruction for usage printed on each extinguisher.
- Tools, equipment, machinery are to be maintained in a clean and safe manner. Defects and unsafe conditions shall be reported to your supervisor. Return tools and equipment to their proper place when not in use.
- To eliminate the possibility of a file cabinet being pulled over, heavier materials shall be stored in the lower drawers and only one drawer shall be
opened at a time. All drawers shall be closed when not in use. Desks should be arranged to eliminate tripping hazards caused by floor-mounted electrical and telephone outlets.

- Mechanical guards on office equipment shall not be removed except for maintenance and shall be replaced before the equipment is returned to operation. All switches or drives on machinery shall be shut down, unplugged or locked out before cleaning, greasing, oiling or making adjustments or repairs.
- Clean up spills immediately to avoid slipping hazards. In the event the removal cannot be done immediately, the area must be appropriately guarded, signed or roped off. Snow shall be removed from all access sidewalks and exterior stairs to buildings as soon as practical. In the event the snow cannot readily be removed from traffic areas, it shall be sanded or the area roped off. Remove caked ice/snow from shoes prior to entering building.
- Adequate lighting in obscure areas shall be secured for the protection of both employees and the public. Do not enter or pass through a room or hallway without proper lighting even if you think you are familiar with the surroundings.
- Broken glass, razor blades and other sharp-edged materials shall not be placed in wastebaskets.
- Never use chairs, desks or other office furniture as a make-shift ladder. Use a step ladder. Do not over-reach and lose your balance.

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### Personnel Protective Equipment (PPE)

A variety of duties performed by employees involves many industrial hazards. The tasks performed range from custodial services to heavy construction activities. In all tasks, however, there are counterparts in private industry where much research has been done to develop measures to protect employees from accidental injury. When the hazard cannot be engineered out of the machine or process, protective clothing or equipment is available to prevent injury.

Every possible effort will be made by management to select protective clothing and equipment that is acceptable for comfort, appearance and utility and still affords the required protection. It is sometimes less comfortable to wear than ordinary dress and thus creates a temptation for some individuals to lay it aside when the "boss" is not around. That employee becomes a gambler who is betting his/her physical well-being
that "it won't happen to me." Losing that bet becomes more uncomfortable for a lifetime than wearing the equipment for the duration of the job. Safety in this instance is knowledge of the hazards, knowledge of the protection available, and a frame of mind that makes use of available protection a safe work habit.

**Safety Rules for the Wear and Use of Protective Head Ware--Hard Hats**

- Hard hats will be worn by all personnel engaged in the inspection or valuation of buildings under construction, and those employees entering construction zones in general.
- Only hard hats meeting national safety standards will be worn. Employees engaged in working with or near electrical wires shall wear only hard hats approved for such use.
- Hard hats will be worn by all personnel working below other persons (i.e., tree trimming, in excavations) or in constricted areas where injury to the head is likely.
- Hard hats shall not be painted or altered in any way except to identify ownership.

**Face and Eye Protection**

Hazards involving the possibility of injuries to the face and eyes exist in both indoor and outdoor tasks. They range from dust blown into eyes on a windy day to particles of steel, sand, concrete, etc., propelled into eyes with considerable force by power tools and machinery, batteries or splashes of corrosive dust and liquid chemicals. There are many types of safety glasses, goggles, shields, etc. made of glass or plastic to protect workers from these hazards. The loss of one or both eyes can have extremely serious consequences to any employee. Yet individuals often vigorously resist efforts of management to require this vital protection with no better excuse than slight discomfort or false pride. Eye protection is probably one of the most important protective features of any safety program, yet one of the most difficult to implement.

Face and eye protection shall be provided by Campus Stores for any task where there is a probability that an injury may occur without such protection. Employees assigned to perform tasks which require eye protection shall wear the protector provided. Facilities Services, Resident Life, and Helena College management shall provide appropriate face and non-prescription eye protection devices at no expense to the employee and shall make their use mandatory in specific tasks.

If sufficient care is not exercised to maintain them properly, dirty or scratched lenses may provide another hazard from reduced visibility. It is highly recommended that those persons wearing prescription eye wear consider obtaining safety lenses for them.
Safety Rules for the Wear and Use of Eye and Ear Protective Devices

- Safety goggles or safety glasses with temple shields shall be worn when performing work of the following type or working near someone doing such work:
  - Grinding, cutting, milling or drilling with power tools.
  - Using impact wrenches and compressed air tools.
  - Chipping, scraping or scaling paint, rust, carbon or other materials.
  - Using punches, chisels or other impact tools.
  - Cutting rivets.
  - Chipping or breaking concrete.
  - Pipe cutting, threading.
  - Using paint remover.
  - Soldering.
  - Cleaning dust or dirt from vehicles, machinery, etc.
  - Sandblasting.
  - Hammering nails or other objects.
  - Using metal cutting lathes, choppers, drill press, power hack-saw and other metal working tools.
  - Using power woodworking machinery, both fixed and portable.
  - Tree trimming, brush chipping or stump removal.
  - Using brush cutter.
  - Steam cleaning.
  - Washing vehicle parts with soaps or solvents.
  - Working under vehicles.
  - Using line trimmers/mowers.

- Only safety devices meeting national standards shall be worn.

- A full plastic face shield shall be worn when handling acids, caustics, and other harmful dusts, liquids, or gases.

- Spectacle-type safety glasses shall be worn when performing electrical switching operations or activating high voltage circuits where arcs may occur.

- A face shield with proper filter lens or welders lens or welders goggles shall be worn in all welding and cutting operations. Eye protection may be required on other jobs not listed; these will be designated at the time by your supervisor. You are encouraged to wear eye protection at all times.

Hearing Protection

In the variety of activities conducted by work crews, there are machines or equipment that may produce sound levels in the frequencies which cause hearing loss. When employees are subjected to excessive sound levels, an attempt should be made to use engineering controls. If the sound level cannot be reduced within a tolerable range, personal protective equipment shall be provided and worn by employees so exposed. Hearing protection is required and must be used when the sound level exceeds the following levels for the duration indicated:
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<th>Duration per day, in hours</th>
<th>Sound level in dB* - Decibel level</th>
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<td>0.25 or less</td>
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Ear protection may consist of ear muffs, ear plugs or some of the newer disposable materials. The type most acceptable shall be provided whenever possible, as long as it achieves sufficient reduction of noise exposure.

Hand Tools

Accidents resulting in pain and disabling injuries are often caused by failure to use the proper tool for the job or by use of a tool that is defective in some manner. Tools with cutting edges must be kept sharp to be effective. Keep cutting edges protected when not in use. Proper use and proper maintenance of tools contribute to safer, more efficient performance.

Safety Rules for Use of Hand Tools

- Use the right tool for the job. Replace all tools in their proper containers when not in use.
Defective tools must be promptly reported to a supervisor and repaired or replaced.

Do not use impact tools such as hammers, chisels punches or steel stakes that have burred heads. The head should be dressed to remove burrs and chipped edges.

Use only properly insulated tools when working around energized electrical circuits or equipment. Avoid using metal measuring tape, fabric tapes containing woven metal strands, rope with wire cord or other tools and equipment that have conductive properties while around energized electrical circuits or equipment.

Wear safety glasses or shatter-proof clear goggles when using hammers, chisels, punches and wedges. Before using such tools, be sure everyone in the immediate area is wearing eye protection.

Power Tools

Power tools are used to save time and physical labor. When operated carelessly or improperly they can inflict severe injuries. All employees are to wear the appropriate Personnel Protective Equipment (PPE) for each job. If unsure consult with supervisor.

Safety Rules for the Use of Power Tools

Each time they are used, electrical hand tools shall be visually inspected for damage to cords and ground connections. The most common defects occur at the points where the cord is attached to the plug. Be sure to check for a secure connection and for lack of proper insulation at these points.

- Remove adjusting keys or wrenches before starting. Electrically powered tools designed for use with a three-wire grounded plug shall only be used with a three-hole receptacle. No such equipment or plugs shall be altered for use with ungrounded receptacles. Electrical cords from the tool itself and extension cords shall be protected from contamination by oil or acid solutions as well as damage to the rubber insulation by exposure to heat, cuts, pinching, etc. Cords shall be protected from damage to wire conductors or terminal connections by excessive tension (pulling), kinks, pinching, etc.
• Tools shall only be dismantled for repair by personnel designated by a supervisor.
• Safety Guards. switches or devices installed on tools to provide safety in operation shall not be removed or made ineffective.
• The "Work-Rest" on a stationary grinder shall be set about 1/8 inch from the wheel. Never adjust the rest when the wheel is in motion.
• Safety goggles or glasses must be worn when grinding, chipping, cutting, or doing other work which may create dust or flying debris.
• Scarves, ties and other loose clothing shall not be worn when operating power tools.
• Ear-muffs or other protective hearing devices shall be worn when using or working near compressed air tools or other devices which exceed allowable noise levels.
• Welders and persons working in an area where welding is being done shall wear approved goggles or shields. Welders must wear approved gloves.
• Welding screens shall be used whenever possible to isolate the work and protect the vision of others in the area.
• Wear closed-toed or safety shoes and full length trousers when operating power hand lawn mowers.
• When other means of cleaning are unavailable, compressed air may be used to clean machinery and other surfaces only when the operator is wearing protective eye-wear and a particle mask. Compressed air must not be used to blow off worker's clothing while that clothing is being worn.

**Grinders**

• Only those employees who are familiar with the mounting of grinding wheels are permitted to do so. A ring test on each of the new grinding wheels should be completed before installation. (A ring test is made by supporting the wheel freely on a rod through the arbor hole and tapping it lightly with a wooden object. A clear, metallic ring indicates absence of cracks.)
• Wheels must fit easily onto spindles. Too loose or too tight is dangerous.
• When the wheel is mounted, stand out of danger to opposite side of wheel and allow it to develop full operating speed for at least one minute.
• Apply work gradually to a cold wheel at the beginning of each work period, as cold wheels are more subject to breakage.
• Never store a grinding wheel on damp or cement surfaces, nor put oily rags on the wheel.
• Every grinding tool must be securely fastened to the shaft before commencing work.
• The maximum operating speed as given by the wheel manufacturer is on the wheel label, and grinding wheels must not be operated in excess of these speeds.
• Avoid using the side of an emery wheel for grinding, unless it is specially designed for side grinding. Side grinding weakens the ordinary wheel and may cause it to burst.
• Use the cutting surface of a grinding wheel uniformly, as a grooved wheel has been dangerously weakened.
• Grinder bearings must be kept properly oiled and adjusted. This will help to prevent hot bearings and spindles, which are sometimes responsible for melted bushings.
• Do not abuse the wheel by applying excess pressure.
• Be particularly careful when grinding narrow tools or other objects as they are apt to catch between the rest and the wheel.

**Drill Presses**

• Adjust the table so that you have sufficient room for the jig and keep your hands away from the revolving drill. Never run the point of the drill into the table.
• Be certain that both the chuck and the drill are tight on the spindle and that any circular tables are tightened before beginning to drill.
• A sluggish drill is probably the result of incorrect grinding. Be sure the drills are sharpened properly for the particular material, so that the cut may be the right size.
• Materials shall be clamped or otherwise fastened to the drill press bed, not held in the hand.
• Never run a drill bit faster than the rated speed as this may result in broken drill bits, damaged materials and serious injury.
• It is dangerous to attempt the removal of broken drill pieces with a center punch and hammer. For instructions, ask your supervisor.
• Never leave keys in chucks after tightening drills. If set screws protrude, report it to your supervisor.
• Reduce the pressure if there is any backlash in the spindle. Listen carefully for the distinctive noise made when the drill comes through work so you can ease off the pressure.
• Safety stops must be set to keep the over arm of a radial drill from swinging out where it may cause injury.
Compressed Air
The use of compressed air for cleaning purposes is prohibited if other methods are available. Brushes should be used for cleaning machinery. If no other method of cleaning is available, use of compressed air for cleaning must comply with OSHA standards.
- All quick couplers shall be secured with safety wire.

Air Hammers
- Remove the piston or tool of an air hammer whenever it is not in use to avoid the danger of it flying out and striking someone.
- Always close the valve on the air line and release the air from the hose before cleaning, repairing, trying to insert any tool or leaving any air-powered unit.
- Maintain your hold securely on the handle on an air motor to prevent it from flying around and striking you.
- Be certain the discharge end is made secure before turning compressed air into a hose so that it will not swing around and cause injury.

Woodworking Machinery
- If you are running short or narrow stock, protect your fingers by using a block.
- Before using a circular saw, check all materials for possible warping. If a concave edge is found, always place it away from the straight-edge guide of the table saw.
- If the saw binds in a cut, the saw must be shut off before attempting to dislodge the lumber.
- A rip saw shall not be used for cross-cutting, nor shall a cross-cut saw be used for ripping. A spreader and kickback fingers shall be required when using a rip saw. A spreader will be required when using a cross-cut saw.
- Learn to stand out of the line of possible "kick-back" and to avoid the danger of being struck by the small pieces that are frequently thrown from a circular saw.
- Never reach over any machine to get finished materials from the opposite side, to remove dust or wood particles from the saw table or to oil the machine while it is in operation.
- In using a joiner, never allow either hand to pass over the knife. Use both hands, one on each side of the material, using particular care during entire operation.
Gas Welding

- All gas welding equipment and connections should be kept free from grease and oil. (Oxygen will explode upon contact with oil or grease.) Oily and greasy gloves may result in the same effect, in addition to making it difficult to handle the cylinders.
- Tanks must always be in the upright position and never rolled on the floor in the prone position. Never attempt to hoist tanks unless properly slung. Use the skid provided when unloading cylinders from the truck. After unloading the tank, the cylinder must be securely chained to wall or portable carrier.
- Securely fasten with a chain the acetylene and oxygen tanks in an upright position where there is no danger of their falling or being bumped.
- Use only standard green oxygen hose with right-hand couplings, together with red acetylene hose with left hand thread.
- Blowout the tank valve before attaching the regulator. Never use compressed air for blowing out Facilities Services, Resident Life, or COT equipment as air may contain some oil and moisture. Use oxygen to blowout the oxygen hose and acetylene to blowout the acetylene hose. Blowout oxygen and acetylene tanks in a well-ventilated area.
- When changing empty tanks for full ones:
  - Shut off valve on empty tanks.
  - Release thumb screw on regulator.
  - Disconnect regulator, blowout tank valve and connect on full tank.
  - Stand on opposite side of tank, point the acetylene valve outlet away from the oxygen tank and face from the gauge while opening the tank valve.
  - Adjust thumb screw on regulator to proper pressure, making sure that you do not have excess oxygen, which causes unnecessary sparks in operation.
- Be sure the end of the torch is cleaned before attempting to light. Use only friction lighters.
- Do not put the materials in position so as to permit sparks, hot metal or the severed section of metal to fall on the gas supply hose or the feet of any employee.
- At completion of the work, the welder shall make a careful inspection of the job site to insure that hot articles have not been left smoldering which might later develop into a fire.
**Electric Arc Welding**

- Whenever possible, welding operations should be carried on inside a regular welding booth. If work must be performed outside a booth, the arc shall be effectively screened to prevent injury to eyes or others.
- Before entering the welding area, an effective warning (such as shouting) shall be given so the operator may be aware of your presence and help you to avoid a sudden flash or other injury.
- Like welding operator, the person entering the welding area shall wear required eye protection.
- The welding of galvanized materials requires the operator to protect her/himself with a specially designed airline respirator which fits under the helmet.
- Deposit short ends of welding rods in the containers provided for that purpose to prevent burning holes in your shoes or starting fires. Unused ends are a slipping hazard if allowed to accumulate on work area floors.
- When not in use, place the electric holder where it cannot cause an arc.
- Prevent injury to yourself and others from short circuits by using only welding cables that are in good condition.
- Only properly authorized operators shall use welding equipment. Never attempt to repair welding equipment yourself.
- Helmets and shields will be used with all electrical welding. Do not remove your helmet while bending over or inspecting a hot weld.

**Lawn Mowers**

- Power mowers will not be left unattended with motors running.
- Areas to be mowed must be inspected for foreign objects. Wire, stones and other large debris should be removed before mowing.
- Bystanders should be warned by the operator of the danger of flying objects. Extreme precaution must be taken when there are children in the immediate area.
- Operators must keep hands and feet away from the undercarriage of the mower.
- During maintenance, repairs or when refueling, the spark plug wire must be disconnected from the spark plug.
- After mowing is completed, disconnect spark plug wire from the spark plug; remove dirt, grass, etc. from the top of the mower; place mower in dry location under cover.
- When storing a lawn mower for the winter, drain all gasoline and purge the engine to avoid gas fumes.
- Proper hearing, eye and foot protective apparel shall be worn at all times.
Ladders provide access to heights that cannot be reached from the ground or to areas where stairs and mechanical lift equipment are not practical. They are an item commonly used, both at home and at work. Ladders are frequently abused and almost never regarded as a potential hazard. Consequently, many accidents can occur that injure, maim and occasionally kill.

The major hazard in using ladders is free fall. Other hazards include splinters, slivers and slips resulting in sprains, bruises and abrasions. Major causes of falls are from carrying loads, climbing or descending too fast, jumping from and reaching out too far while working from ladders. Metal ladders introduce an electrical hazard as they are excellent conductors if contact is made with an electrical source.

The major source of wear, and possible weakened structure, to ladders is usually handling rather than use. The only exception to this generalization occurs when the ladder is used incorrectly or carelessly, which may shorten not only the life of the ladder, but that of the user as well.

Safety Rules for the Use of Ladders and Scaffolding

- If the bottom of a ladder is placed on an insecure surface, secure ladder in a safe appropriate manner or have a co-worker hold it. No ladder is to be used on unleveled surfaces or above a height of 10 feet unless another employee is present to steady the ladder. Ladders shall not be placed on boxes, barrels or other unstable bases to obtain additional height.
- Never stand on the top rung or step of a ladder to work.
- Only one person shall be on a ladder at one time.
- Metal ladders shall not be used in the vicinity of electrical circuits.
- Non-skid feet shall be used, on all straight and extension ladders.
- Rolling scaffolds shall not be moved while an individual is on the scaffold.
• Wood ladders shall be periodically inspected for hazardous defects. If any defects are found, the ladder shall be repaired or disposed of immediately to prevent use. Never paint ladders as painting may hide defects. Wood ladders should be sanded to remove splinters and treated only with clear wood preservative. Wood ladders shrink over a period of time. In a step-ladder, this may cause steps or back bar members to become loose. Hold the rods beneath the steps with pliers and tighten the nut at the end with a wrench to maintain strength and steadiness.

• Scaffolding shall not be erected or used in or around electrical equipment until the power has been turned off, locked and tagged out, or otherwise made safe.

• All scaffolding and ladders shall be inspected before and after each use. Defective ladders and scaffolding shall be reported immediately to the appropriate supervisor so it can be tagged out with an "UNSAFE : DO NOT USE" tag until it is repaired or replaced.

• If it is necessary to place a ladder near a door or aisle where there is potential traffic, set up warning signs or take other precautions to prevent accidental contact that might upset the ladder.

• No ladder may be used for reaching items above staircases unless it has been specifically designed for that purpose and is code approved.

**Scaffolding**

A scaffold is a temporary work platform used for supporting both personnel and materials. The major hazards involved in scaffolding work are falls and falling materials. Falls usually result from unsafe work practices or improper guardrails. To assist in eliminating most types of scaffold related injuries, the following guidelines are provided:

• All elevated work platforms over 10 feet high shall have a guardrail constructed of 2 x 4 inch lumber or the equivalent of no less than 36 inches or more than 42 inches high with a mid-rail of 1 x 4 inch lumber or equivalent.

• Toe boards shall be installed along the base of the elevated work platform to eliminate the possibility of material being knocked off the platform. Toe boards shall be a minimum of 4 inches high and constructed of wood or other suitable material. When there is a possibility of materials being stacked in such a manner that toe boards would not eliminate their being knocked off the platform, plywood, expanded metal or other suitable material shall be used to fill in the open area between the platform base and upper rails.

• All scaffold planking shall be cleated on each end to prevent movement.

• When scaffolds are erected above work or walk areas, these areas shall be evacuated and posted to warn individuals to stay clear of the area.

• Scaffolds shall not be overloaded.
• No equipment shall be left on the platform when moving a scaffold.
• Caster brakes shall be engaged while the scaffold is at rest.
• There has to be at least one-trained person (competent person) in a crew that is assembling or using scaffolding. Untrained personnel are not allowed to assemble or work from a project that requires scaffolding.

Construction & Maintenance Safety

Campus and Facilities Services’ employees are often involved in tasks common to the construction industry. The hazards and risks are similar. Special care is required to operate heavy equipment in a safe manner to eliminate unnecessary exposure of personnel to moving equipment and materials and to safeguard nearby utilities and other property.

Each employee must be alert not only for his/her own safety on a construction or maintenance job, but also for the safety of others with whom he/she is working.

High pressure gas lines, underground and overhead electrical lines, unstable trench walls, moving equipment and vehicle traffic are all hazards commonly encountered in construction work. Each presents special hazards and a safe job requires all employees to be especially familiar with safety rules and procedures to reduce the risk of injury to themselves and others.

Safety Rules for Construction and Maintenance Safety

• Begin an excavation below existing grades only with specific authorization and direction of your supervisor. The supervisor should not allow you to begin work until all local utilities have been notified and they have located and marked their utilities.
• Excavate below existing utility lines or adjacent to poles and guy wires only when they have been adequately protected and supported.
• Do not operate moving equipment within 10 feet of overhead electrical wires unless a signal person is used to direct the operator of the equipment.
- Properly install or use signs, flags, lights and barricades on all jobs in or adjacent to a public right-of-way or public property.
- Do not leave open manholes or excavations or other hazards unattended until they are barricaded and marked to prevent persons from accidentally entering the area.
- Whenever working exposed to moving traffic such as painting traffic lines, tarring cracked pavement, cleaning sewer lines, etc., wear a green-yellow safety vest.
- Wear safety glasses or goggles if exposed to dust or flying debris.

**Gas Lines**
If a gas line is broken:
- Shut off all engines and motors in the area.
- Remove or extinguish all open flames.
- Enforce a "No Smoking" rule.
- Notify your supervisor, who will in turn notify the Police Department, the Fire Department and the gas company.
- Do not cover up the damaged or broken line.
- Keep people and traffic out of the area and move to an uphill/upwind location.
- Do not leave the area until relieved by the gas company personnel or proper public safety personnel.

**Electrical and Telephone Lines**
- Consider all electrical and telephone lines as hazardous. Telephone lines can be energized with high voltage if crossed with a power line in an accident.
- If machinery comes in contact with energized wires, the operator or crew members should warn all persons to keep away. In these cases, operators must stay on the equipment unless it is on fire. If it is necessary to jump clear of the equipment, jump from the equipment to the ground and not have contact with both the ground and the equipment at the same time. Keep persons away from the equipment by posting a guard.
- Be especially careful to avoid buried telephone lines which may be very shallow.

**Warning devices**
- Flag persons must wear green-yellow safety vests and clearly direct oncoming vehicles to stop, slow or detour by the use of signs, lights or signals.
- Warning devices used during the day must be replaced or supplemented by lighted devices at night if continued protection of the job is necessary.
Fall Protection

The OSHA Fall Protection Standard for the Construction Industry (29 CFR 1926.500, 1926.501, 1926.502, AND 1926.503), known as Subpart M, regulates fall protection for construction work performed within the private sector. The Montana Department of Labor and Industry, has adopted Subpart M to apply to construction and non-construction activities within the public sector. Examples of activities covered under this interpretation would be general maintenance work and minor roof repairs.

Injuries from falls are a leading occupational injury. It is the intent of Helena College to provide maximum protection to its staff in the prevention of falls. Known fall hazards will be identified, inspected, and fall protection provided to ensure the safety of personnel. Engineering controls, administrative procedures and the use of personal protective equipment will be utilized. The Fall Protection Standard must be followed where personnel can possibly fall six feet or more, but does not apply "when personnel are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed." This exemption does not apply when inspections are carried out two feet or less from an unprotected edge. Under OSHA's interpretation, work conducted within six feet of an unprotected edge (i.e. roof line) must comply with the Fall Protection Standard.

Ladders under twenty feet are exempted from the OSHA Fall Protection Standard. Training will be provided to personnel in the identification of fall hazards, safe work practices, and selection, use, inspection, and maintenance of personal protective equipment.

Definitions

**Anchor point**-A secure point of attachment for lifelines, lanyards or deceleration(grabbing) devices.

**Body belt**-A strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration(grabbing) device. Body belts are prohibited at The University of Montana.

**Body harness**-An interconnected set of straps that may be secured about a person in a manner that distributes the fall arrest forces over at least the thighs,
pelvis, waist, chest, and shoulders with a means for attaching the harness to other components of a personal fall arrest system.

**Connector**—A device that is used to connect parts of a personal fall arrest system together (i.e. D-rings, and snap hooks).

**Deceleration device**—Any mechanism, such as a rope, grabbing device, ripstitch lanyard, specially woven lanyard or automatic self-retracting lifeline/lanyard, which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limits the energy imposed on an employee during fall arrest.

**Deceleration distance**—The additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate.

**Guard rail**—A barrier erected to prevent personnel from falling to lower levels.

**Hole**—A void or gap in a floor, roof, or other walking/working surface.

**Lanyard**—A flexible line of rope or strap that generally has a connector at each end for connecting the body harness to a deceleration device, lifeline or anchor point.

**Lifeline**—A component consisting of a flexible line for connection to an anchor point at one end to hang vertically and that serves as a means for connecting other components of a personal fall arrest system to the anchor point.

**Opening**—A gap or void in a wall or partition through which personnel can fall to a lower level.

**Personal fall arrest system (PFAS)**—A system including but not limited to an anchor point, connectors, and a body harness used to arrest a worker in a fall from a working level.

**Rope grab (grabbing device)**—A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.

**Self-retracting lifeline/lanyard**—A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under minimal tension during normal movement and which, after onset of a fall, automatically locks the drum and arrests the fall (usually within two feet or less).

**Snap hook**—A connector consisting of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released automatically closes to retain the object. Only locking snap hooks are permitted at The University of Montana.

**Toe board**—A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling.

**Unprotected sides and edges**—Any side or edge of a walking/working surface where there is no wall or guardrail system at least 1 meter high (i.e. roof lines).
Walking/working surface—Any surface, whether horizontal or vertical, on which personnel walk or work, including but not limited to floors, roofs, or ramps. It does not include ladders or vehicles on which personnel must be located to perform their work duties.

Fall Hazards
Supervisors will evaluate each potential fall hazard. In areas of uncertainty they are to get together with the Helena College OSHA Compliance Officer and the College Safety Committee to work out a reasonable solution. Engineering controls (handrails, etc.) will be constructed where possible, and safe work practices and personal protective equipment will be used. Fall hazards include, but are not limited to, unprotected sides and edges of roofs, excavations, overhead construction and maintenance, roof work, floor holes, wall openings, and all other walking or working surfaces where personnel can possibly fall six feet or more to a lower level. At UM - Helena, fall hazards specifically include work on Helena College building roofs, maintenance work conducted where a fall of six feet or more from the floor is possible (this does not apply to work on scaffolds or ladders), including work on, lighting, or rafters.

Protection from falling hazards must be provided. The placement of toe boards and the use of hard hats will be strictly enforced. Equipment shall not be stored within four feet of an unprotected edge.

Engineering Controls
The first step in minimizing work hazards is to determine if engineering controls can eliminate or lessen the hazard of the job. Engineering controls of fall hazards consist of guardrails, toe boards, covers, and other rails or barriers that prevent falls. Helena College will provide engineering controls where possible to minimize fall hazards. Personnel should alert Helena College supervisors to potential fall hazards not already identified and controlled. Additionally anchor points (if necessary) will be installed at locations where personal fall arrest systems (PFAS) will be used.

Administrative Procedures (Work Practices)
In all cases, safe work practices must be followed where potential for a fall exists. Evaluate the work and potential hazards. Prepare for hazards. Contact the supervisor or Environmental Health for implementation of engineering controls. Personnel must work in pairs at all times while conducting work where a potential for a fall exists. All work conducted within six feet of an unprotected edge where a fall exists must wear fall protection equipment. Only properly maintained and
inspected equipment shall be used for fall protection. Equipment must be in compliance with the OSHA Fall Protection Standard.

Workers shall inspect all equipment before use; if any equipment exhibits signs of wear, it must immediately be removed from service. Equipment must be maintained, and stored where it will not be subject to wear. In case of emergency, follow Helena College Emergency Procedures.

Body harnesses must be worn, lanyard attached to harness securely with locking snap hook, lifeline (if used) attached securely to lanyard, deceleration device attached correctly and securely to lifeline and lanyard, and lifeline or lanyard must be securely connected, by locking snap hook, to the anchor point before any work shall be conducted. Inspections are exempted from this requirement per OSHA guidelines. However OSHA does require fall protection when inspections occur two feet or less from an unprotected edge or side. Inclement weather, including but not limited to snow, ice, high winds or rain, pose even greater hazards during work where a potential for a fall exists, i.e. roof work. Personnel shall take additional precautions during such weather. Personnel should contact their supervisor to review additional precautions before beginning affected work. Work should not be conducted on roofs during lightning storms.

**Personal Protective Equipment**

The use of personal protective equipment to minimize fall hazards shall be strictly enforced. The optimal solution is to use engineering controls, but if engineering controls do not eliminate the hazard, work practices and personal protective equipment must be used. The use of personal fall arrest systems (PFAS) are the allowed personal protective equipment for fall hazards at Helena College. A PFAS consists of a full-body harness, lanyard, and anchor point. A second option is to use a full-body harness, lanyard, lifeline, anchor point, and deceleration (grabbing) device. Only full-body harnesses shall be used, the use of a body belt is prohibited. Non-locking snap hooks are unacceptable for personal fall arrest systems.

Requirements (from OSHA 1926.502) of a personal fall arrest system (PFAS) include:

- D-rings and snap hooks shall have a minimum tensile strength of 5000 pounds. A proof test of 3600 pounds is required.
- Lanyards and lifelines shall have a minimum breaking strength of 5000 pounds.
- Lanyards shall not exceed six feet in length.
• Self-retracting lifelines and lanyards shall have strength of at least 3000 pounds and limit free fall to two feet or less.
• Anchor points for fall arrest systems shall be capable of supporting at least 5000 pounds per employee when the system is designed, installed (temporarily or permanently), and used under the supervision of a qualified person.
• Personal fall arrest systems shall limit the maximum arresting forces to 1800 pounds with a full body harness.
• The maximum free fall distance is six feet for systems.
• The maximum deceleration distance is 3.5 feet.
• Personal fall arrest systems shall have sufficient strength to withstand twice the potential impact energy of the falling employee.
• Impacted components shall be removed from service.
• Prompt rescue shall be provided for personnel who have fallen.
• Personal fall arrest systems shall be inspected prior to each use.
• Lifelines subject to cutting or abrasion shall be a minimum of 7/8-inch wire core manila rope. All other lifeline applications shall use a minimum of 3/4 inch manila rope or its equivalent.

Any other personal protective equipment deemed necessary for the task under the Personal Protective Equipment Standard must be worn. This includes but is not limited to hardhats, gloves, safety glasses, and covered-toed boots. Hard hats must be worn within an area beneath elevated work where objects could fall from a height and strike a worker.

**Equipment Inspections**

Equipment inspections will be conducted by personnel prior to use. If, upon inspection, a piece of equipment shows any of the following signs of wear it must immediately be removed from service. Cuts or frayed edges, abrasions, mildew or mold, undue stretching, chemical burns, dryness, corrosion or charring, broken stitches, inner fiber fuzziness, rivets that are loose or distorted, substances that have penetrated and hardened in the fibers, deformed thimbles or enlarged buckle tongue holes or grommets, damaged or distorted snap hooks or faulty springs, cracks or distortions in fall protection hardware.

Consult an approved state vendor for intensive maintenance or inspection of equipment.

**Training**

Training in fall protection must be obtained prior to working where potential for a fall exists. This training will be conducted annually by an authorized training
Training will consist of learning to identify fall hazards, minimize fall hazards, and the function, use, inspection, and maintenance of personal fall arrest systems (PFAS) and other restraint equipment. Trainees will also be taught how to identify and inspect anchor points, substantial members of the building structure, or securely rigged lines, which will safely suspend the worker in case of fall. Only attendees of the fall hazard training classes will be allowed to conduct work where potential for a fall exists. Each Department will maintain records of attendance.

**Hot Work Program**

The intent of the Hot Work Program is to define the rules for performing "hot work" as outlined in OSHA 29 CFR 1910.252. These regulations will minimize the possibility of injury or property damage due to improper management of open flame/high temperature processes.

**Definitions**

**Hot Work** refers to any job activity that uses or produces flames, sparks or heat that could act as an ignition source for any flammable liquid, gas or other combustible material in the area.

**Fire Watch** refers to having one or more people on the hot work job whose only purpose is to prevent a fire from starting from hot work performed in areas that are not designated as hot work areas or if any of the following conditions exist:

- Noticeable combustible materials, in building construction or contents, are closer than 35 feet to the point of operation or are easily ignited by sparks;
- Wall or floor openings within a 35-foot radius exposes combustible material in nearby areas, including concealed spaces in walls or floors;
- Combustible material are adjacent to the opposite side of material partitions, walls, ceilings or roofs and are likely to be ignited by conduction or radiation;
- The above are concerns when welding, cutting or grinding are done. The need for a fire watch is greatly reduced or eliminated when soldering pipe joints or similar work, provided heat shields are used as necessary and the work is
inspected by the trained individual doing the work, approximately 30 minutes after the flame is extinguished.

**Fire Watcher** refers to person or persons who look for potential fires in all exposed areas during hot work and put out fires that are within the limits of the available fire extinguishers.

**Personal Protective Equipment**
Protection of the eyes, face, neck, and hands is required during any type of hot work. A welding helmet and heavy insulated gloves provide some of this protection. See Appendix D for shade requirements for various welding processes.

- Only natural fiber clothing should be worn on the upper body extremities. A leather apron or full body leathers is recommended.
- Respiratory protection is not required for most welding jobs if good ventilation is provided. Appendix E provides guidelines to assist in the determination of the need for respiratory protection.
- Welding screens are required to protect adjacent workers from exposure to non-ionizing radiation. Adjacent workers are required to wear appropriate eye protection where screens are not feasible. Welder's assistants or anyone working in the screened area must wear appropriate eye protection.

**Training**
Required training will provided annually or whenever conditions or the program changes.

**Fire Safety Precautions for Hot Work**
The following precautions should be taken before hot work begins:

1. Establish whether or not it is practical to move the work to a safer location.
2. Clear the area surrounding the work of hazards up to a 35-ft radius.
4. Where practical, stop other operations and processes involving flammable or combustible material.
5. Where practical, remove all flammable or combustible material from the work area; do not just seal the containers.
6. Cover combustible and flammable materials that cannot be removed with fire resistant material, and isolate the area with welding curtains, if practical.
7. Close all manhole covers or other openings in vessels that contain flammable liquids in the area.
8. Remove or protect all cylinders containing compressed gases in the area.
9. Close all doors and fire doors to prevent sparks from escaping.
10. Make sure automatic sprinkler protection is in service and fully operational, if available.
11. Keep hot work equipment in good repair. Check all hoses and their attachments for cracks and leaks.
12. When performing hot work on walls and ceilings, move combustibles away from the opposite side.
13. Evaluate all sewers within 50 ft. of the work area for the possibility of flammable vapors.
14. Isolate the hot work or ignition source work site from other hazardous areas. Close doors, seal cracks in walls, floors, and doors, and seal trenches.
15. Prohibit chlorinated solvents from use in or adjacent to all welding operations. Decomposition products such as phosgene can be formed as a result of the reaction of these solvent vapors with the radiation energy produced during welding operations. Other alternatives to hot work should be considered if
   • Processes involving flammable liquids, gases and dusts cannot be shut down and made safe.
   • Partitions, walls, ceilings or roofs have combustible coverings; for example, expanded plastic insulation.
   • Partitions are made of combustible sandwich-type construction.
   • Pipe or other metals can conduct enough heat to ignite nearby combustibles.
   • Large amount of combustible materials is difficult to move or cover such as roll paper, cotton or jute storage.

Recommended Shade Numbers for Various Welding Processes

<table>
<thead>
<tr>
<th>WELDING PROCESS</th>
<th>SHADE NO.</th>
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</thead>
<tbody>
<tr>
<td>Oxy-Acetylene Welding and Cutting</td>
<td>4-5</td>
</tr>
<tr>
<td>Shielding Metal Arc Welding</td>
<td></td>
</tr>
<tr>
<td>3/32&quot; to 1/8&quot; electrode</td>
<td>10</td>
</tr>
<tr>
<td>3/32&quot; to 1/8&quot; electrode</td>
<td>12</td>
</tr>
<tr>
<td>Gas Metal Arc Welding</td>
<td></td>
</tr>
<tr>
<td>Non-ferrous metal</td>
<td>11</td>
</tr>
<tr>
<td>Ferrous metal</td>
<td>12</td>
</tr>
</tbody>
</table>
The purpose of the Lockout/Tag-out program is to protect Helena College University of Montana employees from injury or death from the release of hazardous energy. This program establishes the minimum requirements for isolation of electrical, chemical, thermal, hydraulic, pneumatic, and gravitational energy prior to equipment repair, adjustment or removal. Reference: OSHA Standard 29 CFR 1910.147, the control of hazardous energy.

**GENERAL LOCKOUT/TAGOUT PROCEDURES**

Before working on, repairing, adjusting or replacing equipment and machinery, all appropriate safety procedures, including lockout/tag-out, must be utilized to place the machinery or equipment in a neutral or zero mechanical state. See Appendix A for standard operating procedures.

When the energy-isolating device cannot be locked out, a tag-out system may be used, provided the level of safety is equivalent to the level of safety using a lockout system.

Helena College University of Montana will supply the lockout and tag-out devices required. Assigned safety locks are issued to all authorized employees trained in the Lockout/Tag-out Procedures. One key per lock is issued and the keys shall not be duplicated. (A safety lock or tag can only be removed by the owner.) These locks may not be used for any other purpose.

If more than one individual is required to work on the equipment, each individual shall place their own lockout/tag-out device on the energy isolating device(s). When the energy-isolating device cannot accept multiple locks or tags, a multiple lockout or tag-out device (hasp) may be used.
There may be occasion where a piece of equipment will be pulled out of service until repairs can be conducted. In these cases an out of service lock/tag will be placed on the equipment after de-energization. The out of service lock/tag will remain until the repairs can begin. Before repairs begin the out of service lock/tag must be replaced with a safety lock/tag using the standard operating procedures in the Lockout/Tag-out Standard Operating Procedures section.

**MANAGEMENT'S REMOVAL OF LOCK AND TAG**

Only the employee who applied the lock and tag may remove his/her lock and tag. However, should the employee leave the facility before removing the lock and tag, the lock may be removed by using bolt cutters or other equivalent means under the direction of the Facilities Manager as required in 29 CFR 1910.147(e)(3). The Facilities Manager must be assured that the employee who applied the lock and tag is not at the facility and is notified before returning to work that the lockout/tag-out devices have been removed, that all tools have been removed from the area, all guards have been replaced, and all employees are clear of the area before the lock and tag are removed and the equipment is returned to service.

**INSPECTION**

Each campus will coordinate with the College Safety Committee and conduct an inspection at least annually of the energy control procedures to ensure that the procedure and the requirements of this standard are being followed.

**TRAINING**

All Helena College employees who are required to utilize lockout/tag-out procedures will be trained in the procedures when initially hired and as required by changes in equipment or technology. All training will be documented. Training will include:

- Recognition of applicable hazardous energy sources
- The type and magnitude of energy available in the workplace
- Methods and means necessary for energy isolation and control
- The limitations of using tag-out system only

**LOCKOUT/TAG-OUT STANDARD OPERATING PROCEDURES**

When the energy-isolating device is not lockable, a tag-out device may be used in place of a lock. All authorized employees who perform lockout/tag-out must follow this sequence:

1. Prepare for shutdown. Know what type of energy the machine uses. Identify potential hazards.
2. Let affected employees know you will be locking or tagging out the equipment and why.
3. Turn off the machine or equipment.
4. Locate and isolate all energy sources. Get rid of any stored energy, as in springs, hydraulic systems, or air pressure. You may have to block, bleed, vent, etc. to be sure there's nothing left to move a machine part.
5. Lock out the switches or other energy controls. Attach your lock to hold the switches in an "off" or "safe" position. Also apply a tag to identify who is working on the equipment and to warn others that the switch is locked out.
6. Test the operating controls. Be sure no one is close enough to get hurt. Put all controls in the "on" position. Make sure the power doesn't go on and that the equipment won't operate.
7. Put operating controls back in the "off" or "safe" position.
8. Test the circuits and electrical parts of the equipment to be sure they are de-energized. 9. Perform necessary service or maintenance.

**CAUTION:** *If you need energy to test or position the equipment during maintenance or repair, follow all the lockout removal steps before you turn energy on. And follow all lockout steps to turn off the power and protect yourself before you begin work again.*

Restore the equipment back to service using the following steps.
1. Check the machine or equipment and the immediate area around the equipment to ensure that all tools and other items have been removed and that the equipment components are operationally intact.
2. Check the work area to be sure that all employees have been safely positioned or removed from the area.
3. Verify that the controls are still in the "off" of "safe" position.
4. Remove the lockout and tag-out devices and re-energize the equipment. The lockout and tag-out devices must be removed only by the person who put them on. If servicing lasts more than one work shift, the outgoing and incoming workers will together remove the outgoing worker's lock and install the new worker's lock.
5. Notify the affected employees that the servicing or maintenance is completed and the equipment is ready for use.
Laboratory Safety Program

The Laboratory Safety Program defines procedures, equipment, PPE, and work practices used to protect employees from the health hazards presented by hazardous chemicals and biohazards.

Safety Rules for Labs

- Know and follow the procedures described in the Helena College Chemical Hygiene Plan whenever working in the Chemistry Labs.
- Use of lab coats, gowns, or other designated laboratory uniform is required to prevent contamination or soiling of street clothing. Wear lab coats, gowns, smocks, or other provided protective garments while in the lab. When leaving the lab, remove and leave coats and other protective clothing in the lab for either disposal or laundering.
- Wear gloves. Protective eyewear must be worn for procedures that involve anticipated splashes of microorganisms or other hazardous materials to the face. Wear gloves when manipulating infectious materials or agents or when hands must otherwise contact contaminated surfaces. Double gloving is recommended. Remove and change gloves when overtly contaminated or when torn or punctured. Do not wear contaminated gloves outside the lab. Do not wash or reuse disposable gloves. Consider alternatives to latex gloves to prevent allergic response.
- Wear appropriate face protection (goggles, mask, face shield or other splatter guard) for anticipated splashes or sprays of infectious materials to the face when agents must be handled outside the BSC.
- Wash hands frequently and always after handling viable material or animals, after removing gloves, and before leaving the laboratory. A sink for hand washing is present in each laboratory. Know the location of a readily accessible eyewash station.
- Do not eat, drink, smoke, chew gum, handle contact lenses, or apply cosmetics in the laboratory. Do not bring any food, medications, or cosmetics, into the laboratory for storage or later use. Food is stored outside the work area in cabinets or refrigerators designated specifically for that purpose. Do not bring animals unrelated to experiments into the laboratory.
Perform all procedures carefully to minimize the creation of splashes or aerosols.

Establish and follow policies for safe handling of sharps.

- Use a high degree of caution when handling any contaminated sharp item, such as needles and syringes, slides, pipettes, capillary tubes, and scalpels.
- **Restrict needles and syringes or other sharp instruments in the laboratory for use only when there is no alternative, such as for parenteral injection, phlebotomy, or aspiration of fluids from laboratory animals and diaphragm bottles.** Substitute plastic ware for glass whenever possible. Handle broken glassware with brush and dustpan, tongs, or forceps - not directly with hands.
- Use only needle-locking syringes or disposable syringe-needle units (i.e., needle is integral to the syringe) for injection or aspiration of infectious material.
- Use, whenever possible, syringes which re-sheathe the needle, needleless systems, and other safety devices.
- Do not bend, shear, break, recap, or remove used needles from disposable syringes or otherwise manipulate such units by hand before disposal. Dispose of needles and syringes in the puncture resistant container provided in the laboratory for this purpose.

Decontaminate equipment and work surfaces at completion of work, at the end of the day, and following spills of viable materials. If a spill occurs, cover the spill with paper towels and soak the towels with a 1 to 10 dilution of chlorine bleach or other suitable disinfectant. Allow the material to soak for approximately 20 minutes before discarding materials in biohazard bag. Bench tops are impervious to water and resistant to solvents, acids, alkalis, and chemicals used for surface decontamination. Laboratory surfaces and spaces between fixtures are designed to be easily cleaned; no carpets or rugs.

Work on open bench tops is permitted; use of special containment equipment such as a biological safety cabinet is not generally required in the Labs at Helena College.

Properly dispose of all regulated medical wastes (potentially bio-hazardous) and associated wastes. Cover containers of all cultures, tissues, specimens of body fluids, or other potentially infectious waste to prevent leakage during collection, handling, processing, storage, and transport.

Ensure that illumination is adequate for all activities, avoiding reflections and glare that could impede vision.
• Immediately notify the laboratory coordinator, Facilities Manager, or Human Resources in case of an accident, injury, illness, or overt exposure associated with laboratory activities.

**Blood-Borne Pathogen (BBP) Exposure**

If you experience a needle-stick, cut, puncture, mucous membrane or open wound exposure to human blood or other potentially infectious materials, including body fluids, you should follow BBP procedures for your area. Immediately notify the appropriate designated staff, facilities, the Director of Human Resources/OSHA Compliance Officer and seek immediate medical attention.
Helena College Workplace Safety Guide
Acknowledgement Form

I have received and read all sections in the Helena College Workplace Safety Guide, especially those that apply specifically to the work I will be performing at Helena College. My initials next to each section listing indicate my acknowledgement of the specific safety requirements of my job. In addition, I understand that I am responsible for observing all guidelines during the course of each work day.

General Safety ______ (required of everyone)
Fire Safety ______ (required of everyone)
Office Safety ______ (required of everyone)
Personal Protective Equipment ______
Hand Tool Safety ______
Power Tool Safety ______
Ladders & Scaffolding Safety ______
Construction & Maintenance ______
Fall Protection ______
Hot Work Program ______
Lockout/Tag-out Program ______
Laboratory Safety ______

Employee Name: ________________________ Date: ______________
Signature: ______________________________

Return this signed page to the Director of Human Resources