

SAFETY PROGRAM



“GETTING YOU WHERE YOU WANT TO GO”

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General Safety Rules

Purpose

NAIPTA's primary objectives are to ensure the safety and health of our employees, and to protect company property. Our goal is to provide safe and healthful working conditions for all company employees and jobsites.

Safety rules have been developed with input from both supervisory and frontline employees. The rules address behaviors and workplace practices that can lead to accidents and injuries.

Each employee needs to become familiar with and follow General and Departmental Safety Rules. Supervisors must enforce safe work practices through strict adherence to Safety Rules.

Most accidents can be prevented if everyone uses assigned safety equipment and follows the established Safety Rules. To operate a safe and successful business, we must work as a team to

THINK SAFE, WORK SAFE, AND BE SAFE

Communication of Safety Rules

Communication of Safety Rules is accomplished by:

- Discussion during New Hire Orientation
- Posting Safety Rules throughout the facility
- Annual refresher training for all employees
- On-the-spot corrections and reinforcement by supervisors
- Weekly Shift meetings

Additional Operating Safety Rules

NAIPTA has additional safety rules for specific operations and departments that apply to those engaged in hazardous work areas or operations. Please refer to the Table of Contents for specific Safety Rules and Standard Operating Procedures.

Posting of General Safety Rules

General Safety Rules will be posted in conspicuous areas at all locations.



GENERAL SAFETY RULES

1. Report all work injuries and illnesses immediately.
2. Report all unsafe acts or unsafe conditions to your supervisor.
3. Use seat belts when on company business in any vehicles.
4. Weapons and explosives are not permitted on company property or jobsites.
5. Use, possession, sale or being under the influence of illegal drugs, misuse of prescription drugs and/or alcohol is not permitted on company property or while “on duty”. For additional information on Drugs in the Workplace, refer to the NAIPTA Personnel Policy Manual.
6. Only authorized and trained employees may repair or adjust machinery and equipment. Lockout/ tag out procedures must be followed before removing any machine guards or working on powered machinery and equipment. Replace all guards when the job is completed.
7. Only qualified and trained employees may work on or near exposed energized electrical parts or electrical equipment. Follow electrical safety rules when working with electrically powered machinery and equipment
8. Only authorized and trained employees may enter a posted Confined Space. All confined spaces will be posted *Confined Space – Permit Required*. Entry is allowed only after permits are properly issued.
9. Only authorized and trained employees may dispense or use chemicals. It is your responsibility to know where MSDS’s are located and that they are available for your use and review.
10. Keep work areas clean and aisles clear. Do not block emergency equipment or exits.
11. Wear and use the prescribed Personal Protective Safety Equipment. This includes foot protection, heavy protection, gloves, eye protection, etc.
12. Smoking is permitted only in the designated ‘Smoking Areas’.

Failure to follow the above rules may cause serious injury and/or illness. Disciplinary Action, up to and including termination, will be used to assure safety rule enforcement. Please use common sense and think before you act. If you are not sure how to complete a job or task safely or have any question, ask your supervisor.



General Health and Safety Policies

Purpose

This section covers general policies that may not be covered under other safety programs. NAIPTA's policy is that all employees be provided with a safe and healthful place of employment. Identification of hazardous conditions may be accomplished at the planning and design stage, as a result of workplace inspections, or by employee reports. All recognized safety and health hazards should be eliminated or controlled as quickly as possible, subject to priorities based upon the degree of risk posed by the hazards. The preferred method of hazard abatement shall be through application of engineering controls or substitution of less hazardous processes or materials.

Responsibilities

Management, supervisors and employees are responsible for following all safety program requirements and safety practices. Any changes deemed necessary to procedures or practices shall be accomplished through normal management review practice.

Hazard Control

Substitution

The risk of injury or illness may be reduced by replacement of an existing process, material, or equipment with a similar item having more limited hazard potential.

Some examples include:

- Brush painting instead of spray painting to reduce inhalation hazards
- Welding instead of riveting to reduce noise levels
- Use of safety cans instead of bottles to store flammable liquids, etc.

Care must be exercised in any substitution to ensure that the substitute materials are technically acceptable and to avoid introducing new or unforeseen hazards.

Isolation

Hazards are controlled by isolation whenever an appropriate barrier or limiter is placed between the hazard and an individual who may be affected by the hazard. This isolation can be in the form of physical barriers, time separation, or distance. Examples include machine guards, electrical insulation, glove boxes, acoustical containment, and remote controlled equipment.



Ventilation

The control of a potentially hazardous airborne substance by ventilation can be accomplished by removing the substance at its source or point of generation. Local exhaust ventilation is generally the preferred and more economical method of hazard control.

Administrative control

This method of hazard mitigation depends on effective operating practices that reduce the exposure of individuals to chemical or physical hazards. These practices may take the form of limited access to high hazard areas, or preventive maintenance programs to reduce the potential for leakage of hazardous substances.

Personal protective equipment

This method of hazard control is least preferred because personal protective devices may reduce a worker's productivity, while affording less effective protection against the recognized hazard than other methods of control. Nevertheless, there are instances where adequate levels of risk reduction cannot be achieved through other methods, and personal protective devices must be used, either alone or in conjunction with other protective measures.

Hazard Control Principles

Hazardous conditions in the workplace may be prevented through appropriate actions when facilities are designed, when operating procedures are developed, and when equipment is purchased. Once hazards are identified, whether through inspection or complaint, immediate action shall be taken to avoid unreasonable danger.

Design reviews

Safety and occupational health issues shall be considered, designed, and engineered into all facilities and jobsites. Projects that involve potential health hazards such as toxic material, noise, or other health hazard shall be designed in accordance with established principles of good safety and industrial hygiene engineering.

Operating procedures

Standard operating procedures or similar directives developed by the supervisor that are issued to direct the manner in which work is performed shall include appropriate health and safety requirements. Supervisors are encouraged to submit standard operating procedures. Recommendations for changes/additions to the procedures for safety and health purposes shall be submitted in writing to department managers.

Purchasing procedures



Safety Program

Many hazards can be avoided by incorporating appropriate specifications for purchased equipment/material and contracted efforts that involve work at company facilities. Employees responsible for purchasing or developing specifications for purchases should coordinate with the Facilities Manager, and Safety Officer for all new material or equipment purchases to ensure safety and health considerations have been addressed. Contracts that require work to be performed by contract personnel at company facilities shall follow the Contractor Safety Program.

Interim hazard abatement measures

During the time needed to design and implement permanent hazard control measures, immediate, temporary measures are needed. Where engineering controls are not immediately applicable, administrative controls and/or personal protective equipment are appropriate for use as interim hazard abatement measures.

Permanent hazard abatement

Engineering control methods are the preferred method of hazard control, followed by administrative control and personal protective equipment. Feasible engineering controls shall be used to reduce hazardous exposure, even when only partial reduction of exposure is possible through engineering methods.

Hazard Control Development

The following possible actions will be considered when recommendations are developed for prevention or reduction of hazards:

- Avoiding, eliminating, or reducing deficiencies by engineering design, material selection or substitution
- Isolating hazardous substances, components, and operations from other activities, areas, personnel, and incompatible materials
- Incorporating "fail-safe" principles where failures would disable the system or cause a catastrophe through injury to personnel, damage to the equipment, or inadvertent operation of critical equipment
- Relocating equipment/components so that personnel access during operation, maintenance, repair or adjustment shall not result in exposure to hazards such as chemical burns, electrical shock, electromagnetic radiation, cutting edges, sharp points, or toxic atmospheres
- Providing suitable warning and notes of caution concerning required personnel protection in operation, assembly, maintenance, and repair instructions
- Providing distinctive markings on hazardous components, equipment, or facilities
- Requiring use of personal protective equipment when other controls do not reduce the hazard to an acceptable level
- Monitoring exposure to insure that engineering controls effectively reduce the hazard
- Training employees to recognize hazards and take appropriate precautionary measures



Hazard Reporting

Identification and reporting of potentially unsafe or unhealthful working conditions is the responsibility of all employees. All employees are required to report unsafe or unhealthful working conditions to their immediate supervisor who will promptly investigate the situation and take appropriate corrective actions. Supervisors will contact the Safety Officer for assistance as necessary. Supervisors will keep the reporting employee informed of all actions taken. Any employee may submit a written report of an unsafe or unhealthful working condition directly to the Safety Officer.

Signs and Tags

Signs and tags are not intended as substitutes for preferred abatement methods such as engineering controls, substitution, isolation, or safe work practices. Rather, they are additional safety guidance and increase the employee's awareness of potentially hazardous situations.

Tags are temporary means of warning all concerned of a hazardous condition, defective equipment, etc. Tags are not to be considered as a complete warning method, but should only be used until a positive means can be employed to eliminate the hazard; for example, a "Do Not Start" tag is affixed to a machine and is used only until the machine can be locked out, deenergized, or inactivated.

Danger Signs shall be used where an immediate hazard exists and specific precautions are required to protect personnel or property. The sign shall be of red, black, and white colors.

Danger Tags shall be placed on a damaged ladder or other damaged equipment, and immediate arrangements made for the ladder/equipment to be taken out of service and sent to be repaired.

Caution Signs shall be used to warn of a potential hazard or to caution against unsafe practices, and to prescribe the precaution that will be taken to protect personnel and property from mishap probability. The sign shall be of yellow and black colors.

Exit Signs shall be utilized to clearly identify the means of egress from a building or facility. Where the exit is not apparent, signs shall have an arrow indicating the direction of the exit.

Biological Hazard Warning Signs shall be used to signify the actual or potential presence of a biological hazard and to identify equipment, containers, rooms, experimental animals, etc., which contain or are contaminated with viable hazardous agents. The symbol on these signs shall be the standard fluorescent orange or orange-red color.

Hazard Communication



Safety Program

Many company employees perform operations, which commonly require the use of chemicals that have inherent chemical and physical hazards. General office activities may also involve working with products, which contain regulated chemicals. The OSHA Hazard Communication Standard (29 CFR 1910.1200) requires employers to provide information to their employees concerning the hazardous chemicals in the workplace through a written program, training sessions, materials safety data sheets, labels and warnings, and other pertinent information. All employees and management shall fully comply with the company Hazard Communication Program requirements.

Noise

Employee exposure to noise of sufficient intensity and duration can result in hearing damage. Noise-induced hearing loss rarely results from just one exposure; it can progress unnoticed over a period of years. Initial noise-induced hearing loss occurs at the higher frequencies where the consonant portion of speech is found, making communications difficult. Engineering controls such as mufflers on heavy equipment exhausts or on air release valves are required where possible. If engineering solutions cannot reduce the noise, administrative controls such as increasing the distance between the noise source and the worker or rotation of jobs between workers in the high noise area should be used if possible. Employees will be given the opportunity to select hearing protective devices from a variety of suitable ones provided by the company. Audiometric testing will be provided to all employees with exposure to noise levels of 85 dB (A) or greater.

Housekeeping

All places of employment including outside areas should be kept as clean as the nature of the work allows but must be kept free and clear of debris, trash, scrap, spills or other extraneous materials, which could create a health hazard or cause an accident. Proper layout, spacing and arrangement of equipment, facilities, and machinery are essential to good housekeeping, allowing orderly operation and avoiding congestion.

Maintain the floor of every work area so far as practicable, in a dry condition. Where wet processes are used, maintain drainage and provide removable false floors, platforms, mats, or other dry standing places. When necessary or appropriate, provide waterproof footwear.

To facilitate cleaning, every floor, working place, and passageway will be as smooth as feasible but allowing for the need to provide non-skid flooring where appropriate. Floors will not be cleaned with flammable materials or materials creating significant toxic hazards.

Emergency Eyewash Facilities



Safety Program

Emergency eyewash facilities meeting the requirements of ANSI Z358.1 shall be provided in all areas where the eyes of any employee may be exposed to corrosive materials. All such emergency facilities shall be located where they are easily accessible to those in need.



Office Safety

Purpose

The purpose of this section is to provide guidance to office managers and 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.

Responsibilities

Safety Officer

- Safety Officer will provide training for all office staff in:
 - Emergency Procedures
 - Electrical Safety
 - Office Ergonomics
- Ensure office equipment is in safe working order
- Provide proper storage for office supplies

Office staff

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

Noise Hazards

Noise can be defined very simply as unwanted sound. Whether a sound is classified as noise or not depends mostly on personal preferences. For noise levels in offices, the most common effects are interference with speech communication, annoyance, and distraction from mental activities. Noise in the office can interfere with communications. For example, it may be difficult to talk on the telephone when other people are talking nearby. Speech is likely to interfere with communications especially if the speakers have similar voices.

The annoying effect of noise can decrease performance or increase errors in some task situations. If the task requires a great deal of mental concentration, noise can be detrimental to performance.



Also, there is some indication that unexpected or unpredictable noise can have more of an effect than continuous or periodic noise. The annoyance caused by noise also depends on the Individual. Noise can also be distracting. A sudden noise can interrupt activity temporarily, such as when someone drops a heavy object.

Reducing noise

Many unexpected noises cannot be controlled, as when someone accidentally drops something. For many of the annoying sounds in the office environment, the following measures are useful for reducing the level of noise or its effects:

- Select the quietest equipment if possible. When there is a choice between two or more products, sound levels should be included as a consideration for purchase and use
- Provide proper maintenance of equipment, such as lubrication and tightening of loose parts that can cause noise
- Locate loud equipment in areas where its effects are less detrimental. For example, place impact printers away from areas where people must use the phone
- Use barriers walls or dividers to isolate noise sources. Use of buffers or acoustically treated materials can absorb noise that might otherwise travel further. Rubber pads to insulate vibrating equipment can also help to reduce noise
- Enclose equipment, such as printers, with acoustical covers or housings
- Schedule noisy tasks at times when it will have less of an effect on the other tasks in the office

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.

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, and thereby damage the cord
- All extension cords shall be of the grounding type (three conductors)

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 ceiling fire sprinkler heads. 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.

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 jobs have been identified and associated with increased risk of musculoskeletal problems. These include:

- Design of the workstation
- Nature of the task
- Repetitiveness of the job
- Degree of postural constraint
- Work pace
- Work/rest schedules
- 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.

Display screens



When work is conducted at a computer, the top of the display screen 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.

Your chair

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.

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 as to keep arms low and close to the body in relation to the task. If the working height is too high, the shoulders or the upper arms 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 workstations 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.

Work/rest schedules

One solution for stress and fatigue is to design the computer operator's work so that tasks requiring concentrated work at the terminal are alternated with non-computer based tasks throughout the workday. Also, a short break (5-10 minutes) should be taken at least once each hour when involved in continuous work at the computer.

Other solutions

Additional measures that will aid in reducing discomfort while working with computers include:



- Change position, stand up or stretch whenever you start to feel tired
- Use a soft touch on the keyboard and keep your shoulders, hands, and fingers relaxed
- Use a document holder, positioned at about the same plane and distance as the display screen
- Rest your eyes by occasionally looking off into the distance

Office Lighting

Different tasks require different levels of lighting. Areas in which intricate work is performed, for example, require greater illumination than warehouses. Lighting needs vary from time to time and 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 the individual controls task lamps, they can accommodate personal preferences.

Indoor Air Quality

Indoor air quality (IAQ) is an increasingly important issue in the work environment. The study of indoor air quality and pollutant levels within office environments is a complex problem. The complexity of studying and measuring the quality of office environments arises from various factors including:

- Office building floor plans are frequently changing to accommodate increasingly more employees and reorganization
- Office buildings frequently undergo building renovations such as installation of new carpet, modular office partitions and free-standing offices, and painting
- Many of the health symptoms appearing are vague and common both to the office and home environment
- In general, very little data on pollutant levels within office environments is available
- Guidelines or standards for permissible personal exposure limits to pollutants within office buildings are very limited

Many times odors are associated with chemical contaminants from inside or outside the office space, or from the building fabric. This is particularly noticeable following building renovation or installation of new carpeting. Outgassing from such things as paints, adhesives, sealants, office furniture, carpeting, and vinyl wall coverings is the source of a variety of irritant compounds. In most cases, these chemical contaminants can be measured at levels above ambient (normal background) but far below any existing occupational evaluation criteria.

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 maintenance personnel of the potential hazard.

Chemical Safety



Safety Program

Each office employee must be made aware of all hazardous materials they may contact in their work area. The *Hazard Communication Program* includes:

- Written program
- Material Safety Data Sheets for each hazardous substance used
- Specific safe handling, use and disposal
- Employee training

Emergency Action Plans

Emergency Action Plans are designed to control events and minimize the affects. Through careful pre-planning, training and drills, employees can be safeguarded and potential for damage to company assets minimized.

Emergency Action Plans include:

- Exits routes, meeting areas and employee accounting
- Emergency evacuation, incident command and notification to emergency services
- Personal injury and property damage
- Protection of company information, both hard copy and electronic media
- Bomb threats and facility security
- First Aid response

All office personnel should be trained in the use of fire extinguishers with quarterly reviews and drills. Semiannual drills with all employees should be conducted to assure effectiveness. First Aid kits or First Aid supplies should be available with trained First Aid providers available.



Accident Reporting & Record Keeping

Purpose

Various Federal and State laws require accident, injury and illness reports. Our company insurance carriers also require accident reports. It is the policy of NAIPTA, to create, maintain and file accident reports as required by law. Accident reports submitted to outside agencies and agents of the company shall be submitted in the required format. Example: OSHA 300 log, OSHA 200 log and OSHA 101 form (or equivalent).

Accident Reporting

All incidents and accidents resulting in injury or causing illness to employees and events (near-miss accidents) shall be reported in order to:

- Establish a written record of factors that cause injuries and illnesses and occurrences (near-misses) that might have resulted in injury or illness but did not, as well as property and vehicle damage
- Maintain a capability to promptly investigate incidents and events in order to initiate and support corrective and/or preventive action
- Provide statistical information for use in analyzing all phases of incidents and events
- Provide the means for complying with the reporting requirements for occupational injuries and illness
- The Incident Reporting System requirements apply to all incidences involving company employees, on-site vendors, contractor employees and visitors, which results in (or might have resulted in) personal injury, illness, and/or property and vehicle damage

Responsibilities

Safety Officer:

- Establish and maintain an effective accident reporting program
- Establish and maintain an effective record keeping program including security controls over sensitive employee medical and exposure records
- Train all employees in the accident reporting procedures
- Train record custodians in proper record entry, maintenance and release procedures
- Conduct annual program audit

Supervisors

- Comply with the requirements of this program

Employees



- Comply with the accident reporting procedures

Incidents (Occupational injuries and illnesses)

Injuries and illnesses that require reporting include those injuries and illnesses occurring on the job which result in any of the following:

- Lost work time
- Restrictions in performing job duties
- Requirement for first aid or outside medical attention
- Permanent physical bodily damages or death

Examples of "reportable" injuries and illnesses include, but are not limited to; heat exhaustion from working in hot environments, strained back muscles from moving equipment, acid burns on fingers, etc.

Other incidents requiring reporting include those incidents occurring on the job which result in any of the following:

- Injury or illness
- Damage to a vehicle, fire/explosion, any property damage.
- Chemical releases requiring evacuation of at least that immediate spill area.

Examples of "non-reportable" injuries and illnesses include; small paper cuts, common colds, and small bruises not resulting in work restrictions or requiring first aid or medical attention.

Events (Near Misses)

Other incidents that, strictly by chance, do not result in actual or observable injury, illness, death, or property damage are required to be reported. The information obtained from such reporting can be extremely useful in identifying and mitigating problems before they result in actual personal or property damage. Examples of near miss incidences required to be reported include; the falling of a compressed gas cylinder, overexposures to chemical, biological, or physical agents (not resulting in an immediately observable manifestation of illness or injury), and slipping and falling on a wet surface without injury.

Incident Reporting Procedures

The following procedures are to be followed by all employees in order to effectively report occupational injuries and illnesses and other incidents or events. All reports to outside agencies, except for those to local emergency response units (police, fire, ambulance), shall be made only by the Safety Officer or Internal Services Director.



Incidents (injuries and illnesses)

Serious injury or illness posing a life-threatening situation shall be reported immediately to the local emergency response medical services (Call 911).

Injuries and illnesses shall be reported, by the injured employee, to his or her supervisor in person or by phone as soon after any life-threatening situation has been addressed. If the injured employee is unable to report immediately, then the incident should be reported as soon as possible.

Upon notification of an occupational injury or illness, the supervisor should complete the Incident/Accident Report and Supervisors Report of Injury, and, if possible, send it with the injured employee to a Preferred Medical Center. The Incident/Accident Report Form, and Supervisors Report of Injury, must be completed and forwarded to the Safety Officer.

For specific Policy and Procedures, refer to the NAIPTA personnel manual.

Events

Incidents not involving injury or illness, but resulting in property damage, must also be reported within 24 hours of the incident. In cases of a fire or explosion that cannot be controlled by one person, or a vehicular accident, the involved party must immediately report the incident to the emergency response services in the area (911 - police, fire, etc.).

All near miss incidences also must be reported on the Incident/Accident Report Form within 24 hours of occurrence. In place of indicating the result of the incident (i.e., actual personal or property damage), the reporting person shall indicate the avoided injury or damage. Events, hazardous working conditions or situations, and incidents involving contractor personnel must be reported to your supervisor immediately.

Record Keeping

The Safety Officer will maintain the required OSHA 200, OSHA 300 Log and Summary of (recordable) Occupational Injuries and Illnesses and the OSHA 101 Supplementary Record of Occupational Injuries and Illnesses for each calendar year. The required portion of the OSHA 200 Log and Summary of Occupational Injuries and Illnesses will be posted annually during the entire month of February throughout facilities for the previous calendar year.

Training

To ensure that all employees understand the incident reporting requirements and are aware of they're own and other's responsibilities, annual training sessions will be held with all employees to review procedures and responsibilities. New Employee Orientation training will include information on incident reporting and procedures. Employees involved in record entry and record keeping will be trained in the company and statutory requirements.



Program Audits

The effectiveness of a program can only be accomplished if the program is implemented and maintained. Periodic reviews and audits shall be conducted to confirm that all employees are familiar with the incident reporting requirements and that the program is managed properly. These audits will consist of:

- Annual review of accident reports to ensure all records have been maintained and are complete
- Annual review of the program with company insurance carriers and workers compensation third party provider
- Annual refresher training for all employees detailing the accident reporting procedures

Recording Injuries & Illnesses

Basic recordkeeping concepts and guidelines are included with instructions on the back of form OSHA No. 200. The following summarizes the major recordkeeping concepts and provides additional information to aid in keeping records accurately.

General concepts of recordability

An injury or illness is considered work related if it results from an event of exposure in the work environment. The work environment is primarily composed of; (1) the employer's premises, and (2) other locations where employees are engaged in work-related activities or are present as a condition of their employment. When an employee is off the employer's premises, work relationship must be established, when on the premises, this relationship is presumed. The employer's premises encompass the total establishment. This includes not only the primary facility, but also such areas as company storage facilities, cafeterias, and rest rooms. In addition to physical locations, equipment or materials used in the course of an employee's work are also considered part of the employee's work environment.

All work-related fatalities are recordable.

All recognized or diagnosed work-related illnesses are recordable.

All work-related injuries requiring medical treatment or involving loss of consciousness, restriction of work or motion, or transfer to another job are recordable.

Analysis of injuries

Recordable and non-recordable injuries. Each case is distinguished by the treatment provided; i.e., if the injury was such that medical treatment was provided or should have been provided, it is recordable; if only first aid was required, it is not recordable. However, medical treatment is only one of several criteria for determining recordability. Regardless of treatment, if the injury involved loss of consciousness, restriction of work or motion, or transfer to another job, the injury is recordable.



Accident Investigation

Purpose

Accident prevention and control of hazards is the result of a well-designed and executed safety and health program. One of the keys to a successful program includes unbiased, prompt and accurate accident investigations. The basic purpose of these investigations is to determine measures that can be taken to prevent similar accidents in the future. This section addresses Company Policy Responsibilities including; hazard control, the role of the supervisor and investigation procedures. It is the policy of NAIPTA, that all work related accidents, injuries and illnesses investigations are to be conducted in a professional manner to identify probable causes and are used to develop specific management actions for the prevention of future accidents.

Responsibilities

Safety Officer

- Conduct accident prevention and investigation training for supervisors
- Ensure all accidents and injuries are properly investigated
- Ensure immediate and long term corrective actions are taken to prevent reoccurrence
- Maintain Accident Reports permanently on file
- Ensure proper entries are made on the OSHA 200 & 300 Log and First Report of Injury
- Provide all necessary medical care for injured workers

Supervisors

- Conduct immediate initial accident investigations
- Report all accidents to management as soon after the event as possible
- Collect and preserve all evidence that may be useful in an investigation
- Conduct interviews of witnesses in a polite professional manner
- Do not attempt to find or assign blame for accidents
- Take action to protect people and property from secondary effects of accidents

Employees

- Immediately report all accidents & injuries to their supervisor
- Assist as requested in all accident investigations
- Report all hazardous conditions and near-misses to supervisors

Hazard Control

Engineering Controls

There are numerous engineered safeguards throughout jobsites used to protect employees and prevent exposure to hazards. Examples of engineering controls are machine guards, safety controls, isolation of hazardous areas, monitoring devices, etc. Specific engineering controls are addressed in other chapters of the company safety manual and in equipment and process procedures.



Administrative Controls

These controls involve the use of procedures, assessments, inspection, records to monitor and ensure safe practices and environments are maintained. Other administrative controls are in place to identify new hazards and implement corrective action. Examples of administrative controls are periodic inspections, equipment operating and maintenance procedures, hazard analysis, selection and assignment of personal protective equipment, etc.

Training Controls

This aspect of hazard control is used to ensure employees are fully and adequately trained to safely perform all tasks to which they are assigned. No employee is to attempt any task without proper training in the equipment used, required personal protective equipment, specific hazards and their control and emergency procedures. Examples of training controls are initial new hire safety orientation, job specific safety training and periodic refresher training.

Supervisor Involvement

In most cases, the immediate supervisor will conduct the initial phase of an accident investigation. This initial activity is primarily a recording of facts involved in the accident, list of affected employees and witnesses. Direct supervisors are familiar with employee's work environment and assigned tasks. Supervisors must take the accident situation under control and immediately eliminate or control hazards to others.

Immediate Steps

- Provide First Aid for any injured persons
- Eliminate or control hazards
- Document accident scene information to determine the cause
- Interview witnesses immediately

Accident Prevention

Accidents are usually complex. An accident may have 10 or more events that can be causes. A detailed analysis of an accident will normally reveal three cause levels: basic, indirect, and direct. At the lowest level, an accident results only when a person or object receives an amount of energy or hazardous material that cannot be absorbed safely. This energy or hazardous material is the **DIRECT CAUSE** of the accident. The direct cause is usually the result of one or more unsafe acts or unsafe conditions, or both. Unsafe acts and conditions are the **INDIRECT CAUSES** or symptoms. In turn, indirect causes are usually traceable to poor management policies and decisions, or to personal or environmental factors. These are the **BASIC CAUSES**.

Most accidents are preventable by eliminating one or more causes. Accident investigations determine not only what happened, but also how and why. The information gained from these investigations can prevent recurrence of similar or perhaps more disastrous accidents. Accident investigators are interested in each event as well as in the sequence of events that led to an accident. The accident type is also important to the investigator. The recurrence of accidents of a



particular type or those with common causes shows areas needing special accident prevention emphasis.

Initial Investigation Procedures

The initial investigation has three purposes:

1. Prevent further possible injury and property damage
2. Collect facts about the accident
3. Collect and preserve evidence

Steps

Secure the area; do not disturb the scene unless a hazard exists.

Prepare the necessary sketches and photographs; label each carefully and keep accurate records.

Interview each victim and witness; also interview those who were present before the accident and those who arrived at the site shortly after the accident. Keep accurate records of each interview.

Use a tape recorder if desired and if approved.

Determine

- What was not normal before the accident
- Where the abnormality occurred
- When it was first noted
- How it occurred

Follow-up Accident Investigation

The follow-up investigation is used to analyze data and determine the causes and corrective actions necessary to prevent reoccurrence.

Steps

Analyze the data obtained in the initial investigation.

Repeat any of the prior steps, if necessary.

Determine why the accident occurred and the likely sequence of events and probable causes (direct, indirect, basic).

Determine the most likely causes.

Conduct a post-investigation briefing.



Prepare a summary report, including the recommended actions to prevent a recurrence

An investigation is not complete until all data are analyzed and a final report is completed. In practice, the investigative work, data analysis, and report preparation proceed simultaneously over much of the time spent on the investigation.

Conducting Interviews

In general, experienced personnel should conduct interviews. All interviews should be conducted in a quiet and private location. It is essential to get preliminary statements as soon as possible from all witnesses. Investigators should not provide any facts to the witness - only ask non-leading questions.

- Explain the purpose of the investigation (accident prevention) and put each witness at ease
- Listen, let each witness speak freely, and be professional, courteous and considerate
- Take notes without distracting the witness. Use a tape recorder only with consent of the witness
- Use sketches and diagrams to help the witness
- Emphasize areas of direct observation. Label hearsay accordingly
- Do not argue with the witness
- Record the exact words used by the witness to describe each observation
- Identify each witness (name, address, occupation, years of experience, etc.)

Accident Analysis

Accidents represent problems that must be solved through investigations. Formal procedures are helpful in identifying and solving problems. This section discusses two of the most common procedures: Change Analysis and Job Safety Analysis.

Change analysis

As its name implies, this technique emphasizes change. To solve a problem, an investigator must look for deviations from the norm. Consider all problems to result from some unanticipated change. Make an analysis of the change to determine its causes. Use the following steps in this method:

- Define the problem (what happened?)
- Establish the norm (what should have happened?)
- Identify, locate, and describe the change (what, where, when, to what extent)
- Specify what was and what was not affected
- Identify the distinctive features of the change
- List the possible causes
- Select the most likely causes



Job safety analysis

Job safety analysis (JSA) is part of many existing accident prevention programs. In general, JSA breaks a job into basic steps, and identifies the hazards associated with each step. The JSA also prescribes controls for each hazard. A JSA is a chart listing these steps, hazards, and controls. Review the JSA during the investigation if a JSA has been conducted for the job involved in an accident. Perform a JSA if one is not available. Perform a JSA as a part of the investigation to determine the events and conditions that led to the accident.

Investigation Report

An accident investigation is not complete until a report is prepared and submitted to management. To be an effective tool, an accident report should be clear and concise. The purpose of the investigation is to prevent future accidents.

The following outline has been found especially useful in developing the information to be included in the formal report:

- Background information
 - Where and when the accident occurred
 - Who and what were involved
 - Operating personnel and other witnesses
- Account of the accident (what happened?)
 - Sequence of events
 - Extent of damage
 - Accident type
 - Agency or source (of energy or hazardous material)
- Discussion (analysis of the accident; **HOW and WHY**)
 - Direct causes (energy sources; hazardous materials)
 - Indirect causes (unsafe acts and conditions)
 - Basic causes (management policies; personal or environmental factors)
- Recommendations (to prevent a recurrence) for immediate and long-range action to remedy:
 - Basic causes
 - Indirect causes
 - Direct causes (such as reduced quantities or protective equipment or structures)

Possible Causes

Obvious accident causes are most probably symptoms of a "root cause" problem. Some examples of Unsafe Acts and Unsafe Conditions, which may lead to accidents, are:

Unsafe acts

- Unauthorized operation of equipment



- Running - Horse Play
- Not following procedures
- By-passing safety devices
- Not using protective equipment
- Under influence of drugs or alcohol

Unsafe conditions

- Ergonomic hazards
- Environmental hazards Inadequate housekeeping Blocked walkways
- Improper or damaged PPE
- Inadequate machine guarding

Recommendations

As a result of the finding is there a need to make changes to:

- Employee training
- Work Stations Design
- Policies or procedures

Records

All accident reports will be maintained on file permanently. They shall receive timely review by upper management to ensure proper corrective actions have been taken.

First Report of Injury and OSHA 300 Log entries will be made within 8 hours of notification of injuries or illnesses.



Safety Audits & Inspections

Purpose

Inspection of work areas and audits of Safety Programs are tools that can be used to identify problems and hazards before these conditions result in accidents or injuries. Audits also help to identify the effectiveness of safety program management and can be used as a guide to assure regulatory compliance and a safe workplace.

Responsibilities

Safety Officer

- Design and schedule audit and inspection procedures for all work areas, processes and procedures
- Conduct routine audits and inspections
- Ensure audits are conducted by employees who understand the various safety programs and policies

Supervisors

- Conduct informal daily safety inspections and ensure all unsafe conditions are corrected
- Conduct documented weekly inspections and ensure all unsafe conditions are corrected

Corrections

All safety deficiencies found during audits and inspections should be corrected as soon as possible. Documentation of corrections should be made on the audit or inspection sheet, and conditions that present a hazard are to be corrected or controlled immediately.

Types of Inspections

Supervisor and management daily walk-through is an undocumented inspection that is made daily prior to startup and shift change to ensure the facility and equipment are in safe conditions for employees. All noted unsafe areas are placed in a safe condition prior to employees working in the area.

Weekly supervisor inspections are conducted and recorded. This documented inspection provides a focus to ensure current hazard controls are still effective, equipment is in safe condition and safe work practices are in use. Discrepancies are listed on the inspection sheet, and recorded on work orders for correction. The inspection sheet is forwarded to the Safety Manager for review and logging to track discrepancy correction.



Safety Program

Equipment inspections are conducted to ensure specific safety equipment is in good working order and will function when needed. Examples and frequencies are:

- Sprinkler inspection - Monthly
- Emergency lighting test - Monthly
- Fire extinguisher inspections - Monthly
- Safety equipment inventories - Monthly
- Emergency lighting 90 min. test - Semiannually

Program audits are conducted to check the administration of specific safety and health programs. Program Audits of the following shall be conducted annually.

- Accident prevention
- Fire prevention
- Material handling
- Flammable material storage
- Lockout -Tag out
- Hazard communication
- Personal protective equipment
- Confined space entry
- Asbestos controls
- Blood borne pathogens
- Contractor safety
- Electrical safety
- Tool safety
- Hot Work
- Respiratory protection

Records

Records of audits and inspection will be maintained in accordance with the requirements of the specific programs. As a minimum, the last two program audits will be kept on record. Routine inspection records will be maintained on a most current basis. Records of deficiency corrections will be maintained for one calendar year from date of correction.

Conducting Safety Audits

There are four basic questions an audit should answer. The persons or team designated to conduct the audits should take a fact-finding approach to gather data. These auditors should be familiar with both the NAIPTA program and the various local, state and federal requirements. All audit comments; recommendations and corrective actions should focus on these four questions:

1. Does the program cover all regulatory and best industry practice requirements?
2. Are the program requirements being met?
3. Is there documented proof of compliance?
4. Is employee training effective?



Phase One: Audit preparation

Step One - one week prior to the audit, inform all affected managers and supervisors. They should be directed to have all records, documents and procedures available when the audit starts.

Step Two - review all past program area audits and corrective action recommendations.

Step Three - review all company, local, state and federal requirements for the specific program. Become familiar with the document, inspection and training requirements.

Step Four - determine the scope of the audit. This can be based on accident and inspection reports and input from various managers. Set a start and stop time & date for the audit.

Phase Two: Fact finding

A fact-finding event is used to gather all applicable information. Auditors should make an effort not to form an opinion or make evaluative comments during this phase.

A team approach

If an audit team is used, make assignments to each person that defines their area of inspection. Ensure they have the proper program background information and documents.

Audit areas

Most audits can be broken down into these areas:

Employee knowledge

OSHA standards require "effective training" - an effective program ensures that employees have the knowledge required to operate in a safe manner on a daily basis. The level of knowledge required depends on the specific activities in which the employee is involved and their specific duties and responsibilities. Generally, managers and supervisors should have a higher level of knowledge than general employees. This includes practical knowledge of program administration, management and training. They should be able to discuss all elements of each program that affects their assigned employees. Many programs divide employees into these two groups - authorized employees and affected employees. Authorized employees must have a high level of working knowledge involving hazard identification and hazard control procedures. Determining employee level of knowledge can be achieved through written quizzes, formal interviews or informal questions in the workplace.

Written program review

During the audit, a comprehensive review of the written program should be conducted. This review compares the company program to requirements for hazard identification and control, required employee training and record keeping against the local, state and federal requirements. Additionally, if applicable, the company insurance carrier should be asked to conduct an independent written program review.



Program administration

This review checks the implementation and management of specific program requirements. This section asks these and other similar questions:

- Is there a person assigned and trained to manage the program?
- Are specific duties and responsibilities assigned?
- Are sufficient assets provided?
- Is there an effective and on-going employee-training program?

Record and document review

Missing or incomplete documents or records are a good indication that a program that is not working as designed. Records are the company's only means of proving that specific regulatory requirements have been met. Record review also includes a look at the results, recommendations and corrective actions from the last program audit.

Equipment and material

This area of an audit inspects the material condition and applicability of the equipment for hazard control in a specific program. Examples of audit questions for this area are:

- Is the equipment in a safe working condition?
- Is there adequate equipment to conduct tasks safely?
- Is personal protective equipment used and stored properly?
- Is equipment, such as exit lights, emergency lights, fire extinguishers, material storage and handling equipment designed and staged to control hazards effectively?

General area walk-through

Audits are not designed to be comprehensive physical wall-to-wall jobsite inspections, but a general walk-through of work areas can provide additional insight into the effectiveness of safety programs. Auditors should take written notes of unsafe conditions and unsafe acts observed during the walk-through.

Phase Three: Review of Findings

After all documents, written programs, procedures, work practices and equipment have been inspected, the audit team must formulate a concise report that details all areas of the program. Focus on the four basic audit questions. Each program requirement should be addressed with deficiencies noted. Include comments of a positive nature for each element that is being effectively managed.



Phase Four: Recommendations

Develop recommended actions for each deficient condition of the program. Careful forethought should be applied to ensure that this is not a process that simply makes more rules, additional record keeping requirement or makes production tasks more difficult. Examine the manner and means in which the current deficient elements are managed to determine if there is a simpler procedure that can be employed.

Phase Five: Corrective Actions

Development of corrective action should involve the managers and supervisor who will be required to execute the corrections. Set priorities based on level of hazard. All corrective actions should be assigned a completion and review date. Records of completed corrective actions should be reviewed through the normal management chain and then be filed for use during the next audit.



Contractor Safety Program

Purpose

NAIPTA's Safety Program is designed to meet employee, environmental and transportation safety requirements to protect NAIPTA and contractor employees, jobsites, and equipment from injury, accident or loss. Contractors are defined as non-NAIPTA state and federal employees, or businesses that are retained by NAIPTA to provide specific labor or services.

Examples of Contractor Employers are; but not limited to,

- Building trades companies
- Utility service or repair companies
- Janitorial services
- Pest control services
- Food Service and vending groups
- Transportation and shipping services
- Raw product suppliers

Contractor compliance is a condition of doing business with *NAIPTA*. Specific compliance is required in the following:

- Local, State & Federal Safety, Environmental and Transportation Regulations, and laws
- Fire & Building Codes
- Minimum Liability & Workers Compensation Insurance Requirements

Responsibilities

Management:

- Ensure contracts for bids contain appropriate information concerning the Contractor Safety Program including all requirements
- Provide access to MSDS material upon request of subcontractor, or NAIPTA
- Monitor all subcontractor activity at their location
- Ensure subcontractor follow and adhere to all OSHA requirements
- Provide a safe work environment



Contractors

- Conduct daily safety inspections of all assigned areas
- Identify and correct hazards
- Provide subcontractor employees with required personal protective equipment
- Ensure subcontractor employees have the proper training for assigned tasks
- Coordinate with NAIPTA Safety officer for safety related issues
- Maintain required insurance coverage
- Establish and maintain an effective Safety and Health Program
- Establish and maintain an effective Housekeeping Program
- Report any of the above to the NAIPTA Safety Office

Minimum Insurance Requirements

Contractors and Vendors are required to meet minimum State and Federal Insurance Requirements according to the following schedule:

Coverage Minimum Per Occurrence Limits

- Automobile Liability
- General Liability
- Products Liability
- Completed Operations Liability
- Workmen's Compensation

Certificates of Insurance

As proof of Insurance Coverage and Per Occurrence Limits, the contractor must provide *NAIPTA* a Certificate of Insurance. The Certificate must list NAIPTA, its Divisions and Subsidiaries as a Certificate Holder with notification of cancellation or non-renewal.

Required training for contractor employees

- General Safety Rules, including reporting of unsafe conditions
- Hazard communication and chemical safety
- Lockout/Tagout
- Electrical safety
- Evacuation routes, alarms and procedures
- Hot Work Program
- Confined Space Program
- Process safety management
- Personal protective equipment



Safety Reviews

To ensure the safety of NAIPTA and contractor employees, company facilities and equipment, a comprehensive pre-work safety review conference will be conducted for all subcontractor work that involves:

- Construction
- Renovation
- Equipment installation & repair
- Utility modifications
- Electrical work
- Work at elevated locations
- Confined space entry
- Use of toxic substances
- Hot work or welding

As a minimum, the safety review participants will consist of NAIPTA and contractor safety representatives. All task specific safety concerns shall be addressed and resolved prior to commencement of work by the contractor.

Hazardous Chemical/Substance Notification

Contractors must follow the OSHA Hazard Communication Standard requirements including safe handling and storage of chemicals. Contractors are required to inform the NAIPTA Safety Officer of all hazardous substances which may be brought onto a NAIPTA jobsite, including providing the most current Material Safety Data Sheet for each substance. All spills and leaks of hazardous chemicals must be immediately reported to the NAIPTA Safety, or Facility Office and NAIPTA management.

Confined Space Entry

Contractor employees are not authorized to enter any confined spaces or any NAIPTA jobsites unless specifically required by the service or construction contract.

Work at Elevated Locations

All contractor employees when working at elevated locations shall use required fall protection equipment.

Other Policies and Procedures

All contractor employees shall adhere to all other NAIPTA policies, including but not limited to: access to company jobsites, company equipment, use of controlled substances, firearm and explosive restrictions, harassment of other persons, traffic and parking regulations.



Tool Safety Program

Purpose

Use of tools makes many tasks easier. However, the same tools that assist us can, if improperly used or maintained, can create significant hazards in our work areas. Employees who use tools must be properly trained to use, adjust, store and maintain tools properly. This section covers hand, electrical, pneumatic, powder driven, and hydraulic tool safety.

Responsibility

Management

- Ensure tools are maintained and stored safely
- Provide employee training
- Provide for equipment repair

Employees

- Follow proper tool safety guidelines
- Report tool deficiencies and malfunctions
- Properly store tools when work is completed

Hazard Control

Engineering

- Properly designed tools
- Guards and safety devices

Administrative

- Use of PPE
- Control of tool issue
- Employee Training
- Controlled access to equipment and tool areas

General Safety Precautions

Employees who use hand and power tools and who are exposed to the hazards of falling, flying, abrasive and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases must be provided with the particular personal equipment necessary to protect them from the hazard.

Following five basic safety rules can prevent all hazards involved in the use of tools:



- Keep all tools in good condition with regular maintenance
- Use the right tool for the job
- Examine each tool for damage before use
- Operate according to the manufacturer's instructions
- Provide and use the proper protective equipment

Hand Tools

Hand tools are non-powered. They include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance.

Some examples:

- Using a screwdriver as a chisel may cause the tip of the screwdriver to break and fly, hitting the user or other employees
- If a wooden handle on a tool such as a hammer or an axe is loose, splintered, or cracked, the head of the tool may fly off and strike the user or another worker
- A wrench must not be used if its jaws are sprung, because it might slip
- Impact tools such as chisels, wedges, or drift pins are unsafe if they have mushroomed heads. The heads might shatter on impact, sending sharp fragments flying

Appropriate personal protective equipment, e.g., safety goggles, gloves, etc., must be worn due to hazards that may be encountered while using portable power tools and hand tools.

Floors shall be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.

Around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide for safety.

Power Tool Precautions

Power tools can be hazardous when improperly used. There are several types of power tools, based on the power source they use: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated.

Power tool users should observe the following general precautions:

- Never carry a tool by the cord or hose
- Never yank the cord or the hose to disconnect it from the receptacle
- Keep cords and hoses away from heat, oil, and sharp edges
- Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters
- All observers should be kept at a safe distance away from the work area



Safety Program

- Secure work with clamps or a vise, freeing both hands to operate the tool
- Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool
- Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories
- Be sure to keep good footing and maintain good balance
- The proper apparel must be worn. Loose clothing, ties, or jewelry can become caught in moving parts
- All portable electric tools that are damaged shall be removed from use and tagged "Do Not Use"

Guards

Hazardous moving parts of a power tool need to be safeguarded. For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded.

Guards, as necessary, should be provided to protect the operator and others from the following:

- Point of operation
- In-running nip points
- Rotating parts
- Flying chips and sparks

Safety guards must never be removed when a tool is being used. For example, portable circular saws must be equipped with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except when it makes contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work.

Safety Switches

The following hand-held powered tools are to be equipped with a momentary contact "on-off" control switch: drills, tappers, fastener drivers, horizontal, vertical and angle grinders with wheels larger than 2 inches in diameter, disc and belt sanders, reciprocating saws, saber saws, and other similar tools. These tools also may be equipped with a lock-on control provided that a single motion of the same finger or fingers that turn it on can accomplish turnoff.

The following hand-held powered tools may be equipped with only a positive "on-off" control switch: platen sanders, disc sanders with discs 2 inches or less in diameter; grinders with wheels 2 inches or less in diameter; routers, planers, laminate trimmers, nibblers, shears, scroll saws and jigsaws with blade shanks ¼-inch wide or less.

Other hand-held powered tools such as circular saws having a blade diameter greater than 2 inches, chain saws, and percussion tools without positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when the pressure is released.



Electrical Safety

Among the chief hazards of electric-powered tools are burns and slight shocks, which can lead to injuries or even heart failure. Under certain conditions, even a small amount of current can result in severe injury and eventual death. A shock also can cause the user to fall off a ladder or other elevated work surface.

To protect the user from shock, tools must either have a three-wire cord with ground, and be grounded, be double insulated, or be powered by a low-voltage isolation transformer. Three-wire cords contain two current-carrying conductors and a grounding conductor. One end of the grounding conductor connects to the tool's metal housing. The other end is grounded through a prong on the plug. Anytime an adapter is used to accommodate a two-hole receptacle, the adapter wire must be attached to a known ground. The third prong should never be removed from the plug.

Double insulation is more convenient. The user and the tools are protected in two ways: by normal insulation on the wires inside, and by a housing that cannot conduct electricity to the operator in the event of a malfunction.

Electric power tool general safety practices:

- Electric tools should be operated within their design limitations
- Gloves and safety footwear are recommended during use of electric tools
- When not in use, tools should be stored in a dry place
- Electric tools should not be used in damp or wet locations
- Work areas should be well lighted

Powered Abrasive Wheel Tools

Powered abrasive grinding, cutting, polishing, and wire buffing wheels create special safety problems because they may throw off flying fragments.

Before an abrasive wheel is mounted, it should be inspected closely and sound- or ring-tested to be sure that it is free from cracks or defects. To test, wheels should be tapped gently with a light non-metallic instrument. If they sound cracked or dead, they could fly apart in operation and so must not be used. A sound and undamaged wheel will give a clear metallic tone or "ring."

To prevent the wheel from cracking, the user should be sure it fits freely on the spindle. The spindle nut must be tightened enough to hold the wheel in place, without distorting the flange. Follow the manufacturer's recommendations. Care must be taken to assure that the spindle wheel will not exceed the abrasive wheel specifications.

Due to the possibility of a wheel disintegrating (exploding) during start-up, the employee should never stand directly in front of the wheel as it accelerates to full operating speed.

Portable grinding tools need to be equipped with safety guards to protect workers not only from the moving wheel surface, but also from flying fragments in case of breakage.



Powered grinder safety precautions:

- Always use eye protection
- Turn off the power when not in use
- Never clamp a hand-held grinder in a vise

Pneumatic Tools

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. There are several dangers encountered in the use of pneumatic tools. The main one is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool. Eye protection is required and face protection is recommended for employees working with pneumatic tools. Working with noisy tools such as jackhammers requires proper, effective use of hearing protection.

When using pneumatic tools, employees are to check to see that they are fastened securely to the hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool will serve as an added safeguard.

A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel.

Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.

Compressed air guns should never be pointed toward anyone. Users should never "dead-end" it against themselves or anyone else.

Powder-Actuated Tools

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. In fact, they are so dangerous that only specially trained employees must operate them.

Powder-Actuated Tool Safety:

- These tools should not be used in an explosive or flammable atmosphere
- Before using the tool, the worker should inspect it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions
- The tool should never be pointed at anybody
- The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons
- Hands should be kept clear of the barrel end. To prevent the tool from firing accidentally, two separate motions are required for firing: one to bring the tool into position, and another to pull the trigger. The tools must not be able to operate until they are pressed against the work surface with a force of at least 5 pounds greater than the total weight of the tool



Safety Program

If a powder-actuated tool misfires, the employee should wait at least 30 seconds, then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, than carefully remove the load. The bad cartridge should be put in water. Suitable eye and face protection are essential when using a powder-actuated tool.

The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.

All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force. If the tool develops a defect during use it should be tagged and taken out of service immediately until it is properly repaired.

Powder-actuated tool fasteners

When using powder-actuated tools to apply fasteners, there are some precautions to consider. Fasteners must not be fired into material that would let them pass through to the other side. The fastener must not be driven into materials like brick or concrete any closer than 3 inches to an edge or corner. In steel, the fastener must not come any closer than one-half inch from a corner or edge. Fasteners must not be driven into very hard or brittle materials, which might chip or splatter, or make the fastener ricochet.

An alignment guide must be used when shooting a fastener into an existing hole. A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

Hydraulic Power Tools

The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed. The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters, and other fittings must not be exceeded.

Jacks

All jacks - lever and ratchet jacks, screw jacks, and hydraulic jacks - must have a device that stops them from jacking up too high. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack and should not be exceeded.

A jack should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up.

Use wooden blocking under the base if necessary to make the jack level and secure. If the lift surface is metal, place a 1-inch-thick hardwood block or equivalent between it and the metal jack head to reduce the danger of slippage.



Safety Program

To set up a jack, make certain of the following:

- The base rests on a firm level surface
- The jack is correctly centered
- The jack head bears against a level surface
- The lift force is applied evenly

Proper maintenance of jacks is essential for safety. All jacks must be inspected before each use and lubricated regularly. If a jack is subjected to an abnormal load or shock, it should be thoroughly examined to make sure it has not been damaged.

Hydraulic jacks exposed to freezing temperatures must be filled with adequate antifreeze liquid.



Ladder Safety

Purpose

Ladders present unique opportunities for unsafe acts and unsafe conditions. Employees who use ladders must be trained in proper selection, inspection, use and storage. Improper use of ladders has cause a large percentage of accidents in the workplace are of accidents. Use caution on ladders. OSHA reference: (29 CFR 1910.25, 1910.26, and 1910.27).

Ladder Hazards

Falls from ladders can result in broken bone and death. Ladder safety is a life saving program at our company.

Hazards include:

- Ladders with missing or broken parts
- Using a ladder with too low a weight rating
- Using a ladder that is too short for purpose
- Using metal ladders near electrical wires
- Using ladders as a working platform
- Objects falling from ladders
- Using ladders in uncontrolled high traffic areas

Ladder Inspection

Inspect ladders before each use:

- All rungs and steps are free of oil, grease, dirt, etc.
- All fittings are tight
- Spreaders or other locking devices are in place
- Non-skid safety feet are in place
- No structural defects, all support braces intact

Do not use broken ladders. Most ladders cannot be repaired to manufacturer specifications. Throw away all broken ladders.

Ladder Storage

Store ladders on sturdy hooks in areas where they cannot be damaged. Storage of ladders needs to be conducted in manner to prevent warping or sagging. Do not hang anything on ladders that are in a stored condition.



Ladder Ratings & Limits

Ladder weight ratings

- I-A 300 pounds (heavy duty)
- I 250 pounds (heavy duty)
- II 225 pounds (medium duty)
- III 200 pounds (light duty)

Limits on ladder length

- A stepladder should be no more than 20 feet high
- A one-section ladder should be no more than 30 feet
- An extension ladder can go to 60 feet, but the sections must overlap

Ladder Setup

The following procedure must be followed to prevent ladder accidents:

- Place ladder on a clean slip free level surface
- Extend the ladder to have about 3 feet above the top support or work area
- Anchor the top and bottom of the ladder
- Place the ladder base 1/4 the height, of the ladder, from the wall when using an extension ladder
- Never allow more than one person on a ladder
- Use carriers and tool belts to carry objects up a ladder
- Do not lean out from the ladder in any direction
- If you have a fear of heights - don't climb a ladder
- Do not allow others to work under a ladder in use

Ladder Maintenance

- Keep ladders clean
- Never replace broken parts unless provided by the original manufacturer
- Do not attempt to repair broken side rails
- Keep all threaded fasteners properly adjusted
- Replace worn steps with parts from manufacturer



Electrical Safety

Purpose

The Electrical Safety Program is designed to prevent electrically related injuries and property damage. This program also provides for proper training of maintenance employees to ensure they have the requisite knowledge and understanding of electrical work practices and procedures. Only employees qualified in this program may conduct adjustment, repair or replacement of electrical components or equipment. Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires and explosions. References: NFPA 70E, Electrical Safety Requirements for Employee Workplaces, National Electrical Code (NEC) and OSHA Standard (Electrical Safety) 29 CFR 1910.331 to 1910.339

Responsibilities

Management

- Provide training for qualified and unqualified employees
- Conduct inspections to identify electrical safety deficiencies
- Guard and correct all electrical deficiencies promptly
- Ensure all new electrical installations meet codes and regulations

Employees

- Report electrical deficiencies immediately
- Not work on electrical equipment unless authorized and trained
- Properly inspect all electrical equipment prior to use

Hazard Control

Engineering controls

- All electrical distribution panels, breakers, disconnects, switches, junction boxes shall be completely enclosed
- Water tight enclosure shall be used where there is possibility of moisture entry either from operations or weather exposure
- Electrical distribution areas will be guarded against accidental damage by locating in specifically designed rooms, use of substantial guard posts and rails and other structural means
- A clear approach and 3 foot side clearance shall be maintained for all distribution panels.
- All conduits shall be fully supported throughout its length. Non-electrical attachments to conduit is prohibited
- All non-rigid cords shall be provided strain relief where necessary



Administrative controls

- Only trained and authorized employees may conduct repairs to electrical equipment
- Contractors performing electrical work must hold a license for the rated work
- Areas under new installation or repair will be sufficiently guarded with physical barriers and warning signs to prevent unauthorized entry
- Access to electrical distribution rooms is limited to those employees who have a need to enter
- All electrical control devices shall be properly labeled
- Work on energized circuits is prohibited unless specifically authorized by Facilities Manager
- All qualified employees will follow established electrical safety procedures and precautions

Protective equipment

- Qualified employees will wear electrically rated safety shoes/boots
- All tools used for electrical work shall be properly insulated
- Electrical rated gloves shall be available for work on electrical equipment
- Electrically rated matting will be installed in front of all distribution panels in electric utility rooms

Electrical Equipment

Examination

Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. Safety of equipment shall be determined using the following considerations:

- Suitability for installation and use in conformity with the provisions of this subpart
- Suitability of equipment for an identified purpose may be evidenced by listing or labeling for that identified purpose
- Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided
- Electrical insulation
- Heating effects under conditions of use
- Arcing effects
- Classification by type, size, voltage, current capacity, and specific use
- Other factors which contribute to the practical safeguarding of employees using or likely to come in contact with the equipment

Identification of Disconnecting Means and Circuits

Each disconnecting means for motors and appliances shall be legibly marked to indicate its purpose. Each service, feeder, and branch circuit, at its disconnecting means or overcurrent



device, shall be legibly marked to indicate its purpose. These markings shall be of sufficient durability to withstand the environment involved.

A disconnecting means is a switch that is used to disconnect the conductors of a circuit from the source of electric current. Disconnect switches are important because they enable a circuit to be opened, stopping the flow of electricity, and thus can effectively protect workers and equipment. Each disconnect switch or overcurrent device required for a service, feeder, or branch circuit must be clearly labeled to indicate the circuit's function, and the label or marking should be located at the point where the circuit originates. For example, on a panel that controls several motors or on a motor control center, each disconnect must be clearly marked to indicate the motor to which each circuit is connected. All labels and markings must be durable enough to withstand weather, chemicals, heat, corrosion, or any other environment to which they may be exposed.

Definition of Terms

Qualified worker: An employee trained and authorized to conduct electrical work.

Unqualified worker: Employees who have not been trained or authorized by management to conduct electrical work.

Training

Training for unqualified employees

Training for Unqualified Workers is general electrical safety precautions to provide an awareness and understanding of electrical hazards.

Electrical Safety Rules for Non-Qualified Workers

- Do not conduct any repairs to electrical equipment
- Report all electrical deficiencies to your supervisor
- Do not operate equipment if you suspect an electrical problem
- Water and electricity do not mix
- Even low voltages can kill or injure you
- Do not use cords or plugs if the ground prong is missing
- Do not overload electrical receptacles

Training for Qualified Employees

Training for Qualified Employees includes specific equipment procedures and requirements of: *Electrical Safety*, 29 CFR 1910.331 to 1910.339

Personal Protective Equipment

Employees working in areas where the potential contact with exposed electrical sources is present and likely will be provided and shall use Personal Protective Equipment (PPE). The following rules apply to the use and care of PPEs:



- PPEs shall be used where contact with exposed electrical sources are present and likely
- PPEs shall be designed for the work being performed and environment in which it is used
- PPEs shall be visually inspected and/or tested before use. Any defects or damage shall be replaced, repaired or discarded
- In cases where the insulating capabilities of the PPEs may be damaged during the work, a protective outer cover, such as leather, must be used
- Employees shall wear non-conductive head protection wherever there is a danger of injury from electrical burns or shock from contact with exposed energized parts
- Employee shall wear protective eye/face equipment whenever there is a danger from electrical arcs or flashes or from flying objects resulting from an electrical explosion

<i>Electrical PPE Inspection Schedule</i>	
Type of equipment	When to test
Rubber insulating line hose	Upon indication that insulating value is suspect.
Rubber insulating covers	Upon indication that insulating value is suspect
Rubber insulating blankets	Before first issue and every 12 months
Rubber insulating gloves	Before first issue and every 6 months
Rubber insulating sleeves	Before first issue and every 12 months

Electrical Lockout & Tagout Requirements

Application of locks and tags

A lock and a tag shall be placed on each disconnecting means used to deenergize circuits and equipment on which work is to be performed, except as provided for below:

- The lock shall be attached so as to prevent persons from operating the disconnecting means unless they resort to undue force or the use of tools
- Each tag shall contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag
- If a lock cannot be applied a tag may be used without a lock
- A tag used without a lock must be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device
- A lock may be placed without a tag only under the following conditions:
 - Only one circuit or piece of equipment is deenergized
 - The Lockout period does not extend beyond the work shift
 - Employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure

Working at Elevated Locations

Any person working on electrical equipment on a crane or other elevated must take necessary precautions to prevent a fall from reaction to electrical shock or other causes. A second person,



knowledgeable as a safety watch, must assume the best possible position to assist the worker in case of an accident. Portable ladders shall have non-conductive side rails if they are used where the employee or the ladder could contact exposed energized parts.

General Protective Equipment and Tools

General Protective Equipment and Tools shall be used when in the proximity of, or working on, exposed energized parts. The following rules apply:

- When working on or near exposed energized parts, Qualified Employees shall use insulated tools or handling equipment suitable for the voltage present and working environment. In cases where the insulation may be damaged, a protective outer layer should be employed
- Fuse handling equipment, insulated for the circuit voltage, shall be used to remove or install fuses when the terminal is energized
- Ropes and other handlines used near exposed energized equipment shall be non-conductive

Warnings and Barricades

Warnings and barricades shall be employed to alert unqualified Employees of the present danger related to exposed energized parts. The following rules apply:

- Safety signs, warning tags, etc., must be used to warn unqualified employees of the electrical hazards present, even temporarily, that may endanger them.
- Non-conductive barricades shall be used with safety signs to prevent unqualified employees access to exposed energized parts or areas.
- Where barricades and warning signs do not provide adequate protection from electrical hazards, an attendant shall be stationed to warn and protect employees.

Powered Equipment Safety Rules

Electrical equipment is defined as cord or plug-type electrical devices, which includes the use of flexible or extension cords. Examples of portable electrical equipment included powered hand tools, powered bench tools, fans, radios, etc. The following safety rules apply to portable electrical equipment (PEE):

- PEE shall be handled in such a manner as to not cause damage. Power cords may not be stapled or otherwise hung in a way that may cause damage to the outer jacket or insulation
- PEE shall be visually inspected for damage, wear, cracked or spilt outer jackets or insulation, etc., before use or before each shift.
- PEE that remain connected once put in place need not be inspected until relocated. Any defects; such as cracked or split outer jackets or insulation must be repaired, replaced or placed out of service



Safety Program

- Always check the compatibility of cord sets and receptacles for proper use.
- Ground type cord sets may only be used with ground type receptacles when used with equipment requiring a ground type conductor
- Attachment plugs and receptacle may not be altered or connected in a way that would prevent the proper continuity of the equipment-grounding conductor. Adapters may not be used if they interrupt the continuity of the grounding conductor
- Only portable electrical equipment that is double insulated or designed for use in areas that are wet or likely to contact conductive liquids may be used
- Employees that are wet or have wet hands may not handle PEEs (plug-in, un-plug, etc.). Personal protective equipment must be used when handling PEEs that are wet or covered with a conductive liquid
- Locking-type connectors shall be properly secured after connection to a power source

Electrical Circuit Safety Procedures

Electrical power and lighting circuits are defined as devices specifically designed to connect, disconnect or reverse circuits under a power load condition. When these circuits are employed, the following rules apply:

- Cable connectors (not of load-break type) fuses, terminal plugs or cable splice connectors may not be used, unless an emergency, to connect, disconnect or reverse in place of proper electrical circuits
- After a protective circuit is disconnected or opened, it may not be connected or closed until it has been determined that the equipment and circuit can be safely energized
- Overcurrent protectors of circuits or connected circuits may not be modified, even on a temporary basis, beyond the installation safety requirements
- Only Qualified Employees may perform test on electrical circuits or equipment
- Test equipment and all associated test leads, cables, power cords, probes and connectors shall be visually inspected for external damage before use
- Any damage or defects shall be repaired before use or placed out of service
- Test equipment shall be rated to meet or exceed the voltage being tested and fit for the environment in which it is being used
- Where flammable or ignitable materials are stored, even occasionally, electrical equipment capable of igniting them may not be used unless measures are taken to prevent hazardous conditions from developing

Standard Operating Procedure

Electrical pre-work procedure

Except in extreme cases, work on electrical equipment will be done with all electrical circuits in the work area deenergized by following the Lockout/Tagout procedure. When working on or near energized electrical circuits with less than 30 volts to ground, the equipment need not be de-



energized if there will be no increased exposure to electrical burns or to explosion from electric arcs.

To prepare for work on electrical systems or components, the following procedure applies:

Caution: Treat all electrical circuits as "Live" until they have been Tagged and Locked Out and tested by the following procedure.

- Obtain permission from supervisor to conduct work
- Lockout and Tagout all sources of electrical power
- Verify deenergized condition before any circuits or equipment are considered and worked as deenergized
 - A qualified person shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted
 - Verify proper operation of the Voltmeter at a live electrical source of the same rated voltage as the circuit to be worked
 - Using the voltmeter, check all exposed circuits phase to phase and phase to ground for evidence of voltage/current in the circuit
 - Conduct work on the circuit only after determining that there is no voltage in any of the exposed circuits
 - If voltage is detected in any exposed circuit, STOP, inform supervisor and determine source and procedure to eliminate voltage
- Conduct work
- Close up all exposed circuits, boxes, controls, equipment
- Remove Lockout/Tagout
- Obtain supervisor permission to energize circuits

Standard Operating Procedure

Working on or near exposed energized circuits

In the rare situation when energized equipment (or working in near proximity to energized equipment) cannot be de-energized, the following work practices must be used to provide protection:

Caution: Unqualified Employees are prohibited from working on or near exposed energized circuits.

- Obtain permission from manager to work on or near energized electrical circuits
- Lockout and Tagout all circuits possible
- Treat all circuits as energized
- Remove all conductive clothing and jewelry (rings, watches, wrist/neck chains, metal buttons, metal writing instruments, etc.)
- Use proper personal protective equipment, shields and/or barriers to provide effective electrical insulation from energized circuits. This may include electrically rated insulated gloves, aprons, rubber soled shoes, insulated shields, insulated tools, etc.
- Provide adequate lighting. Do not enter areas with exposed energized parts unless illumination (lighting) is provided so that Employee may work safely. Do not reach



Safety Program

around obstructions of view or lighting (blindly) into areas where exposed energized parts are located

- Employees entering a Confined Space with exposed energized parts, must use protective barriers, shields, or equipment or insulated materials rated at or above the present voltage to avoid contact
- Doors or other hinged panels shall be constructed and secured to prevent them from swinging into an Employee and causing contact with exposed energized parts
- Housekeeping in areas of exposed energized parts may not be completed in areas with close contact unless adequate safeguards (insulation equipment or barriers) are present. Conductive cleaning material (Steel Wool, Silicon Carbide, etc.) or liquids may not be used unless procedures (Lock and Tag Out, etc.) are in place and followed
- Station a safety observer outside work area. The sole function of this person is to quickly deenergize all sources of power or pull worker free from electrical work area with a non-conductive safety rope if contact is made with an energized electrical circuit
- A person qualified in CPR must be readily available to the scene

Standard Operating Procedure

Re-energizing electrical circuits after work is completed

These requirements shall be met, in the order given, before circuits or equipment are reenergized, even temporarily:

- A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized
- Warn employees exposed to the hazards associated with reenergizing the circuit or equipment to stay clear of circuits and equipment
- Remove each lock and tag. They shall be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the workplace, then the lock or tag may be removed by a qualified supervisor designated to perform this task provided that:
 - The supervisor ensures that the employee who applied the lock or tag is not available at the workplace
 - The supervisor ensures that the employee is aware that the lock or tag has been removed before he or she resumes work at that workplace
- Conduct a visual determination that all employees are clear of the circuits and equipment



Personal Protective Equipment

Purpose

NAIPTA provides all employees with required PPE to suit the task and known hazards. This Chapter covers the requirements for Personal Protective Equipment with the exception of PPE used for respiratory protection or PPE required for hazardous material response to spills or releases. Applicable OSHA Standards are 1910 Subpart 1 App B and 1910.120 App B, 132, 133, 136, and 138

General Rules

Design.

All personal protective equipment shall be of safe design and construction for the work to be performed.

Hazard assessment and equipment selection.

Hazard analysis procedures shall be used to assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the following actions will be taken:

- Select, and have each affected employee use, the proper PPE
- Communicate selection decisions to each affected employee
- Select PPE that properly fits each affected employee.

Defective and damaged equipment.

Defective or damaged personal protective equipment shall not be used.

Training

All employees who are required to use PPE shall be trained to know at least the following:

- When PPE is necessary
- What PPE is necessary
- How to properly don, remove, adjust, and wear PPE
- The limitations of the PPE
- The proper care, maintenance, useful life and disposal of the PPE

Each affected employee shall demonstrate an understanding of the training and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.



Certification of training for PPE is required by OSHA and shall be accomplished by using the *Job Safety Checklist* to verify that each affected Employee has received and understood the required PPE training.

Personal Protective Equipment Selection

Controlling hazards.

PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound manufacturing practices.

Selection guidelines.

The general procedure for selection of protective equipment is to:

- Become familiar with the potential hazards and the type of protective equipment that is available, and what it can do; i.e., splash protection, impact protection, etc.
- Compare the hazards associated with the environment; i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment
- Select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards
- Fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE

Fitting the device

Careful consideration must be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

Devices with adjustable features.

Adjustments should be made on an individual basis for a comfortable fit that will maintain the protective device in the proper position. Particular care should be taken in fitting devices for eye protection against dust and chemical splash to ensure that the devices are sealed to the face. In addition, proper fitting of helmets is important to ensure that it will not fall off during work operations. In some cases a chinstrap may be necessary to keep the helmet on an employee's head. (Chinstraps should break at a reasonably low force, however, so as to prevent a strangulation hazard). Where manufacturer's instructions are available, they should be followed carefully.

Eye and Face Protection

Each affected employee shall use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.



Safety Program

Each affected employee shall use eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors are acceptable.

Each affected employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.

Each affected employee shall use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation. The following is a listing of appropriate shade numbers for various operations.

<i>Filter Lenses for Protection Against Radiant Energy</i>			
Operations	Electrode Size 1/32 in	Arc Current	Protective Shade
Shielded metal arc welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Torch brazing			3
Torch soldering			2
Note: as a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade, which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.			

<i>Selection chart guidelines for eye and face protection</i>		
The following chart provides general guidance for the proper selection of eye and face protection to protect against hazards associated with the listed hazard "source" operations.		
Source	Hazard	Protection
IMPACT - Chipping, grinding machining, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, and sanding	Flying fragments, objects, large chips, particles, sand, dirt, etc.	Spectacles with side protection, goggles, face shield For severe exposure, use face shield
HEAT-Furnace operation and arc welding	Hot sparks	Face shields, spectacles with side. For severe exposure use face shield
CHEMICALS-Acid and chemical handling, degreasing, plating	Splash	Goggles, eyecup and cover types. For severe exposure, use face shield
DUST - Woodworking, buffing, general, buffing, general dusty conditions	Nuisance dust	Goggles, eye cup and cover type



Selection guidelines for head protection

All head protection is designed to provide protection from impact and penetration hazards caused by falling objects. Head protection is also available which provides protection from electric shock and burn. When selecting head protection, knowledge of potential electrical hazards is important. Class A helmets, in addition to impact and penetration resistance; provide electrical protection from low-voltage conductors (they are proof tested to 2,200 volts). Class B helmets, in addition to impact and penetration resistance; provide electrical protection from high-voltage conductors (they are proof tested to 20,000 volts). Class C helmets provide impact and penetration resistance (they are usually made of aluminum which conducts electricity), and should not be used around electrical hazards.

Where falling object hazards are present, helmets must be worn. Some examples include: working below other workers who are using tools and materials which could fall; working around or under conveyor belts which are carrying parts or materials; working below machinery or processes which might cause material or objects to fall, such as overhead cranes; and working on exposed energized conductors.

Foot Protection

General requirements

Each affected employee shall wear protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where employee's feet are exposed to electrical hazards.

Selection guidelines for foot protection

Safety shoes and boots provide both impact and compression protection. Where necessary, safety shoes can be obtained which provide puncture protection. In some work situations, metatarsal protection should be provided, and in other special situations electrical conductive or insulating safety shoes would be appropriate. Safety shoes or boots with impact protection would be required for carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and, for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection would be required for work activities involving skid trucks (manual material handling carts) around bulk rolls (such as paper rolls) and around heavy pipes, all of which could potentially roll over an employee's feet. Safety shoes or boots with puncture protection would be required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

Hand Protection

General requirements

Hand protection is required when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.



Selection guidelines for hand protection

Selection of hand PPE shall be based on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified. Gloves are often relied upon to prevent cuts, abrasions, burns, and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. There is no glove that provides protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. Therefore, it is important to select the most appropriate glove for a particular application and to determine how long it can be worn, and whether it can be reused. It is also important to know the performance characteristics of gloves relative to the specific hazard anticipated; e.g., chemical hazards, cut hazards, flame hazards, etc. Before purchasing gloves, request documentation from the manufacturer that the gloves meet the appropriate test standard(s) for the hazard(s) anticipated. Other factors to be considered for glove selection in general include:

- As long as the performance characteristics are acceptable, in certain circumstances, it may be more cost effective to regularly change cheaper gloves than to reuse more expensive types
- The work activities of the employee should be studied to determine the degree of dexterity required, the duration, frequency, and degree of exposure of the hazard, and the physical stresses that will be applied

Selection of gloves for protection against chemical hazards:

- The toxic properties of the chemical(s) must be determined; in particular, the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects
- Generally, any "chemical resistant" glove can be used for dry powders;
- For mixtures and formulated products (unless specific test data are available), a glove should be selected on the basis of the chemical component with the shortest breakthrough time, since it is possible for solvents to carry active ingredients through polymeric materials
- Employees must be able to remove the gloves in such a manner as to prevent skin contamination



Vehicle Safety

Purpose

This section is designed to address safety issues while operating company vehicles. The main objective of NAIPTA, is to ensure the safety of employees and to protect company property by reducing vehicle accidents and reducing employee injuries. This document has been developed to work in conjunction with the Vehicle Policy, located in NAIPTA's Personnel Policy Manual.

Fleet Safety Guidelines

Anyone who operates a licensed vehicle owned or controlled by NAIPTA must maintain a current driver's license as required by Federal and/or State regulations.

Transportation of non-employee passengers in non-revenue service is prohibited unless an authorized official of NAIPTA has given permission. Use of company vehicles by non-employees or unqualified employees is prohibited, unless an authorized official of NAIPTA has given permission.

All drivers are required to inspect their vehicle at the beginning of each workday. Vehicles must be kept clean.

Obey all traffic laws. All fines are the responsibility of the driver. Traffic citations are to be reported to your supervisor in writing. Repeated violations are cause for disciplinary action, which may include suspension and/or dismissal.

All occupants will wear seat belts, at all times.

Unattended vehicles shall have the keys removed, brakes set, windows rolled up and the doors locked.

Consumption of alcohol or non-prescribed drugs is grounds for immediate dismissal whether reporting for work or while on the job. If anyone is taking prescribed medication, which may affect their ability to perform their duties safely, they must notify their supervisor when reporting to work.

All incidents involving damage to company property, property of others, personal injury of employee or to others must be reported to the safety officer or supervisor immediately. Failure to report any accident involving a company vehicle is grounds for termination.

No radar equipment will be permitted in any company vehicle.

All drivers should use good defensive driving techniques while operating company vehicles.

Specific policy issues can be located in NAIPTA's Personnel Policy Manual.



Hot Work & Welding Safety

Purpose

Welding and Hot Work, such as brazing or grinding present a significant opportunity for fire and injury. Company employees or contractors must apply all precautions of this program prior to commencing any welding or hot work. Reference: OSHA 29 CFR 1910.252

Definitions

Welding/hot works procedures: Any activity, which results in sparks, fire, molten slag, or hot material which has the potential to cause fires or explosions.

Examples of hot works: Cutting, Brazing, Soldering, Thawing Pipes, Torch Applied Roofing, Grinding and Welding.

Special hazard occupancies: Any area containing Explosives, Flammable Liquids, Dust Accumulation, Gases, Plastics, Rubber and Paper Products.

Training

Training shall include:

- Review of requirements listed in OSHA 1910.252, AR 420-90, AR 385-64
- Supervisor responsibilities
- Fire Watch responsibilities - specifically, the fire watch must know:
 - That their ONLY duty is Fire Watch
 - When they can terminate the watch
 - How to use the provided fire extinguisher
 - How to activate fire alarm if fire is beyond the incipient stage
- Operator Responsibilities
- Contractors responsibilities
- Documentation requirements
- Respirator usage requirements
- Fire extinguisher training

Hot Work Procedures

OSHA 29 CFR 1910.25 required fire prevention actions for welding/hot works.

Where practicable all combustibles shall be relocated at least 35 feet from the work site. **Where relocation is impractical, combustibles shall be protected with flame proof covers, shielded with metal, guards, curtains, or wet down material to help prevent ignition of material.**



Safety Program

Ducts, conveyor systems, and augers that might carry sparks to distant combustibles **shall be protected or shut down.**

Where cutting or welding is done near walls, partitions, ceilings, or a roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

If welding is to be done on a metal wall, partition, ceiling, or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation of heat. **Where combustibles cannot be relocated on the opposite side of the work, a fire watch person shall be provided on the opposite side of the work.**

Welding shall not be attempted on a metal partition, wall, ceiling or roof having a covering or on walls having combustible sandwich panel construction.

Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by combustion.

In areas where there is dust accumulation of greater than 1/16 inch within 35 feet of the area where welding/hot works will be conducted. *All dust accumulation should be cleaned up before welding/hot works are permitted.*

Suitable extinguishers shall be provided and maintained ready for instant use.

A fire watch person shall be provided during and for 20 minutes past the completion of the welding project.

Cutting or welding shall not be permitted in the following situations:

- In areas not authorized by management.
- In sprinkled buildings while such protection is impaired
- In the presence of potentially explosive atmospheres, e.g. a flammable
- In areas near the storage of large quantities of exposed, readily ignitable materials

Welding & Hot Work fire prevention measures

A designated welding area should be established to meet the following requirements:

- Floors swept and clean of combustibles within 35 ft. of work area
- Flammable and combustible liquids and material will be kept 35 ft. from work area.
- Adequate ventilation providing 20 air changes per hour, such as a suction hood system should be provided to the work area
- At least one 10 lb. dry chemical fire extinguisher should be within access of the 35 ft. of work area
- Protective dividers such as welding curtains or non-combustible walls will be provided to contain sparks and slag to the combustible free area



Requirements for welding conducted outside the designated welding area:

- Portable welding curtains or shields must be used to protect other workers in the welding area
- Respiratory protection is mandatory unless an adequate monitored air flow away from the welder and others present can be established and maintained
- Plastic materials be covered with welding tarps during welding procedures
- Fire Watch must be provided for all hot work operations

Welding Standard Operating Procedures

The following section lists the *Welding Standard Operating Procedures* (SOP) and is applicable for all electric and gas welding. These SOPs are to be posted at each Designated Welding & Hot Work Area for quick reference and review.

Standard Operating Procedure - Electric Welding

Perform safety check on all equipment:

- Ensure fire extinguisher is charged and available
- Ensure electrical cord, electrode holder and cables are free from defects (no cable splices are allowed within 10 feet of the electrode holder)
- Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects
- Ensure the welding unit is properly grounded
- All defective equipment must be repaired or replaced before use

Remove flammables and combustibles:

- No welding is permitted on or near containers of flammable material, combustible material or unprotected flammable structures
- Place welding screen or suitable barricade around work area to provide a fire safety zone and prevent injuries to passersby (Do not block emergency exits or restrict ventilation)

Ensure adequate ventilation and lighting

Set Voltage Regulator

No higher than the following for:

- Manual Alternating Current Welders - 80 volts
- Automatic Alternating Current Welders - 100 volts
- Manual or automatic Direct Current Welders -100 volts

Uncoil and spread out welding cable



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To avoid overheating, ensure proper contact of work leads and connections, remove any metal fragments from magnetic work clamps (to avoid electric shock do not wrap welding cables around a body part and avoid welding in wet conditions).

Fire watch for one hour after welding & until all welds have cooled

Perform final fire watch

Standard Operating Procedure: Gas Welding

Perform safety check on all equipment:

- Ensure tanks have gas and fittings are tight
- Ensure fire extinguisher is charged and available
- Ensure hoses have no defects
- Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects
- All defective equipment must be repaired or replace before uses

Remove flammables and combustibles:

- No welding is permitted on or near containers of flammable material, combustible material or unprotected flammable structures
- Place welding screen or suitable barricade around work area to provide a fire safety zone and prevent injuries to passersby (Do not block emergency exits or restrict ventilation)

Use an authorized Air Filtering Respirator, if required

Ensure adequate ventilation and lighting

Open valves on oxygen and gas tanks to desired flow

Shut tank valves and relieve hose pressure; store hoses

Fire watch for one hour after welding and until all welds have cooled



Fall Protection

Purpose

It is the policy of NAIPTA to take all practical measures possible to prevent employees from being injured by falls from heights. We will take necessary steps to eliminate, prevent, and control fall hazards. We will comply fully with the OSHA Fall Protection standard (CFR 1926, Subpart M, Fall Protection). The first priority is given to the elimination of fall hazards. If a fall hazard cannot be eliminated, effective fall protection will be planned, implemented, and monitored to control the risks of injury.

All employees exposed to potential falls from heights will be trained to minimize the exposures. Fall protection equipment will be provided and its use required by all employees. Supervisors/Managers will be responsible for implementation of a fall protection plan for their jobsite.

Hazard Identification

The supervisor on each job will be responsible for identifying fall hazards on their jobsite. The supervisor will evaluate each situation or work procedure where employees may be exposed to a fall of six feet or more. The supervisor will be responsible for developing a plan to eliminate the exposures, if possible, or to select the appropriate fall protection systems and/or equipment.

Fall Protection Required

The following are examples of situation where fall protection would be needed. This listing is by no means complete, and there are many other situations where a fall of six feet or more is possible. Included is the use of man lifts, and scissor lifts. It should be noted that ladders and scaffolding are not included in this list because they are covered by other OSHA standards and other requirements of our safety program.

Wall openings

Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is six feet (1.8 meters) or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 meter) above the walking/working surface must be protected from falling by the use of a guardrail system, a safety net system, or a personal fall arrest system.

Holes

Personal fall arrest systems, covers, or guardrail systems shall be erected around holes (including skylights) that are more than six feet (1.8 meters) above lower levels.



Leading edges

Each employee who is constructing a leading edge six feet (1.8 meters) or more above lower levels shall be protected by guardrail systems, safety net systems, or personal fall arrest systems.

Excavations

Each employee at the edge of an excavation six feet (1.8 meters) or more deep shall be protected from falling by guardrail systems, fences, barricades, or covers. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway if it is six feet (1.8 meters) or more above excavation.

Formwork and reinforcing steel

For employees, while moving vertically and/or horizontally on the vertical face of rebar assemblies built in place, fall protection is not required when employees are moving. OSHA considers the multiple hand holds and foot holds on rebar assemblies as providing similar protection as that provided by a fixed ladder. Consequently, no fall protection as necessary while moving point to point for heights below 24 feet (7.3 meters). An employee must be provided with fall protection when climbing or otherwise moving at a height more than 24 feet (7.3 meters), the same as for fixed ladders.

Hoist areas

Each employee in a hoist area shall be protected from falling six feet (1.8 meters) or more by guardrail systems or personal fall arrest systems. If guardrail systems (or chain gate or guardrail) or portions thereof must be removed to facilitate hoisting operations, as during the landing of materials, and a worker must lean through the access opening or out over the edge of the access opening to receive or guide equipment and materials, that employee must be protected by a personal fall arrest system.

Overhand bricklaying and related work

Each employee performing overhand bricklaying and related work six feet (1.8 meters) or more above lower levels shall be protected by guardrail system, safety net systems or personal fall arrest systems, or shall work in a controlled access zone. All employees reaching more than ten inches (25.4 cm) below the level of a walking/working surface on which they are working shall be protected by a guardrail system, safety net system, or personal fall arrest system.

Precast concrete erection and residential construction

Each employee who is six feet (1.8 meters) or more above lower levels while erecting precast concrete members and related operations such as grouting of precast concrete members and each employee engaged in residential construction shall be protected by guardrail systems, safety net systems, or personal fall arrest systems.



Ramps, runways, and other walkways

Each employee using ramps, runways, and other walkways shall be protected from falling six feet (1.8 meters) or more by guardrail systems.

Low-slope roofs

Each employee engaged in roofing activities on low-slope roofs with unprotected sides and edges six feet (1.8 meters) or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems or a combination of a warning line system and guardrail system, warning line system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet (15.24 meters) or less in width, the use of a safety monitoring system without a warning line system is permitted.

Steep roofs

Each employee on a steep roof with unprotected sides and edges six feet (1.8 meters) or more above lower levels shall be protected by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

Controlled Access Zones

A Controlled Access Zone is a work area designated and clearly marked in which certain types of work (such as overhand bricklaying) may take place without the use of conventional fall protection systems, guardrail, personal arrest or safety net to protect the employees working in the zone.

Controlled Access zones are used to keep out workers other than those authorized to enter work areas from which guardrails have been removed. Where there are no guardrails, masons are the only workers allowed in Controlled Access Zones.

Controlled Access Zones, when created to limit entrance to areas where leading edge work and other operations are taking place, must be defined by a control line or by any other means that restrict access. Control lines shall consist of ropes, wires, tapes or equivalent materials, and supporting stanchions, and each must be:

- Flagged or otherwise clearly marked at not more than six foot (1.8 meter) intervals with high-visibility material
- Rigged and supported in such a way that the lowest point (including sag) is not less than 39 inches (1 meter) from the walking/working surface and the highest point is not more than 45 inches (1.3 meters), nor more than 50 inches (1.3 meters) when overhand bricklaying operations are being performed from the walking/working surface
- Strong enough to sustain stress of not less than 200 pounds (0.88 kilonewtons). Control lines shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge. Control lines also must be connected on each side to a guardrail system or wall. When control lines are used, they



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shall be erected not less than six feet (1.8 meters) nor more than 25 feet (7.6 meters) from the unprotected or leading edge, except when precast concrete members are being erected. In the latter case, the control line is to be erected not less than six feet (1.8 meters) nor more than 60 feet (18 metes) or half the length of the member being erected, whichever is less, from the leading edge

Controlled Access Zones, when used to determine access to areas where overhand bricklaying and related work are taking place, are to be defined by a control line erected not less than ten feet (3 meters) nor more than 15 feet (4.6 meters) from the working edge. Additional control lines must be erected at each end to enclose the Controlled Access Zone. Only employees engaged in overhand bricklaying or related work are permitted in the Controlled Access Zones.

On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, Controlled Access Zones will be enlarged as necessary to enclose all point of access, material handling areas, and storage areas.

On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work shall be removed.

Fall Protection Systems

When there is a potential fall of six feet or more, we will utilize one or more of the following means of providing protection

Guardrail systems

Guardrail systems must meet the following criteria; top rails and midrails of guardrail systems must be at east one-quarter inch (0.6 centimeters) nominal diameter to thickness to prevent cuts and lacerations. If wire rope is used for top rails, it must be lagged at mot more than six-foot (1.8 meter) intervals with high-visibility material. Steel and plastic banding cannot be used as top rails or midrails. Manila, plastic, or synthetic rope used for top rails or midrails must be inspected as frequently as necessary to ensure strength and stability.

The top edge height of top rails or (equivalent) guardrails must be 42 inches (1.1 meter) plus or minus three inches (8 centimeters), above the walking/working level. When workers are using stilts, the top edge height of the top rail, or equivalent member, must be increased an amount equal to the height of the stilts.

Screens, midrails, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/working surface when there are not walls or parapet walls at least 21 inches (53 centimeters) high. When midrails are used, they must be installed to a height midway between the top edge of the guardrail system and the walking/working level.

When screens and mesh are used, the must extend from the top rail to the walking/working level and along the entire opening between top rail supports. Intermediate members, such as balusters,



when used between posts, shall not be more than 19 inches (48 centimeters).

The guardrail system must be capable of withstanding a force of at least 200 pounds (890 newtons) when applied within two inches of the top edge in any outward or downward direction. When the 200-pound (890 newtons) test is applied in a downward direction, the top edge of the guardrail must not deflect to a height less than 39 inches (1 meter) above the walking/working level.

Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding a force of at least 150 pounds (667 newtons) applied in any downward or outward direction at any point along the midrails or other member.

Guardrail systems shall be surfaced to protect workers from punctures or lacerations and to prevent clothing from snagging.

The ends of top rails and midrails must not overhang terminal posts, except where such overhang does not constitute a projection hazard.

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section must be placed across the access opening between guardrail sections when hoisting operations are not taking place.

At holes, guardrail systems must be set up on all unprotected sides or edges. When holes are used for the passage of materials, the hole shall not have more than two sides with removable guardrail sections. When the hole is not in use, it must be covered or provided with guardrails along all unprotected sides or edges.

If guardrail systems are used around holes that are used as access points (such as ladderways), gates must be used or the point of access must be offset to prevent accidental walking into the hole.

If guardrails are used at unprotected sides or edges of ramps and runways, they must be erected on each unprotected side or edge.

Personal fall arrest systems

There consist of an anchorage, connectors, and a body belt or body harness and may include a deceleration device, lifeline, or suitable combinations. If a personal fall arrest system is used for all protection, it must do the following:

- Limit maximum arresting force on an employee up to 900 pounds (4 kilonewtons) when used with a body belt
- Limit maximum arresting force on an employee up to 1,800 pounds (8 kilonewtons) when used with a body harness
- Be rigged so that an employee can neither free fall more than six feet (1.8 meters) nor contact any lower level
- Bring an employee to a complete stop and limit maximum deceleration distance an



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employee travels to 3.5 feet (1.07 meters)

- Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of six feet (1.8 meters) or the free fall distance permitted by the system, whichever is less

The use of body belts for fall arrest is prohibited and a full body harness is required.

Personal fall arrest systems must be inspected prior to each use for wear damage, and other deterioration. Defective components must be removed from service.

Positional device systems

These body belt or body harness systems are to be set up so that a worker can free fall no farther than two feet (0.6 meters). They shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds (13.3 kilonewtons), whichever is greater.

Safety monitoring systems

When no other alternative fall protection has been implemented, the employer shall implement a safety monitoring system. Employers must appoint a competent person to monitor the safety of workers and the employer shall ensure that the safety monitor:

- Is competent in the recognition of fall hazards
- Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices
- Is operating on the same walking/working surface of the workers and can see them
- Is close enough to work operations to communicate orally with workers and has no other duties to distract from the monitoring function

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-sloped roofs.

No worker, other than one engaged in roofing work (on low-sloped roofs) or one covered by fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

All workers in a Controlled Access Zone shall be instructed to promptly comply with fall hazard warnings issued by safety monitors.

Safety net systems

Safety nets must be installed as close as practicable under the walking/working surface on which employees are working and never more than 30 feet (9.1 meters) below such levels. Defective nets shall not be used. Safety nets shall be inspected at least once a week for wear, damage, and other deterioration. Safety nets shall be installed with sufficient clearance underneath to prevent contact with the surface or structure below.



Items that have fallen into safety nets including, but not restricted to, materials, scrap, equipment, and tools must be removed as soon as possible and at least before the ext work shift.

Warning line systems

Warning line systems consist of ropes, wires, or chains, and supporting stanchions and is set up as follows:

- Flagged at not more than six-foot (1.8 meters) intervals with high-visibility material
- Rigged and supported so that the lowest point (including sag) is no less than 34 inches (0.9 meters) from the walking/working surface and its highest point is no more than 39 inches (1 meter) from the walking/working surface
- Stanchions, after being rigged with warning lines, shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches (0.8 meters) above the walking/working surface, perpendicular to the warning lie and in the direction of the floor, roof, or platform edge
- The rope, wire, or chain shall have a minimum tensile strength of 500 pounds (2.22 kilonewtons) and after being attached to the stanchions, must support without breaking the load applied to the stanchions as prescribed above
- Shall be attached to 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 the adjacent section before the stanchion tips over

Warning lines shall be erected around all sides of roof work areas. When mechanical equipment is being used, the warning line shall be erected not less than six feet (1.8 meters) from the roof edge parallel to the direction of mechanical equipment operation, and not less than 10 feet (3 meters) from the roof edge perpendicular to the direction of mechanical equipment operation.

When mechanical equipment is not being used, the warning line must be erected not less than six feet (1.8 meters) from the roof edge.

Covers

Covers located in roadways and vehicular aisles must be able to support at least twice the maximum axle load of the largest vehicle to which toe cover might be subjected. All other covers must be able to support at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time. To prevent accidental displacement resulting from wind, equipment, or workers activities, all covers must be secured. All covers shall be color-coded or bear the markings “HOLE” or “COVER”.

Protection from falling objects

When guardrail systems are used to prevent materials from falling from one level to another, any openings must be small enough to prevent passage of potential falling objects. No materials or equipment except masonry and mortar shall be stored within four feet (1.2 meters) of working edges. Excess mortar, broken or scattered masonry units, and all other materials and debris shall be kept clear of the working area by removal at regular intervals.



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During roofing work, materials and equipment shall not be stored within six feet (1.8 meters) of a roof edge unless guardrails are erected at the edge, and materials piled, grouped, or stacked near a roof edge must be stable and self-supporting.

Training

Employees will be trained in the following areas:

- The nature of fall hazards in the work area
- The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems
- The use and operation of controlled access zones and guardrail, personal fall arrest, safety net, warning line, and safety monitoring systems
- The role of each employee in the safety monitoring system when the system is in use
- The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs
- The correct procedures for equipment and materials handling and storage and the erection of overhead protection
- Employee's role in fall protection plans



Heat Stress Prevention

Purpose

The purpose of this program is to provide guidance for protecting employees from hazards of high heat conditions and to provide information on engineering, administrative and PPE controls. Being uncomfortable is not the major problem with working in high temperatures and humidities. Workers who are suddenly exposed to working in a hot environment face additional and generally avoidable hazards to their safety and health.

Responsibilities

Management

- Provide information to workers on signs of heat stress
- Provide means of preventing heat stress and other heat related health hazards

Hazard Control

Engineering controls

- Ensure all inside areas have adequate ventilation
- Provide shaded awnings for outside work when possible
- Provide portable ventilation when possible

Administrative controls

- Provide training to all affected employees
- Provide adequate and sanitary drinking facilities and utensils
- Rotate workers during high heat operations

Protective equipment

- Provide cooling PPE when appropriate

How the Body Handles Heat

The human body, being warm blooded, maintains a fairly constant internal temperature, even though it is being exposed to varying environmental temperatures. To keep internal body temperatures within safe limits, the body must get rid of its excess heat, primarily through varying the rate and amount of blood circulation through the skin and the release of fluid onto the skin by the sweat glands. These automatic responses usually occur when the temperature of the blood exceeds 98.6°F and are kept in balance and controlled by the brain. In this process of lowering internal body temperature, the heart begins to pump more blood, blood vessels expand



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to accommodate the increased flow, and the microscopic blood vessels (capillaries), which thread through the upper layers of the skin begin to fill with blood. The blood circulates closer to the surface of the skin, and the excess heat is lost to the cooler environment.

If heat loss from increased blood circulation through the skin is not adequate, the brain continues to sense overheating and signals the sweat glands in the skin to shed large quantities of sweat onto the skin surface. Evaporation of sweat cools the skin, eliminating large quantities of heat from the body.

As environmental temperatures approach normal skin temperature, cooling of the body becomes more difficult. If air temperature is as warm as or warmer than the skin, blood brought to the body surface cannot lose its heat. Under these conditions, the heart continues to pump blood to the body surface, the sweat glands pour liquids containing electrolytes onto the surface of the skin and the evaporation of the sweat becomes the principal effective means of maintaining a constant body temperature. Sweating does not cool the body unless the moisture is removed from the skin by evaporation. Under conditions of high humidity, the evaporation of sweat from the skin is decreased and the body's efforts to maintain an acceptable body temperature may be significantly impaired. These conditions adversely affect an individual's ability to work in the hot environment. With so much blood going to the external surface of the body, relatively less goes to the active muscles, the brain, and other internal organs; strength declines; and fatigue occurs sooner than it would otherwise. Alertness and mental capacity also may be affected. Workers who must perform delicate or detailed work may find their accuracy suffering, and others may find their comprehension and retention of information lowered.

Safety Problems

Certain safety problems are common to hot environments. Heat tends to promote accidents due to the slipperiness of sweaty palms, dizziness, or the fogging of safety glasses. Wherever there exists hot surfaces, steam, etc., the possibility of burns from accidental contact also exists.

Aside from these obvious dangers, the frequency of accidents, in general, appears to be higher in hot environments than in more moderate environmental conditions. One reason is that working in a hot environment lowers the mental alertness and physical performance of an individual. Increased body temperature and physical discomfort promote irritability, anger, and other emotional states, which sometimes cause workers to overlook safety procedures or to divert attention from hazardous tasks.

Health Problems

Excessive exposure to a hot work environment can bring about a variety of heat-induced disorders.

Heat stroke

Heat stroke is the most serious of health problems associated with working in hot environments. It occurs when the body's temperature regulatory system fails and sweating becomes inadequate.



The body's only effective means of removing excess heat is compromised with little warning to the victim that a crisis stage has been reached.

A heat stroke victim's skin is hot, usually dry, red or spotted. Body temperature is usually 105_F or higher, and the victim is mentally confused, delirious, perhaps in convulsions, or unconscious. Unless the victim receives quick and appropriate treatment, death can occur.

Any person with signs or symptoms of heat stroke requires immediate hospitalization. However, first aid should be immediately administered. This includes removing the victim to a cool area, thoroughly soaking the clothing with water, and vigorously fanning the body to increase cooling. Further treatment at a medical facility should be directed to the continuation of the cooling process and the monitoring of complications, which often accompany the heat stroke. Early recognition and treatment of heat stroke are the only means of preventing permanent brain damage or death.

Heat exhaustion

Heat exhaustion includes several clinical disorders having symptoms, which may resemble the early symptoms of heat stroke. Heat exhaustion is caused by the loss of large amounts of fluid by sweating, sometimes with excessive loss of salt. A worker suffering from heat exhaustion still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. In more serious cases, the victim may vomit or lose consciousness. The skin is clammy and moist, the complexion is pale or flushed, and the body temperature is normal or only slightly elevated.

In most cases, treatments involves having the victim rest in a cool place, and drink plenty of liquids. Victims with mild cases of heat exhaustion usually recover spontaneously with this treatment. Those with severe cases may require extended care for several days. There are no known permanent effects.

CAUTION *Persons with heart problems or those on a low sodium diet who work in hot environments should consult a physician about what to do under these conditions.*

Heat Cramps

Heat cramps are painful spasms of the muscles that occur among those who sweat profusely in heat, drink large quantities of water, but do not adequately replace the body's salt loss. The drinking of large quantities of water tends to dilute the body's fluids, while the body continues to lose salt. Shortly thereafter, the low salt level in the muscles causes painful cramps. The affected muscles may be part of the arms, legs, or abdomen, but tired muscles (those used in performing the work) are usually the ones most susceptible to cramps. Cramps may occur during or after work hours and may be relived by taking salted liquids by mouth.

CAUTION *Persons with heart problems or those on a low sodium diet who work in hot environments should consult a physician about what to do under these conditions.*



Fainting

A worker who is not accustomed to hot environments and who stands erect and immobile in the heat may faint. With enlarged blood vessels in the skin and in the lower part of the body due to the body's attempts to control internal temperature, blood may pool there rather than return to the heart to be pumped to the brain. Upon lying down, the worker should soon recover. By moving around, and thereby preventing blood from pooling, the patient can prevent further fainting. Heat Rash Heat rash, also known as prickly heat, is likely to occur in hot, humid environments where sweat is not easily removed from the surface of the skin by evaporation and the skin remains wet most of the time. The sweat ducts become plugged, and a skin rash soon appears. When the rash is extensive or when it is complicated by infection, prickly heat can be very uncomfortable and may reduce a worker's performance. The worker can prevent this condition by resting in a cool place part of each day and by regularly bathing and drying the skin.

Transient heat fatigue

Transient heat fatigue refers to the temporary state of discomfort and mental or psychological strain arising from prolonged heat exposure. Workers unaccustomed to the heat are particularly susceptible and can suffer, to varying degrees, a decline in task performance, coordination, alertness, and vigilance. The severity of transient heat fatigue will be lessened by a period of gradual adjustment to the hot environment (heat acclimatization).

Preparing for the Heat

One of the best ways to reduce heat stress on workers is to minimize heat in the workplace. However, there are some work environments where heat production is difficult to control, such as when furnaces or sources of steam or water are present in the work area or when the workplace itself is outdoors and exposed to varying warm weather conditions.

Humans are, to a large extent, capable of adjusting to the heat. This adjustment to heat, under normal circumstances, usually takes about 5 to 7 days, during which time the body will undergo a series of changes that will make continued exposure to heat more endurable.

On the first day of work in a hot environment, the body temperature, pulse rate, and general discomfort will be higher. With each succeeding daily exposure, all of these responses will gradually decrease, while the sweat rate will increase. When the body becomes acclimated to the heat, the worker will find it possible to perform work with less strain and distress.

Gradual exposure to heat gives the body time to become accustomed to higher environmental temperatures. Heat disorders in general are more likely to occur among workers who have not been given time to adjust to working in the heat or among workers who have been away from hot environments and who have gotten accustomed to lower temperatures. Hot weather conditions of the summer are likely to affect the worker who is not acclimatized to heat. Likewise, the heat in the work environment may affect workers who return to work after a leisurely vacation or extended illness. Whenever such circumstances occur, the worker should be gradually re-acclimatized to the hot environment.



Lessening stressful conditions

Many industries have attempted to reduce the hazards of heat stress by introducing engineering controls, training workers in the recognition and prevention of heat stress, and implementing work-rest cycles. Heat stress depends, in part; on the amount of heat the worker's body produces while a job is being performed. The amount of heat produced during hard, steady work is much higher than that produced during intermittent or light work. Therefore, one way of reducing the potential for heat stress is to make the job easier or lessen its duration by providing adequate rest time. One approach to reducing the level of heat stress is the use of engineering controls, which include ventilation and heat shielding.

Number and duration of exposures

Rather than be exposed to heat for extended periods of time during the course of a job, workers should, wherever possible, be permitted to distribute the workload evenly over the day and incorporate work-rest cycles. Work-rest cycles give the body an opportunity to get rid of excess heat, slow down the production of internal body heat, and provide greater blood flow to the skin. Workers employed outdoors are especially subject to weather changes. A hot spell or a rise in humidity can create overly stressful conditions.

The following practices can help to reduce heat stress:

- Postponement of nonessential tasks
- Permit only those workers acclimatized to heat to perform the more strenuous tasks
- Provide additional workers to perform the tasks keeping in mind that all workers should have the physical capacity to perform the task and that they should be accustomed to the heat

Thermal Conditions in the Workplace

In general, the simplest and least expensive methods of reducing heat and humidity can be accomplished by:

- Opening windows in hot work areas
- Using fans
- Using other methods of creating airflow such as exhaust ventilation or air blowers

Rest areas

Providing cool rest areas in hot work environments considerably reduces the stress of working in those environments. There is no conclusive information available on the ideal temperature for a rest area. However, a rest area with a temperature near 76 degrees F appears to be adequate and may even feel chilly to a hot, sweating worker, until acclimated to the cooler environment. The rest area should be as close to the workplace as possible. Individual work periods should not be lengthened in favor of prolonged rest periods. Shorter but frequent work-rest cycles are the greatest benefit to the worker.



Drinking water

In the course of a day's work in the heat, a worker may produce as much as 2 to 3 gallons of sweat. Because so many heat disorders involve excessive dehydration of the body, it is essential that water intake during the workday be about equal to the amount of sweat produced. Most workers exposed to hot conditions drink less fluid than needed because of an insufficient thirst drive. A worker, therefore, should not depend on thirst to signal when and how much to drink. Instead, the worker should drink 5 to 7 ounces of fluids every 15 to 20 minutes to replenish the necessary fluids in the body. There is no optimum temperature of drinking water, but most people tend not to drink warm or very cold fluids as readily as they will cool ones. Whatever the temperature of the water, it must be palatable and readily available to the worker. Individual drinking cups should be provided - never use a common drinking cup.

Heat acclimatized workers lose much less salt in their sweat than do workers who are not adjusted to the heat. The average American diet contains sufficient salt for acclimatized workers even when sweat production is high. If, for some reason, salt replacement is required, the best way to compensate for the loss is to add a little extra salt to the food. Salt tablets should not be used.

CAUTION Persons with heart problems or those on a low sodium diet who work in hot environments should consult a physician about what to do under these conditions.

Protective clothing

Clothing inhibits the transfer of heat between the body and the surrounding environment. Therefore, in hot jobs where the air temperature is lower than skin temperature, wearing clothing reduces the body's ability to lose heat into the air.

When air temperature is higher than skin temperature, clothing helps to prevent the transfer of heat from the air to the body. However, this advantage may be nullified if the clothes interfere with the evaporation of sweat.

In dry climates, adequate evaporation of sweat is seldom a problem. In a dry work environment with very high air temperatures, protective clothing could be an advantage to the worker. The proper type of clothing depends on the specific circumstance. Certain work in hot environments may require insulated gloves, insulated suits, reflective clothing, or infrared reflecting face shields. For extremely hot conditions, thermally- conditioned clothing is available. One such garment carries a self-contained air conditioner in a backpack, while another is connected a compressed air source which feeds cool air into the jacket or coveralls through a vortex tube. Another type of garment is a plastic jacket that has pockets that can be filled with dry ice or containers of ice.

Employee awareness

The key to preventing excessive heat stress is educating the employer and worker on the hazards of working in heat and the benefits of implementing proper controls and work practices. The



employer should establish a program designed to acclimatize workers who must be exposed to hot environments and provide necessary work-rest cycles and water to minimize heat stress.

Special Considerations

During unusually hot weather conditions lasting longer than 2 days, the number of heat illnesses usually increases. This is due to several factors, such as progressive body fluid deficit, loss of appetite (and possible salt deficit), and buildup of heat in living and work areas, and breakdown of air-conditioning equipment. Therefore, it is advisable to make a special effort to adhere rigorously to the above preventive measures during these extended hot spells and to avoid any unnecessary or unusual stressful activity. Sufficient sleep and good nutrition are important for maintaining a high level of heat tolerance. Workers who may be at a greater risk of heat illnesses are the obese, the chronically ill, and older individuals.

When feasible, the most stressful tasks should be performed during the cooler parts of the day (early morning or at night). Double shifts and overtime should be avoided whenever possible. Rest periods should be extended to alleviate the increase in the body heat load.

The consumption of alcoholic beverages during prolonged periods of heat can cause additional dehydration. Persons taking certain medications (e.g., medications for blood pressure control, diuretics, or water pills) should consult their physicians in order to determine if any side effects could occur during excessive heat exposure. Daily fluid intake must be sufficient to prevent significant weight loss during the workday and over the workweek.



Fire Safety Program

Purpose

NAIPTA's Fire Safety Plan has been developed to work in conjunction with company emergency plans and other safety programs. This includes reviewing all new building construction and renovations to ensure compliance with applicable state, local, and national fire and life safety standards. Fire prevention measures reduce the incidence of fires by eliminating opportunities for ignition of flammable materials.

Responsibilities

Facilities Manager/Safety Officer

- Ensure all fire prevention methods are established and enforced
- Ensure fire suppression systems such as sprinklers and extinguishers are periodically inspected and maintained to a high degree of working order
- Train supervisors to use fire extinguishers for incipient fires
- Train employees on evacuation routes and procedures

Supervisors

- Closely monitor the use of flammable materials and liquids
- Train assigned employees in the safe storage, use and handling of flammable materials
- Ensure flammable material storage areas are properly maintained

Employees

- Use, store and transfer flammable materials in accordance with provided training
- Do not mix flammable materials
- Immediately report violations of the Fire Safety Program

Elimination of Ignition Sources

All nonessential ignition sources must be eliminated where flammable liquids are used or stored. The following is a list of some of the more common potential ignition sources:

- Open flames, such as cutting and welding torches, matches, and heaters-these sources should be kept away from flammable liquids operations. Cutting or welding on flammable liquids equipment should not be performed unless the equipment has been properly emptied and purged with a neutral gas such as nitrogen
- Chemical sources of ignition such as d.c. motors, switched, and circuit breakers-these sources should be eliminated where flammable liquids are handled or stored. Only approved explosion-proof devices should be used in these areas



Safety Program

- Mechanical sparks-these sparks can be produced as a result of friction. Only non-sparking tools should be used in areas where flammable liquids are stored or handled
- Static sparks-these sparks can be generated as a result of electron transfer between two contacting surfaces. The electrons can discharge in a small volume, raising the temperature to above the ignition temperature. Every effort should be made to eliminate the possibility of static sparks. Also proper bonding and grounding procedures must be followed when flammable liquids are transferred or transported

Removal of Incompatibles

Materials that can contribute to a flammable liquid fire should not be stored with flammable liquids. Examples are oxidizers and organic peroxides, which, on decomposition, can generate large amounts of oxygen.

Flammable Gases

Generally, flammable gases pose the same type of fire hazards as flammable liquids and their vapors. Many of the safeguards for flammable liquids also apply to flammable gases, other properties such as toxicity, reactivity, and corrosivity also must be taken into account. Also, a gas that is flammable could produce toxic combustion products.

Fire Extinguishers

A portable fire extinguisher is a "first aid" device and is very effective when used while the fire is small. The use of fire extinguisher that matches the class of fire, by a person who is well trained, can save both lives and property. Portable fire extinguishers must be installed in workplaces regardless of other fire fighting measures. The successful performance of a fire extinguisher in a fire situation largely depends on its proper selection, inspection, maintenance, and distribution.

Classification of fires and selection of extinguishers

Fires are classified into four general categories depending on the type of material or fuel involved. The type of fire determines the type of extinguisher that should be used to extinguish it.

Class A fires involve materials such as wood, paper, and clothe which produce glowing embers or char.

Class B fires involve flammable gases, liquids, and greases, including gasoline and most hydrocarbon liquids that must be vaporized for combustion to occur.

Class C fires involve fires in live electrical equipment or in materials near electrically powered equipment.



Class D fires involve combustible metals, such as magnesium, zirconium, potassium, and sodium.

Extinguishers will be selected according to the potential fire hazard, the construction and occupancy of facilities, hazard to be protected, and other factors pertinent to the situation.

Location and marking of extinguishers

Extinguishers will be conspicuously located and readily accessible for immediate use in the event of fire. They will be located along normal paths of travel and egress. Wall recesses and/or flush-mounted cabinets will be used as extinguisher locations whenever possible.

Extinguishers will be clearly visible. In locations where visual obstruction cannot be completely avoided, directional arrows will be provided to indicate the location of extinguishers and the arrows will be marked with the extinguisher classification.

If extinguishers intended for different classes of fire are located together, they will be conspicuously marked to ensure that the proper class extinguisher selection is made at the time of a fire. Extinguisher classification markings will be located on the front of the shell above or below the extinguisher nameplate. Markings will be of a size and form to be legible from a distance of 3 feet.

Condition

Portable extinguishers will be maintained in a fully charged and operable condition. They will be kept in their designated locations at all times when not being used. When extinguishers are removed for maintenance or testing, a fully charged and operable replacement unit will be provided.

Mounting and distribution of extinguishers

Extinguishers will be installed on hangers, brackets, in cabinets, or on shelves. Extinguishers having a gross weight not exceeding 40 pounds will be so installed that the top of the extinguisher is not more than 3-1/2 feet above the floor.

Extinguishers mounted in cabinets or wall recesses or set on shelves will be placed so that the extinguisher operating instructions face outward. The location of such extinguishers will be made conspicuous by marking the cabinet or wall recess in a contrasting color that will distinguish it from the normal decor.

Extinguishers must be distributed in such a way that the amount of time needed to travel to their location and back to the fire does not allow the fire to get out of control. OSHA requires that the travel distance for Class A and Class D extinguishers not exceed 75 feet. The maximum travel distance for Class B extinguishers is 50 feet because flammable liquid fires can get out of control faster than Class A fires. There is no maximum travel distance specified for Class C extinguishers, but they must be distributed on the basis of appropriate patterns for Class A and B hazards.



Inspection and maintenance

Once an extinguisher is selected, purchased, and installed, it is the responsibility of _Safety Officer_ to oversee the inspection, maintenance, and testing of fire extinguishers to ensure that they are in proper working condition and have not been tampered with or physically damaged.

Fire Safety Inspections/Housekeeping

First line supervisors and Safety Committees are responsible for conducting work site surveys that include observations of compliance with the Fire Safety Program. These surveys should include observations of work site safety and housekeeping issues and should specifically address proper storage of chemicals and supplies, unobstructed access to fire extinguishers, and emergency evacuation routes. Also, they should determine if an emergency evacuation plan is present in work areas and that personnel are familiar with the plan.

Emergency Exit

Every exit will be clearly visible, or the route to it conspicuously identified in such a manner that every occupant of the building will readily know the direction of escape from any point. At no time will exits be blocked.

Any doorway or passageway which is not an exit or access to an exit but which may be mistaken for an exit will be identified by a sign reading "Not An Exit" or a sign indicating its actual use (i.e., "Storeroom"). A readily visible sign will mark exits and accesses to exits. Each exit sign (other than internally illuminated signs) will be illuminated by a reliable light source providing not less than 5 foot-candles on the illuminated surface.

Emergency Plan for Persons with Disabilities

The first line supervisor is assigned the responsibility to assist Persons with Disabilities (PWD) under their supervision. The supervisor will choose an alternate assistant. The role of the two assistants is to report to their assigned person, and to either assist in evacuation or assure that the PWD is removed from danger.

- Supervisors, alternates, and the person with a disability will be trained on available escape routes and methods.
- A list of persons with disabilities is kept in the Human Resources Office.
- Visitors who have disabilities will be assisted in a manner similar to that of company employees. The host of the person with disabilities will assist in their evacuation.



Emergencies Involving Fire

Fire alarms

In the event of a fire emergency, a fire alarm will sound for the building.

Evacuation routes and plans

Each facility shall have an emergency evacuation plan. All emergency exits shall conform to NFPA standards.

Should evacuation be necessary, go to the nearest exit or stairway and proceed to an area of refuge outside the building. Most stairways are fire resistant and present barriers to smoke if the doors are kept closed.

Do not use elevators. Should the fire involve the control panel of the elevator or the electrical system of the building, power in the building may be cut and you could be trapped between floors. Also, the elevator shaft can become a flue, lending itself to the passage and accumulation of hot gases and smoke generated by the fire.

Emergency coordinators/supervisors

Emergency Coordinators/Supervisors will be responsible for verifying personnel have evacuated from their assigned areas.

Fire Emergency Procedures

If you discover a fire

- Activate the nearest fire alarm.
- Notify your supervisor and other occupants.

Fight the fire ONLY if

- The fire department has been notified of the fire, AND
- The fire is small and confined to its area of origin, AND
- You have a way out and can fight the fire with your back to the exit, AND
- You have the proper extinguisher, in good working order, AND know how to use it.
- If you are not sure of your ability or the fire extinguisher's capacity to contain the fire, leave the area.

If you hear a fire alarm

- Evacuate the area. Close windows, turn off gas jets, and close doors as you leave
- Leave the building and move away from exits and out of the way of emergency operations



Safety Program

- Assemble in a designated area
- Report to the monitor so he/she can determine that all personnel have evacuated your area
- Remain outside until competent authority states that it is safe to re-enter

Evacuation routes

- Learn at least two escape routes, and emergency exits from your area
- Never use an elevator as part of your escape route
- Learn to activate a fire alarm
- Learn to recognize alarm sounds
- Take an active part in fire evacuation drills



Respiratory Protection

Purpose

In the Respiratory Protection program, hazard assessment and selection of proper respiratory PPE is conducted in the same manner as for other types of PPE. In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used. References: OSHA Standards *Respiratory Protection* (29 CFR 1910.134)

Responsibilities

All Employees shall follow the requirements of the Respiratory Protection Program.

Management

- Implement the requirements of this program
- Provide a selection of respirators as required
- Enforce all provisions of this program
- Appoint a *Specific Designated* individual to conduct the respiratory protection program

Program administrator

- Review sanitation/storage procedures
- Ensure respirators are properly, stored, inspected and maintained
- Monitor compliance for this program
- Provide training for affected Employees
- Review compliance and ensure monthly inspection of all respirators
- Provide respirator fit testing

Designated occupational health care provider

- Conduct medical aspects of program

Program Administrator

Each facility will designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.



Voluntary Use of Respirators is Prohibited

OSHA requires that voluntary use of respirators, when not required by the company, must be controlled as strictly as under required circumstances. To prevent violations of the Respiratory Protection Standard Employees are not allowed voluntary use of their own or company supplied respirators of any type. Exception: Employees whose only use of respirators involves the voluntary use of filtering (non-sealing) face pieces (dust masks).

Program Evaluation

Evaluations of the workplace are necessary to ensure that the written respiratory protection program is being properly implemented; this includes consulting with employees to ensure that they are using the respirators properly. Evaluations shall be conducted as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

Program evaluation will include discussions with employees required to use respirators to assess the employees' views on program effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected.

Factors to be assessed include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance)
- Appropriate respirator selection for the hazards to which the employee is exposed
- Proper respirator use under the workplace conditions the employee encounters
- Proper respirator maintenance

Record Keeping

NAIPTA will retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist the Company in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

Training and Information

Effective training for employees who are required to use respirators is essential. The training must be comprehensive, understandable, and recur annually and more often if necessary. Training will be provided prior to requiring the employee to use a respirator in the workplace.



Safety Program

The training shall ensure that each employee can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator
- Limitations and capabilities of the respirator
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions
- How to inspect, put on and remove, use, and check the seals of the respirator
- What the procedures are for maintenance and storage of the respirator
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- The general requirements of this program

Retraining shall be conducted annually and when:

- Changes in the workplace or the type of respirator render previous training obsolete
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill
- Other situation arises in which retraining appears necessary to ensure safe respirator use
- Training will be conducted by instructors certified by OSHA.

Training

Training is divided into the following sections

Classroom instruction

- Overview of the Company Respiratory Protection Program & OSHA Standard
- Respiratory Protection Safety Procedures
- Respirator Selection
- Respirator Operation and Use
- Why the respirator is necessary
- How improper fit, usage, or maintenance can compromise the protective effect.
- Limitations and capabilities of the respirator.
- How to use the respirator effectively in emergency situations, including respirator malfunctions
- How to inspect, put on and remove, use, and check the seals of the respirator
- What the procedures are for maintenance and storage of the respirator
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- Change out schedule and procedure for air purifying respirators



Fit testing

- For each type and model of respirator used

Hands-on respirator training

- Respirator Inspection
- Respirator cleaning and sanitizing
- Record Keeping
- Respirator Storage
- Respirator Fit Check
- Emergencies

Basic Respiratory Protection Safety Procedures

Only authorized and trained Employees may use Respirators. Those Employees may use only the Respirator that they have been trained on and properly fitted to use.

Only Physically Qualified Employees may be trained and authorized to use Respirators. A pre-authorization and annual certification by a qualified physician will be required and maintained. Any changes in an Employees health or physical characteristics will be reported to the Occupational Health Department and will be evaluated by a qualified physician.

Only the proper prescribed respirator or SCBA may be used for the job or work environment. Air cleansing respirators may be worn in work environments when oxygen levels are between 19.5 percent to 23.5 percent and when the appropriate air-cleansing canister, as determined by the Manufacturer and approved by NIOSH or MESA, for the known hazardous substance is used. SCBAs will be worn in oxygen deficient and oxygen rich environments (below 19.5 percent or above 23.5 percent oxygen).

Employees working in environments where a sudden release of a hazardous substance is likely will wear an appropriate respirator for that hazardous substance (example: Employees working in an ammonia compressor room will have an ammonia APR respirator on their person.).

Only SCBAs will be used in oxygen deficient environments, environments with an unknown hazardous substance or unknown quantity of a known hazardous substance or any environment that is determined "Immediately Dangerous to Life or Health" (IDLH).

Employees with respirators loaned on "permanent check out" will be responsible for the sanitation, proper storage and security. Respirators damaged by normal wear will be repaired or replaced by the Company when returned.

The last employee using a respirator and/or SCBA that are available for general use will be responsible for proper storage and sanitation. Monthly and after each use, all respirators will be inspected with documentation to assure its availability for use.

All respirators will be located in a clean, convenient and sanitary location.



Management will establish and maintain surveillance of jobs and work place conditions and degree of employee exposure or stress to maintain the proper procedures and to provide the necessary RPE.

Management will establish and maintain safe operation procedures for the safe use of RPE with strict enforcement and disciplinary action for failure to follow all general and specific safety rules. Standard Operation Procedures for General RPE use will be maintained as an attachment to the Respiratory Protection Program and Standard Operation Procedures for RPE use under emergency response situations will be maintained as an attachment to the Emergency Response Program.

Selection of Respirators

NAIPTA has evaluated the respiratory hazard(s) in each workplace, identified relevant workplace and user factors and has based respirator selection on these factors. Also included are estimates of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. This selection has included appropriate protective respirators for use in IDLH atmospheres, and has limited the selection and use of air-purifying respirators. All selected respirators are NIOSH-certified.

Filter Classifications

The following classifications are marked on the filter or filter package:

N-Series: Not oil resistant

- Approved for non-oil particulate contaminants
- Examples: dust, fumes, mists not containing oil

R-Series: Oil resistant

- Approved for all particulate contaminants, including those containing oil
- Examples: dusts, mists, fumes
- Time restriction of 8 hours when oils are present

P-Series: Oil proof

- Approved for all particulate contaminants including those containing oil
- Examples: dust, fumes, mists
- See Manufacturer's time use restrictions on packaging

Respirators for IDLH atmospheres

The following respirators will be used in IDLH atmospheres:



- A full face piece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes
- A combination full face piece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply
- Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used

Respirators for atmospheres that are not IDLH

The respirators selected shall be adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations. The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.

Identification of Filters & Cartridges

All filters and cartridges shall be labeled and color-coded with the NIOSH approval label and that the label is not removed and remains legible. A change out schedule for filters and canisters has been developed to ensure these elements of the respirators remain effective.

Respirator Filter & Canister Replacement

An important part of the Respiratory Protection Program includes identifying the useful life of canisters and filters used on air-purifying respirators. Each filter and canister shall be equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or If there is no ESLI appropriate for conditions a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life.

Filter and cartridge change schedule

Stock of spare filters and cartridges shall be maintained to allow immediate change when required or desired by the employee

Cartridges shall be changed based on the most limiting factor below:

- Prior to expiration date
- Manufactures recommendations for the specific use and environment
- After each use
- When requested by employee
- When contaminate odor is detected
- When restriction to air flow has occurred as evidenced by increase effort by user to breathe normally
- Cartridges shall remain in their original sealed packages until needed for immediate use



Filters shall be changed on the most limiting factor below:

- Prior to expiration date
- Manufactures recommendations for the specific use and environment
- When requested by employee
- When contaminate odor is detected
- When restriction to air flow has occurred as evidenced by increase effort by user to breathe normally
- When discoloring of the filter media is evident
- Filters shall remain in their original sealed package until needed for immediate use

Respiratory Protection Schedule by Job and Working Condition

The Company maintains a Respiratory Protection Schedule by Job and Working Condition. This schedule is provided to each authorized and trained Employee.

The Schedule provides the following information:

- Job/Working Conditions
- Work Location
- Hazards Present
- Type of Respirator or SCBA Required
- Type of Filter/Canister Required
- Location of Respirator or SCBA
- Filter/Cartridge change out schedule

The schedule will be reviewed and updated at least annually and whenever any changes are made in the work environments, machinery, equipment, or processes or if respirator different respirator models are introduced or existing models are removed.

Permanent respirator schedule assignments

Each person who engages in welding will have their own company provided dust-mist-fume filter APR. This respirator will be worn during all welding operations.

Physical and Medical Qualifications

Records of medical evaluations must be retained and made available in accordance with 29 CFR 1910.1020.



Medical evaluation required

Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. NAIPTA provides a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace.

Medical evaluation procedures

The employee will be provided a medical questionnaire by the designated Occupational Health Care Provider

Follow-up medical examination

The company shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions in Part B of the questionnaire or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the Physician deems necessary to make a final determination.

Administration of the medical questionnaire and examinations

The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content. The company shall provide the employee with an opportunity to discuss the questionnaire and examination results with the Physician.

Supplemental information for the physician

The following information must be provided to the Physician before the Physician makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee
- The duration and frequency of respirator use (including use for rescue and escape)
- The expected physical work effort
- Additional protective clothing and equipment to be worn
- Temperature and humidity extremes that may be encountered
- Any supplemental information provided previously to the Physician regarding an employee need not be provided for a subsequent medical evaluation if the information and the Physician remain the same

NAIPTA will provide the Physician with a copy of the written respiratory protection program and a copy of the OSHA Standard 1910.134



Medical determination

In determining the employee's ability to use a respirator, NAIPTA shall:

- Obtain a written recommendation regarding the employee's ability to use the respirator from the physician. The recommendation shall provide only the following information
- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator
- The need, if any, for follow-up medical evaluations
- A statement that the physician has provided the employee with a copy of the physician's written recommendation
- If the respirator is a negative pressure respirator and the physician finds a medical condition that may place the employee's health at increased risk if the respirator is used, NAIPTA shall provide a APR if the physician's medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then NAIPTA is no longer required to provide a APR.

Additional medical evaluations

At a minimum, NAIPTA shall provide additional medical evaluations that comply with the requirements of this section if:

- An employee reports medical signs or symptoms that are related to ability to use a respirator
- A physician, supervisor, or the respirator program administrator informs NAIPTA that an employee needs to be reevaluated
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee

Respirator Fit Testing

Before an employee is required to use any respirator with a negative or positive pressure tight-fitting face piece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. NAIPTA shall ensure that an employee using a tight-fitting face piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.

NAIPTA has established a record of the qualitative and quantitative fit tests administered to employees including:

- The name or identification of the employee tested
- Type of fit test performed



- Specific make, model, style, and size of respirator tested
- Date of test
- The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs

Additional fit tests will be conducted whenever the employee reports, or NAIPTA, physician, supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

If after passing a QLFT or QNFT, the employee notifies NAIPTA, program administrator, supervisor, or Physician that the fit of the respirator is unacceptable; the employee shall be given a reasonable opportunity to select a different respirator face piece and to be retested.

Types of fit tests

The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in Appendix A of OSHA Standard 1910.134:

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.

If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face pieces, or equal to or greater than 500 for tight fitting full face pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual face piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator face piece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator face piece.

Quantitative fit testing of these respirators shall be accomplished by modifying the face piece to allow sampling inside the face piece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate face piece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the face piece.

Any modifications to the respirator face piece for fit testing shall be completely removed, and the face piece restored to NIOSH approved configuration, before that face piece can be used in the workplace.



Safety Program

Fit test records shall be retained for respirator users until the next fit test is administered. Written materials required to be retained shall be made available upon request to affected employees.

Respirator Operation and Use

Respirators will only be used following the respiratory protection safety procedures established in this program. The Operations and Use Manuals for each type of respirator will be maintained by the Program Administrator and be available to all qualified users.

Surveillance by the direct supervisor shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, NAIPTA shall reevaluate the continued effectiveness of the respirator.

For continued protection of respirator users, the following general use rules apply:

- Users shall not remove respirators while in a hazardous environment
- Respirators are to be stored in sealed containers out of harmful atmospheres
- Store respirators away from heat and moisture
- Store respirators such that the sealing area does not become distorted or warped
- Store respirator such that the face piece is protected

Face piece seal protection

NAIPTA does not permit respirators with tight-fitting face pieces to be worn by employees who have:

- Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function
- Any condition that interferes with the face-to-face piece seal or valve function

If an employee wears corrective glasses or goggles or other personal protective equipment, NAIPTA shall ensure that such equipment is worn in a manner that does not interfere with the seal of the face piece to the face of the user.

Continuing effectiveness of respirators

NAIPTA shall ensure the following that employees leave the respirator use area:

- To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use
- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece
- To replace the respirator or the filter, cartridge, or canister elements.



Safety Program

If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, NAIPTA will replace or repair the respirator before allowing the employee to return to the work area.

Procedures for IDLH atmospheres

For all IDLH atmospheres, NAIPTA shall ensure that:

- One employee or, when needed, more than one employee is located outside the IDLH atmosphere
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue
- NAIPTA or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue
- NAIPTA or designee authorized to do so by the company, once notified, provides necessary assistance appropriate to the situation

Employee(s) located outside the IDLH atmospheres will be equipped with:

- Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either
- Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
- Equivalent means for rescue where retrieval equipment is not required

Cleaning and Disinfecting

The Company shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. The Company shall ensure that respirators are cleaned and disinfected using the Standard Operating Procedure SOP: Cleaning and Disinfecting.

The respirators shall be cleaned and disinfected when:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition
- Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals
- Respirators maintained for emergency use shall be cleaned and disinfected after each use
- Respirators used in fit testing and training shall be cleaned and disinfected after each use



Cleaning and Storage of respirators assigned to specific employees is the responsibility of that employee.

Respirator Inspection

All respirators/SCBAs, both available for "General Use" and those on "Permanent Check-out", will be inspected after each use and at least monthly. Should any defects be noted, the respirator/SCBA will be taken to the program Administrator. Damaged respirators will be either repaired or replaced. The inspection of respirators loaned on "Permanent Check-out" is the responsibility of that trained employee.

Respirators shall be inspected as follows:

- All respirators used in routine situations shall be inspected before each use and during cleaning
- All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use
- Emergency escape-only respirators shall be inspected before being carried into the workplace for use

Respirator inspections include the following:

- A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters or filters
- Check of elastomeric parts for pliability and signs of deterioration
- Self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. NAIPTA shall determine that the regulator and warning devices function properly

For Emergency Use Respirators the additional requirements apply:

- Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator.
- Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification

Respirator Storage

Respirators are to be stored as follows:



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All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the face piece and exhalation valve.

Emergency Respirators shall be:

- Kept accessible to the work area
- Stored in compartments or in covers that are clearly marked as containing emergency respirators
- Stored in accordance with any applicable manufacturer instructions.

Repair of respirators

Respirators that fail an inspection or are otherwise found to be defective will be removed from service to be discarded repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator
- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer

Breathing Air Quality and Use

NAIPTA shall ensure that compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications:

- Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen
- Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
 - Oxygen content (v/v) of 19.5-23.5%;
 - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; Carbon monoxide (CO) content of 10 ppm or less; Carbon dioxide content of 1,000 ppm or less; and lack of noticeable odor
 - Compressed oxygen will not be used in atmosphere-supplying respirators that have previously used compressed air
 - Oxygen concentrations greater than 23.5% are used only in equipment designed for Oxygen service or distribution
- Cylinders used to supply breathing air to respirators meet the following requirements:
 - Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178)



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- Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air
- Moisture content in breathing air cylinders does not exceed a dew point of -50 deg. F (-45.6 deg. C) at 1 atmosphere pressure
- Breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines
- Breathing gas containers shall be marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84



Lockout Tagout - Program

Purpose

Control of hazardous energy is the purpose of the Lockout Program. This program establishes the requirements for isolation of both kinetic and potential electrical, chemical, thermal, hydraulic and pneumatic and gravitational energy prior to equipment repair, adjustment or removal. Reference: OSHA Standard 29 CFR 1910. 147, the control of hazardous energy.

Definitions

Authorized (qualified) employees: Those employees certified to lock and equipment or machinery. Whether an employee is considered to be qualified will depend upon various circumstances in the workplace. It is likely for an individual to be considered "qualified" with regard to certain equipment in the workplace, but "unqualified" as to other equipment. An employee, who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be "qualified" for the performance of those duties.

Affected employees: Employees who operate machinery or equipment upon which Lockout or tagging out is required under this program. Training of these individuals will be less stringent in that it will include the purpose and use of the Lockout procedures.

Other employees: Employees identified as those that do not fall into the authorized, affected or qualified employee category. Essentially, it will include all other employees. These employees will be provided instruction in what the program is and not to touch any machine or equipment when they see that it has been locked or tagged out.

Training

Authorized employees training

All vehicle maintenance employees, operators, supervisors, and building maintenance employees will be trained to use the Lock and TagOut Procedures. The training will be conducted by the Maintenance Supervisor or Safety Manager at time of initial hire. Retraining shall be held at least annually.

The training will consist of the following:

- Review of general procedures
- Review of specific procedures for machinery, equipment and processes
- Location and use of specific procedures



- Procedures when questions arise

Affected employee training

- Only trained and authorized Employees will repair, replace or adjust machinery, equipment or processes
- Affected Employees may not remove Locks, locking devices or tags from machinery, equipment or circuits
- Purpose and use of the Lockout procedures

Other employee training

- Only trained and authorized employees will repair, replace or adjust machinery or equipment
- Other employees may not remove Locks, locking devices or tags from machinery, equipment or circuits

Preparation for Lock and TagOut Procedures

A *Lockout Survey* has been conducted to locate and identify all energy sources to verify which switches or valves supply energy to machinery and equipment. Dual or redundant controls have been removed.

A *Schedule* has been developed for each piece of equipment and machinery. This schedule describes the energy sources, location of disconnects, types of disconnect, special hazards and special safety procedures. The schedule will be reviewed each time to ensure employees properly lock and TagOut equipment and machinery. If a Schedule does not exist for a particular piece of equipment, machinery and process, one must be developed prior to conducting a Lockout. As repairs and/or renovations of existing electrical systems are made, standardized controls will be used.

Routine Maintenance & Machine Adjustments

Lock and TagOut procedures are not required if equipment must be operating for proper adjustment. This rare exception may be used only by trained and authorized employees when specific procedures have been developed to safely avoid hazards with proper training. All consideration shall be made to prevent the need for an employee to break the plane of a normally guarded area of the equipment by use of tools and other devices.

Locks, Hasps and Tags

All qualified personnel will be assigned a lock out tag out kit in each safety station with one key, hasp and tag. All locks will be keyed differently, except when a specific individual is issues a series of locks for complex Lockout- tasks. In some cases, more than one lock, hasp and tag are



needed to completely de-energize equipment and machinery. Additional locks may be checked out from Safety Officer.

SOP: General Lock and TagOut Procedures

Before working on, repairing, adjusting or replacing machinery and equipment, the following procedures will be utilized to place the machinery and equipment in a neutral or zero mechanical state.

Preparation for shutdown

Before authorized or affected employee's turn off a machine or piece of equipment, the authorized employee will have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the means to control the energy.

Notify all affected employees that the machinery, equipment or process will be out of service.

Machine or equipment shutdown

The machine or equipment will be turned or shut down using the specific procedures for that specific machine. An orderly shutdown will be utilized to avoid any additional or increased hazards to employees as a result of equipment de-energization.

If the machinery, equipment or process is in operation, follow normal stopping procedures (depress stop button, open toggle switch, etc.).

Move switch or panel arms to "Off" or "Open" positions and close all valves or other energy isolating devices so that the energy source(s) is disconnected or isolated from the machinery or equipment.

Machine or equipment isolation

All energy control devices that are needed to control the energy to the machine or equipment will be physically located and operated in such a manner as to isolate the machine or equipment from the energy source.

Lockout or device application

Lockout or devices will be affixed to energy isolating devices by authorized employees. Lockout devices will be affixed in a manner that will hold the energy isolating devices from the "safe" or "off" position.

Where devices are used they will be affixed in such a manner that will clearly state that the operation or the movement of energy isolating devices from the "safe" or "off" positions is prohibited.



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The devices will be attached to the same point a lock would be attached. If the tag cannot be affixed at that point, the tag will be located as close as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.

Lock and TagOut all energy devices by use of hasps, chains and valve covers with an assigned individual locks.

Stored energy

Following the application of the Lockout or devices to the energy isolating devices, all potential or residual energy will be relieved, disconnected, restrained, and otherwise rendered safe.

Where the re-accumulation of stored energy to a hazardous energy level is possible, verification of isolation will be continued until the maintenance or servicing is complete.

Release stored energy (capacitors, springs, elevated members, rotating fly wheels, and hydraulic/air/gas/steam systems) must be relieved or restrained by grounding, repositioning, blocking and/or bleeding the system.

Verification of isolation

Prior to starting work on machines or equipment that have been locked or tagged out, the authorized employees will verify that isolation or de-energization of the machine or equipment have been accomplished.

After assuring that no employee will be placed in danger, test all lock and TagOuts by following the normal start up procedures (depress start button, etc.).

Caution: After test, place controls in neutral position.

Extended lockout

Should the shift change before the machinery or equipment can be restored to service, the lock and TagOut must remain. If the task is reassigned to the next shift, those employees must lock and TagOut before the previous shift may remove their lock and tag.

SOP: Release from LOCKOUT

Before Lockout or devices are removed and the energy restored to the machine or equipment, the following actions will be taken:

- The work area will be thoroughly inspected to ensure that nonessential items have been removed and that machine or equipment components are operational
- The work will be checked to ensure that all employees have been safely positioned or removed; before the Lockout or devices are removed, the affected employees will be notified that the Lockout or devices are being removed



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- Each Lockout or device will be removed from each energy isolating device by the employee who applied the device

SOP: LOTO Procedure for Electrical Plug-Type Equipment

This procedure covers all Electrical Plug-Type Equipment such as battery chargers, some product pumps, office equipment, powered hand tools, powered bench tools, lathes, fans, etc.

When working on, repairing, or adjusting the above equipment, the following procedures must be utilized to prevent accidental or sudden startup:

- Unplug electrical equipment from wall socket or in-line socket
- Attach "Do Not Operate" tag and plug box and lock on end of power cord
- An exception is granted to not lock and tag the plug if the cord and plug remain in the exclusive control of the employee working on, adjusting or inspecting the equipment
- Test equipment to assure power source has been removed by depressing the "Start" or "On" Switch
- Perform required operations
- Replace all guards removed
- Remove lock and plug box and tag
- Inspect power cord and socket before plugging equipment into power source; any defects must be repaired before placing the equipment back in service

NOTE: Occasionally used equipment may be unplugged from power source when not in use.

Standard Operating Procedure: LOTO Procedures Involving More Than One Employee

In the preceding SOPs, if more than one employee is assigned to a task requiring a lock and TagOut, each must also place his or her own lock and tag on the energy isolating device(s).

Standard Operating Procedure: Management's Removal of Lock and TagOut

Only the employee that locks and tags out machinery, equipment or processes may remove his/her lock and tag. However, should the employee leave the facility before removing his/her lock and tag, the maintenance manager may remove the lock and tag. The maintenance manager must be assured that all tools have been removed, all guards have been replaced and all employees are free from any hazard before the lock and tag are removed and the machinery, equipment or process are returned to service. Notification of the employee who placed the lock is required prior to lock removal.

Contractors and Subcontractors

Contractors and Subcontractors, working on company property and equipment must use this Lockout procedure while servicing or maintaining equipment, machinery or processes.



Hearing Conservation

Purpose

Conservation of hearing is an important preventative measure. To reduce occupational hearing loss, all employees, who work in potentially noisy areas, are provided hearing protection, training and annual hearing tests. OSHA's hearing conservation standard is covered in 29 CFR 1910.95.

Responsibilities

Management

- Use Engineering and Administrative controls to limit employee exposure
- Provide adequate hearing protection for employees
- Post signs and warnings for all high noise areas
- Conduct noise surveys annually or when new equipment is added
- Conduct annual hearing tests for all employees
- Conduct hearing conservation training for all new employees
- Conduct annual hearing conservation training for all employees

Employees

- Use company provided, approved hearing protection in designated high noise areas
- Request new hearing protection when needed
- Exercise proper care of issues hearing protection

Training

At time of hire and annually thereafter, all affected employees must attend Hearing Conservation Training. The initial training is conducted as part of the New Hire Orientation Program by the Human Resource Department and consists of:

- Rules and procedures
- Where hearing protection is required
- How to use and care for hearing protectors
- How noise affects hearing and hearing loss

Engineering Controls

After it is determined that noise exposure above 85 dB (A) are present, engineering controls should be evaluated and implemented to reduce the noise exposure before administrative controls are initiated. Some examples of engineering controls include:

- Noise reducing baffles
- Compartmentalization
- Installing noise reducing gears



- Installing rubber pads under machinery

When new equipment or machinery is evaluated for purchase, the Safety Officer should be consulted to conduct an evaluation from a safety and health standpoint. One criteria of the evaluation should include the amount of noise the equipment will produce and how it will affect the overall noise exposure.

Administrative Controls

After engineering controls are evaluated for effectiveness or feasibility, administrative controls should be considered to reduce noise exposure. Administrative controls include restricting exposure time or using personal protective equipment (PPE).

Personal protective equipment, such as earplugs or muffs, may be used to reduce the amount of noise exposure. Each plug or muff has a noise reductions factor (NR) as evaluated by ANSI Standards (S3.19 - 1974 or Z24.22 - 1957). For example, if a work area has an ambient noise exposure of 96 dB (A), the hearing protectors should be rated 6 NR or better to be effective.

According to OSHA Regulations, each location with noise exposures of 85 to 89 dB (A) will provide hearing protectors for the employee's optional use. Noise exposures at 90 dB (A) or above require the mandatory use of hearing protection. Further, OSHA requires that a variety of hearing protectors be available for employees to choose (both a variety of plug and muff type hearing protectors).

Use of Hearing Protectors

Management, supervision and employees shall properly wear the prescribed hearing protectors while working in or traveling through any section of a location that is designated a High Noise Area (excluding offices, break rooms, and rest facilities). The following rules will be enforced:

- Personal stereos, such as personal devices, etc., will not be permitted in any operating area of company property
- Hearing protectors, at least two types of plugs and one type of muffs, will be provided and maintained by company
- Hearing protectors and replacements will be provided free of charge
- Hearing protectors will be properly worn at all times, except in offices, break rooms, rest facilities



Confined Space Program

Purpose

The Confined Space Entry Program is provided to protect employees from entering a confined space

Responsibilities

Management

- Ensure proper training for identification of a confined

Employees

- Follow program requirements
- Report any previously un-identified hazards associated with confined spaces
 - Warn the unauthorized persons that they must stay away from the permit space
 - Advise unauthorized persons that they must exit immediately if they have entered the space
 - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space

Definitions

Confined space: Is large enough or so configured that an employee can bodily enter and perform work. Has limited or restricted means for entry or exit (i.e. tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).

Is not designed for continuous employee occupancy.

Permit required confined space (permit space): A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere
- Contains a material that has the potential for engulfing an entrant
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly covering walls or by a floor which slopes downward and tapers to a smaller cross-section
- Contains any other recognized serious safety or health hazard



Flammable Liquids

Purpose

Proper storage and use of flammable liquids can significantly reduce the possibility of accidental fires and injury to employees. To minimize risk to life and property, the requirements of NFPA 30 & 321 and OSHA Standard 1910.106 have been implemented. MSDS for flammable liquids are kept in the Safety Stations and at each storage location.

Responsibilities

Management

- Provide proper storage for flammable liquids
- Ensure proper training is provided to employees who work with flammable liquids
- Ensure containers are properly labeled

Supervisors

- Provide adequate training in the use and storage of flammable liquids
- Monitor for proper use and storage
- Keep only the minimum amount required on hand
- Ensure MSDS are current for all flammable liquids

Employees

- Follow all storage and use requirements
- Report deficiencies in storage and use to supervisors
- Immediately report spills to supervisors

Hazard Control

Engineering controls

- Properly designed flammable storage areas
- Ventilated Storage areas
- Grounding Straps on Drums and dispensing points

Administrative controls

- Designated storage areas
- Limiting amount of flammable liquids in use and storage



- Employee training
- Limited & controlled access to bulk storage areas
- Posted Danger, Warning and Hazard signs

Definitions

Flammable liquid: A liquid with a flashpoint below 100⁰F

Class IA - flashpoint below 73⁰F and boiling point below 100⁰F

Class IB - flashpoint below 73⁰F and boiling point above 100⁰F

Class IC - flash at or above 73⁰F and below 100⁰F

Combustible liquids: A liquid having a flash point at or above 100⁰ F.

Class II combustibles: Flashpoint above 100⁰F and below 140⁰F

Class III combustibles: Flashpoint at or above 140⁰F

Subclass IIIA - flashpoint at or above 140⁰F and below 200⁰F

Subclass IIIB - flashpoint at or above 200⁰F

Substitution

Flammable liquids sometimes may be substituted by relatively safe materials in order to reduce the risk of fires. Any substituted material should be stable and nontoxic and should either be nonflammable or have a high flashpoint.

Storage and Usage of Flammable Liquids

Flammable and combustible liquids require careful handling at all times. The proper storage of flammable liquids within a work area is very important in order to protect personnel from fire and other safety and health hazards.

- Storage of flammable liquids shall be in NFPA approved flammable storage lockers or in low value structures at least 50 feet from any other structure; do not store other combustible materials near flammable storage areas or lockers
- Bulk drums of flammable liquids must be grounded and bonded to containers during dispensing
- Portable containers of gasoline or diesel are not to exceed 5 gallons
- Safety cans used for dispensing flammable or combustible liquids shall be kept at a point of use
- Appropriate fire extinguishers are to be mounted within 75 feet of outside areas containing flammable liquids, and within 10 feet of any inside storage area for such materials
- Storage rooms for flammable and combustible liquids must have explosion-proof light fixtures



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- Bulk storage of gasoline or diesel is kept in above ground tanks. Tank areas are diked to contain accidental spills. Tanks shall be labeled IAW NFPA guidelines. All tank areas shall be designated no smoking - no Hot Work - no open flame areas
- No flames, Hot Work or smoking is be permitted in flammable or combustible liquid storage areas
- The maximum amount of flammable liquids that may stored in a building are:
 - 20 gallons of Class IA liquids in containers
 - 100 gallons of Class IB, IC, II, or III liquids in containers
 - 500 gallons of Class IB, IC, II, or III liquids in a single portable tank
- Flammable liquid transfer areas are to be separated from other operations by distance or by construction having proper fire resistance
- When not in use flammable liquids shall be kept in covered containers
- Class I liquids may be used only where there are no open flames or other sources of ignition within the possible path of vapor travel
- Flammable or combustible liquids shall be drawn from or transferred into vessels, containers, or portable tanks within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container or portable tanks by gravity through an approved self-closing valve. Transferring by means of air pressure on the container or portable tanks shall be prohibited
- Maintenance and operating practices shall be in accordance with established procedures, which will tend to control leakage and prevent the accidental escape of flammable or combustible liquids. Spills shall be cleaned up promptly
- Combustible waste material and residues in a building or unit operating area shall be kept to a minimum, stored in covered metal receptacles and disposed of daily
- Rooms in which flammable or combustible liquids are stored or handled by pumps shall have exit facilities arranged to prevent occupants from being trapped in the event of fire
- Inside areas in which Class I liquids are stored or handled shall be heated only by means not constituting a source of ignition, such as steam, hot water or forces central systems located away from the area

Cabinets

Not more than 120 gallons of Class I, Class II, and Class IIIA liquids may be stored in a storage cabinet. Of this total, not more than 60 gallons may be Class I and II liquids. Not more than three such cabinets (120 gallons each) may be located in a single fire area except in an industrial area.

Containers

The capacity of flammable and combustible liquid containers will be in accordance with the table below:

Maximum allowable capacity of containers and portable tanks					
	Flammable		Combustible Liquids		
Container	1A	1B	1C	II	III
Glass or approved plastic l	1 pt ²	1 qt ²	1 gal	1 gal	1 gal
Metal (Other than DOT drums)	1 gal	5 gal	5 gal	5 gal	5 gal



Safety Cans	2 gal	5 gal	5 gal	5 gal	5 gal
Metal drums (DOT specifications)	60 gal	60 gal	60 gal	60 gal	60 gal
Approved portable tanks	660 gal	660 gal	660 gal	660 gal	660 gal
(1) Nearest metric size is also acceptable for the glass and plastic					
(2) One gallon or nearest metric equivalent size may be used if metal and labeled with their contents					

Storage Inside Buildings

Where approved storage cabinets or rooms are not provided, inside storage will comply with the following basic conditions:

- The storage of any flammable or combustible liquid shall not physically obstruct a means of egress from the building or area
- Containers of flammable or combustible liquids will remain tightly sealed except when transferred, poured or applied. Remove only that portion of liquid in the storage container required to accomplish a particular job
- If a flammable and combustible liquid storage building is used, it will be a one-story building devoted principally to the handling and storing of flammable or combustible liquids. The building will have 2-hour fire-rated exterior walls having no opening within 10 feet of such storage
- Flammable paints, oils, and varnishes in 1 or 5 gallon containers, used for building maintenance purposes, may be stored temporarily in closed containers outside approved storage cabinets or room if kept at the job site for less than 10 calendar days

Ventilation

Every inside storage room will be provided with a continuous mechanical exhaust ventilation system. To prevent the accumulation of vapors, the location of both the makeup and exhaust air openings will be arranged to provide, as far as practical, air movement directly to the exterior of the building and if ducts are used, they will not be used for any other purpose.

Designated Flammable Storage Areas are:

1. Storage Cabinets



Hazard Communication & Chemical Safety

Purpose

This document serves as the NAIPTA's Hazard Communication Program. It provides detailed safety guidelines and instructions for receipt, use and storage of chemicals at our facility by employees and contractors. Reference: OSHA Standard 1910.1200

Responsibilities

Management

- Ensure compliance with this program
- Conduct immediate corrective action for deficiencies found in the program
- Maintain an effective Hazard Communication training program
- Make this plan available to employees

Shipping and receiving manager

- Ensure all received containers are properly labeled and that labels are not removed or defaced
- Ensure all shipped containers are properly labeled
- Ensure shipping department employees are properly trained in spill response
- Ensure received Material Safety Data Sheets (MSDS) are properly distributed

Purchasing Manager

- Obtain, from the manufacturer, MSDS for chemicals purchased from retail sources

Safety Officer

- Maintain a list of hazardous chemicals using the identity that is referenced on the MSDS
- Monitor the effectiveness of the program
- Conduct annual audit of the program
- Monitor employee training to ensure effectiveness
- Keep management informed of necessary changes
- Ensure MSDSs are available as required
- Monitor facility for proper use, storage and labeling of chemicals
- Ensure MSDS are available for emergency medical personnel when treating exposed employees
- Provide information, as requested, concerning health effects and exposure symptoms listed on MSDSs

Supervisors

- Comply with all specific requirements of the program



- Provide specific chemical safety training for assigned employees
- Ensure chemicals are properly used stored & labeled
- Ensure only the minimum amount necessary is kept at work stations
- Ensure up to date MSDS are readily accessible to all employees on all shifts

Employees

- Comply with chemical safety requirements of this program
- Report any problems with storage or use of chemicals
- Immediately report spills of suspected spills of chemicals
- Use only those chemicals for which they have been trained
- Use chemicals only for specific assigned tasks in the proper manner

Contractors and Subcontractors

- Comply will all aspects of this program
- Coordinate information with the Safety Manager
- Ensure Contractor employees are properly trained
- Notify the Safety Officer before bringing any chemicals into company property of facilities
- Monitor and ensure proper storage and use of chemicals by contractor employees

General Program Information

This written Hazard Communication Plan (HAZCOM) has been developed based on OSHA Hazard Communication Standard and consists of the following elements:

- Identification of hazardous materials
- Product warning labels
- Material Safety Data Sheets (MSDS)
- Written hazard communication program
- Effective employee training

Some chemicals are explosive, corrosive, flammable, or toxic. Other chemicals are relatively safe to use and store but may become dangerous when they interact with other substances. To avoid injury and/or property damage, persons who handle chemicals in any area of the company must understand the hazardous properties of the chemicals. Before using a specific chemical, safe handling methods and health hazards must always be reviewed. Supervisors are responsible for ensuring that the equipment needed to work safely with chemicals is accessible and maintained for all employees on all shifts.

Employee Training



Initial orientation training

All new employees shall receive safety orientation training covering the elements of the HAZCOM and Right to Know Program. This training will consist of general training covering:

- Location and availability of the written Hazard Communication Program
- Location and availability of the list of chemicals used in the workplace
- Methods and observation used to detect the presence or release of a hazardous chemical in the workplace
- The specific physical and health hazard of all chemicals in the workplace
- Specific control measures for protection from physical or health hazards
- Explanation of the chemical labeling system
- Location and use of MSDS

Job specific training

Employees will receive on the job training from their supervisor. This training will cover the proper use, inspection and storage of necessary personal protective equipment and chemical safety training for the specific chemicals they will be using or will be working around.

Annual refresher training

Annual Hazard Communication refresher training will be conducted as part of the *NAIPTAS* continuing safety training program.

Immediate on-the-spot training

This training will be conducted by supervisors for any employee that requests additional information or exhibits a lack of understanding of the safety requirements.

Non-Routine Tasks

Non-routine tasks are defined as working on, near, or with unlabeled piping, unlabeled containers of an unknown substance, confined space entry where a hazardous substance may be present and/or a one-time task using a hazardous substance differently than intended (example: using a solvent to remove stains from tile floors).

Steps for non-routine tasks

Step 1: Hazard Determination

Step 2: Determine Precautions

Step 3: Specific Training & Documentation

Step 4: Perform Task

All non-routine tasks will be evaluated by the Department Supervisor and Safety Officer before the task commences, to determine all hazards present. This determination will be conducted with



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quantitative/qualitative analysis (air sampling, substance identification/analysis, etc., as applicable).

Once the hazard determination is made, the Department Supervisor and Safety Officer will determine the necessary precautions needed to either remove the hazard, change to a non-hazard, or protect from the hazard (use of personal protective equipment) to safeguard the employees present. In addition, the Department Supervisor or Safety Manager will provide specific safety training for employees present or affected and will document the training using the *Chemical Safety Training Checklist* form which shall be marked "**Non-Routine Task Training**".

Off-site use or transportation of chemicals

An MSDS will be provided to employees for each chemical and each occurrence of use or transport away from the company facilities. All State and Federal DOT Regulations will be followed including use of certified containers, labeling & marking, securing of containers and employee training.

General Chemical Safety

Assume all chemicals are hazardous

The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Use chemicals in as small quantities as possible to minimize exposure and reduce possible harmful effects.

The following general safety rules shall be observed when working with chemicals:

- Read and understand the Material Safety Data Sheets
- Keep the work area clean and orderly
- Use the necessary safety equipment
- Carefully label every container with the identity of its contents and appropriate hazard warnings
- Store incompatible chemicals in separate areas
- Substitute less toxic materials whenever possible
- Limit the volume of volatile or flammable material to the minimum needed for short operation periods
- Provide means of containing the material if equipment or containers should break or spill their contents

Task Evaluation

Each task that requires the use of chemicals should be evaluated to determine the potential hazards associated with the work. This hazard evaluation must include the chemical or combination of chemicals that will be used in the work, as well as other materials that will be used near the work. If a malfunction during the operation has the potential to cause serious injury



or property damage, a Safe Operational Procedure (SOP) should be prepared and followed. Operations must be planned to minimize the generation of hazardous wastes.

Chemical Storage

The separation of chemicals (solids or liquids) during storage is necessary to reduce the possibility of unwanted chemical reactions caused by accidental mixing. Explosives should be stored separately outdoors. Use either distance or barriers (e.g., trays) to isolate chemicals into the following groups:

- Flammable liquids: store in approved flammable storage lockers.
- Acids; treat as flammable liquids
- Bases; do not store bases with acids or any other material
- Other liquids; ensure other liquids are not incompatible with any other chemical in the same storage location
- Lips, strips, or bars are to be installed across the width of storage shelves to restrain the chemicals in case of earthquake

Chemicals will not be stored in the same refrigerator used for food storage. Refrigerators used for storing chemicals must be appropriately identified by a label on the door.

Container Labels

It is extremely important that all containers of chemicals are properly labeled. This includes every type of container from a 5000-gallon storage tank to a spray bottle of degreaser. The following requirements apply:

- All containers will have the appropriate label, tag or marking prominently displayed that indicates the identity, safety and health hazards
- Portable containers which contain a small amount of chemical need not be labeled if they are used immediately that shift, but must be under the strict control of the employee using the product
- All warning labels, tags, etc., must be maintained in a legible condition and not be defaced; facility weekly supervisor inspections will check for compliance of this rule.
- Incoming chemicals are to be checked for proper labeling

Emergencies and Spills

In case of an emergency, implement the proper Emergency Action Plan

- Evacuate people from the area.
- Isolate the area
- If the material is flammable, turn off ignition and heat sources
- Only personnel specifically trained in emergency response are permitted to participate in chemical emergency procedures beyond those required to evacuate the area
- Call for Flagstaff Fire Department assistance if required



Housekeeping

- Maintain the smallest possible inventory of chemicals to meet immediate needs
- Periodically review stock of chemicals on hand
- Ensure that storage areas, or equipment containing large quantities of chemicals, are secure from accidental spills
- Rinse emptied bottles that contain acids or inflammable solvents before disposal
- Recycle unused laboratory chemicals wherever possible
- **DO NOT** Place hazardous chemicals in salvage or garbage receptacles
- **DO NOT** Pour chemicals onto the ground
- **DO NOT** Dispose of chemicals through the storm drain system
- **DO NOT** Dispose of highly toxic, malodorous chemicals down sinks or sewer drains

Contractors and Subcontractors

All outside subcontractors working inside company facilities are required to follow the requirements of this program. NAIPTA will provide Contractors, and Subcontractors information on:

- Location of MSDS
- Precautions to be taken to protect contractor employees
- Potential exposure to hazardous substances
- Chemicals used in or stored in areas where they will be working
- Location and availability of Material Safety Data Sheets
- Recommended personal protective equipment
- Labeling system for chemicals

Definitions

Chemical: Any element, chemical compound or mixture of elements and/or compounds.

Combustible liquid: Any liquid having a flash point at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flash points of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Compressed gas: any compound that exhibits:

- A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F
- A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg. F. regardless of the pressure at 70 deg. F
- A liquid having a vapor pressure exceeding 40 psi at 100 deg. F

Container: Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems,



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and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Designated representative: Any individual or organization to which an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

Employee: A worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

Employer: A person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Explosive: A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or exposed: An employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. Subjected in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Flammable: A chemical that falls into one of the following categories:

- "Aerosol, flammable" means an aerosol that yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening
- "Gas, flammable" means: (A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or (B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit
- "Liquid, flammable" means any liquid having a flash point below 100 deg. F., except any mixture having components with flash points of 100 deg. F. or higher, the total of which make up 99 percent or more of the total volume of the mixture
- "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in 1910.109 (a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis

Flash point: The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.

Hazardous chemical: Any chemical, which is a physical hazard or a health hazard.



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Hazard warning: Any words, pictures, symbols, or combination appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for "physical hazard" and "health hazard" to determine the hazards which must be covered.)

Health hazard: A chemical for which there is evidence that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes, or mucous membranes.

Identity: Any chemical or common name, which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

Immediate use: The hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label: Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Material safety data sheet (MSDS): Written or printed material concerning a hazardous chemical that is prepared in accordance with OSHA Standard 1910.1200 requirements.

Mixture: Any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Oxidizer: A chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard: A chemical that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Pyrophoric: A chemical that will ignite spontaneously in air at a temperature of 130 deg. F. or below.

Specific chemical identity: The chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Unstable (reactive): A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Use: To package, handle, react, emit, extract, generate as a byproduct, or transfer.



Water-reactive: A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work area: A room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace: An establishment, job site, or project, at one geographical location containing one or more work areas.

MSDS Information

Material Safety Data Sheets are provided by the chemical manufacturer to provide additional information concerning safe use of the product. Each MSDS provides:

- Common name and chemical name of the material
- Name, address and phone number of the manufacturer
- Emergency phone numbers for immediate hazard information
- Date the MSDS was last updated
- Listing of hazardous ingredients
- Chemical hazards of the material
- Information for identification of chemical and physical properties

Information Chemical Users Must Know

Fire and/or explosion information

- Material flash point, auto-ignition temperature and upper/lower flammability limits
- Proper fire extinguishing agents to be used
- Fire fighting techniques
- Any unusual fire or explosive hazards

Chemical reaction information

- Stability of chemical
- Conditions and other materials which can cause reactions with the chemical
- Dangerous substances that can be produced when the chemical reacts

Control measures

- Engineering controls required for safe product use
- Personal protective equipment required for use of product
- Safe storage requirements and guidelines
- Safe handling procedures

Health hazards

- Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV)
- Acute or chronic symptoms of exposure
- Main routes of entry into the body



- Medical conditions that can be made worse by exposure
- Cancer causing properties if any
- Emergency and First Aid treatments

Spill and leak procedures

- Clean up techniques
- Personal protective equipment to be used during cleanup
- Disposal of waste and cleanup material

Employee Use of MSDS

For MSDS use to be effective, employees must:

- Know the location of the MSDS
- Understand the major points for each chemical
- Check MSDS when more information is needed or questions arise
- Be able to quickly locate the emergency information on the MSDS
- Follow the safety practices provided on the MSDS



Housekeeping & Material Storage

Purpose

Attention to general cleanliness, storage and housekeeping can prevent numerous accidents. This chapter covers items not discussed in other areas and is not intended to cover all specific housekeeping requirements. Good housekeeping efforts are a part of the company fire prevention and accident prevention program.

Management and Employee Responsibility

All employees share the responsibility for maintaining good housekeeping practice and following the established housekeeping procedures. The manager, supervisors, safety officer and safety committee will be responsible to monitor housekeeping as part of their facility safety inspection procedures, note any hazards or areas of non-compliance, initiate clean-up procedures and provide follow-up. Management has the additional responsibility to provide disciplinary action when necessary to reinforce compliance with this program.

Smoking Policy

Smoking is not permitted inside buildings and/or within 20 feet of any doors, windows or other openings, and 50 feet of material storage. This includes all offices, rest rooms, locker rooms, production floor, storage areas, coolers, etc. Smoking is permitted outside in designated areas and in the Smoking Section of authorized break areas before work, after work and during breaks. To prevent fires and keep the grounds neat and orderly, all cigarette/cigar ashes and butts are to be disposed in the provided butt cans or ashtrays only.

Department and Area Housekeeping Procedures

Offices

Office areas are to be kept neat and orderly. The following general rules apply to prevent injuries and maintain a professional appearance:

- All aisles, emergency exits, fire extinguishers, etc., will be kept clear (a minimum of three feet of either side) of material storage (temporary and permanent) at all times
- Storage areas will be maintained orderly at all times. When supplies are received, the supplies will be stored properly
- Spills will be cleaned-up immediately and wastes disposed of properly
- All waste receptacles will be lined with a plastic trash bag to avoid direct contact while handling. custodial employees will use rubber gloves and compaction bar when handling wastes



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- Keep file and desk drawers closed when not attended to avoid injuries. Open only one drawer at a time to prevent tipping of file cabinets
- At the end of the business day, turn off all office equipment (area heaters, lamps, coffee-maker, PCs, etc.) and lights to save energy and prevent fires. All space heaters be unplugged at the end of the day to assure they have been turned-off

Production areas

Production areas will be kept neat and orderly, during operations and as follows:

- All aisles, emergency exits, fire extinguishers, eye wash stations, etc., will be kept clear (a minimum of three feet in front of and to either side) of product storage, material storage, fork trucks and pallet jacks at all times
- Spills will be cleaned up immediately
- All process leaks will be reported to supervision and maintenance for immediate repair and clean-up
- Utility employees will be responsible to keep aisles and work floors clear of excessive debris and waste materials during shift operation, between breaks and at shift change when necessary or directed by supervision; however, all employees are responsible to communicate slippery floors to supervision for immediate clean-up
- All refuse and waste materials will be placed in the recognized waste containers for disposal

Rest rooms, locker rooms and break areas

Rest rooms, locker rooms and cafeteria are provided as a convenience for all employees. The following rules will apply:

- Employees are expected to clean-up after themselves as a common courtesy to fellow employees
- Flammable materials (fire works, explosives, gasoline, etc.) may not stored in lockers or brought on company property
- Personal food item will not be stored in lockers or cafeteria overnight
- All waste receptacles will be lined with a plastic trash bag to avoid direct contact while handling and custodial employees will use rubber gloves and compaction bar when handling wastes
- All refuse and waste materials will be placed in the recognized waste containers for disposal

Maintenance Areas

All aisles, emergency exits, fire extinguishers, etc., will be kept clear (a minimum of three feet of either side) of material storage (temporary and permanent) at all times. Storage areas will be maintained orderly at all times:

- Pipe stock stored horizontally on racks and sorted by size
- Metal stock stored horizontally on racks and sorted by size
- Sheet metal stock stored vertically in racks and sorted by type
- All fittings, etc., stored in bins on shelves and sorted by type and use



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- All flammables stored in OSHA-approved Fire Cabinets and self-closing cans where necessary
- Spills will be cleaned-up immediately by the person responsible and wastes disposed properly
- All refuse and waste materials will be placed in the recognized waste containers for disposal

Grounds

The grounds surrounding the plant are an extension of the work place. Grounds that are kept neat and orderly show pride by the company for employees, customers and neighbors to enjoy.

The following general rules will apply:

- All trash will be discarded only in the waste containers provided
- Park only in the designated assigned area
- The maintenance department will be responsible for grounds keeping (mowing, trimming, etc.) as needed. Maintenance will also establish procedures for ice/snow removal, when necessary, prior to operations each day

Material Storage

Proper storage procedures are required for dry, raw materials, finished product flammables and compressed gases storage to prevent fires, keep exits and aisles clear and avoid injuries and illnesses.

General rules for material storage are as follows:

Materials and finished products storage

- Materials may not be stored any closer than 18 inches to walls or sprinkler heads. A minimum of 3 feet side clearance will be maintained around doorways and emergency exits. Passageways and aisle will be properly marked and a minimum of six feet in width. Materials, fork lifts, pallet jacks, etc., may not be stored in aisles or passageways
- Aisles and passageways will be kept clear of debris. All spills of materials will be immediately cleaned-up by the person responsible
- All platforms and racks will have maximum load capacity displayed. The weight of stored material will not exceed the rated load capacity.

Flammable storage

- All flammables will be stored in OSHA-approved flammable storage cabinets or stored outside (at least 50 feet from any structure)
- Fuels, solvents and other flammables (not stored in original shipping containers) will be stored in OSHA-approved self-closing containers with flame arresters. Flammables may not be stored in open containers (open parts baths, etc.)



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- Flammable storage areas will be kept dry and well ventilated. No storage of combustible materials, open flames or exposed electrical components are permitted in the flammable storage area
- Flammable or combustible materials may not be stored in electrical rooms. Electrical rooms must be kept clean and dry at all times

Compressed gas storage safety

- Gas Cylinder Shipment Receiving
- Inspect bottle for defects and proper marking/labels
- Ensure stamped date on bottle has not expired
- Inspect valve assembly and adapter thread area
- Ensure MSDS is on file or with shipment
- Follow MSDS requirements for storage
- Gas Cylinder Storage
- Cylinder cap securely in place when not in use
- Marked with contents and if empty/full
- Stored up-right and secured to a stationary structure in an shaded and well ventilated area
- Cylinders not stored within 50 feet of exposed electrical components or combustible materials
- Cylinders are protected from accidental rupture
- Chemically reactive gases not stored within 50 feet of each other
- Gas cylinder movement
- Must be secured to a cart or cylinder trolley
- Cap securely fastened
- Gas cylinder usage
- Inspect valve adapter threads
- Inspect all fasteners, hoses & regulators prior to hooking up to cylinder
- Use only for approved purposes
- Use in up-right position
- Fasten cylinder to structure or cart
- Regulators must be of same rated pressure as cylinder
- Keep cylinder valve shut when not in use; don't depend on regulators