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POLICY STATEMENT

The safety and health of employees is the first consideration in operating any business. Without question, it is the responsibility of every employee at all levels in the hierarchy.

Northern Arizona University / Facility Services will comply with all laws and prevent workplace injuries and illnesses. To do this, we must be aware of conditions that can result in injury or illness in every work area. No employees will be required to work at a job they know is unsafe or unhealthy. Companywide cooperation in detecting hazards and controlling them is a condition of employment. Employees will inform their supervisor immediately of any hazardous situation beyond their ability or authority to correct.

Preventing workplace injuries and illnesses takes precedence over operating productivity when necessary. To the greatest degree possible, management will provide safeguards for personal safety and health, in keeping with the highest standards.

We strive to maintain an occupational injury and illness prevention program (IIPP) that conforms to industry best practices for organizations of this type. To be successful, such a program must embody proper attitudes toward injury and illness prevention on the part of both supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also among coworkers.

Our objective is an (IIPP) that reduces the number of work place incidences to an absolute minimum, not merely in keeping with, but surpassing the best experience of operations similar to ours. Our goal is zero accidents and injuries.

SAFETY & HEALTH PROGRAM COMPONENTS

Our (IIPP) includes the following:

- Communicating with employees about safety issues and workplace hazards through a range of avenues including a safety training program, safety committee, and meetings to exchange ideas about workplace safety and health among employees;
- Providing and maintaining mechanical, physical and administrative safeguards to control risks presented by workplace hazards to the maximum possible extent;
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions or practices, to control health hazards, and to comply with safety and health regulations and standards;

- Providing necessary personal protective equipment (PPE) and instructions for proper use and care;
- Developing and enforcing safety and health rules and requiring employees to cooperate with these rules as a condition of employment;
- Investigating promptly and thoroughly every accident, safety incident, and near miss to determine root causes and make appropriate changes to remedy those causes;
- Creating a culture of safety that encourages employees to identify workplace hazards, recommend changes to reduce the risks they pose, and otherwise work proactively for a safer workplace; and
- Periodic review of all elements of the injury (IIPP) to ensure continuous improvement.

We recognize the responsibilities for occupational safety and health are shared: Northern Arizona University / Facility Services will see that all employees are properly instructed and supervised in safe operation of machinery, tools, equipment, processes, and practices while at work.

Northern Arizona University / Facility Services accepts responsibility for the leadership, effectiveness, and improvement of the injury and illness prevention program and for providing the required safeguards to ensure safe work conditions.

Supervisors are responsible for encouraging proper attitudes toward safety and health and for ensuring that workers perform operations with the utmost regard for the safety and health of all personnel.

Employees are responsible for wholehearted, genuine implementation of all aspects of the (IIPP), including compliance with all rules and regulations, and for continuously following best safety and health practices while performing their duties.

Requirements in multiple chapters may apply to the same job, and some health and safety procedures will be addressed at different levels of focus. Where a circumstance is addressed by different requirements throughout this manual, then all requirements apply and when a conflict occurs, the more specific one must be followed.

PROGRAM GOALS

The goal of Northern Arizona University / Facility Services is to continue operating a profitable business while protecting employees from injuries or illness. This can be achieved by delegating responsibility and accountability to all involved in this company's operation.

Responsibility: Having to answer for activities and results.

Accountability: The actions taken by management to ensure the performance of responsibilities.

To reach our goal of a safe workplace, everyone needs to take responsibility and be accountable.

Owner Name	Owner Signature	Date

Frank Espinoza is responsible for the implementation and enforcement of safety rules.

INTRODUCTION

All businesses are encouraged to establish safety committees as part of their IIPP. There are currently ten states that require companies to form safety committees. The conditions for this requirement vary by state, and companies should consult the appropriate state agency to determine if the requirements apply.

POLICY STATEMENT

Northern Arizona University / Facility Services maintains its commitment to protect the safety and health of all employees. To support a workplace culture that prioritizes the prevention of illness and injury, a committee of stakeholders representing management and workers will plan and implement safety policies and ensure best safety practices are followed throughout the workplace.

Northern Arizona University / Facility Services Safety Committee members at the time this manual was created are:

Frank Espinoza or as assigned by Frank Espinoza.

The safety committee will meet a minimum of Monthly times per year.

RESPONSIBILITIES

The safety committee is a collaborative, consensus-focused organization within the workplace. Its success depends not only on the ability of the committee to work toward a culture of safety, but also on the efforts of other employees and the support of managers and supervisors.

Northern Arizona University / Facility Services supports the safety committee and its efforts to strengthen safety in the workplace. Managers and supervisors will encourage employee involvement and support a workplace culture where honest communication about safety issues is encouraged. Employees should feel confident when sharing suggestions or concerns that their views will be handled seriously and with respect.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Ensure every employee receives training on their roles regarding the safety committee;
- Support and encourage active employee involvement in creating and supporting a culture of safety;
- Establish the authority of the Northern Arizona University / Facility Services safety committee;
- Support the safety committee and respond to its recommendations promptly;
- Establish the size of the safety committee;
- Accurately communicate the time and effort commitment level expected of safety committee members; and
- Fund and allow time for safety committee activities.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the Northern Arizona University / Facility Services safety committee to:

- Meet Monthly times a year;
- Identify hazards and unsafe work practices, remove obstacles to incident prevention, and help the company evaluate the injury and illness prevention program (IIPP);
- Write bylaws to document the committee's purpose, activities, and processes;
- Report employee safety and health concerns to the committee;
- Suggest items to include in the monthly meeting agenda;
- Encourage other employees to report workplace hazards and suggest how to control them;
- Deliver safety training when appropriate;
- Establish procedures for conducting regular workplace inspections and for making recommendations to management to eliminate or control hazards;
- Make or assist in safety inspections and accident investigations;
- Work safely and encourage others to do likewise;
- Help management evaluate safety programs and recommend improvements;
- Establish procedures for investigating the causes of accidents and near-miss incidents;
- Plan and document every official meeting;
- Establish committee offices and elect officers;
- Communicate and build consensus over safety and health issues in meetings;
- Follow a written agenda at every meeting;
- Record minutes at every safety committee meeting and post them for employees;
- Plan for emergencies;
- Create and maintain documents related to Northern Arizona University / Facility Services's safety and health program;
- Follow bylaws established by the committee; and
- Review the Northern Arizona University / Facility Services injury and illness prevention program annually.

EMPLOYEE RESPONSIBILITIES

Northern Arizona University / Facility Services employees are expected to recommend safety solutions to the safety committee; Participate in the selection of members and consider volunteering to join the committee; Cooperate and provide input during workplace inspection, job hazard analysis and accident investigation; and Attend all required safety meetings.

TRAINING

Northern Arizona University / Facility Services will ensure employees are provided training on their roles regarding the safety committee. This training will be provided at no cost to the employee and completed during working hours.

Northern Arizona University / Facility Services will use only training material appropriate in content and vocabulary to the educational level, literacy and language of employees.

TRAINING COMPONENTS

- Frank Espinoza will ensure that all employees at Northern Arizona University / Facility Services are informed and trained in the following minimum elements for safety committees; the role of the safety committee in ensuring companywide safety and health; and how to participate in the safety committee.
- Safety committee members will complete training in the following minimum elements:
- The purpose of the safety committee;
- How to apply safety rules;
- How to conduct safety committee meetings;
- Hazard identification;
- The principles of accident investigation;
- Contact information for help on workplace safety and health matters; and
- Company safety policy and occupational safety and health principles.
- All safety committee officers will be trained to fulfill their responsibilities as officers.

TRAINING RECORDS

- Training records will include the following information: dates of the training sessions, contents or a summary of the training sessions, names and qualifications of persons conducting the training, names, and job titles of all persons attending the training sessions.
- Employee training records will be maintained for 3 years from the date on which the training occurred.

BYLAWS

The Northern Arizona University / Facility Services Safety Committee will define its purpose, activities, and processes in its bylaws. The document will define the scope and nature of the committee's activities, and serve as a guide to new committee members. The complexity of the document depends on the safety and health needs of Northern Arizona University / Facility Services and the decisions of the committee. However, topics in the bylaws should include the following.

NAME, PURPOSE AND CONSTITUENCY

In its bylaws, the safety committee will identify the worksite from where committee members are selected, why the committee has been formed, and the committee's goals and objectives.

COMMITTEE COMPOSITION, OFFICERS AND TERMS

Bylaws will establish the size of the committee as well as what proportion of the committee will be reserved for members of management and labor. Bylaws also need to establish the officers the committee will appoint and how they will be appointed. The length of terms also needs to be determined for officers and members of the committee.

DUTIES, RESPONSIBILITIES AND TRAINING

The safety committee will outline the duties of each officer and members, both in terms of their obligations to the safety committee and in terms of fulfilling their role in the workplace. Safety committee members will need additional training, not only in how the committee functions, but also in how to competently perform their responsibilities of emergency response, inspections, etc.

MEETINGS, ELECTIONS AND ATTENDANCE

The safety committee bylaws should specify the frequency of meetings, as well as how an absence should be handled. A portion of the document should address the number of representatives needed to form a voting quorum as well as how the committee will resolve issues it cannot resolve with a vote.

AGENDAS, MINUTES AND RECORDKEEPING

Safety committee will plan and document every official meeting. Each meeting will have a predetermined order of business, and a system in place to record what happened in the meeting and document recommendations and findings brought to the committee during meetings.

INVESTIGATIONS, INSPECTIONS AND EVALUATIONS

Bylaws describe the role of the committee in investigating near misses and accidents, as well as how the committee will conduct workplace inspections. In the bylaws, the committee needs to establish how the committee and management will communicate regarding safety concerns and recommendations*. It also needs to describe how it will assess the overall injury and illness prevention program (IIPP) and its own activities to establish a means of ongoing evaluation and improvement.

See the example of safety committee bylaws at the end of this chapter.

COMMITMENT

During planning for the safety committee, the support of both management and labor is critical. Management will consistently support and encourage active employee involvement in creating and supporting a culture of safety at Northern Arizona University / Facility Services. Management is responsible for establishing the authority of the Northern Arizona University / Facility Services safety committee and after its creation will support the committee and respond to its recommendations promptly.

MEMBERSHIP

Only Northern Arizona University / Facility Services employees may serve on the safety committee. Members of the committee should be volunteers and the number of managers and non-managers on the committee should be approximately equal. If possible, the safety committee should include representatives from a range of departments, work operations, and shifts. This helps ensure all groups of workers feel represented and contributes to effective communication between the safety committee and the rest of the workforce. Elections for members can be a helpful way to encourage involvement in the committee's activities.

NUMBER OF COMMITTEE MEMBERS

Frank Espinoza will establish the size of the safety committee. The number of members who will serve on the safety committee depends on the number of employees Northern Arizona University / Facility Services has at the time. A workplace with up to 20 employees may only need two safety committee members. Beyond that, however, having more members encourages wide participation and helps fill all the committee's roles. Somewhere between five and ten members is sufficient for almost any safety committee.

Membership terms of one to three years' work well for safety committee members and officers. The committee will determine term length when it establishes the bylaws. Regardless of length, terms should be staggered so at least one experienced committee member remains on the committee at any given time.

OFFICERS

A safety committee can have a number of officers, depending on its size. The most important two are the chairperson, who is “in charge” of safety meetings, and a recorder who takes minutes. A vice-chairperson can serve in case the chairperson is unable to perform his or her duties.

CHAIRPERSON

It is beneficial to allow the committee to elect its chairperson, though the role may be appointed by Frank Espinoza. The chairperson has the responsibility to ensure meetings occur and are productive. The safety committee chairperson’s duties need to include, but are not limited to:

- Scheduling monthly meetings;
- Developing agendas for meetings;
- Coordinating and conducting meetings;
- Establishing timeframes and deadlines for safety committee projects;
- Following up on recommendations of committee;
- Acting as liaison between committee and management; and
- Promoting safety by personal example.

RECORDER OR SECRETARY

The recorder’s role is to ensure accurate and thorough recordkeeping for the committee’s activities. The safety committee recorder’s duties include, but are not limited to:

- Taking minutes at meetings;
- Distributing minutes to committee members;
- Posting minutes for other employees to review;
- Maintaining safety committee file;
- Keeping minutes and agendas on file for at least three years; and
- Promote safety by personal example and communication between and among employees and supervisors.

VICE-CHAIRPERSON

The vice-chairperson assumes the chairperson’s responsibilities when he or she isn’t available. This officer should take an active role in the committee’s activities and assist in the coordination and direction of the committee. In some safety committees, this role is filled by the recorder.

MEMBERS

The duties of all members of the safety committee include, but are not limited to:

- Reporting employee safety and health concerns to the committee;
- Attending all safety meetings;
- Reporting accidents, near miss incidents and unsafe workplace conditions
- Suggesting items to include in the monthly meeting agenda;
- Encouraging other employees to report workplace hazards and suggest how to control them;
- Delivering safety training when appropriate;
- Establishing procedures for conducting workplace inspections and for making recommendations to management to eliminate or control hazards;
- Making or assisting in safety inspections and accident investigations;
- Working safely and encouraging others to do likewise;
- Helping management evaluate safety programs and recommending improvements; and
- Investigating causes of accidents and near-miss incidents.

MEETINGS

Regular, productive meetings are essential to success for the Northern Arizona University / Facility Services safety and health committee. Safety committee meetings will be a time to communicate and build consensus over safety and health issues.

Meetings will begin on time, and safety committee members will be paid for time spent on safety committee business, including meetings and meeting preparation. The chairperson is responsible for moving the meeting along according to the established agenda. Meetings do not have to follow strict parliamentary procedures; however, they do require order to be successful. The committee will set its own ground rules for meetings.

FREQUENCY

- Safety committee meetings should occur regularly and frequently. The frequency of meetings should be established in the committee bylaws. Most committees find monthly meetings or quarterly meetings are sufficient, depending on the size of the organization and the severity of risk in the workplace.
- Northern Arizona University / Facility Services safety committee meetings occur Monthly times a year.
- Subcommittees and working groups can meet more frequently as needed.

AGENDA

The committee will follow a written agenda at every meeting. This agenda will outline the topics of discussion and needs to be distributed to members well in advance of the meeting for review. A committee member who requests to add an item to the agenda should give the chairperson ample notice. The agenda will include the date, time, and location of the meeting, and any special group or individual who is expected to attend. A safety committee meeting may only extend beyond the time established in the agenda with committee approval. The needs of the committee at a given meeting will shape the agenda, but a standard order of business helps.

OPENING

The chairperson will bring the meeting to order before a roll call of members. The opening of the meeting is when introductions of new representatives or guests occur. This is also when the committee should review minutes from the previous meeting for additions or corrections as needed.

UNFINISHED BUSINESS

If there was discussion about issues not resolved or for which no activity was planned from previous meetings, the committee should address them toward the beginning of the meeting.

The committee needs to review recommendations it has already made and report on actions being taken. If recommendations are not acted upon, management will provide the committee with an explanation of the status of the issue, including whether corrections are to be delayed and when they will be carried out.

NEW BUSINESS

If new business items are on the agenda, discussion about them should happen after unfinished business has been resolved. Discuss new inspections and reports or discuss safety concerns that have emerged in the time since the last meeting.

SUGGESTIONS

The Northern Arizona University / Facility Services safety committee will solicit input in the form of feedback or suggestions from employees. Every meeting will include time to discuss suggestions from employees or to allow employees to address the committee about safety concerns.

GOALS/PLANNING/TRAINING

The best practice is to take some time in each meeting to address progress on safety goals and celebrate successes. If there is action to be taken before the next meeting, the committee will assign these steps to responsible parties or create subcommittees as necessary.

If time allows, provide additional safety training to safety committee members. This training can be specific to running an effective safety committee or it can be general training for committee members to share with coworkers later. This element of the safety committee meeting does not need to be lengthy and may open the platform to guest speakers.

ESTABLISH NEXT MEETING

The chairperson will thank those in attendance and the committee will establish when the next meeting will occur before adjourning.

MINUTES

Minutes serve as the official record of a safety committee meeting. Minutes need to be concise, clear, and thorough. The recorder or secretary is responsible for writing minutes for each meeting and posting them where they will be easily accessible to all employees. Minutes remain on file for at least three years and must include the following:

- Date, time and place of meeting;
- Names of attendees and a list of committee members who were unable to attend;
- Summary of agenda items discussed during the meeting;
- Suggestions from employees and any hazards reported during the meeting;
- Recommendations from the committee to management; and
- Management's response to committee recommendations.

WORKPLACE INSPECTIONS

A comprehensive injury and illness prevention program (IIPP) demands a hazard assessment for most jobs and regular inspections of all work areas. The safety committee's role in performing these assessments and inspections is integral to a safe workplace. Walkthroughs and inspections should be documented and performed along with employees and supervisors who work in the area being inspected. Thorough workplace inspections occur Quarterly, and hazard assessments will be as frequent as changes to the workplace or safety situations demand.

The safety committee shares responsibility for Northern Arizona University / Facility Services's hazard assessment and control system. The safety committee is responsible for monitoring the workplace for hazards; encouraging employees to report hazards implementing appropriate controls; and ensuring corrective action is taken promptly.

Tasks that present a higher degree of risk to an employee demand special planning and inspections that are more frequent. Please see the "Job Hazard Analysis" chapter for more detail.

RECOMMENDATIONS

The safety committee should include at least one member of high-level management who can authorize next steps for action items of the committee; however, not every issue can be dealt with immediately. When additional authority is needed for the committee to fulfill its other responsibilities, the committee will make a formal recommendation in writing to Northern Arizona University / Facility Services management.

The safety committee will draft recommendations to Northern Arizona University / Facility Services when a management representative on the committee can't sufficiently respond to an issue; the safety committee determines needs attention.

An effective recommendation to management should include:

- Statement describing the issue;
- Background information;
- All available options; and
- Suggested timeline for action.

ACCIDENTS

Accidents and near misses point to weaknesses in the safety and health program. Investigations serve an important role in preventing accidents in the future by determining how and why the incident occurred.

The safety committee should determine the safety committee's role in accident investigations, however, the committee is responsible for ensuring how an accident investigation is conducted, and that it does occur. Investigations gather information about the incident, but may require thoughtful analysis to determine the root causes, and how to control them. Investigations will focus on correcting problems, not placing blame. Please see the "Accident Investigation" chapter for more detail.

EMERGENCIES

The safety committee plays a vital role in planning for emergencies. Members of the safety committee may need to assume additional responsibilities during emergencies. Depending on the Emergency Action Plan, safety committee members may serve as evacuation wardens, be designated to fight incipient-stage fires with a fire extinguisher, and/or provide first aid. Training will reflect the job requirements assigned to safety committee members. Please see the “Fire Protection and Emergency Planning” chapter for more detail.

TRAINING

The safety committee can play an important role in training workers about safety and supporting a general culture of safety. Because of this, members of the safety committee will need additional training to support their activities.

Training will be built into safety committee meetings, safety committee members and officers will receive training for any task they are asked to perform above their regular duties.

Representatives must understand:

- The purpose of the safety committee
- How to apply OSHA safety rules, and
- How to conduct safety committee meetings.

They also must have training in hazard identification and the principles of accident investigation.

Committee members should know whom to contact for information or for help on workplace safety and health matters.

The safety committee will establish and implement training programs for safety topics and hazard awareness in the workplace. The committee will need to establish procedures to deliver necessary training, coordinate safety meetings, and keep track of training verification documents.

RECORDKEEPING

The safety committee is responsible for creating and maintaining documents that are related to Northern Arizona University / Facility Services’s safety and health program. This includes but is not limited to:

- Log of work-related injuries and illnesses (OSHA’s Form 300);
- Injury and illness incident reports (OSHA’s Form 301);
- Yearly summary of work-related injuries and illnesses (OSHA’s Form 300A);
- Safety training records
- Committee recommendations;
- Workplace hazard assessments; and
- Any required safety log.

EVALUATION

A crucial aspect of the safety committee's activities is an annual review of the Northern Arizona University / Facility Services safety and health program. This review can be accomplished over a number of weeks or throughout the year, depending on how the committee decides to handle the evaluation. This evaluation should be recorded and provided to management along with recommendations as appropriate.

In addition to a review of the overall safety and health program, the Northern Arizona University / Facility Services safety committee will evaluate its own activities on a yearly basis to determine changes to procedures that may be needed.

FORMS & ATTACHMENTS

On the following pages, please find the following documents:

- Safety Committee Bylaws
- Safety Committee Checklist
- Safety Committee Agenda
- Safety Committee Meeting Minutes
- Safety Committee Training Record Sheet

These forms may be reproduced freely by Northern Arizona University / Facility Services for the purposes of implementing and maintaining a safety and health program.

SAFETY COMMITTEE BYLAWS FORM

Name

The name of the committee is the _____ Safety Committee.

Purpose

The purpose of the _____ Safety Committee is to bring all _____ employees together to achieve and maintain a safe, healthful workplace.

Goal

The goal of the _____ Safety Committee is to eliminate workplace injuries and illnesses by involving employees and managers in identifying hazards and suggesting how to prevent them.

Objectives

The Safety Committee has four objectives:

- Involve employees in achieving a safe, healthful workplace.
- Promptly review all safety-related incidents, injuries, accidents, illnesses, and deaths.
- Conduct quarterly workplace inspections, identify hazards, and recommend methods for eliminating or controlling the hazards.
- Annually evaluate the _____ workplace safety-and-health program and recommend to management how to improve the program.

Representatives

The _____ Safety Committee will have _____ voting representatives. _____ of the representatives will represent employees and _____ will represent management. Employee representatives can volunteer or their peers can elect them. Management will select management representatives.

Each representative will serve a continuous term of at least one year. Terms will be staggered so that at least one experienced representative always serves on the committee.

Chairperson and Vice-chairperson

The _____ Safety Committee will have two officers: chairperson and vice-chairperson. One officer will represent labor and one officer will represent management.

Terms of Service

Chairperson and vice-chairperson will each serve a one-year term.

Duties of the Chairperson

- Schedule regular committee meetings.
- Approve committee correspondence and reports.
- Develop written agenda for conducting meeting.
- Supervise preparation of meeting minutes.
- Conduct the committee meeting.

Duties of the Vice-chairperson

- In the absence of the chairperson, assume the duties of the chairperson.
- Perform other duties as directed by the chairperson.

Election of Chairperson and Vice-chairperson

The election of a new chairperson or vice-chairperson will be held during the monthly committee meeting, one month prior to when their term expires.

If the chairperson or vice-chairperson leaves office before their term expires, an election will be held during the next scheduled safety-committee meeting; the elected officer will serve for the remainder of the term.

Training

New representatives will receive training in safety-committee functions, hazard identification, and accident-investigation procedures.

Meetings

Monthly schedule: The _____ Safety Committee will meet the _____ of each month, except when the committee conducts quarterly workplace safety inspections.

Attendance and Alternates

Each representative will attend regularly scheduled safety committee meetings and participate in quarterly workplace inspections and other committee activities. Any representative unable to attend a meeting will appoint an alternate and inform the chairperson before the meeting. An alternate attending a meeting on behalf of a regular representative will be a voting representative for that meeting.

Agenda

The agenda will prescribe the order in which the _____ Safety Committee conducts its business. The agenda will also include the following when applicable:

- Review of new safety and health concerns
- Status report of employee safety and health concerns under review
- Review of near misses, accidents, illness, or deaths occurring since the last committee meeting.

Minutes

Minutes will be recorded at each committee meeting and posted & distributed to all employees.

The committee will submit a copy of the minutes to the _____ personnel office; the office will retain the copy for three years. All reports, evaluations, and recommendations of the committee will be included in the minutes. The minutes will also identify representatives who attended monthly meeting, and representatives who were absent.

Voting Quorum

_____ voting representatives constitute a quorum. A majority vote of attending representatives is required to approve all safety-committee decisions. Issues not resolved by majority vote will be forwarded to management for resolution.

Employee Involvement

The _____ Safety Committee will encourage employees to identify workplace-safety and health hazards. Concerns raised by employees will be presented to the committee in writing; the committee will review new concerns at the next regularly scheduled monthly meeting.

Safety Log

The committee will maintain a log of all employee concerns, including the date received, recommendations to management, and the date the concern was resolved.

Response

The committee will respond to employee concerns in writing and work with management to resolve them. The committee will present written recommendations for resolving concerns to management. Within 60 days of receipt of the written recommendations, management will respond in writing to the committee indicating acceptance, rejection, or modification of the recommendations.

Incident and Accident Investigation

The _____ Safety Committee will review new safety- or health-related incidents at its next regularly scheduled meeting. Safety-related incidents include work-related near misses, injuries, illnesses, and deaths. When necessary, the committee will provide written recommendations to management for eliminating or controlling hazards.

Workplace Inspections

The _____ Safety Committee will conduct quarterly workplace inspections of all company facilities in March, June, September, and December.

Written Report

The committee will prepare a written report for management that documents the location of all health or safety hazards found during inspection. The report will recommend options for eliminating or controlling the hazards.

Within 60 days of receipt of the written report, management will respond in writing to the committee, indicating acceptance, rejection, or proposed modification of the recommendations.

Evaluation

The _____ Safety Committee will evaluate the company's workplace-safety-and-health program annually and provide a written evaluation of the program to management. The committee will also evaluate its own activities each December and use the evaluation to develop an action plan for the next calendar year.

SAFETY COMMITTEE CHECKLIST

Done	To Do	
		Our safety committee is composed of an equal number of management and employee representatives.
		Employee representatives are volunteers or are elected by their peers.
		There are at least four representatives on the committee if the workplace has more than 20 employees – at least two representatives if the workplace has 20 or fewer employees.
		The representatives elect the committee chairperson.
		Representatives are paid their regular wages during safety committee training and meetings.
		Employee representatives serve on the committee for at least one year.
		Representatives' terms of service are staggered so that at least one experienced representative is always on the committee.
		Reasonable efforts are made to ensure committee representatives represent the firm's major work activities.
		The committee meets monthly except when representatives schedule quarterly workplace inspections.
		Committee meetings follow a written agenda.
		The minutes for each meeting are maintained for at least three years.
		Minutes are available to all employees to read.
		All reports, evaluations, and recommendations are included in the minutes.
		Management has a reasonable time to respond, in writing, to the committee's recommendations.
		The committee has a method for collecting and reviewing employees' safety-related suggestions and reports of hazards.
		The committee assists management in evaluating and improving the workplace safety and health program.
		The inspection team conducts workplace inspections at least quarterly.
		The committee's quarterly inspection team follows a standard procedure for identifying safety-and-health hazards during its inspections.
		The inspection team includes management and employee representatives.
		The inspection team documents, in writing, the location and identity of workplace hazards.
		The inspection team – or other persons designated by the committee – does quarterly inspections of satellite locations.
		The committee has a procedure for reviewing the team's quarterly inspection reports.
		The committee recommends to management ways to control hazards and unsafe work practices.
		The committee makes recommendations to ensure all employees are accountable for following safe work practices.
		The committee has a procedure for investigating workplace accidents, illnesses, and deaths.
		Representatives understand the purpose of their safety committee and know how it functions.
		Representatives have access to applicable OSHA safety and health rules.
		Representatives have received safety training for identifying workplace hazards and investigating accidents.

SAFETY COMMITTEE AGENDA FORM

Date: _____ To: All committee members, alternates, bulletin board

Meeting Date and Time: _____

Place: _____

Agenda Items	Person Responsible
1. Old Business	
a. Review last month's recommendations	_____
b. Follow-up on last quarterly inspection	_____
2. New Business	
a. Hazard reports	All
b. Accident investigation reviews	_____
c. Recommendations review	_____
d. _____	_____
e. _____	_____
f. _____	_____
3. Safety Committee Member Training	
a. _____	_____
b. _____	_____

Notes:

_____

_____

_____

_____

Chairperson Signature Date

SAFETY COMMITTEE MEETING MINUTES FORM

Chairperson: _____ Date: _____

Department: _____ Time Meeting Started: _____

PRESENT	*ABSENT*
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Previous meeting minutes from _____ were read.

Date

Old Business

Review of last month's recommendations

Recommendation	Description	Completed	Incomplete	Date
R-_____	_____	☐	☐	_____
R-_____	_____	☐	☐	_____
R-_____	_____	☐	☐	_____
R-_____	_____	☐	☐	_____

Follow-up on last quarterly inspection: _____

_____

New Business

Hazard (inspection) reports reviewed: _____

Hazard	Description	Recommendation
H-_____	_____	R-_____
H-_____	_____	R-_____
H-_____	_____	R-_____
H-_____	_____	R-_____

Accident/incident investigation reviews:

Accident Number	Near Miss	Recommendation Description	Number
A-_____	☐	_____	*R*-_____
A-_____	☐	_____	*R*-_____
A-_____	☐	_____	*R*-_____
A-_____	☐	_____	*R*-_____
A-_____	☐	_____	*R*-_____

Safety Committee Member Training Report: _____

_____

_____

Miscellaneous New Business: _____

_____

_____

Activity/Assignment Report:

Description	Person Assigned
_____	
_____	
_____	
_____	

Committee Remarks: _____

_____

_____

_____

Meeting adjourned: _____ **Next meeting:** _____
Time/date Time/date

_____ _____
Chairperson's Signature **Secretary's Signature**

SAFETY COMMITTEE TRAINING RECORD SHEET

Trainer (*include qualifications)*:	
Date:	
Content of Training:	
Attendees	
Print Name	**Signature**

FOLLOWING SAFETY RULES

Northern Arizona University / Facility Services employees will follow these rules and all elements of the Safety and Health Program, render every possible aid to safe operations, and report unsafe conditions or practices that cannot be immediately remedied to a supervisor as soon as safely possible. The compliance of all employees with Northern Arizona University / Facility Services's IIPP is a condition of employment. The failure of an employee to adhere to safety policies and procedures can have a serious impact on coworkers and the public, and may result in disciplinary action up to and including termination.

Supervisors will insist employees observe and obey rules, regulations, processes, and procedures necessary to complete work safely. If employees are unsure of the safe method to do a job, they must STOP and ask a supervisor.

If any employee sees an unsafe workplace situation, he or she has the authority to stop work to address the hazard. There is always time for safety. Ensuring safe and healthy work practices is every employee's first priority.

DISCIPLINARY ACTION

Employees will be disciplined for infractions of safety rules and unsafe work practices that are observed, not just those that result in an injury. Care will be taken to ensure discipline does not discriminate. Consistency in the enforcement of safety rules will be exercised at all times. While safety rules will be enforced rigorously, no one will be punished for reporting unsafe work practices or for reporting illness or injury. In any disciplinary action, discipline is given to the employee only for violation of safe work policy, not because the employee was injured or filed a workers' compensation claim.

Discipline for safety violations will be administered in a manner consistent with Northern Arizona University / Facility Services's system of progressive discipline.

As in all disciplinary actions, each situation is to be carefully evaluated and investigated. The steps taken in the disciplinary process, up to and including termination, will depend on the severity of the violation, employee history, and overall consideration for the well-being of the company, its employees, and its customers.

Each department or supervisor may have additional safety rules and policies specific to operations. In following these rules, employees are expected to exercise sound judgment and work in a manner to ensure the safety of themselves and coworkers.

SAFETY INCENTIVE PROGRAMS

Although strict adherence to safety policies and procedures is required of all employees, Northern Arizona University / Facility Services may periodically provide recognition of safety-conscious employees and acknowledge safety-conscious work habits through a safety incentive program. Safety incentive programs must not discourage reporting of injuries and illnesses.

TRAINING & SAFETY COMMUNICATION

OSHA requires employers to train employees in the safe methods of performing their job. Northern Arizona University / Facility Services is committed to instructing all employees in safe, healthy work practices. Awareness of potential hazards and knowledge of how to control them is critical to maintaining a safe, healthy work environment and preventing injuries. Northern Arizona University / Facility Services will provide training to each employee on general safety issues and safety procedures specific to that employee's work assignment.

Training provides the following benefits:

- Makes employees aware of job hazards;
- Teaches employees to perform jobs safely;
- Promotes two way communication;
- Fulfills legal requirements;
- Encourages safety suggestions; and
- Creates additional interest in the safety program.

Northern Arizona University / Facility Services will only use training material appropriate in content and vocabulary to the educational level, literacy, and language of employees, and will offer retraining as needed to ensure safe practices.

TRAINING PROGRAM

Actual demonstration of proper task performance will be used whenever possible to instruct new workers. Workers must provide evidence of topic mastery before training is complete. Trainers will rely on the following safe training techniques: tell them how, show them how, have them tell you how, and have them show you how.

Training topics will reflect the hazards of the workplace and may include the following: employee's safety responsibilities; general safety rules; IIPP contents; safe job procedures; mandatory and optional PPE.

NEW EMPLOYEES

Every new employee will be given instruction by their supervisor or appropriate member of management in the general safety requirements of their job. New employees will not begin a job until they have demonstrated or otherwise confirmed awareness of safe practices for their tasks and general workplace safety rules and guidelines. A copy of the general safety rules will be provided to each new employee, and each new employee will be given access to any element of the safety program that pertains to the work he or she will be expected to do.

DOCUMENTATION OF TRAINING

- All employee safety training will be documented. Training records will include the following information:
- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date on which the training occurred.

RETRAINING

Employees observed performing unsafe acts or not following safe work procedures will be retrained by their supervisor or an appropriate safety trainer. A safety contact report may be completed by the supervisor to document the training. If multiple employees are involved, additional safety meetings will be held.

SAFETY COMMUNICATION

Northern Arizona University / Facility Services will advise employees of changes relating to the safety program. Employee safety communication procedures are designed to develop and maintain employee involvement and interest in workplace safety and health. These activities help ensure effective communication between management and employees on safety-related issues and nurture a culture of safety.

The following are some of the safety communication methods that may be used:

- Frequent accident prevention instructions and periodic practice drills;
- Distribution of articles, memos, payroll stuffers and other communication concerning workplace safety and health;
- Regular safety meetings with employees that encourage participation and open, two-way communication;
- Employee bulletin boards or other displays discussing safety issues, accidents, and general safety suggestions; and
- New employee safety orientation and training.

SAFETY SUGGESTION PROGRAM

Northern Arizona University / Facility Services encourages all employees to become involved in the development and implementation of the safety and health program. Management will request opinions and comments from workers at all levels and respond to them respectfully and appropriately.

All employee-initiated safety related suggestions will be channeled to the appropriate authority by the safety committee or a supervisor, either verbally or in writing. Unresolved issues may be relayed to Frank Espinoza, the safety coordinator.

Northern Arizona University / Facility Services will not discriminate against any employee that raises a safety concern, files a complaint, causes a regulatory action to be brought, or testifies against the employer. There will be a system where employees may share safety or health concerns anonymously.

RULES

The following rules are a selection of safety practices to help prevent work-related injury and illness. It is not comprehensive; employees are expected to adhere to any safe work practice necessary to complete their job safely.

DRUG- AND ALCOHOL-IMPAIRED WORKERS

Northern Arizona University / Facility Services encourages employees to discuss personal and interpersonal problems with their supervisor. Supervisors will handle all such contacts with appropriate confidentiality and refer employees who may benefit from outside assistance to appropriate resources.

No employee may work while fatigue, illness, prescription drugs, or over-the-counter drugs impair his or her ability or alertness.

No one known to be under the influence of alcohol or drugs will be allowed on the job while in that condition.

Notify a supervisor of any coworker demonstrating signs of impairment that may present a safety or health hazard.

GENERAL SAFETY

- Take time to do every job safely.
- Refrain from horseplay, scuffling, pranks, and similar acts that may have an adverse influence on the safety and well-being of employees.
- Walk - don't run - in the workplace.
- Smoke, eat, and store personal items only in designated areas. Smoking is not allowed in any indoor place of employment.
- Maintain awareness of potential hazards when walking about the workplace.
- Use tools only for their intended purpose, and always use the right tool for the job.
- Listen to instructions. If you don't understand them, ask before starting work.
- Inspect all safeguards before beginning work. Ensure proper functioning of protective devices and report any known deficiencies immediately.
- Only operate equipment you can operate safely. Hazardous equipment should only be operated after training for that equipment
- Refrain from handling or tampering with equipment, machinery, or lines outside the scope of your duties.
- Report all injuries to the appropriate supervisor so arrangements can be made for medical or first-aid treatment and appropriate reporting may be completed.
- Ensure clothing and footwear are appropriate to the hazards of the job. If you are unsure, ask your supervisor.
- Wear approved protective equipment in work areas that demand such equipment.
- Heed signs, posters, hazard bulletins, and tags posted on company premises.
- Only enter hazardous areas after they are made safe to enter.

Northern Arizona University / Facility Services strictly prohibits possession of firearms, weapons, illegal drugs, or alcoholic beverages on Northern Arizona University / Facility Services property, customer property or other locations while on the job.

HOUSEKEEPING

- Keep all exits, fire doors, aisles, and areas around fire extinguishers, first aid kits, emergency equipment, electrical panels, and traffic lanes clear.
- Keep tools, materials or other objects off the floor to prevent trips and falls. Remove waste from the work area promptly.
- Keep work areas clean and free of debris, electrical cords, and other hazards; immediately clean spilled liquids.
- Keep stairways, passageways, exits, and sidewalks clean and clear of obstructions.
- Bend or cap sharp wires or protruding nails must be bent or capped
- Place tools and equipment so they will not fall from elevated areas.
- Only use approved cleaning agents.

FIRE PREVENTION

- Firefighting equipment will be inspected on a regular basis.
- Discharged, damaged, or missing equipment must be reported immediately to a supervisor. Tampering with fire equipment is prohibited.
- Take precautions to prevent fires, particularly from oily waste, rags, gasoline, flammable liquids, acetylene torches, improperly installed electrical equipment and trash.
- Access to fire extinguishers must be kept clear at all times. Make note of the location of firefighting equipment in your work area.
- In case of fire, employees will consider the safety of themselves and other individuals before saving property.
- Never use gasoline or flammable solvents to clean.
- Smoking is prohibited within 20 feet of flammable substances.

LIFTING AND MATERIAL HANDLING

- Think before lifting.
- Find a better way. If at all possible, use mechanical help from a pushcart or hand truck.
- If the load is heavy or awkward to lift alone, get help. Team lifting cuts the load in half and reduces likelihood of injury.
- Break the load down into smaller lifts if possible. It is better to make two or more light trips than one heavy trip.
- If possible, bring the load up between the knees and waist before lifting.
- Do not lift on slippery surfaces.
- Test the load before doing the lift; determine how heavy it is by giving it a shove.
- Ensure a good handhold on the load before attempting to lift.
- Keep the load close. Walk as closely as possible to the load.
- Do not jerk the load or speed up. Lift the load in a smooth and controlled manner.
- Do not lift in an awkward position or twist while lifting (especially with a heavy load). Turn and take a step.
- Avoid long forward reaches and bending your back. Use a step stool or platform if necessary.
- Make sure you have plenty of room to lift and to set down the object.
- If you are lifting an object above your head, get a ladder or step stool.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Use the correct PPE for any job assignment that requires it. If you do not know, ask.
- PPE will be maintained in good condition and cleaned regularly.
- PPE will be stored properly when not in use to protect it from damage.
- Damaged or broken PPE must be returned for replacement.
- PPE may not hamper or restrict freedom of movement due to improper fit.
- Eye protection must be worn when working with hazardous materials or chemicals.

LADDER SAFETY

- Keep portable stairways, ladders, and step stools in good condition and use them only in a safe manner.
- Inspect the ladder before using it. If it is broken, remove it from service.
- Use the proper ladder for the job.
- Do not use “A” frame self-supporting ladders as straight ladders.
- Make sure the ladder is tall enough to reach the work area.
- Do not use metal ladders for electrical work.
- Avoid temporary ladders. Always use a commercially made ladder of the proper length and strength for the work being performed.
- Keep ladder rungs must be kept free of grease, oil, mud, or other slippery substances.
- Do not place ladders in passageways, doorways, or any location where they might be hit or jarred, unless protected by barricades or guards.
- Place ladders only on hard, level surfaces. Make sure ladder feet are not placed on sandy, slippery, or sloping surfaces. Clean or sweep the area where the ladder feet will be and make sure the rubber feet are in good shape.
- Arrange work so you can face the ladder and use both hands while climbing. Do not carry tools or equipment in your hands while climbing. If tools or equipment cannot be safely stored on your person, as with a belt or vest, climb the ladder, and then hoist them with a line or hoisting device.
- Secure portable ladders in place and at a pitch so the leveling indicator is in alignment or the distance from the wall to the base of the ladder is at least 1’ away from the wall for every 4’ of ladder height.
- Tie-off straight ladders at the top of the ladder to prevent slipping.
- Be aware of objects below you; move or cover sharp objects in case you fall.
- Do not stand on or work from the second rung from the top or above.
- Do not reach too far from the ladder, and keep your center of gravity as close to the center of the ladder as possible.
- Ensure extension ladders extend at least 36" above the level being accessed.
- On all ladders, do not step on cross bracing not intended to be used for climbing.
- Do not use a ladder as a brace, workbench or for any other purpose than climbing.

ELECTRICAL SAFETY

- Only trained, qualified, and authorized employees may work on or repair electrical equipment.
- Report exposed wires and damaged electrical equipment or wires immediately.
- Extension and temporary power cords must be appropriate to the task and grounded, but should be used only as a last resort. Frayed or defective cords will not be used.
- Never overload an outlet or circuit. Use approved power strips and extension cords in accordance with company policy and best safety practices.
- All energized equipment and installations will be de-energized before work. If the equipment or installation must be energized, special precautions will be taken to protect against the hazards of electric shock.
- All equipment will be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.
- Safety grounds will always be used where there is a danger of shock from backfeeding or other hazards.
- Suitable attire and personal protective equipment (PPE) must be worn at all times while working on electrical equipment.
- Always exercise caution when energizing electrical equipment or installations. Take steps to protect against arc flash and exploding equipment in the event of a fault.
- All power tools will be grounded or double insulated. Tools with defective cords or wiring will not be used.
- Metal jewelry should not be worn around energized circuits.
- Suitable temporary barriers or barricades will be installed when access to opened enclosures containing exposed energized equipment is not under the control of an authorized person.
- Enclosures or tight fitting covers must protect electrical installations from accidental contact.
- Metal measuring tapes, fish tapes, ropes or other metal devices are prohibited where they may contact energized parts of equipment or circuits.

COMPANY VEHICLES

- Only authorized employees are permitted to operate Northern Arizona University / Facility Services vehicles.
- Company vehicles are to be used for Northern Arizona University / Facility Services business only. Personal, off duty and family use is prohibited.
- Drive defensively and obey all traffic and highway laws.
- Always wear a seat belt, whether driver or passenger.
- Report accidents to a supervisor as soon as possible, and obtain a police report.
- Lock vehicles and remove keys from unattended vehicles.
- Inspect the vehicle before operation and report any defects or operating problems to the appropriate supervisor so repairs can be made.
- Smoking is prohibited while inside the vehicle and during vehicle refueling.
- If your driver's license is revoked or expired, immediately notify your supervisor and do not drive. If you receive a moving violation or any citation that may affect your eligibility to drive a company vehicle, inform your supervisor immediately.

HAZARDOUS MATERIALS AND CHEMICALS

- Ask a supervisor about any unfamiliar material, chemical or substance.
- Read GHS warning labels and pay close attention to the pictographs and signs.
- Read the Safety Data Sheets (SDSs) before using any chemicals. SDSs contain a wealth of safety information and are available to employees at their request.
- Hazardous materials will be handled in accordance with the SDS and label. If protective equipment is required, use it.
- Store all hazardous materials in suitable containers that are properly labeled
- Use chemicals that produce fumes or vapors only in well-ventilated areas.
- Wear eye protection when working with hazardous materials or chemicals.
- Mixing of chemicals is prohibited at all times, unless required by the label. Before you mix, review all SDSs.
- Practice appropriate hygiene after handling hazardous substances and follow special instructions from authorized sources. Wash hands thoroughly after handling chemicals and before eating or smoking, even if wearing protective gloves. Never use solvents for hand cleaning.
- Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area for immediate emergency use.
- Air under Pressure (Compressed Air)
- Air pressure at the discharge end of a portable air blow gun or portable air hose must be less than 30 pounds per square inch gauge when dead-ended.
- When air under pressure is used to remove chips and dust, a chip guard, such as a fixed or removable shield, safely located, shall be provided to protect an employee in an adjacent area.

- The employee using air under pressure shall be provided with and use appropriate personal protective to the extent necessary to protect against hazards created by the operation.
- Air under pressure, used in a manner that could cause injury, must not be used for cleaning clothes while being worn.
- Air under pressure must not be directly applied to any part of the body. This could cause a serious or fatal injury (embolism) if air penetrates the skin/enters the body.
- Air under pressure must not be used to move flammable dust in an area containing open flames or spark-producing equipment.
- Air under pressure must not be used to remove toxic dusts in an employee environment.
- Polyvinyl chloride (PVC) piping must not be used for the transportation and distribution of compressed air or other compressed gases in an above-ground installation.
- An employee shall be protected by guards or location when pressure tests are being performed on materials or equipment where rupture or failure would create a hazard.

ACCIDENT PREVENTION SIGNAGE AND TAGS

An employer must provide, install, and maintain signs and tags where an employee might be, or would likely be, injured or harmed if not alerted to an existing or potential hazard.

Signage must be unobscured, displayed in a well-lit area, and legible from a distance that provides sufficient time or warning for an employee to take appropriate action.

Similarly, accident prevention tags will be used as a temporary means of warning an employee of an existing hazard on certain items, such as defective tools or equipment. Tags should not be used in place of accident prevention signs or considered a complete warning. Tags must be attached to prevent accidental disengagement, and they must be large enough to attract attention to the hazard. “Do Not Start,” “Out of Order,” and “Out of Service” tags are examples of tags that should be used in appropriate situations.

Specifically, signage should adhere to OSHA standard 1926.200 and ANSI Z35.1-1968.

See the “Lockout/Tagout” chapter for information that is specific to that safety procedure.

SANITATION

Potable water must be provided and placed in locations readily accessible to all employees. The water must be suitably cool and available continuously in sufficient amounts to keep all workers hydrated, taking into account the air temperature, humidity, and nature of the work performed. The water will be dispensed in sanitary single-use drinking cups, or by fountains. Common drinking cups are prohibited.

Portable containers used to dispense drinking water must be tightly covered, regularly cleaned, and refilled at least daily. Containers must have a tap, and water must not be dipped from containers. The containers must be clearly marked as to the nature of their contents, made of a material that maintains water quality, and not used for any other purpose.

Potable drinking water, as well as toilet and hand-washing facilities, must be maintained in accordance with appropriate public health sanitation practices.

Outlets for non-potable water, such as water for industrial or firefighting purposes only, will be identified by signs that clearly indicate the water is unsafe and is not to be used for drinking, washing, or cooking purposes. There will be no cross-connection, open or potential, between a system that furnishes potable water and a system that furnishes non-potable water.

Employers must provide onsite general washing facilities (one per 20 employees) for construction projects, must keep them in sanitary condition, and must provide suitable cleaning agents/single-use towels for the removal of hazardous and other substances.

Toilet facilities must be adequately ventilated, readily accessible, and maintained in a clean and sanitary condition. Mobile crews may be provided transportation to nearby toilet facilities.

Every enclosed workplace must be constructed, equipped, and maintained, as reasonably practicable, to prevent the entrance and presence of rodents, insects, and other vermin. A continuing and effective extermination program must be instituted where their presence is detected.

COLOR CODING

- Green is used for general safety or accident-prevention signs; yellow is the basic color for designating caution on signage, and for marking physical hazards—solid yellow, yellow and black stripes, or yellow with a suitable contrasting background may be used interchangeably; red is used to indicate a warning/danger on signage, and to indicate “stop” when used with buttons.
- A stop bar, stop button, electrical switch, or other mechanical device for the emergency stopping of machinery, excluding cables, will be red in color.
- A safety can will be red in color.

FORMS AND ATTACHMENTS

Please find the following document on the next page:

- General Safety Rules Receipt and Attestation

This form may be reproduced freely by Northern Arizona University / Facility Services for the purposes of implementing and maintaining a safety and health program.

GENERAL SAFETY RULES RECEIPT AND ATTESTATION

This is to certify that I have received a copy of the general safety rules.

- I have read these instructions, understand them, and will comply with them while working for *Northern Arizona University / Facility Services*.
- I understand that failure to follow the company injury and illness prevention program may result in disciplinary action and possible termination of my employment with this company.
- I understand that I am to report any injury to my supervisor and report all safety hazards as soon as safely possible.
- I further understand that I have the following safety rights:
  - I am not required to work in any area I feel is not safe.
  - I am entitled to receive information about all hazards I am exposed to while working.
  - I am entitled to see a copy of the company safety and health manual.
  - I will not be discriminated against for reporting safety concerns.

Employee Name	**Signature**	**Date**

Supervisor Name	**Signature**	**Date**

cc: Employee File

POLICY STATEMENT

Northern Arizona University / Facility Services is committed to providing a safe, healthy workplace by eliminating or controlling all workplace hazards. A Job Hazard Analysis (JHA) systematically investigates a job process, equipment, and the workplace environment to identify hazards and reduce risk. Frank Espinoza is responsible for ensuring facilities and workplaces are inspected regularly for hazards, and will do so with support and assistance from employees.

RESPONSIBILITIES

Job hazard analysis is a responsibility shared between the Company and its employees.

EMPLOYER RESPONSIBILITIES

Northern Arizona University / Facility Services is responsible for:

- Ensuring that safety inspections of the facility occur on regular basis
- Training personnel in how to perform a job hazard analysis;
- Responding quickly to eliminate workplace hazards;
- Ensuring all equipment is kept in good repair;
- Ensuring employees follow safe job procedures; and
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the safety committee to:

- Assist in job hazard analyses as necessary;
- Assist in training employees to recognize and control workplace hazards;
- Monitor the workplace for hazards;
- Encourage employees to report hazards;
- Implement appropriate controls; and
- Ensure corrective action is taken promptly.

EMPLOYEE RESPONSIBILITIES

All employees are expected to:

- Assist in job hazard analyses
- Follow safe job procedures; and
- Report hazards to a supervisor immediately.

TRAINING

Northern Arizona University / Facility Services will ensure every manager, supervisor and safety team member participates in a JHA training program. This training will be provided at no cost to the employee during working hours.

The Company will use only training material appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

Frank Espinoza will ensure that every employee will be trained in the following minimum elements:

- Importance of involving employees in job safety analyses;
- How to review safety records to identify areas that present hazards;
- How to analyze a job to determine the level of risk it presents;
- How to prioritize job hazard analysis and hazard control activities;
- Basic steps of a job hazard analysis, including: breaking the job into steps, analyzing risks, and determining controls;
- How much detail to include when listing the steps of a job for a JHA;
- What kinds of workplace hazards might exist and what types of risk they pose;
- H Process of hazard controls and advantages of certain types of controls;
- How to review a job hazard analysis and how to write a safe job procedure; and
- When to reanalyze a job for hazards.

The person conducting the training will be knowledgeable in the subject matter of the training program as it relates to the workplace.

All employees will be trained in basic hazard identification and will be trained in their jobs according to safe job procedures, as directed by the job safety analysis.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions and attached documents;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions
- Attendance and attestation forms of all persons trained.

Employee training records will be maintained for 3 years from the date on which the training occurred.

POLICY

EMPLOYEE INVOLVEMENT

No one knows how to do a job better than the person currently doing that job does. Employees who are included in a JHA) provide valuable insight and knowledge into work procedures that is valuable in identifying hazards and controlling them. This insight can help prevent potentially dangerous oversights.

Further, soliciting employee input demonstrates that management values everyone's involvement in creating a safer workplace and provides an opportunity for employees' active involvement in the JHA process.

PRELIMINARY REVIEW

Reviewing the worksite's accident history with employees draws attention to failures in hazard controls and deficiencies in work processes, which in turn suggests opportunities for safety program growth. A thorough review of recorded accidents, illnesses, and near misses points to jobs, processes, and tasks that require closer examination. It also indicates the immediate actions necessary to control all existing risks.

A discussion with employees about hazards they already know to exist also provides an opportunity to discuss ideas to control them.

If there is a hazard that poses an immediate danger, do not wait until after the JHA is complete to establish controls. Problems need to be corrected quickly. This demonstrates a commitment to safety and permits more time and thought for more complicated work safety issues.

PRIORITIZE HAZARDOUS JOBS

Understanding the risk posed by a job requires consideration of two main factors: the likely severity or impact of the injury or illness caused by a hazard and the likelihood injury or illness will actually occur (see Table 1). It is important, when assessing the overall risk of a job to determine the number of people exposed to a hazard who could be affected by an incident. Hazards that affect the whole worksite present much more risk than hazards that affect only one worker.

Jobs that present unacceptable risk should take priority. Place priority on jobs:

- With exceptionally high injury or illness rates;
- Where there already have been close calls;
- Where violations of standards already have occurred;
- With potential to cause serious harm; and

SEVERITY

Factors that increase risk because they increase the severity of an injury or illness often rely on chance. However, certain job elements and behaviors intensify the severity of possible incidents:

- Using high-powered machinery and heavy equipment;
- Working at elevation;
- Working around hazardous chemicals;
- Moving heavy or cumbersome loads;
- Working around or with electrically energized equipment; and
- Working in a confined space.

PROBABILITY

Risk Assessment Matrix		Probability of Harm		
		Not Likely	**Likely**	**Very Likely**
Severity of Harm	**Serious Harm**	Moderate Risk	High Risk	Very High Risk
	Significant Harm	Low Risk	Moderate Risk	High Risk
	Minor or no harm	Low Risk	Low Risk	Moderate Risk

Table 1

Factors that increase risk because they increase the likelihood of an injury or illness include the number of employees exposed to a hazard, frequency of exposure, duration of exposure, proximity to “point of danger”, unreasonable workload, working under stress, and environment.

ANALYSIS

When analyzing a job’s hazards and determining how best to control them, it’s important to identify all significant hazards accurately, and understand each within the context of the entire job.

BREAK JOB INTO STEPS

Every job requires several steps. Each has its share of hazards that puts workers at risk.

To complete a job hazard analysis, first there must be a clear understanding of the steps required to complete the job. The observer will watch the worker perform the job and list the steps the worker takes to complete it.

When breaking a job into its individual steps, it's important to balance between too much and too little detail. Too much detail will make the analysis needlessly long, and too little will not cover the basic steps.

Each step is one action. Some actions may not be observable, and some steps may involve specifically not doing things.

The observation stage of the JHA should not focus on either the employee's performance, or individual unsafe acts, it should focus on the task itself. All phases of the analysis benefit from employee insight and feedback, and extensive employee involvement is strongly encouraged.

OSHA recommends video recording or photographing the worker performing the job, having them explain each step, and why they did it that way. These visual records can be handy references when doing a more detailed assessment of the work.

When all the steps are documented, the observer will review them with the employee to ensure nothing is missed.

IDENTIFY HAZARDS

The JHA requires answers to the following:

- What can go wrong?
- What are the consequences?
- How could the hazard arise?
- What are the other contributing factors?
- How likely is it that the hazard will result in an incident?

A good description of a possible hazard scenario will reveal the answers to those questions by describing the hazard in terms of the environment in which it occurs, the trigger that would precipitate an incident, how a worker faces exposure to the hazard, and the worst-case consequences.

Again, workers provide excellent insight into the hazards they work with as well as suggestions for how to control risks presented by hazards where they work.

The JHA should not only include actual hazards, but also potential hazards that could arise while performing the job:

- Is there danger of striking against, being struck by, or otherwise making harmful contact with an object?
- Can the worker be caught in, by, or between objects?
- Is there potential for a slip or trip?
- Can the employee fall from one level to another or even on the same level?
- Can pushing, pulling, lifting, lowering, bending, or twisting cause strain?
- Is the work environment hazardous to safety or health?
- Are there concentrations of toxic gas, vapor, fumes, or dust?
- Are there potential exposures to heat, cold, noise, or ionizing radiation?
- Are there flammable, explosive, or electrical hazards?

Please see the table of Workplace Hazards at the end of this chapter for reference.

A list of hazards must accompany each step of the job. This provides a framework pointing to controls already in place and controls needed to prevent hazards from causing injuries or illnesses.

CONTROL

Though awareness and thoughtfulness are excellent ways to reduce risk in the workplace, it is not enough simply to identify workplace hazards. Hazards in the workplace that are identified must be controlled if possible to minimize their risk. The JHA provides a systematic way to approach hazards and their controls. To control a hazard, it is important to remember two very basic principles. First, either eliminate the hazard itself or control worker exposure to the hazard. Second, eliminating a hazard is more effective than controlling exposure to a hazard.

These two principles shape a hierarchy of hazard control strategies (see Figure 1). When considering how to address the hazards in each step of a given job, controls at the top of the hierarchy need to be considered before controls toward the bottom of the hierarchy. The more reliable and less likely a hazard control can be circumvented, the better.

A good hazard control plan often includes a mixture of different things, such as the following:

- Priority given to high-risk hazards;
- Inexpensive, easy improvements and temporary solutions until more reliable controls are in place;
- Long-term solutions to risks most likely to cause accidents or ill health;
- Long-term solutions to risks with the worst potential consequences;
- Arrangements for training workers on the main risks that remain and how they are to be controlled; and
- Regular checks to make sure the control measures stay in place, and clear responsibilities. Who will lead on what action, and by when?

CONTROLLING THE HAZARD

The most effective strategy is to "engineer the hazard out" by using control methods that physically remove or change a hazardous machine, work environment condition or other hazard. If, during the JHA, you discover a hazard that can be engineered out, do it. Turn the dangerous step into a safe step that doesn't require safety precautions.

HIERARCHY OF HAZARD CONTROLS

ELIMINATION

If there are hazards that can be removed from the worksite, do this first. Good housekeeping procedures keep many hazards under control. Removing redundant or unnecessary equipment, materials, or processes also rids the workplace of any risks associated with them.

SUBSTITUTION

There may be alternative chemicals, machines, or processes to accomplish the job but pose fewer hazards to workers. Explore ways to incorporate these alternatives into the job.

ISOLATION AND OTHER ENGINEERING APPROACHES

Creating a boundary between a hazard and workers can reduce risk almost as effectively as removing the hazard from the workplace altogether. Limit access to hazards with enclosures, machine guards, and physical barriers that reduce the likelihood of exposure to a hazard before turning to controls that rely on a person.

Redesigning equipment and installing new guards (within manufacturer specifications) can remove or redirect hazards away from workers to prevent exposure.

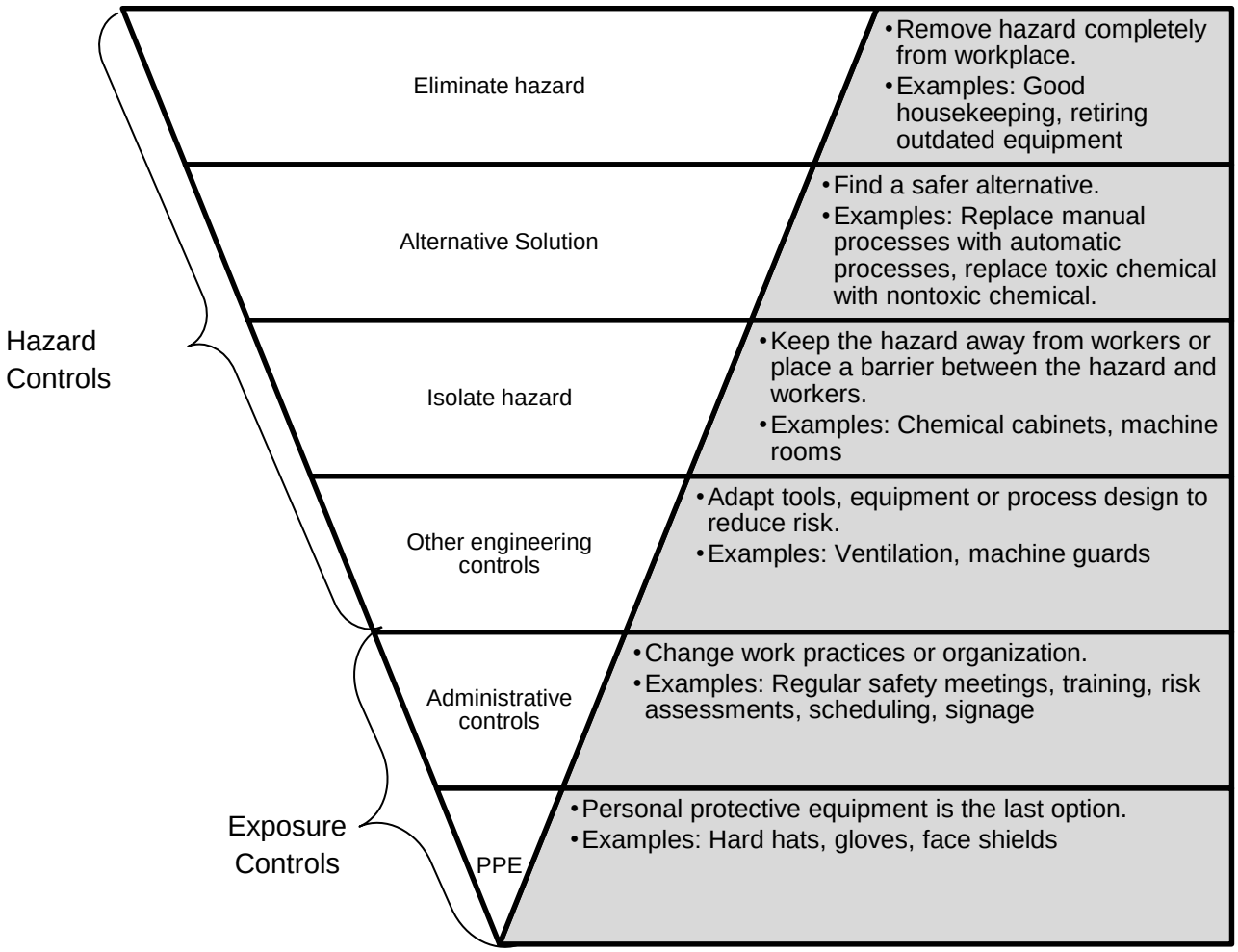
CONTROLLING EXPOSURE

Some jobs and processes demand a level of exposure to some workplace hazards. If this is the case, controlling risk means controlling or eliminating the exposure and the negative effects of exposure.

ADMINISTRATIVE OR MANAGEMENT CONTROLS

Administrative hazard controls are far-reaching and varied when implemented. These controls rely on appropriate human behavior, which is why they are lower on the hazard control hierarchy than engineering controls. Administrative controls include:

- Policies, procedures and practices to reduce exposure;
- Modifying work schedules to reduce exposure;
- Monitoring the use of hazardous
- Alarms, signs and warnings;
- The buddy system; and
- Training.



PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) is the least effective way to control hazards, but is necessary for some hazardous jobs. The following are examples of when PPE is acceptable:

- When engineering controls are not feasible or do not totally eliminate the hazard;
- While engineering controls are being developed;
- When safe work practices do not provide sufficient additional protection; and
- During emergencies when engineering controls may not be feasible.

PPE needs to be chosen carefully to address the hazard, and fitted to the person using it.

DOCUMENT AND EVALUATE

By the end of the JHA, there will be a document that clearly outlines the steps to perform the job, the hazards encountered in each step, and appropriate controls that need to be in place to reduce the risk posed by those hazards. This will paint a picture of a process that considers safety from the start to end of the job.

However, unsafe habits have a way of introducing themselves into a process as workers find their "own way" of performing tasks — ways that may not take into account the safety measures identified in the JHA. Further, there may be risks that were not identified or were left insufficiently controlled that may only become evident after the JHA is complete. Monitoring and periodic reviews help ensure the JHA remains current to prevent accidents and injuries.

DOCUMENT THE SAFE JOB PROCEDURE

Once the analysis is complete, communicate the results to all workers who are, or will be, performing that job. The side-by-side format used in JHA worksheets is not an ideal one for instructional purposes. Use a narrative-style communication format to create a safe job procedure that is easy to understand:

Write in step-by-step format. Each step needs its own paragraph that describes the step as one action.

Point out the hazard: If the step involves exposure to a hazard, point out the hazard in the step. Include the possible injury or illness that could result from unprotected exposure to the hazard.

Identify safety precautions: If the step involves exposure to a hazard, also point out the safety precautions to stay safe and healthy.

Paint a 'word picture': Write the procedure in a way that someone unfamiliar with the task could perform it safely. The safe job procedure can serve as a training document as well as a safety document. Avoid jargon and technical terms so new employees can easily understand the process.

Write in the second person, present tense. Treat the safe job procedure as a set of instructions. Tell the person who is doing the job exactly how to do it.

Write clearly. While it is important to be concise, it is more important to be clear and accurate. Keep sentences short. Clear writing helps make sure all workers can understand the instructions and follow them. If employees speak a language other than English, translate the job procedure into the language they speak so there is as little confusion as possible.

MONITOR AND REVIEW

Periodically reviewing your JHA ensures it is current and continues to prevent workplace accidents and injuries. Even if the job does not change, unnoticed hazards may become apparent. It is particularly important to review job hazard analyses if an illness or injury occurs.

Based on the circumstances, the job procedure may need to change to prevent similar incidents in the future. If an employee's failure to follow proper job procedures results in a "close call or near miss," discuss the situation with all employees who perform the job and remind them of proper procedures. Any time you revise a job hazard analysis, it is important to train all employees affected by the changes in the new job, procedures, or protective measures.

Hazard identification, and risk assessment and control are ongoing processes. Make sure to undertake a hazard identification and risk control analysis whenever there is a change to the workplace, including when work systems, tools, machinery or equipment change, or when the existing process is otherwise potentially out of date or no longer valid.

FORMS & ATTACHMENTS

On the following pages, please find the following documents:

- Workplace Hazards
- Job Hazard Analysis Worksheet
- Safe Job Procedure Form
- Job Hazard Analysis Training Documentation
- HCS Pictograms and Hazards

Workplace Hazards		
Hazard		**Description**
	Slips/Trips/Falls	Conditions that result in falls (impacts) from height or walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.)
Mechanical	**Failure**	Self-explanatory; typically occurs when devices exceed designed capacity or are inadequately maintained.
	Caught-in/ Caught-on/ Crush	Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items, or equipment.
Impact	**Struck By**	Accelerated mass that strikes the body causing injury or death. (Examples are falling objects and projectiles.)
	Struck Against	Injury to a body part due to coming into contact with a surface in where the action was initiated by the person. (An example is when a screwdriver slips.)
Chemical	**Toxic**	A chemical that exposes a person by absorption through the skin, inhalation, or through the blood stream that causes illness, disease, or death. The amount of chemical exposure is critical in determining hazardous effects. Check Safety Data Sheets (SDS), and/or OSHA 1910.1200 for chemical hazard information.
	Flammable	A chemical that, when exposed to a heat ignition source, results in combustion. Typically, the lower a chemical's flash point and boiling point, the more flammable the chemical. Check SDS for flammability information.
	Corrosive	A chemical that, when it comes into contact with skin, metal, or other materials, causes damage. Acids and bases are examples of corrosives.
Explosion	**Chemical Reaction**	Self-explanatory.
	Pressurization	Sudden and violent release of a large amount of powder blast/gas/energy due to ignition or a significant pressure difference such as rupture in a boiler or compressed gas cylinder.
	Temperature Extreme	Temperatures that result in heat stress, exhaustion, or metabolic slow down such as hypothermia or hyperthermia.

Electrical	**Shock/ Short Circuit**	Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart.
	Fire	Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage.
	Static / ESD	The moving or rubbing of wool, nylon, other synthetic fibers, and even flowing liquids can generate static electricity. This creates an excess or deficiency of electrons on the surface of material that discharges (spark) to the ground resulting in the ignition of flammables or damage to electronics.
	Loss of Power	Safety-critical equipment failure due to a loss of power.
Ergonomics	**Strain**	Damage of tissue due to overexertion (strains and sprains), work positioning or repetitive motion.
	Human Error	A system design, procedure, or equipment that is likely to cause error. (A switch goes up to turn something off).
	Vibration	Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure.
Radiation	**Ionizing**	Alpha, Beta, Gamma X-rays, and neutral particles that cause injury (tissue damage) by ionization of cellular components.
	Non-Ionizing	Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means.
	Noise	Noise levels that result in hearing damage (an 8-hour time-weighted average greater than 85 decibels) or inability to communicate safety-critical information.
	Visibility	Lack of lighting or obstructed vision that results in an error or other hazard.
	Weather Phenomena	Self-explanatory.

Job Hazard Analysis Worksheet			
Department/Project:		Date:	
Job/Activity:		Created By:	
Step	Hazard(s)	Controls	
1)			
2)			
3)			
4)			
5)			
6)			
7)			

Job Hazard Analysis Worksheet (pg. 2)
Step
8)
9)
10)
11)
12)
Required Training:
Required Personal Protective Equipment:
Special Inspection Requirements:

Please attach any diagrams, flowcharts, or photographs that may be helpful in hazard assessment.

IIPP 4-14
(866) 478 6980

JOB HAZARD ANALYSIS

Safe Job Procedure

DO NOT *undertake this job unless a supervisor has instructed you in the safe use of all equipment and appropriate safety precautions for work processes associated with the job. Any employee who undertakes this job must have explicit supervisor permission to do so.*

Job Performed	

Potential Hazards:

Personal Protective Equipment

						
Hand Protection	Respiratory Protection	Eye Protection	Face Protection	Special Footwear	Hearing Protection	Special Clothing

Other (Specify):

Safe Work Procedures
(Attach additional sheets if necessary)

Pre-Operation

Operation

Post-Operation

Competent Personnel
These individuals are permitted to perform the job and supervise others learning to do this job

Name:	**Title:**	**Contact:**

JOB HAZARDS TRAINING

Trainer (*include qualifications)*:	
Date:	
Content of Training:	
Attendees	
Print Name	**Signature**

HCS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark
		
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder	**Corrosion**	**Exploding Bomb**
		
• Gases under Pressure	• Skin Corrosion/ burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame over Circle	**Environment (Non Mandatory)**	**Skull and Crossbones**
		
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

POLICY STATEMENT

Northern Arizona University / Facility Services has implemented this policy for the protection of our employees during emergencies in the workplace. Frank Espinozawill supervise the Emergency Action Plan.

The Company will have a written Emergency Action Plan (EAP). The EAP will be posted in the workplace and remain available to employees for review, along with the names and job titles of every person in the chain of command during emergencies.

RESPONSIBILITIES

Emergency planning is a responsibility shared between the Company and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Ensure adequate workplace safeguards against hazards, including appropriate exit routes, fire alarms, and fire protection systems.
- Ensure development and implementation of the EAP.
- Ensure training of employees in accordance with this policy.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the safety committee to:

- Develop and implement the EAP.
- Train new employees in emergency action planning and provide continued employee safety training according to Company policy.

EMPLOYEE RESPONSIBILITIES

Every employee is expected to:

- Report fires or other emergencies.
- Follow the EAP.

TRAINING

Northern Arizona University / Facility Services will ensure every employee is provided training on emergency planning. This training will be provided at no cost to the employee and held during their working hours.

Training will be provided:

- At the time of assignment.
- At least annually thereafter, annual training for all employees will be provided within one year of their previous training.

The Company will provide additional training when tasks or procedures are added or changed that may affect the employee's work. It is acceptable for additional training to be limited to addressing only the changes or additions to the employees' exposure.

Northern Arizona University / Facility Services will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

TRAINING COMPONENTS

Frank Espinoza will ensure all employees are informed and trained in the following minimum elements for the Emergency Action Plan and Fire Protection Program:

- Fire hazards at the worksite
- Means of controlling or removing fire hazards at the worksite
- Procedures for reporting a fire or other emergency.
- Procedures for emergency evacuation for all areas of work, including type of evacuation and exit route assignments.
- Safe assembly areas designated for all work areas in the event of evacuation.
- Procedures to be followed by employees who are requested to remain to operate critical plant operations before they evacuate, if applicable.
- Procedures to account for all employees after evacuation.
- Procedures to be followed by employees performing rescue or medical duties.
- The members in the chain of command who may be contacted by employees for information about the plans or for an explanation of their duties under the plans.
- Proper operation of fire extinguishers provided by the company if the EAP allows employees to fight incipient stage fires rather than evacuate.
- The hazards involved in incipient stage firefighting. Employees are instructed to ensure the local emergency response service (Fire Department) is notified before attempting to extinguish any fire, and that if a fire is not immediately extinguished, or the fire recurs to evacuate immediately.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the training.

EMERGENCY ACTION PLAN

Northern Arizona University / Facility Services is committed to providing a safe workplace and ensuring procedures are in place to protect employees in the event of any emergency. Accordingly, Northern Arizona University / Facility Services will ensure there is an Emergency Action Plan, written and available to employees, that includes:

- Procedures for reporting a fire or other emergency;
- Procedures for emergency evacuation, including type of evacuation and exit route assignments;
- Procedures to account for all employees after evacuation;
- Procedures to be followed by employees performing rescue / medical duties and operating critical plant operations; and
- The name or job title of every employee from whom other employees can find out more about the plan.

EMPLOYEE INVOLVEMENT

The continued development and thorough implementation of the EAP is a company-wide effort that demands concerted effort of management, the safety committee, and all employees. Accordingly, employees will be involved in every step of the EAP from planning to training to implementation in an emergency.

Frank Espinoza, or an approved designate, will review the EAP with all employees to ensure they understand procedures that should be followed in an emergency.

Employees should report or remedy workplace hazards and unsafe work practices as soon as they may do so safely.

POSSIBLE WORKPLACE EMERGENCIES

In the planning and implementation of the company's EAP, employees will consider the range of emergencies that may require response and develop contingencies that respond to the unique workplace impact of these emergencies.

WEATHER

Weather-related events include hurricanes, tornadoes, blizzards, floods, and severe storms. Supervisors must communicate unexpected schedule changes because of severe weather to employees as quickly as possible. Such events may result in a loss of power or communication and may limit the ability of first-responders to respond quickly.

MEDICAL

Medical emergencies are the most likely workplace emergency. Response time is critical to a positive outcome during a severe medical emergency. Onsite medical first responders will know first aid and CPR, but no employee will perform first aid beyond their training or capability. If first aid trained, personnel are not available, stop any bleeding with firm pressure (avoiding contact with body fluid) and in case of choking, clear the air passages. In the event of a medical emergency, it is imperative to call 911 promptly.

THREAT OF VIOLENCE

Threats of violence can come through a range of modes of communication, directed at a single employee, a group of employees or the entire workplace. Every threat is serious. If you receive or are aware of a threat of violence, contact a member of the safety committee or a supervisor immediately, if you are able to do so safely. Please see the chapter on "Workplace Violence Prevention" for more information about how to prevent and respond to threats of violence and violence in the workplace.

FIRE

The fire prevention plan requires involvement of all employees to prevent fire emergencies. Response to a fire emergency depends on whether your workplace has decided to allow all employees or some employees to fight incipient-stage fires. Members of the safety committee and supervisors may have to serve as evacuation wardens, and if the emergency action plan demands it, an employee may need to shut down critical operations before evacuation. A quick, orderly evacuation accompanied by a call to 911 is the acceptable response to an out-of-control fire.

EXPLOSION

If there are flammable substances at your worksite, take extra care during planning to address the hazards they present. Explosions do not offer any warnings, and often, panic presents the biggest obstacle to safety in the wake of such a disaster. Further, explosions often accompany fires, adding complexity to fire response planning.

EARTHQUAKE

When an earthquake strikes, the greatest risks come from above. Collapsing ceilings and falling objects can severely injured workers. If the workplace is in an earthquake-prone location, consider earthquake drills and make sure you and your coworkers know to protect their head and neck under sturdy furniture or against an inside wall. A severe earthquake will occupy emergency workers, and onsite rescue and triage may be a task that falls into the hands of the safety committee. No employee should perform first aid or attempt rescue beyond training or capacity to do so safely.

CHAIN OF COMMAND

During an emergency, it is critical that employees understand the chain of command in the emergency action plan. In consideration of chain of command, it is also important to recognize that the authority of local emergency response officials, like members of the fire department, supersedes the authority of any Northern Arizona University / Facility Services employee.

EMERGENCY SCENE COMMANDER

Unless the involvement is precluded by unforeseen contingencies, Frank Espinoza acts as the scene commander in the event of a workplace emergency. Northern Arizona University / Facility Services will determinine whether an emergency exists, oversee procedures during an emergency, and notify and coordinate with outside emergency services.

EMERGENCY SCENE COORDINATORS

The emergency action plan requires the worksite to have enough people trained to assist in the safe and orderly evacuation of employees and assist the safety coordinator/emergency scene commander in emergency procedures. The number of scene responders depends on the number of employees, the size and complexity of the worksite and the hazards posed by likely emergencies. Table 3 provides a good guideline when considering how many coordinators will be necessary to implement the EAP. Scene coordinators should know CPR and first aid and would benefit from additional safety training, including workplace violence response. Their duties in an emergency include, but are not limited to the following:

Number of Emergency Scene Responders for Typical Workplaces

Employees in Workplace	Emergency Scene Commander	Emergency Scene Coordinator
11-19	1	1
20-49		1-2
50-99		2-5
100-249		5-12
250+		12+

Table 3

- Checking for employees who may be unable to evacuate;
- Knowing who may need assistance during evacuation and how to assist them;
- Coordinating emergency activities;
- Using their knowledge of workplace layout, escape routes, and hazards to ensure a swift, safe evacuation; and
- Verifying all employees are in designated safe areas following an evacuation

EMERGENCY REPORTING PROCEDURES

Employees should report emergencies as quickly as they may do so safely. Emergencies may be reported through manual pull stations or other alarm systems. If the EAP requires employees to call Frank Espinoza or other assigned staff, those numbers will be posted at every phone. Major emergencies demand an immediate call to 911 to prevent damage, injury, or death. After the report of an emergency, the alarm system will notify employees about the emergency.

WORKPLACE EVACUATION

ROUTES AND EXITS

The EAP will include a floor diagram with arrows to designate exit route assignments based on location within the building. There should be secondary routes and exits whenever possible. It is important every employee knows the building's exit routes and keeps them free of obstacles and debris at all times. For more information about exit routes, please see the floor diagram and consult "Exit Routes" in this chapter.

EVACUATION ASSISTANCE

Scene coordinators or other assigned personnel will act as evacuation wardens to ensure employees move from danger to safety during an emergency. An employee designated to assist in evacuations will need to know which employees need extra assistance and be trained and prepared to offer this assistance. Further, any visitors on premises may need assistance during evacuations. It is useful to implement a system to account for visitors, like a sign-in sheet, to promote facility security and account for everyone in case of an emergency.

Services during Evacuation

Workplaces with equipment and processes that take time to shut down or with systems that may pose a hazard if not shut down may include, as part of the EAP, a partial evacuation procedure. The roles of those performing critical operations during evacuation should be clear, and anyone left behind must be able to recognize when to abandon the task and evacuate. The same goes for workplaces that plan for employees to fight incipient-stage fires.

ACCOUNTING FOR EMPLOYEES

The emergency action plan requires Northern Arizona University / Facility Services to account for employees after an evacuation. Employees will gather in an established assembly area (or areas) after an evacuation. After the evacuation is complete, Frank Espinoza or an approved designate, will perform a headcount, and note the names and last known whereabouts of anyone missing. Accuracy in accounting for employees during an evacuation is vital to prevent a dangerous search-and-rescue operation if one is not needed. Procedures should include a way to account for visitors, customers, and suppliers who are onsite as well.

ADDITIONAL EAP PRACTICES

SHELTERING IN PLACE

Not every emergency requires evacuation. Certain contaminants and disasters present greater hazards outside than inside. If an emergency does not require evacuation, it may demand employers instead “shelter-in-place.” Frank Espinoza will determine the extent of evacuation, and whether employees need to shelter in place. Sheltering in place means taking refuge in an interior room with no or few windows until the emergency has passed. In many cases, local authorities will issue advice to shelter-in-place via TV or radio. In case of chemical release, special precautions to protect against toxic atmospheres may be necessary. Including shelter-in-place preparations in the EAP demands a means of alerting employees in distinguishable ways and additional training on shelter-in-place procedures.

FIRST AID AND RESCUE

Northern Arizona University / Facility Services will ensure the availability of medical personnel for advice and consultation. In the absence of an onsite clinic, at least one person on staff will be trained to render first aid. An amount and dispersal of first aid supplies appropriate to the size of the facility, number of employees and hazards present will remain readily available. First aid supplies will be added or replaced as frequently as necessary to ensure availability. Facilities for rinsing or drenching eyes or body will be provided as hazards demand. First Aid kits will include or will be accompanied by appropriate personal protective equipment for anticipated hazards, including exposure to blood borne pathogens for personnel while performing first aid. More information is available in the chapters titled “Medical Services and First Aid” and “Bloodborne Pathogens.”

CRITICAL INFORMATION

As part of the personnel file, there will be a record of emergency contact information for employees, in case an employee is unable to contact someone for themselves. The confidential record should include physician information and any other medical information the employee shares for use in case of an emergency.

MULTI-EMPLOYER WORKPLACES

If the company shares a building or worksite with other employers, consider working with them to develop a building-wide emergency plan. If a building-wide plan is not feasible, take all necessary steps to ensure the EAP does not conflict with the plans of other employers in the building.

PERSONAL PROTECTIVE EQUIPMENT

During some emergencies, it is necessary for an employee to encounter hazards that require personal protective equipment. A medical emergency involving blood, for instance, will call for gloves as indicated in the bloodborne pathogen exposure control plan. Training, preparation, and procedures will include consideration for any necessary PPE.

TRAINING AND REVIEW

Northern Arizona University / Facility Services and the safety committee will review the plan with employees covered by the plan as it is being developed. The plan will also be communicated to employees when they are first assigned to their job, when the plan changes, or when there is a change to an employee's responsibilities under the plan. The plan is subject to annual review and update to reflect changes in the workplace and respond to new or changed hazards.

EXIT ROUTES

During an emergency, swift evacuation can ensure the safety and well-being of employees. To facilitate evacuation and to protect employees should an emergency require employees to evacuate, Northern Arizona University / Facility Services will adhere to all applicable regulations to ensure safe exit routes remain available to employees in case fire or other emergency demands evacuation of the workplace.

BASIC REQUIREMENTS

An exit route must be established and separated by fire resistant materials as quickly as possible during construction, and a safe means of egress must be maintained during renovation and demolition.

If the route connects three or fewer floor levels, construction materials separating the exit from other parts of the workplace must have a one-hour of fire resistance rating. (More stories call for a two-hour resistance rating.) An opening to an exit will only have self-closing, laboratory-tested fire doors as necessary to allow passage of individuals through the established route.

Enclosure and protection of openings for means of passage must occur as soon as possible after exterior walls/windows are in place.

ADEQUATE EXIT ROUTES

Northern Arizona University / Facility Services will ensure sufficient exit routes for the workplace. While a single exit route is permissible in small workplaces with possible safe evacuation, two exit routes, located as far as practical from each other helps employees evacuate safely should one exit route be blocked. There will be enough exit routes to ensure safe evacuation of all employees.

Consult local codes to ensure safe means of passage in any construction. Exit stairways and means of egress in multi-level buildings must be provided immediately after floor decking is installed. In new multi-level buildings, one of the exit stairs may be obstructed for construction, but do not obstruct exit stairs for more than two contiguous floor levels.

EXIT DISCHARGE

Exits must discharge outside or to a space with access to the outside that is large enough to accommodate the number of people taking that route. For stairs that continue past the evacuation level, there will be indication of proper direction to discharge area.

UNLOCKED, SIDE-HINGED

Under no circumstances will an exit door be locked from the inside. Nothing can restrict the use of an exit door or any means of egress established in the fire protection plan in an emergency.

All exit doors will be side-hinged, with doors that swing out in the direction of exit travel, and rooms designed to hold more than 50 people or in a high-hazard area.

CAPACITY AND SIZE REQUIREMENTS

Exit routes must be able to handle the maximum occupant load for that floor. The capacity may not decrease as the route approaches the exit discharge.

The ceiling of an exit route must be at least seven feet six inches high. Any projection from the ceiling must not reach a point less than six feet eight inches from the floor.

An exit access must be at least 28 inches wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access. The width of an exit route must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route.

Objects that project into the exit route must not reduce the width of the exit route to less than the minimum width requirements for exit routes.

OUTDOOR EXIT ROUTES

An outdoor exit route must be protected by guardrails if a fall hazard is present; covered or protected from slipping hazards; reasonably straight, smooth, solid and level; and free of dead ends longer than 20 ft.

MINIMIZE DANGERS

Exit routes will be unobstructed and clear of hazardous materials or flammable furnishings. An exit route that goes toward a high hazard area requires barriers or partitions to provide a suitable shield from the hazard for workers.

LIGHTING AND MARKING

Exit routes should be adequately lit, clearly visible and marked by a sign reading “EXIT.” Decorations and signs must not obstruct or obscure the visibility of the exit door. If a doorway could be mistaken for an exit, it must be marked “Not an Exit” or a sign that identifies its use. If the direction to the exit is not apparent, signs must be posted to indicate the direction for evacuation.

Exit signs must be illuminated to a surface value of five foot-candles or greater. A self-luminous or electroluminescent sign is required to have a luminance surface value of at least .06 foot-lamberts. The letters on an exit sign should be at least 6” high with a stroke width of ¾”.

CONSTRUCTION, REPAIRS, ALTERATIONS

Employees may not occupy any workplace during construction, repairs, or alterations unless all exit routes and required safety standards are maintained. The Company will ensure removal of or appropriately minimize hazards beyond normal conditions during construction activities.

FORMS

On the following pages, please find the Emergency Action Plan form, which may be reproduced freely by the CompanyNorthern Arizona University / Facility Services for the purposes of implementing and maintaining a safety and health program.

EMERGENCY ACTION PLANS

Company Name: Job Location:		
Street Address:		
City:	State:	ZIP Code:
Prepared By:		
Title:		Phone Number:
Signature:		Date:

PURPOSE

This plan is for the safety and well-being of company employees. It identifies necessary management and employee actions during fires and other emergencies. Education and training are provided so that all employees know and understand the Emergency Action Plan.

LOCATION OF PLAN

The Emergency Action Plan can be found at the station or office of:

Upon request, an OSHA representative may obtain a copy of the plan from:

EXIT ROUTES

Draw a diagram of jobsite or facility exit routes in space below. Locate meeting place or "Roll-Call" area on diagram

ACCOUNTING FOR EMPLOYEES

After exiting jobsite or facility, all employees are to assemble for “Roll-Call” at this location:

Note location on above diagram

The following are responsible for ensuring that employees comply with this requirement:

Name and Title:

Name and Title:

CRITICAL OPERATIONS

To minimize damage from the emergency, the following personnel are responsible for shutting down the listed critical operations:

Personnel Names	Critical Operations

As soon as shutdowns are completed, the employees who performed critical operations must take the nearest exit route in accordance with general emergency procedures.

RESCUE AND MEDICAL DUTIES

The following personnel are certified and trained in both CPR and general first aid.

Name and Title	Phone Number

REPORTING EMERGENCIES

The following personnel have the duty of contacting public responders to come to the emergency scene. The personnel are listed in descending order of availability:

Name and Title	Phone Number

ALARM SYSTEMS AND NOTIFICATION OF EMERGENCIES
In the event of a workplace or facility emergency, employees will be notified as follows:
TYPES OF EVACUATION
OSHA requires this Company to have an established system of types of evacuation to follow for different emergency circumstances. The following listing represents Company policy for various emergency situations:
PARTIAL EVACUATION: Code Yellow – 3 rings or horn blasts RESPONDERS (trained extinguisher personnel and trained rescue and medical personnel)
FULL EVACUATION: Code Red – 4 rings or horn blasts: RESPONDERS (n/a)
NOTE: If there is more than one evacuation type, the alarm signal for each must be distinctive.
OTHER: (describe)
PUBLIC EMERGENCY RESPONSE INFORMATION
911 emergency services **DO** / **DO NOT** *cover the area this Emergency Action Plan covers.* *(circle one)*
Local Police Department:
Local Fire Department:
Local Ambulance/EMS:
Local Hospital:
FURTHER INFORMATION
For further information or explanation about any duties under this Plan, contact:
Name and Title:
Name and Title:
This Emergency Action Plan is authorized and approved by (Name and Title): Name (print): _____ Title: _____ Signature: _____

POLICY STATEMENT

Safety incidents indicate the failure of safety control systems and demand changes to prevent future harm. In order to implement necessary changes and prevent future harm, Northern Arizona University / Facility Services will investigate accidents and near misses to identify causes and make safety recommendations.

The primary purpose of workplace accident investigations performed by Northern Arizona University / Facility Services is to find facts to guide future actions, not to find fault or assign blame.

Fatalities and catastrophes, defined as events that require inpatient hospitalization of three or more employees, must be reported to OSHA within eight hours. Serious accidents where an employee is admitted to a hospital for treatment or observation because of injuries suffered from a workplace accident must be reported to OSHA within 24 hours.

If an employee with an occupational injury or illness receives a medical emergency procedure, Frank Espinoza or designate will document the incident on OSHA's Form 301, "Injury and Illness Incident Report," and record the injury or illness on OSHA's Form 300, "Log of Work Related Injuries and Illnesses". See "29 CFR 1904.7 — Recordkeeping Forms and Recording Criteria" for more information.

RESPONSIBILITIES

Accident investigations are a responsibility shared between Northern Arizona University / Facility Services and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Provide accident investigation training
- Ensure that every accident is investigated to find and remedy the root causes
- Respond promptly to any recommendation following an accident
- Take corrective actions to prevent the recurrence of an accident
- Avoid blaming individuals in incident investigations for safety purposes
- Report to the appropriate authority, as required by law, any catastrophe, fatality, injury or work-related illness
- Share with employees the findings of accident investigations

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the Northern Arizona University / Facility Services safety committee to:

- Help establish and maintain an accident investigation procedure that encourages employee involvement, management support, and company-wide accountability
- Provide support to respond to recommendations and implement changes to prevent future incidents
- Review workplace safety incidents to identify areas of concern and recommend necessary actions

EMPLOYEE RESPONSIBILITIES

Every Northern Arizona University / Facility Services employee is expected to:

- Immediately report any work-related accident, injury, or near miss
- Actively cooperate with investigators during accident investigations
- Participate in recommending changes to processes, systems, and the workplace, and in helping to implement changes as necessary to prevent future accidents

TRAINING

Northern Arizona University / Facility Services will ensure all employees are provided training on their role in the accident investigation process. This training will be provided at no cost to the employee during working hours.

Northern Arizona University / Facility Services will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

TRAINING COMPONENTS

Frank Espinoza will ensure that all employees at Northern Arizona University / Facility Services are informed and trained in the following minimum elements for accident investigation:

- What an accident is and why accidents occur
- What a near-miss is
- How to report an accident
- A general overview of the accident investigation process
- Why accident investigations are important, and the purpose of them
- Different levels of causes for accidents

Managers, Supervisors and Safety Committee Members will complete training in the following minimum elements for accident investigation:

- Learning the legal requirements of accident reporting
- Securing an accident scene
- Planning an accident investigation
- Collecting information from an accident scene
- Conducting interviews as part of an accident investigation
- Photographing and sketching an accident
- Creating a timeline of an accident
- Learning root-cause analysis techniques
- Compiling accident investigation reports
- Recommending change to prevent accidents

TRAINING RECORDS

The company will maintain training records for three years from the date on which the training occurred.

The following information must be included:

- Dates of the training
- Contents or a summary of the training
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training

POLICY

BACKGROUND

It is easy to think of an accident simply as a single event that results in injury or illness to an employee, or in property damage. In reality, an accident is the culmination of a series of events. Accidents are the end of an unplanned, unintended, and undesired process. They are complex, and in some industries exceedingly rare, often with several events that can be identified as causes.

It is also easy to think of accidents as being the result of poor chance or fate. However, a competent person can examine workplace conditions, behaviors, and underlying systems to predict what kind of accidents will occur. There is certainly an element of chance in every incident. However, most accidents can be prevented by eliminating and controlling workplace hazards.

A serious accident may result in disability, severe property damage, or even death; a minor accident may only cause an inconvenience; near misses may not harm anyone or anything. However, nearly all accidents and near misses point to failures in safety systems that demand a closer look to prevent more harm in the future.

INVESTIGATIONS

An accident investigation may have different purposes, including:

- Identifying and describing the actual course of events
- Identifying the direct and root causes / contributing factors of the accident
- Identifying risk-reducing measures to prevent future, comparable accidents
- Investigating and evaluating the basis for potential criminal prosecution
- Fulfilling legal requirements or processing workers' compensation claims
- Evaluating the question of guilt in order to assess the liability for compensation

Police, insurance investigators, and safety regulators may investigate an accident for other reasons, but Northern Arizona University / Facility Services accident investigations emphasize finding the root causes of the accident to prevent future accidents from happening again.

Investigators are interested in not only individual harmful events, but also the events, systems, and processes that led to the accident. Accident investigations need to determine exactly what happened, but more importantly, must look for deeper causes — the how and why.

Incidents that involve no injury or property damage should still be investigated to determine which hazards should be corrected. The same principles apply to a quick inquiry of a minor incident, and to the more formal investigation of a serious event.

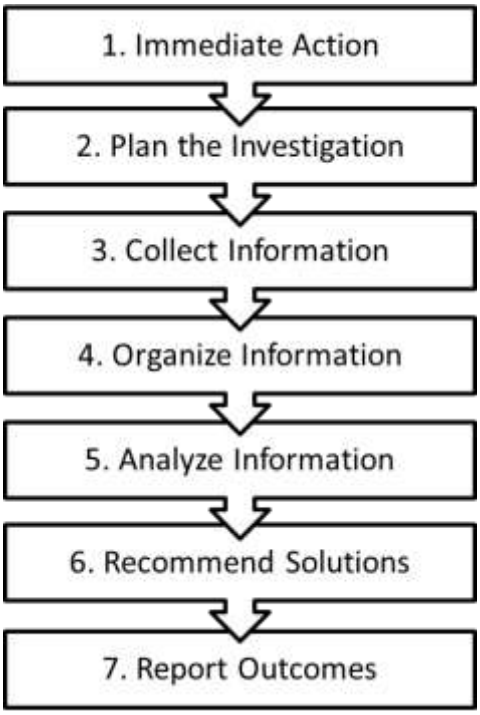


Figure 1

PROCEDURES FOR ACCIDENT INVESTIGATIONS

The best time to develop accident investigation procedures is before the accident occurs.

The plan should include procedures that determine:

- Who to notify when an accident occurs
- Who may notify outside agencies (fire, police, etc.)
- Who will conduct investigations
- Who will maintain recordkeeping documents
- What training is required for accident investigators
- Who receives and acts on investigation reports
- Timetables for conducting hazard correction

At Northern Arizona University / Facility Services, pre-accident investigation planning is a team effort between the safety committee and Frank Espinoza. Nevertheless, there are some key steps to help ensure an accident investigation will accomplish its goal of preventing future incidents. See Figure 1 for an outline of the general steps of an accident investigation.

REPORTING ACCIDENTS

Northern Arizona University / Facility Services will investigate all lost-time injuries. Any fatality, or the hospitalization of three or more employees, must be reported to OSHA within eight hours.

Effective January 1, 2015 any accidents resulting in hospitalization, amputation, and eye loss must be reported within 24 hours (amputations do not include avulsions, enucleations, deglovings, scalpings, severed ears, or broken/chipped teeth.)

Employees will report all accidents and near-miss incidents that result in personal injury, property damage, chemical spills, or other emergencies to the assigned supervisor at the time of the event. In addition, emergency medical services, the fire department, and hazmat services will be immediately summoned as needed.

IMMEDIATE ACTION

SECURE ACCIDENT SCENE

The first action to take at an accident scene is to prevent further injuries and make the area safe. Administer first aid (or ensure it is administered) or summon appropriate emergency responders as necessary.

Sometimes, an investigation can begin while the victim is being assisted by emergency responders. However, the priority is always taking care of the victim, and usually investigations don't begin until emergency response is completed. Material evidence will most likely not be in its original location, but effective interviews can shed light on the scene at the time of the accident.

At this point, gathering as much pertinent information as possible for later analysis takes priority over determining the cause of the accident, but the top priority should always be the safety and well-being of workers and the public.

PRELIMINARY INVESTIGATION

It is important to start the investigation as soon as possible. Significant elapsed time between the accident and the investigation can lead to a deterioration of evidence and undermine the accuracy of the investigation.

MATERIAL EVIDENCE

There is a temptation to clean up the accident scene immediately so people can get back to work, but an effective procedure will protect material evidence for the investigation.

It is important to secure the scene of an accident quickly and effectively. Tape, rope, cones, or even personnel, can secure the accident scene.

PLAN INVESTIGATION

Most investigation planning should happen well in advance of an accident. However, some details of the investigation can only be seen after the fact. The nature of the accident will determine the extent of the investigation, the resources that will be needed, what types of investigative processes will be required, who will need to be interviewed, etc.

BUILD TEAM

Ideally, someone experienced in accident causation and investigative techniques will conduct accident investigations. An investigator who is also fully knowledgeable of the work processes, procedures, peoples, and general work environment of a particular situation will be able to shed some light on the causes of the accident.

In most cases, the supervisor should help investigate, together with at least one employee representative from the safety committee, the safety coordinator and/or whoever is in charge of worksite inspections.

Other members of the team can include:

- Employees with knowledge of the work
- A union representative, if applicable
- Employees with experience in investigations
- An impartial expert from outside the company

It is important the team represent a variety of expert perspectives on workplace safety and the job being performed when the accident happened. However, everyone on the team should be trained in appropriate investigative techniques and not be involved in any disciplinary proceedings that might emerge out of the incident, if possible.

It is important to keep the safety-related aspect of the investigation separate from any possible disciplinary action. Accident investigations will always focus on identifying safety failures and remedying them promptly.

COLLECT INFORMATION

The next step is to gather useful information about what directly and indirectly contributed to the accident. When collecting information to understand an incident or accident, consider all possible sources.

PHOTOGRAPH AND VIDEO

Photographs and video recording can help in the preparation of a report, as well as in analyzing conditions at the site of the incident. Photographic evidence should be taken as soon as safely possible.

Following are some techniques useful in taking photographs at incident scenes:

- Photograph the overall area before moving to detail the precise incident site.
- Take photos from different perspectives and angles—close-up and from a distance.
- Use witnesses to help you decide what to shoot, and note their comments.
- Record what photos you take in a log that includes details like when the shot was taken, by whom, where, what the shot contains, identifying number on a sketch of the area, and a brief description of what the photograph is trying to identify.
- Keep the photos in a safe place along with notes, evidence, and sketches from the accident investigation.
- Narrate video with details like those above.

SKETCH SCENE

Sketches complement information in photos or video, indicating distances among elements of the accident scene. It is important to be as precise as possible when making sketches.

Following are some things to remember:

- Make sketches large and clear.
- Include basic facts (date, time, location, identity of objects, victims, etc.).
- Define spatial relationships with identifiable points of reference and compass directions.
- Include important measurements, and note key concepts.
- Indicate what has been included in photographs.
- Mark where people were standing.

Eventually, a precise diagram can reflect the information in a sketch, but it is important to get as much information as possible immediately after the accident.

INTERVIEW WITNESSES

Interviewing witnesses is the easiest way to gain an understanding of how the accident occurred, and the conditions that led to it. Witnesses include people who saw the incident, such as any injured people, and others whose behavior, actions and/or inactions— either intentionally or unintentionally—contributed to the incident. This can include supervisors and trainers, maintenance personnel, and anyone else tied to the investigation.

When interviewing, it is important to remember emotions can run high in the wake of an accident, especially a catastrophic one. The accident investigation is a cooperative effort to create a safer workplace by gathering and understanding information. Keep an open mind and listen with a calm, relaxed, unhurried demeanor.

- Use a voice recorder only with permission; if possible, offer a copy of the recorded conversation, or a transcription, to the interviewee.
- Express to the individual that the information given is important, but put the person at ease. Explain the purpose of the interview and your role. Express sincere concern regarding the accident and your desire to prevent a similar occurrence.
- Interview witnesses separately, and ensure witnesses can discuss the incident with you in relative privacy where possible. Don’t promise confidentiality though.

- Take the witness to the scene if they are comfortable. If you can't conduct a private interview at the location, find an office or meeting room that the interviewee considers a "neutral" location.
- Allow witnesses to have a support person present, but ensure the support person is not directly linked to the incident and is not a witness. If there is a collective bargaining agreement, and a worker requests union representation, do not continue the interview until representation has been secured.
- Direct an eyewitness to "explain what happened" in their own words. If you don't ask them to explain, you may be left with a simple "Yes" or No" response, which is not as helpful. Open-ended questions elicit much more information than closed-ended questions. "Why" questions can put an interviewee on guard. Look for facts and observations; ignore speculation.
- Take notes casually, but with care. Allow the interviewee to review notes of the interview to ensure accuracy and help bring details to mind. Give the interviewee a copy of the notes you take to help reduce any thought that you're trying to conceal information.
- Repeat the facts and sequence of events back to the person to avoid misunderstanding, and to establish the correct version of events.
- Request interviewees to offer their own suggestions as to how the incident could have been avoided.
- Conclude interviews by thanking interviewees for their contribution. Ask them to contact you if they think of anything else. If possible, tell witnesses personally of the outcome of the investigation before it becomes public knowledge.

CONSULT RECORDS

When searching for information, investigations should continue after evaluating the scene of the accident, collecting physical evidence, and interviewing the people involved. Documents related to the incident can provide incredible insight into the causes of an accident; especially root causes.

Some examples of useful documents include:

- Technical data sheets
- Health and safety committee minutes
- Inspection reports
- Company policies
- Maintenance reports
- Past accident reports
- Job hazard analyses and safe-work procedures
- Training records and reports
- Work schedules
- Injury and illness logs
- Any other document that may shed light on the safety-related systems in place where the accident took place

Determining the causes of the accident based on available information may be difficult because events must be analyzed not only to identify direct causes for the accident, but also related root causes. “Surface” causes can be obvious. However, it may take a great deal of additional time to unearth weaknesses in management systems, or other root causes that contributed to the conditions and practices associated with the accident.

ORGANIZE AND ANALYZE THE FACTS

DEVELOP SEQUENCE OF EVENTS

When all of the evidence is collected, and all the interviews are complete, a timeline of the accident should emerge. Each event on the timeline describes an actor and an action. The actor effects change through action or inaction. Actors do not have to be personnel. Equipment or processes can affect the system to precipitate an accident.

When developing the sequence of events, do not hesitate to stretch the timeline further back as deeper causes begin to emerge. Accidents often result from long-term oversights and failures that have taken some time to have a negative impact.

If gaps in the timeline are apparent, they need to be filled in. If re-interviewing witnesses or investigating the evidence fails to fill the gaps, develop an “educated guess” supported by the rest of the timeline and available evidence.

The sequence of events should describe what happened in such a way that someone unfamiliar can understand what likely happened.

DETERMINE THE CAUSES

When the timeline is established, the next step is to determine the causes of the accident. The key question for an investigator to establish cause is “Why?” Why did an unsafe condition emerge in the workplace? Why did the worker end up exposed to the unsafe condition? Determining the root causes of an accident requires asking “Why?” over and again.

IMPLEMENT SOLUTIONS

Although an accident investigation can be a reactive safety process, it typically ends in recommendations for effective control strategies and system improvements that will help prevent similar accidents in the future.

WRITE THE REPORT

An accident or incident investigation aims to create systemic change and ensure everyday safeguards remain in place to reduce risk and promote safety in the workplace. However, the information uncovered in the investigation, and recommendations that come from the investigation, need to be available to people with authority. A report that includes the pertinent information about the causes of an incident, as well as concrete recommendations, helps the investigation to positively impact the safety culture of Northern Arizona University / Facility Services.

Please see the “Accident/Incident Report” at the end of this chapter for an example template for an incident report.

Background: This section of the report covers the basic information about the accident: when and where the accident occurred, who was involved, etc.

Description: The description of the incident should be a timeline of the incident—a step-by-step narrative of what occurred. The incident and the findings of the investigation will determine how far before and after the incident itself, the narrative should stretch. Include enough information to give a person who was not there a clear understanding of the accident. Be specific. Include a diagram of the event.

Findings: Report results of the root-cause analysis with complete thoughts, not short notes. Remember to describe both hazardous conditions and unsafe actions. Findings need to include direct and indirect surface causes. Findings should also clearly outline the root causes of the accident and frame recommendations. Remember, the point of the investigation is not to assign blame. Findings will describe unsafe actions of individuals, but any lack of hazard controls, or deficient safety systems, at the organizational level is what the report aims to remedy.

Recommendations: Recommendations can only be as effective as the findings on which they are based. In the report, recommendations need to be specific and help those in authority take the first steps to implement the recommendations. Include who will be responsible to implement the recommendations, a timeline, and estimated cost—if that can be determined.

Summary: Review the causes of the accident and the corrective steps that are recommended.

Review and Follow-up: This can be included as part of the recommendations. Necessary changes require a system of accountability. Suggesting a specific timeframe and specific individuals with appropriate authority to enact recommendations will drive the needed changes. Incorporating accident follow-up and accountability into safety committee activities is a useful way to build widespread accountability for the types of safety system changes workplace accidents often demand.

Attachments: Be sure to include with the report the notes from interviews, as well as photographs and any other pertinent information and evidence from the investigation.

POLICY EVALUATION AND RECORDKEEPING

Accident investigation procedures and this policy will be evaluated annually and revised as necessary.

REPORTING CATASTROPHES AND FATALITIES

Fatalities and catastrophes—defined as events that require inpatient hospitalization of three or more employees—must be reported to OSHA within eight hours. Serious accidents, in which an employee is admitted to a hospital for treatment because of injuries suffered from a workplace accident, must be reported to OSHA within 24 hours. Call 1-800-321-OSHA (1-800-321-6742) to report these events.

OSHA'S FORM 300, 300A AND 301

Unless a company is in a low-hazard industry (see list at right) or employs 10 or fewer individuals, all recordable injuries and illnesses must be recorded appropriately. See "1904.7 — Recordkeeping Forms and Recording Criteria."

If an employee with an occupational injury or illness receives a medical emergency procedure, Frank Espinoza or designate will document the incident on OSHA's Form 301 "Injury and Illness Incident Report" and record the injury or illness on OSHA's Form 300 "Log of Work Related Injuries and Illnesses".

Yearly, OSHA's form 300A "Summary of Work-Related Injuries and Illnesses," will be completed based on the information in form 300 and posted between February 1 and April 30 of the year following the year covered by the form.

SICs of recordkeeping-exempt industries

525 Hardware Stores
542 Meat and Fish Markets
544 Candy, Nut, and Confectionary Stores
545 Dairy Products Stores
546 Retail Bakeries
549 Miscellaneous Food Stores
551 New and Used Car Dealers
552 Used Car Dealers
554 Gasoline Service Stations
557 Motorcycle Dealers
56 Apparel and Accessory Stores
573 Radio, Television, and Computer Stores
58 Eating and Drinking Places
591 Drug Stores and Proprietary Stores
592 Liquor Stores
594 Miscellaneous Shopping Goods Stores
599 Retail Stores, Not Elsewhere Classified
60 Depository Institutions (Banks and Savings Institutions)
61 Non-depository Institutions (Credit Institutions)
62 Security and Commodity Brokers
63 Insurance Carriers
64 Insurance Agents, Brokers, and Services
653 Real Estate Agents and Managers
654 Title Abstract Offices
67 Holding and Other Investment Offices
722 Photographic Studios, Portrait
723 Beauty Shops
724 Barber Shops
725 Shoe Repair and Shoeshine Parlors
726 Funeral Service and Crematories
729 Miscellaneous Personal Services
731 Advertising Services
732 Credit Reporting and Collection Services
733 Mailing, Reproduction, and Stenographic Services
737 Computer and Data Processing Services
738 Miscellaneous Business Services
764 Re-upholstery and Furniture Repair
78 Motion Picture
791 Dance Studios, Schools, and Halls
792 Producers, Orchestras, Entertainers
793 Bowling Centers
801 Offices and Clinics of Medical Doctors
802 Offices and Clinics of Dentists
803 Offices of Osteopathic Physicians
804 Offices of Other Health Practitioners
807 Medical and Dental Laboratories
809 Health and Allied Services, Not Elsewhere Classified
81 Legal Services
82 Educational Services (Schools, Colleges, Universities, and Libraries)
832 Individual and Family Services
835 Child Day Care Centers
839 Social Services, Not Elsewhere Classified
841 Museums and Art Galleries
86 Membership Organizations
87 Engineering, Accounting, Research, Management, and Related Services
899 Services, Not Elsewhere Classified

FORMS & ATTACHMENTS

Please find the documents listed below on the following pages:

- Accident/Incident Report
- Accident Investigation Training Documentation

These forms may be reproduced freely by Northern Arizona University / Facility Services for the purpose of implementing and maintaining a safety and health program.

OSHA reporting forms and work-related injury and illness logs are available at:

http://www.osha.gov/recordkeeping/new-osha300form1-1-04.pdf

ACCIDENT/INCIDENT REPORT FORM

Date of Accident	Time	Day of Week	Shift	Department
		☐ S ☐ M ☐ T ☐ W ☐ T ☐ F ☐ S	☐1 ☐2 ☐3	

INJURED PERSON		
Name:		**Address:**
Age:	**Phone:**	

Job Title:	**Supervisor Name:**
Length of Employment at Company:	**Length of Employment at Job:**

Employee Classification: ☐ Full Time ☐ Part Time ☐ Contract ☐ Temporary

NATURE OF INJURY	☐ Bruising	☐ Dislocation	☐ Other (specify)	Injured Body Part :
☐ Strain/Sprain	☐ Scratch/ Abrasion	☐ Internal		
☐ Fracture	☐ Amputation	☐ Foreign Body	Remarks:	
☐ Laceration/Cut	☐ Burn/Scald	☐ Chemical Reaction		

TREATMENT	Name and Address of Treating Physician or Facility:
☐ First Aid	
☐ Emergency Room	
☐ Dr.'s Office	
☐ Hospitalization	

DAMAGED PROPERTY	
Property, Equipment, or Material Damaged	Describe Damage:
Object or Substance Inflicting Damage:	

INCIDENT DESCRIPTION
Describe what happened (attach photographs or diagrams if necessary):
Make sketches or illustrations to help describe incident:

ROOT CAUSE ANALYSIS (Check All that Apply)		
Unsafe Acts	**Unsafe Conditions**	**Management Deficiencies**
☐ Improper work technique	☐ Poor workstation design/layout	☐ Lack of written policies & procedures
☐ Safety rule violation	☐ Congested work area	☐ Safety rules not enforced
☐ Improper PPE or PPE not used	☐ Hazardous substances	☐ Hazards not identified
☐ Operating without authority	☐ Fire or explosion hazard	☐ PPE unavailable
☐ Failure to warn or secure	☐ Inadequate ventilation	☐ Insufficient worker training
☐ Operating at improper speeds	☐ Improper material storage	☐ Insufficient supervisor training
☐ Bypassing safety devices	☐ Improper tool or equipment	☐ Improper maintenance
☐ Guards not used	☐ Insufficient knowledge of job	☐ Inadequate supervision
☐ Improper loading or placement	☐ Slippery conditions	☐ Inadequate job planning
☐ Improper lifting	☐ Poor housekeeping	☐ Inadequate hiring practices
☐ Servicing machinery in motion	☐ Excessive noise	☐ Inadequate workplace inspection
☐ Horseplay	☐ Inadequate hazard guards	☐ Inadequate equipment
☐ Drug or alcohol use	☐ Defective tools/equipment	☐ Unsafe design or construction
☐ Unnecessary haste	☐ Insufficient lighting	☐ Unrealistic scheduling
☐ Unsafe act of others	☐ Inadequate fall protection	☐ Poor process design
☐ Other:	☐ Other:	☐ Other:

ACCIDENT / INCIDENT ANALYSIS	
Using the root-cause analysis list, explain the cause(s) of the incident in as much detail as possible. Attach a sheet if there is not enough room.	
How bad could the accident have been? ☐ Very Serious ☐ Serious ☐ Minor	What is the chance of the accident happening again? ☐ Frequent ☐ Occasional ☐ Rare

ACCIDENT/INCIDENT REPORT FORM

RECOMMENDATIONS AND FOLLOW-UP			
Describe actions that will be taken to prevent recurrence: *(attach another sheet if necessary)*	**Deadline**	**By Whom**	**Complete**

SUMMARY

INVESTIGATION TEAM		
Name	**Signature**	**Position**

POLICY STATEMENT

Northern Arizona University / Facility Services is committed to the safety and health of our employees and to ensuring prompt medical attention for any injury that occurs at work.

Part of that commitment includes having readily available medical personnel. Where there is no medical facility close to the worksite, Frank Espinoza and other personnel as needed will be trained to provide first aid. First-aid kits are located at: In every Shop

Northern Arizona University / Facility Services will provide, at no cost, medical services for employee evaluations, employment requirements, and special conditions of work.

RESPONSIBILITIES

The availability of medical attention in the event of a medical emergency is a responsibility shared between Northern Arizona University / Facility Services and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Ensure every employee receives training that explains the first-aid response plan.
- Determine who must be trained to render first aid and ensure every employee expected to render first aid will be trained in appropriate practices and techniques, including response to site-specific hazards.
- Ensure the first-aid response plan, amount of first-aid-trained personnel, first-aid equipment and all other hazard controls reflect workplace hazards as determined in job hazard analyses and worksite inspections.
- Ensure first-aid kits remain fully stocked and any emergency response equipment is in good repair.
- Respond to recommendations and concerns from Northern Arizona University / Facility Services employees and the safety committee.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the Northern Arizona University / Facility Services safety committee to:

- Participate in the creation of a first-aid response plan.
- Participate in all job hazard analyses and recommend changes to the first-aid policy and first aid response plan to increase workplace safety.
- Recommend changes to first-aid policy and procedures.

EMPLOYEE RESPONSIBILITIES

Every Northern Arizona University / Facility Services employee is expected to:

- Follow the first-aid policy and the first-aid response plan
- Understand the hazards presented by “Good Samaritan” first aid response

TRAINING

Northern Arizona University / Facility Services will ensure every employee receives training that covers the Northern Arizona University / Facility Services first-aid response plan. All personnel expected to render first aid will be certified by an approved first-aid training organization. All training for workplace safety will be provided at no cost to the employee during working hours.

Northern Arizona University / Facility Services will provide training:

- At the time of assignment to tasks where occupational exposure may take place.
- At least annually thereafter, annual training will be provided within one year of previous training.

Northern Arizona University / Facility Services will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

The training program for medical services and first aid will contain at a minimum the following elements:

- Location and contents of workplace first-aid kits
- “Good Samaritan” hazards and bloodborne pathogens
- Self-care and incident reporting

The person conducting the training will be knowledgeable in the subject matter of the training program as it relates to the workplace.

Any Northern Arizona University / Facility Services employee who is expected to render first aid as part of his or her job duties, will receive additional training from an external organization (e.g. American Heart Association, American Red Cross, and the National Safety Council) including, but not limited to:

- Recommended first-aid practices, especially those that may be necessary for hazards specific to the Northern Arizona University / Facility Services workplace
- Bloodborne pathogen exposure control
- Cardiopulmonary resuscitation incorporating use of automated external defibrillators (if present at worksite)

If a third-party first aid training provider is unable to provide first aid training specific to hazards at Northern Arizona University / Facility Services, first aid responders require supplementary training over the appropriate response to injuries that may result from worksite-specific hazards.

POTENTIAL FIRST AID TRAINING ELEMENTS

OSHA suggests a number of elements to include when planning first-aid training programs.

TEACHING METHODS

Training programs should incorporate the following principles:

- Basing the curriculum on a consensus of scientific evidence where available
- Having trainees develop “hands-on” skills through the use of mannequins and partner practice
- Having appropriate first-aid supplies and equipment available
- Exposing trainees to acute injury and illness settings as well as to the appropriate response through the use of visual aids
- Including a course information resource for reference both during and after training
- Allowing enough time for emphasis on commonly occurring situations
- Emphasizing skills training and confidence-building over classroom lectures
- Emphasizing quick response to first-aid situations

FIRST AID TRAINING ELEMENTS

The training program should include instruction in the following:

- Repositioning ill/injured victims to prevent further injury

PREPARING TO RESPOND TO A HEALTH EMERGENCY

The training program should include instruction or discussion in the following:

- Prevention as a strategy in reducing fatalities, illnesses and injuries
- Interacting with the local EMS system
- Maintaining a current list of emergency telephone numbers (police, fire, ambulance, poison control) accessible to all employees
- Understanding the legal aspects of providing first-aid care, including Good Samaritan legislation, consent, abandonment, negligence, assault and battery, State laws and regulations
- Understanding the effects of stress, fear of infection, panic; how they interfere with performance; and what to do to overcome these barriers to action
- The importance of universal precautions and body substance isolation to provide protection from bloodborne pathogens and other potentially infectious materials
- Learning about personal protective equipment — gloves, eye protection, masks, and respiratory barrier devices
- Appropriate management and disposal of blood-contaminated sharps and surfaces; and awareness of OSHA’s Bloodborne Pathogens standard 29 CFR 1910.1030.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Northern Arizona University / Facility Services will maintain employee-training records for 3 years from the date on which the training occurred.

First aid training courses provided to Northern Arizona University / Facility Services employees will include instruction in general and workplace hazard-specific knowledge and skills.

First-aid trained employees should repeat training periodically to maintain and update knowledge and skills.

PLANNING

As with any element of the Northern Arizona University / Facility Services Safety and Health Program, the first-aid response plan demands leadership from management and the active involvement of employees. The goal is a first-aid response plan based on hazards in the workplace and training for employees according to the risks they face while performing their job duties.

FIRST AID RESPONSE PLANNING

Frank Espinoza, working with members of the safety committee, will determine a first-aid response plan appropriate to the worksite.
The first-aid response plan can be incorporated into the emergency action plan and will:

- Fit the work location, type of work, and environmental conditions
- Identify available EMS, their numbers and where they are posted
- Describe the type of first-aid training employees receive, if applicable
- Identify the location(s) of first-aid supplies and/or first-aid station
- Identify the contents of first-aid kits
- Describe how first-aid supplies, kits and equipment will be inspected and maintained and by whom
- List all first-aid trained employees

EMERGENCY MEDICAL SERVICES

Knowledge of available emergency medical services and their estimated response times to the worksite throughout the day can be useful when planning the first-aid response plan.

SHARING FIRST AID RESPONSE PLAN INFORMATION

First-aid policies and procedures are most effective when they are in writing. Whether in writing or not, the first-aid response plan needs to be communicated in such a way that every worker, can understand and follow the plan.

IMPLEMENTATION

HAZARD ASSESSMENT

A job hazard analysis (see chapter on “Job Hazard Analysis”) will define the extent and nature of first-aid training for a given job and determine the first-aid supplies that need to be available.

FIRST AID KITS

First-aid supplies will remain available in adequate quantities and be readily accessible at In every Shop. The contents of the kit listed in The American National Standard (ANSI) Z308.1-1998 "Minimum Requirements for Workplace First-aid Kits" (table 1) should be adequate for most small worksites. Frank Espinoza or the appropriate safety committee member(s) will determine the need for additional first-aid kits at the worksite, additional types of first-aid equipment and supplies, and additional quantities and types of supplies in first-aid kits to accommodate larger operations or multiple operations conducted at the same location

ANSI Z308.1-1998 Minimum Requirements for Workplace First-aid Kits	
Quantity	**Description**
1 ea.	absorbent compress (at least 4” X 8”)
16 ea.	adhesive bandages (1” X 3”)
5 yd.	adhesive tape
10 ea.	antiseptic applications (.5g)
6 ea.	burn treatment applications (.5g)
4 ea.	sterile pads (at least 3” X 3”)
2 pr.	medical exam gloves
1 ea.	Triangular bandage (at least 40” X 40” X 56”)

Table 1

MEDICAL RESPONSE

RESPONDING TO MEDICAL EMERGENCIES

A wide variety of medical emergencies can occur in the workplace; however, they can be divided into two categories, life threatening, and non-life threatening. It's important for Northern Arizona University / Facility Services first aid providers to be trained to deal with situations as they arise, and to be able to recognize the severity of the emergency. Medical emergencies can include, but are not limited to:

- Chest pain
- Stroke
- Impalements
- Crushing
- Electrocution
- Severe bleeding
- Breathing problems
- Anaphylactic reaction
- Hypoglycemia in diabetics taking insulin
- Seizures
- Pregnancy complications
- Abdominal injury
- Reduced level of consciousness

ASSESSING THE SCENE AND THE VICTIM(S)

The top priorities of first aid providers when responding to a medical emergency are"

- Assessing the scene for safety, number of injured, and nature of the event
- Assessing the toxic potential of the environment and the need for respiratory protection
- Establishing the presence of a confined space and the need for respiratory protection and specialized training to perform a rescue
- Prioritizing care when there are several injured
- Assessing each victim for responsiveness, airway patency (blockage), breathing, circulation, and medical alert tags
- Taking a victim's history at the scene, including determining the mechanism of injury
- Performing a logical head-to-toe check for injuries
- Continuous monitoring of the victim
- Early activation of EMS
- Safely moving and rescuing victims

RESPONDING TO LIFE-THREATENING EMERGENCIES

First aid training should be designed for the specific worksite and include first-aid instruction for the management of the following:

BREATHING PROBLEMS

The training program should be designed or adapted for the specific worksite and may include first-aid instruction in the following:

- Establishing responsiveness;
- Establishing and maintaining an open and clear airway
- Performing rescue breathing
- Treating airway obstruction in a conscious victim

Recognizing asphyxiation and the danger of entering a confined space without appropriate respiratory protection. Additional training is required if first-aid personnel will assist in the rescue from the confined space.

POISONING

- Ingested poisons: alkali, acid, and systemic poisons. Role of the Poison Control Center (1-800-222-1222)
- Inhaled poisons: carbon monoxide; hydrogen sulfide; smoke; and other chemical fumes, vapors, and gases. Assessing the toxic potential of the environment and the need for respirators
- Knowledge of the chemicals at the worksite and of first aid and treatment for inhalation or ingestion
- Effects of alcohol and illicit drugs so that the first-aid provider can recognize the physiologic and behavioral effects of these substances

PHYSICAL INJURIES

Northern Arizona University / Facility Services first aid providers will be able to:

- Recognize the signs and symptoms of shock and provide first aid for shock due to illness or injury
- Assess and treat a victim who has an unexplained change in level of consciousness or sudden illness
- Control bleeding with direct pressure

SUDDEN CARDIAC ARREST

Cardiopulmonary Resuscitation

OSHA standards require training in cardiopulmonary resuscitation (CPR) in some employment situations where sudden cardiac arrest from asphyxiation, electrocution, or exertion may occur: permit-required confined spaces; logging operations; electric power generation, transmission, and distribution; dive teams; and power transmission and distribution construction. However, sudden cardiac arrest is a potential risk at all worksites and those trained in first aid benefit greatly from learning CPR regardless of work hazards.

Automated External Defibrillators

Northern Arizona University / Facility Services will determine the need for an automated external defibrillator (AED) program as part of the first-aid response plan. Training will reflect whether an AED is included.

If an AED is available at the worksite, CPR training will incorporate AED training.

CORROSIVE MATERIALS, STRONG IRRITANTS OR TOXIC CHEMICALS

If a job hazard analysis determines hazards from corrosive materials, strong irritants, or toxic chemicals, the Northern Arizona University / Facility Services first-aid plan will include appropriate hazard controls. These controls include eye irrigation equipment, eyewash stations, and emergency showers.

Even worksites without high-risk levels from corrosives, irritants, and toxic chemicals may find eye-irrigation equipment and eyewash equipment appropriate to address workplace hazards. Be aware that some state requirements and specific chemical safety procedures require such equipment on worksites. Where such requirements exist, Northern Arizona University / Facility Services will adhere to applicable workplace safety and health regulations, and industry best practices.

At construction jobsites, employers must provide a sanitary washing facility for every 20 employees. At jobsites where employees work with paint, coatings, or any substance that may be harmful, the facilities must include suitable cleaning agents/towels for the removal of hazardous and other substances.

BLOODBORNE PATHOGENS

If an employee is designated to render first aid as part of his or her job duties, or if they may otherwise be subject to the hazard of exposure to bloodborne pathogens, the employee must meet the requirements of 29 CFR 1910.1030, Bloodborne Pathogens, and must be trained accordingly. Additional requirements may also apply. Please see the chapter on “Bloodborne Pathogens” for more information.

Employees who have not received first-aid training need to understand the hazards presented by delivering first aid to a coworker. While Northern Arizona University / Facility Services discourages the administration of first aid by any employee who has not been trained in first aid, “Good Samaritan” first-aid delivery is a possibility if necessary.

RESPONDING TO NON-LIFE-THREATENING EMERGENCIES

First aid training should be designed for the specific worksite and include first-aid instruction for the management of the following:

WOUNDS

- Assessment and first aid for wounds including abrasions, cuts, lacerations, punctures, avulsions, amputations and crush injuries
- Principles of wound care, including infection precautions
- Principles of body substance isolation, universal precautions and use of personal protective equipment

BURNS

- Assessing the severity of a burn
- Recognizing whether a burn is thermal, electrical, or chemical and the appropriate first aid
- Reviewing corrosive chemicals at a specific worksite, along with appropriate first aid

TEMPERATURE EXTREMES

- Exposure to cold, including frostbite and hypothermia
- Exposure to heat, including heat cramps, heat exhaustion and heat stroke

MUSCULOSKELETAL INJURIES

- Fractures
- Sprains, strains, contusions and cramps
- Head, neck, back and spinal injuries
- Appropriate handling of amputated body parts

EYE INJURIES

- First aid for eye injuries
- First aid for chemical burns

MOUTH AND TEETH INJURIES

- Oral injuries; lip and tongue injuries; broken and missing teeth
- The importance of preventing aspiration of blood and/or teeth

BITES AND STINGS

- Human and animal bites
- Bites and stings from insects; instruction in first-aid treatment of anaphylactic shock

RECORD KEEPING

All safety and health incidents and near misses will be documented and investigated according to the policy on “Accident Investigation.” This includes prompt notification to OSHA of catastrophic or deadly incidents and may include other reporting requirements.

PROGRAM REVIEW

Frank Espinoza will review the first-aid response plan and all elements at least annually to ensure all elements sufficiently address the safety needs of Northern Arizona University / Facility Services and its employees. Recommended first-aid techniques and knowledge change over time, and Northern Arizona University / Facility Services policy will reflect those changes.

FORMS & ATTACHMENTS

On the following page, please find a First-Aid Response Plan form that you can use to create your companies plan

FIRST AID RESPONSE PLAN FORM

Company:	Date:
This plan was written for: (site or location this plan covers)	
The following person/position is responsible for managing our first-aid response plan:	
The emergency medical service to be called:	
Summon the emergency medical service by doing the following: (In most cases, it will be to call 911 or some other phone number, but a direct alarm or some other method may be the preferred way.)	
Emergency phone numbers are posted at the following location(s):	
Other means to summon aid are at the following location:	
When employees need first aid they must do the following:	
Employees on site who are first-aid trained:	
First-aid kits (or a first aid station) are located at:	
The following person/position is responsible for inspecting the first-aid kits:	
The Company's Designated Medical Provider is:	
Person Preparing Plan: Signature:	Date:
Supervisor's Name: Signature:	Date:

POLICY STATEMENT

Northern Arizona University / Facility Services is committed to the safety and health of our employees and to preventing the spread of bloodborne pathogens. Therefore, Northern Arizona University / Facility Services adheres to the following bloodborne pathogen policy and Exposure Control Plan (ECP).

Bloodborne pathogens are diseases caused by microorganisms that live in the bloodstream and are spread through blood and other body fluids. Bloodborne pathogens include the human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV). HIV compromises the body's immune functions and can lead to acquired immunodeficiency syndrome. While the virus does not live out of the body for long, it can enter the bloodstream through cuts, abrasions, small tears in mucous membranes, etc. Hepatitis affects the health of the liver.

Bloodborne pathogens can be transmitted through any body fluid, and employees must take care when they are near, or come into contact with possible contaminants, in order to prevent the spread of bloodborne infections.

If employees — such as those designated as responsible for first aid and medical assistance, or those doing work in certain medical or sanitation facilities —are exposed to bloodborne pathogens, all measures within this program will be taken to prevent the spread of disease.

RESPONSIBILITIES

Preventing the spread of bloodborne illnesses is a responsibility shared between Northern Arizona University / Facility Services and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Enact and enforce an exposure control plan to prevent occupational exposure to potentially infectious materials
- Identify employees who may reasonably be anticipated to come into contact with blood and other potentially infectious materials
- Provide for post-exposure evaluation and follow-up should an employee be exposed to potentially infectious materials
- Ensure employees receive appropriate bloodborne pathogens training
- Ensure an adequate supply of Personal Protective Equipment

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the safety committee to:

- Develop and implement a site-specific exposure control plan
- Identify employees who may reasonably be anticipated to come into contact with blood and other potentially infectious materials
- Develop, conduct, and document training for bloodborne pathogens safety
- Investigate exposure incidents and recommend work-practice changes
- Recommend personal protective equipment (PPE), if necessary

EMPLOYEE RESPONSIBILITIES

Every employee is expected to:

- Offer input on ECP as appropriate, including identification, evaluation, and selection of new control methods
- Follow all elements of the bloodborne pathogens policy and training
- Notify a supervisor if they encounter any problems or concerns related to this policy

TRAINING

Northern Arizona University / Facility Services will ensure every employee who may reasonably anticipate coming into occupational exposure to potentially infectious materials, participate in a bloodborne pathogen training program. This training will be provided at no cost to the employee during working hours.

Training will be provided:

- At the time of assignment to/prior to working on tasks where occupational exposure may take place
- At least annually thereafter (annual training for all employees will be provided within one year of their previous training).

Northern Arizona University / Facility Services will provide additional training when tasks or procedures are added or changed that affect the employee's occupational exposure. It is acceptable for additional training to be limited to addressing only the changes or additions to the employees' exposure.

The Company will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

- The training program will contain, at a minimum, the following elements:
- An accessible copy of the regulatory text of CFR 1910.1030, this bloodborne pathogen policy and exposure control plan, and an explanation of its contents
- A general explanation of the epidemiology and symptoms of bloodborne diseases
- An explanation of the modes of transmission of bloodborne pathogens
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
- An explanation of the use and limitations of methods to prevent or reduce exposure, including engineering controls, work practices, and personal protective equipment
- Information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment
- An explanation of the basis for selection of personal protective equipment (PPE)
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge to employees who face occupational exposure
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials
- An explanation of the procedures to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available
- Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident
- An explanation of the applicable signs, labels, and/or color coding
- An opportunity for interactive questions and answers with the person conducting the training session
- The person conducting the training will be knowledgeable in the subject matter of the training program as it relates to the workplace.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions
- Contents or a summary of the training sessions
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training sessions
- Employee training records will be maintained for three years from the date on which the training occurred.

PROCEDURES

EXPOSURE DETERMINATION

It is crucial to determine which jobs expose an employee to blood and other potentially infectious material, as well as the means by which that exposure might occur. Accordingly, the safety committee or management will determine which job classifications can reasonably expect occupational exposure to potentially infectious material.

The following will be determined and documented:

- Job classifications in which all employees have occupational exposure
- Job classifications in which some employees have occupational exposure
- Tasks and procedures in which occupational exposure occurs

Further, input from non-managerial employees exposed to contaminated sharps and infectious material is vital to the success of this exposure control plan, and every employee is encouraged to offer suggestions that will help the effectiveness of the exposure control plan.

METHODS OF COMPLIANCE

Employees will take precautions to prevent contact with potentially infectious material. If an employee cannot easily determine the nature of a body fluid, he or she should treat it as infectious.

ENGINEERING AND WORK PRACTICE CONTROLS

As part of this exposure control plan, Northern Arizona University / Facility Services will seek methods by which to eliminate occupational exposure to the greatest extent possible. This plan encourages work task changes to reduce exposure, as well as for isolating or removing materials that might pose a hazard. The exposure control plan requires the Company to examine regularly, and maintain or replace, engineering controls to ensure their effectiveness.

HANDWASHING

- Northern Arizona University / Facility Services will provide readily accessible handwashing facilities to every employee. If providing handwashing facilities is not feasible, the Company will provide antiseptic towelettes or an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels.
- For construction projects, employers must provide onsite general washing facilities (one per 20 employees), keep them in sanitary condition, and provide suitable cleaning agents/towels for the removal of hazardous and other substances.
- In addition to basic workplace hygiene requirements, employees will wash their hands as soon as possible after removing gloves or other PPE.
- Should an employee's skin or mucous membrane be exposed to potentially infectious materials, the employee will immediately wash their skin with soap and water or flush their mucous membranes with water.

SHARPS

- Employees will handle and dispose of contaminated sharps in a way that prevents unnecessary exposure to hazards. Employees will not bend, recap, or remove contaminated sharps unless no alternative is feasible and the employee can accomplish any bending, recapping or needle removal using a mechanical device or one-handed technique.
- As soon as possible after use, contaminated reusable sharps will be placed in a container that is puncture resistant, labeled or color-coded appropriately, leak-proof on the sides and bottom, constructed in a manner that does not require employees to reach into it to use it.

OTHER ENGINEERING AND WORK-PRACTICE CONTROLS

- Employees may not eat, drink, smoke, apply cosmetics, or handle contact lenses where occupational exposure may occur.
- No food or drink is to be stored where potentially infectious materials are present.
- Employees may not use their mouths to pipette or suction potentially infectious materials.
- Containers used to store or transport potentially infectious materials should be closable, prevent leaks, and be appropriately labeled or color-coded. They should also be puncture resistant, if necessary.
- Employees will examine any equipment that may be contaminated before servicing or shipping, and will decontaminate it as necessary and feasible. If decontamination is impossible, the employee will attach a label to the equipment, and inform all appropriate personnel of the contamination to ensure they take proper precautions.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Where the possibility of occupational exposure exists, Northern Arizona University / Facility Services will provide personal protective equipment appropriate to the hazards and the work being performed. Appropriate personal protective equipment is impermeable to blood or other potentially infectious material under normal conditions and durations of use.
- PPE will be provided and maintained free to employees in appropriate sizes, and provisions will be made should an employee be allergic to gloves normally provided.
- An employee may decline using appropriate PPE under “rare and extraordinary circumstances” when PPE use might prevent the delivery of health care or public safety services. These exceptions will be investigated and documented to prevent future occurrences.
- PPE will be removed as soon as feasible before leaving the general work area. After removal, the employee will place contaminated PPE in an appropriate area or container to be stored, washed, decontaminated, or disposed of.

GLOVES

Employees must wear gloves if they anticipate hand contact with potentially infectious materials. Do not reuse single-use gloves, and replace as quickly as possible if torn, punctured, or otherwise compromised.

MASKS, EYE PROTECTION, AND FACE SHIELDS

Employees will wear masks, together with proper eye-protection devices whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

GOWNS, APRONS, ETC.

Employees will wear appropriate protective clothing like gowns or clinic jackets when appropriate; the type of protective clothing is determined by the nature of exposure, and will be sufficient to protect against occupational exposure.

HOUSEKEEPING

- Employees will keep the workplace clean and sanitary. Northern Arizona University / Facility Services will implement a written schedule for cleaning and decontamination based on the demands of the site.
- Employees will use an appropriate disinfectant to clean and decontaminate contaminated or potentially contaminated work surfaces after any spill of infectious materials, and at the end of the work shift. Northern Arizona University / Facility Services will replace protective surface coverings as soon as possible if they are contaminated. Bins, cans, pails or other receptacles that may become contaminated should be inspected and decontaminated regularly, in addition to being decontaminated as soon as feasible after visible contamination. Employees must not pick up, by hand, any broken glassware that may be contaminated. Use a brush/dustpan or tongs.

LAUNDRY

Employees will handle any contaminated laundry as little as possible. They must put such laundry into a color-coded or labeled container at the site where it was used. Wet laundry should be placed into a leak-proof container. Employees handling contaminated laundry must use appropriate PPE. Employees must never take or wear contaminated clothing outside of the work site.

HEPATITIS B VACCINATION

Northern Arizona University / Facility Services will make available the hepatitis B vaccination series at no cost to any employee who faces occupational exposure. If not vaccinated, employees will be informed of the opportunity to be vaccinated within 24 hours of an exposure incident.

An employee occupationally exposed to potentially infectious material may decline the hepatitis B vaccine, but must sign a declination statement to be kept on file. Anyone who declines vaccination may request and receive the vaccination later at no cost.

Medical records relating to employees' hepatitis B vaccination status and post-exposure evaluation and follow-up must be kept for 30 years plus the duration of employment.

POST-EXPOSURE EVALUATION AND FOLLOW UP

Should an exposure incident occur, the employee should contact Frank Espinoza (or designate) immediately.

IN CASE OF EXPOSURE

A licensed health care professional will conduct a confidential medical evaluation and follow-up, and will provide a medical opinion on diagnosis/course of action, as soon as possible following an exposure incident. After administering initial first aid (cleaning the wound, flushing the eyes or other mucous membranes, etc.), follow the procedure below:

1. Document the routes of exposure and how the exposure occurred.
2. Identify and document the source individual (unless the employer can establish that identification is infeasible or prohibited by state or local law).
3. Obtain consent, and arrange to have the source individual tested as soon as possible, to determine HIV, HCV, and HBV infectivity, document and notify the employee's health care provider of the source individual's test results. If the source individual is known to be HIV, HCV, and/or HBV positive, new testing is not necessary.
4. Provide the exposed employee with the source individual's test results and with information about applicable disclosure laws and regulations concerning the identity and infectious status of the source individual (e.g., laws protecting confidentiality).
5. After obtaining consent, collect the exposed employee's blood as soon as feasible after an exposure incident, and test the blood for HBV and HIV serological status. This will establish a baseline for periodic testing over the next six months. Depending upon the circumstances of the exposure, post-exposure prophylaxis may be recommended to reduce the risk of infection from HIV or HBV.
6. If the employee does not give consent for HIV serological testing during collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days; if the exposed employee elects to have the baseline sample tested during this waiting period, perform testing as soon as feasible.

ADMINISTRATIVE RESPONSIBILITIES FOLLOWING EXPOSURE

The Company will ensure that the health care professional responsible for post-exposure evaluation and follow-up receives the following:

- A copy of OSHA's bloodborne pathogens standard
- A description of the employee's job duties relevant to the exposure incident
- Route(s) of exposure
- Circumstances of exposure
- Results of the source individual's blood test if possible
- Relevant employee medical records, including vaccination status
- The Company will provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the completion of the evaluation

COUNSELING

The Company will ensure that post-exposure counseling will be given to employees following an exposure incident. Counseling should include Centers for Disease Control & Prevention (CDC) recommendations for prevention and transmission of bloodborne infections including HIV, HBV, and HCV. Counseling must be made available regardless of the employee's decision to accept serological testing.

Figure 1

RECORDKEEPING

MEDICAL RECORDS

The Company will maintain a confidential medical record for every employee with occupational exposure that will include at least the following:

- Name and social security number of the employee;
- Copy of the employee's HBV status (with dates of all Hep B vaccinations);
- Copy of all post-exposure documentation and healthcare professional's written opinion; and
- Copy of the information provided to the healthcare professional.

Do not share or report this record unless the employee provides written consent.

SHARPS INJURY/EXPOSURE INCIDENT LOG

A Sharps Injury Log is a record of each exposure incident involving a sharp. The purpose of the Sharps Injury Log is to generate a record of exposure incidents that will include enough information about the cause of the incidents to allow the company to analyze them and take preventive action.

The Sharps Injury Log must include:

- The date and time of the sharps-related exposure incident
- The type and brand of the sharp involved in the incident
- A description of the incident including:
  - The job classification of the exposed employee
  - The department or work area where the incident occurred
  - The procedure being performed
  - How the incident occurred
  - The body part injured
  - For sharps with engineered sharps injury protection (ESIP), if the safety mechanism was activated
  - If the incident occurred before action, during activation or after activation of the mechanism. For sharps without ESIP, the employee's opinion if ESIP could have prevented the injury.

Sharps injuries/exposures must be recorded on the log within 14 working days of when the incident was reported to the employer.

The Sharps Injury Log must be maintained for five years from the date of the occurrence of the exposure incident.

HAZARD COMMUNICATION

Label containers of regulated biological waste, any container used to store or transport potentially infectious material, as well as contaminated equipment, to prevent exposure. Labels for such containers will include the legend depicted in Figure 1.

All such labels will be fluorescent orange or orange-red and be attached on, or as close as feasible to, the container.

REVIEW AND UPDATE OF EXPOSURE CONTROL PLAN (ECP)

The Company safety committee will review this ECP and update it at least annually, and whenever necessary, to reflect new or changed tasks and procedures that affect occupational exposure.

Reviews and updates will:

- Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens
- Document the annual consideration and implementation of effective medical, and commercially available, devices and services designed to eliminate or minimize occupational exposure

The Company will seek the input of non-managerial employees to identify, evaluate, and select controls to reduce occupational exposure. This input will be documented as part of this ECP.

FORMS AND ATTACHMENTS

Please find the following documents on the pages below:

- Exposure Control Plan Documentation
- Declination Statement
- Exposure Incident Report
- Evaluating Physician's Written Opinion
- Sharps Injury Log

These forms may be reproduced freely for the purposes of implementing and maintaining a safety and health program.

EXPOSURE CONTROL PLAN DOCUMENTATION FORM

Exposure Determination	
Jobs in which all employees have occupational exposure to potentially infectious materials	*Task or procedure where exposure occurs*
Jobs in which some employees have occupational exposure to potentially infectious materials	*Task or procedure where exposure occurs*

Engineering controls and work practice controls:

The following types of PPE are available in the following locations:	
Personal Protective Equipment	**Location**

HEPATITIS B DECLINATION STATEMENT FORM

DECLINATION STATEMENT

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature: _____ Date:

DECLINATION STATEMENT

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

Employee Signature: _____ Date:

DECLINATION STATEMENT

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Employee Signature: _____ Date:

EXPOSURE INCIDENT REPORT FORM

(Routes and Circumstances of Exposure Incident) – **Please Print**

Employee's Name _____Date_____

Date of Birth _____SS#_____

Telephone (Business) _____ (Home) _____

Job Title _____

Date of Exposure_____ Time of Exposure _____ AM _____ PM _____

Hepatitis B Vaccination Status: _____

Location of Incident: _____

Describe job duties you were performing when the exposure incident occurred:

_____

_____

Describe the circumstances under which the exposure incident occurred:
(What happened that resulted in the incident?)

_____

_____

What body fluid(s) were you exposed to? _____

_____

What was the route of exposure? *(e.g., mucosal contact, contact with non-intact skin, percutaneous)*

_____

_____

Describe any personal protective equipment in use at time of exposure incident:

_____

_____

Did PPE fail? _____ If yes, how? _____

_____

Identification of source individual(s) (names): _____

_____

Other pertinent information: _____

_____

_____

EVALUATING PHYSICIAN'S WRITTEN OPINION FORM

To the Evaluating Physician:

This employee may have suffered an exposure incident to a Bloodborne Pathogen. In accordance with OSHA standards covering post-exposure evaluation and follow up, the following documents are provided for you:

- A copy of OSHA regulations covering Occupational Exposure to Bloodborne Pathogens
- A description of the exposed employee's duties as they relate to the exposure incident
- Documentation of the routes of exposure and circumstances under which exposure occurred
- Results of the source individual's blood testing, if available
- All medical records relevant to this employee's appropriate treatment, including vaccination status.

After you have determined whether there are contra-indications to vaccination of this employee with Hepatitis B vaccine, please state in the space below if:

Vaccine was indicated Vaccine was received

(All other findings are to remain confidential and are not to be included on this page)

Please return this sheet to this employee:

_____

Thank you for your evaluation of this employee.

_____ _____

Physician's name (printed) Date

Physician's signature_____

SHARPS INJURY LOG

Facility/Location: _____ Year: _____

Address: _____

City: _____State: _____ ZIP: _____

Date	Time	Type, Brand, Model of Sharp Device	Department / Work Area	Description of How Incident Occurred

(Retain at least 5 years)

POLICY STATEMENT

Northern Arizona University / Facility Services encourages a safe and healthy work environment. Verbal or physical intimidation, harassment, threats of violence, or any violent act are expressly forbidden. A person who makes threats of violence, exhibits threatening behavior, or engages in violent acts on Northern Arizona University / Facility Services property will be removed from the premises as quickly as safety permits and will be kept off premises pending the outcome of an investigation.

Northern Arizona University / Facility Services is committed to preventing acts of violence and intimidation. Northern Arizona University / Facility Services has adopted a system of controls to prevent workplace violence, mitigate the harm caused by it, and otherwise address violence and harassment in the workplace.

Frank Espinoza is responsible for implementing and enforcing this policy and will do so with the assistance of management, the safety committee members, and all employees.

RESPONSIBILITIES

Preventing workplace violence is a cooperative effort between Northern Arizona University / Facility Services and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Ensure managers remain committed to preventing aggression and violence;
- Document plan to control aggressive or violent behavior in the workplace;
- Evaluate reports of workplace violence at least yearly to determine necessary changes to violence prevention policy;
- Ensure job hazard analyses include workplace violence hazards;
- Exhibit commitment to the safety and health of workers and customers;
- Ensure employees understand and fulfill obligations under the violence prevention program;
- Establish a program to address medical and psychological repercussions of workplace violence; and
- Support and implement appropriate recommendations of the Safety Committee.
- Enforce prohibition on sexual harassment.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the Northern Arizona University / Facility Services safety committee to:

- Help create policy, evaluate risks, and develop procedures to respond to hostile acts;
- Assist in or lead training for workplace violence prevention; and
- Participate in job hazard analyses that identify potential for workplace violence.

EMPLOYEE RESPONSIBILITIES

Northern Arizona University / Facility Services employees are expected to:

- Contribute to developing procedures to address concerns over safety and security;
- Understand and comply with the workplace violence prevention program, and safety and security measures;
- Report violent incidents promptly and accurately;
- Refrain from hostile and violent acts;
- Participate in safety and health committees or teams that receive reports of violent incidents or security problems, make facility inspections and respond with recommendations for corrective strategies; and
- Participate actively in training programs and share on-the-job experiences that cover techniques to recognize escalating agitation, aggressive behavior, or criminal intent.

TRAINING

Northern Arizona University / Facility Services will provide training to employees regarding their roles in workplace violence prevention. This training will come at no cost to the employee during working hours.

Northern Arizona University / Facility Services will use only training material that is appropriate in content and vocabulary to the educational level, literacy and language of employees.

TRAINING COMPONENTS

Frank Espinoza will ensure that every employee is trained in the following elements:

- The workplace violence prevention policy
- Risk factors that cause or contribute to assaults
- Early recognition of escalating behavior or recognition of warning signs or situations that may lead to assaults
- Ways to prevent or diffuse volatile situations, manage anger and appropriately
- A standard response action plan for violent situations, including the availability of assistance, response to alarm systems and communication procedures
- Ways to deal with hostile people in the workplace
- Relaxation, stress management and anger control
- Basic self-protection measures
- The location and operation of safety devices such as alarm systems, along with the required maintenance schedules and procedures
- Ways to protect oneself and coworkers, including use of the “buddy system”
- Policies and procedures for reporting and recordkeeping
- Information on multicultural diversity to increase staff sensitivity to racial and ethnic issues and differences
- Policies and procedures for obtaining medical care, counseling, workers’ compensation or legal assistance after a violent episode or injury
- The sexual harassment policy

Managers and Supervisors at Northern Arizona University / Facility Services will be trained in:

- The Company's Workplace Violence Prevention Program
- Communication skills
- Recognition of aggressive behavior
- Dealing with employee layoffs, job terminations, and discipline; how to assess violence potential of individuals; and take appropriate measures
- Violence prevention, Northern Arizona University / Facility Services security and response procedures
- Addressing problems and conflict promptly

Any employee engaged in a task that faces a high risk of workplace violence (e.g. working alone, especially late at night) will be trained for workplace safety practices specific to the worksite that reduce the risk of workplace violence.

Where Northern Arizona University / Facility Services operations require security personnel, such personnel will receive training specific to the worksite, including the psychological components of handling aggressive and abusive customers, types of disorders and ways to handle aggression and defuse hostile situations.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date the training occurred.

POLICY

WORKPLACE VIOLENCE

Workplace violence includes violence or the threat of violence against workers. It can occur at or outside the workplace and can range from threats and verbal abuse to physical assaults and homicide. For this policy, workplace violence also includes aggressive behavior, workplace harassment, bullying, and intimidation.

Northern Arizona University / Facility Services permits no workplace violence. No negative action will be taken against an employee for reporting any hazardous situation, and appropriate confidentiality considerations will be taken in every instance of such a report.

HIGH-RISK OCCUPATIONS

Workplace violence is a hazard at any worksite for every worker. Some workers, however, are at significantly increased risk, including workers who:

- Exchange money with the public
- Deliver passengers, goods, or services
- Work alone or in small groups, during late night or early morning hours, in high-crime areas, or in community settings and homes with extensive contact with the public

Any Northern Arizona University / Facility Services employee who faces an increased risk of workplace violence, will be informed of the increased risk, and trained in appropriate practices based on a job hazard analysis of the job. Please see “Workplace Risk Factors” later in this chapter.

TYPES OF WORKPLACE VIOLENCE

Type I Criminal Intent: The perpetrator has no legitimate relationship to the business or its employees and is usually committing a crime in conjunction with the violence. These crimes can include robbery, shoplifting, trespassing, and terrorism

Type II Customer Client: The perpetrator has a legitimate relationship with the business and becomes violent while being served by the business. This category includes customers, clients, patients, students, inmates, and any other group for which the business provides services

Type III Worker on Worker: The perpetrator is an employee or past employee of the business who attacks or threatens another employee(s) or past employee(s) in the workplace

Type IV Personal Relationship: The perpetrator usually does not have a relationship with the business but has a personal relationship with the intended victim. This category includes victims of domestic violence assaulted or threatened while at work.

HORSEPLAY

Horseplay includes playing tricks on coworkers; distracting coworkers; wrestling; showing off; playing punching, kicking, or slapping games; and otherwise drawing focus away from the task to engage in a playful way that disregards safety precautions. Horseplay creates unnecessary hazards in the workplace and presents needless distractions. While horseplay is not necessarily violent, it can have a harmful impact on the safety of Northern Arizona University / Facility Services employees, and is therefore forbidden and will be treated as a workplace violence issue for the sake of this company’s safety and health program.

PROGRAM PLANNING

PLANNING PRINCIPLES

As with any element of the Northern Arizona University / Facility Services safety and health program, workplace violence prevention requires site-specific and job-specific planning.

Frank Espinoza will work with management, the safety committee, and appropriate employees to evaluate the ability of Northern Arizona University / Facility Services to prevent workplace violence and handle incidents involving violence to enforce effective protections from workplace violence.

Plans to prevent workplace violence should be evaluated regularly, and will be evaluated when changes are made that impact the risk of workplace violence and when a workplace incident involving violence occurs.

JOB HAZARD ANALYSES

Workplace violence risks will be considered in every job hazard analysis performed at Northern Arizona University / Facility Services. If a job or task presents hazards, steps will be taken to control those hazards as soon as safely possible to prevent injury. (See the chapter on “Job Hazard Analysis.” In this manual for more information).

OTHER PLANNING CONSIDERATIONS

As part of the organization-wide violence prevention program, Northern Arizona University / Facility Services may conduct a screening survey to get employee ideas on the potential for violent incidents and to identify opportunities for improved security measures. These surveys may be repeated as part of the periodic review of this policy.

Independent reviewers such as safety and health professionals, security consultants or law enforcement professionals can provide expert opinions on workplace safety and provide a fresh perspective on preventing workplace violence.

HAZARDS

Violent behavior, like any safety and health risk factor, occurs within a context. Controlling workplace violence hazards first requires identifying them.

WARNING SIGNS OF VIOLENCE

There is no way to predict all acts of violence; however, the FBI suggests the following indicators of escalating violence risk in an individual:

- Increasing belligerence;
- Ominous, specific threats;
- Hypersensitivity to criticism;
- Recent acquisition/fascination with weapons;
- Apparent obsession with another person;
- Preoccupation with violent themes;
- Interest in recently publicized violent events;
- Outbursts of anger;
- Extreme disorganization;
- Noticeable changes in behavior; and
- Homicidal/suicidal comments or threats

WORKPLACE RISK FACTORS

A variety of workplace factors can contribute to violence risk as well, including the following:

- Understaffing;
- Frustrations arising from poorly defined job tasks and responsibilities;
- Downsizing or reorganization;
- Labor disputes and poor labor-management relations;
- Inadequate security or a poorly trained, poorly motivated security force;
- A lack of employee counseling;
- Poor management styles (for example, arbitrary or unexplained orders; over-monitoring; corrections or reprimands in front of other employees, inconsistent discipline); and
- A high injury rate or frequent grievances may be clues to problem situations in a workplace.

Research indicates that in addition to management oversights, certain job elements increase risk and may indicate the need for greater care when performing job hazard analysis and violence prevention planning.

These factors include the following:

- Contact with the public
- Exchange of money
- Delivery of passengers, goods, or services
- Having a mobile workplace
- Working with unstable or volatile people
- Working alone or in small numbers
- Working late at night or during early morning hours
- Working in high-crime areas
- Guarding valuable property
- Working in community-based settings

CONTROLS

Northern Arizona University / Facility Services will identify and implement effective controls to protect workers against violence hazards. These controls will be determined based on the work, the environment, and the organizational context of the work. Controls may include a variety of engineering and administrative approaches to control the hazards associated with violence in the workplace.

Please see the section on “Control” in the chapter covering “Job Hazard Analysis”.

ENGINEERING

- Develop emergency signaling, alarms and monitoring systems.
- Increase visibility, especially in high-risk areas. Use cameras and curved mirrors in hallways, and ensure good lighting in the workplace and in parking lots.
- Restrict movement of the public and employees with appropriate barriers and card- or key-controlled access.
- Design public areas to minimize assault risk:
- Provide staff restrooms and emergency exits.
- Install enclosed stations, deep service counters, or bullet resistant and shatterproof glass enclosures in reception areas if appropriate.
- Arrange furniture and other objects with safety in mind. Be mindful of objects or furniture that can easily be turned into weapons

ADMINISTRATIVE AND WORK PRACTICE CONTROLS

- Demonstrate concern for workers' emotional and physical health and safety, communicating that violence is not permitted.
- Design staffing patterns to prevent personnel from working alone and to minimize waiting time for customers.
- Provide security escorts to the parking lots at night if appropriate.
- Develop a system for alerting security personnel or management to threats of violence and recording incidents to determine need for additional controls.
- Encourage employees to use the "buddy system" when personal safety threatened.
- Limit the amount of accessible cash and valuables in the workplace.
- Consider an employee assistance program to help employees handle their personal problems that may affect job performance and workplace safety.
- Consider potential for violence in human resources operations. Areas where appropriate procedures and policies to prevent violence should be in place include the following:
- Pre-employment screening;
- Employee assistance;
- Employment transition or outplacement services during layoffs;
- Substance abuse prevention programs; and
- Detailed post-termination security protocol.

RESPONSE

Northern Arizona University / Facility Services understands violence can best be prevented through appropriate workplace security measures and caring for the people who work for our company through communication, adequate training, and a system for reporting and following up on incidents. However, regardless of the level of hazard control, Northern Arizona University / Facility Services may experience a safety incident involving violence. Response to violence in the workplace will depend on the nature of the incident, but will focus on reducing the negative impacts of the incident and discovering ways to prevent similar incidents in the future.

Workplace violence will be considered during the development of the Emergency Action Plan. Please see the chapter entitled “Fire Prevention and Emergency Action Plans” for more information.

NOTIFICATION

Employees will notify a supervisor as soon as safely possible if an incident involving violence occurs. However, if there is an immediate danger of harm and the situation demands the presence of emergency responders, an employee should contact the appropriate authorities or see that a supervisor contacts them. Employees should report any criminal act immediately to police if safely possible and keep a line of communication with the authorities until police arrive.

Management will handle all reports of violence and threats of violence in a manner that respects the sensitive nature of such reports and maintains confidentiality.

It is a good idea for every worksite to have a means to alert others to an emerging incident. Such means include alarms, codes, and signals. These alerts need to be in place, and shared, before an incident occurs to ensure their effectiveness.

De-escalation Strategies

DO:	DON'T:
Be calm. Move and speak slowly, quietly, and confidently.	Make sudden movements.
Encourage the person to talk; listen closely and patiently.	Speak rapidly, raise your volume, or use an accusatory tone.
Maintain a relaxed, attentive posture.	Reject all demands.
Position yourself at an angle.	Make physical contact, jab your finger at the other person, or use long periods of eye contact.
Arrange yourself so your access to emergency exits is not blocked.	Pose in challenging stances — directly opposite someone, hands on hips or with arms crossed.
Acknowledge the person's feelings.	Challenge, threaten, or dare the individual.
Ask for small, specific favors such as asking the person to move outside.	Belittle the other person.
Use delaying tactics to give the person time to calm down, such as offering a drink of water.	Criticize or act impatient.
Point out choices, break big problems into smaller ones.	Attempt to bargain with a threatening individual.
Avoid sudden movements and maintain a 3-6 foot distance.	Try to make the situation seem less serious than it is.
If necessary, call the police when safe.	Make false statements or promises you cannot keep.
A fitness-for-duty evaluation may be appropriate for employees exhibiting dysfunctional behaviors.	Try to impart a lot of technical or complicated information when emotions are high.
Potential victims will be informed of any threat made to them and permitted access to legal assistance and psychological counseling as warranted.	Take sides or agree with distortions.
	Invade individual's personal space.

INCIDENT RESPONSE TEAM

Frank Espinoza and the safety committee, as part of hazard control planning may determine the need for an incident response team responsible for violence response. Training for this team should include identifying hazard escalation, techniques for de-escalating conflict and other appropriate incident response.

EVACUATION AND SHELTER IN PLACE

All employees will be made aware of appropriate evacuation and "Shelter-In-Place" procedures and follow them as necessary in response to a violent workplace incident. Training and preparation may include drills and simulations for a violent incident.

POST-INCIDENT RESPONSE

In the event of workplace violence, Northern Arizona University / Facility Services will ensure victims and witnesses are provided appropriate treatment, regardless of the severity of the incident. In addition to physical injuries, victims of workplace violence may suffer other consequences such as the following:

- Psychological trauma;
- Fear of returning to work;
- Changes to relationships;
- Feelings of guilt, powerlessness and incompetence; and
- Fear of criticism by supervisors.

Further, to address opportunities to remedy oversights in the violence prevention program, any incident that demands managerial response under this violence prevention program will be followed by an incident investigation.

Please see the chapter on “Accident Investigation” for more information.

RECORDKEEPING AND PROGRAM EVALUATION

Northern Arizona University / Facility Services will record and communicate injuries and illnesses to workers according to applicable regulations.

This policy will be reviewed, and these reviews documented, at least once a year or under the following circumstances:

- Following a workplace violence incident or report;
- Change in management;
- Change of contact person;
- To make needed changes or improvements to the policy; and
- To identify new training or refresher training needs.

SEXUAL HARASSMENT

It is Northern Arizona University / Facility Services’s policy that sexual discrimination, unwelcome sexual advances, requests for sexual favors, and any other conduct of a sexual nature is strictly prohibited.

Requiring coworkers, subordinate employees, or prospective employees to submit to conduct of this nature, explicitly or implicitly, as a term or condition of employment, or used as a basis for any employment decisions is forbidden.

Any behavior that has the purpose or effect of unreasonably interfering with an individual’s work performance, or creating an intimidating, hostile, or offensive work environment is banned.

Sexual harassment can occur in a variety of circumstances:

- The victim as well as the harasser may be a woman or a man. The victim does not have to be of the opposite sex.
- The harasser can be the victim's supervisor, an agent of the employer, a supervisor in another area, a co-worker, or a non-employee.
- The victim does not have to be the person harassed but could be anyone affected by the offensive conduct.
- Sexual harassment may occur without economic injury to or discharge of the victim.
- The harasser's conduct must be unwelcome.

Prevention is the best tool to eliminate sexual harassment in the workplace. Northern Arizona University / Facility Services has designated appropriate managers (rather than a direct supervisor) and other alternative routes by which an employee can issue formal complaints of sexual harassment. If possible, any victimized employee should attempt to resolve a sexual harassment issue informally by directly informing the harasser that the conduct is unwelcome and must stop. If informal resolution is unsuccessful, the victim should use the formal complaint form and submit it to an appropriate supervisor.

Northern Arizona University / Facility Services will take immediate appropriate action when an employee files a complaint.

Northern Arizona University / Facility Services recognizes that the question of whether a particular course of conduct constitutes sexual harassment requires a factual determination. Northern Arizona University / Facility Services also recognizes that false accusations of sexual harassment can have serious effects on innocent persons. If an investigation results in a finding that a person who has accused another of sexual harassment has maliciously or recklessly made false accusations, the accuser will be subject to appropriate sanctions, including discharge.

When investigating allegations of sexual harassment, this company will look at the whole record, the circumstances, and the context in which the alleged incidents occurred. Northern Arizona University / Facility Services will make a determination on the allegations from available facts on a case-by-case basis. Outside avenues of resolution are available to employees who feel their rights have not been protected. Northern Arizona University / Facility Services tolerates no sexual harassment.

FORMS & ATTACHMENTS

Please find the below documents on the following pages:

- Assault/Threat Report
- Sexual Harassment Complaint Form

Assault/Threat Report Form

(Attach additional sheets as necessary)

EMPLOYEE INFORMATION

Name:	Telephone:
Address:	Employee Classification:
Manager's Name:	Telephone:

INCIDENT INFORMATION

Name of Assailant:	Is he/she and employee? ☐ Yes ☐ No
Date of Incident:	Location of Incident

This incident occurred: ☐ Over the phone ☐ In person ☐ Over the Internet ☐ other

Please explain:

Were there any witnesses? ☐ Yes ☐ No (Please provide relevant information below and attach statements)

WITNESSES

	Name:	Telephone:
	Address:	Witness Roll (e.g. employee, customer):
	Name:	Telephone:
	Address:	Witness Roll (e.g. employee, customer):

THREAT INFORMATION

As closely as possible, what were the exact words used?

Was the assailant in a position to carry out the threat immediately?

How serious do you believe the threat was and why?

Assault/Threat Report (pg. 2)

ASSAULT INFORMATION

What (if anything) happened to set off the assault?

Did the assailant say anything during the assault? What?

How did the assailant attack? (e.g. punching, kicking, knife, words)

What injuries, if any, did you sustain? Did injuries require medical treatment?

What ended the assault?

How did you leave the site of the assault?

EMPLOYEE ACTIONS

What actions did you take later? (e.g. worker's comp claim, medical treatment, sick leave)

Do you request *Northern Arizona University / Facility Services* action at this time related to the assault? What? (If none, please specify "None.")

LAW ENFORCEMENT INFORMATION (attach police report when possible)

Law Enforcement Agency Contacted/Name of Official	Date Contacted:	Telephone Number:

Was a written report completed? ☐ Yes ☐ No Indicate any action promised.

MANAGER ACTIONS

Directions given to employee:

Manager Recommendation: ☐ Prosecution ☐ Restraining Order ☐ Letter to Threatener ☐ Other (please specify)

LEGAL COUNSEL ACTIONS

Sexual Harassment Complaint Form Please write legibly and fill out form completely. Attach additional sheets if necessary. Submit completed form to appropriate manager.	
Complainant:	Alleged Harasser:
Department: Job Title:	Department: Job Title:
Mailing Address:	Other relevant information about Alleged Harasser:
Home Phone: Work Phone:	
Details of Incident	
What exactly occurred or was said?	
When did it occur and is it ongoing?	
Where did it occur?	
How often did it occur?	
How did it affect you?	
What response did you make when the incident(s) occurred or afterwards, and how did you react?	
Has your job been affected in any way?	
Was anyone present when the alleged harassment occurred? List any third party witnesses:	

Sexual Harassment Complaint Form (pg. 2) Please write legibly and fill out form completely. Attach additional sheets if necessary. Submit completed form to appropriate manager.
Are there any persons who have relevant information?
Did you tell anyone about it?
Did anyone see you immediately after episodes of alleged harassment?
Did the person who harassed you harass anyone else?
Do you know whether anyone complained about harassment by that person?
Are there any notes, physical evidence, or other documentation regarding the incident(s)?
Do you know of any other relevant information?
How would you like to see the situation resolved?
I am aware that false accusations of sexual harassment can have serious effects on innocent persons. I further understand that if it is determined, after investigation, that I have maliciously or recklessly made false accusations, I will be subject to appropriate sanctions, including discharge.
Complainant's printed name: _____ Complainant's signature: _____ Date: _____
Received by: _____ Signature: _____ Date:_____

POLICY

Northern Arizona University / Facility Services has implemented this policy for the protection of our employees against the fire and other emergencies in the workplace. Frank Espinoza will supervise the Fire Protection Program.

Northern Arizona University / Facility Services will have a written Fire Protection Program (FPP). The FPP will be posted in the workplace and remain available to employees for review along with the names and job titles of every person in the chain of command during emergencies.

RESPONSIBILITIES

Fire prevention and protection planning is a responsibility shared between Northern Arizona University / Facility Services and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Ensure adequate workplace safeguards against hazards, including appropriate exit routes, fire alarms, and fire protection systems.
- Ensure development and implementation of FPP and EAP.
- Ensure training of employees in accordance with this policy.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the Northern Arizona University / Facility Services safety committee to:

- Develop and implement fire prevention plan and emergency action plan.
- Train new employees in fire prevention and emergency action plans and provide continued employee safety training according to Northern Arizona University / Facility Services policy.
- Inform employees about fire hazards in the workplace specific to their task.

EMPLOYEE RESPONSIBILITIES

Every Northern Arizona University / Facility Services employee is expected to:

- Report a fire or other emergency.
- Follow fire prevention plan and emergency action plan.
- Report any suspected problem with fire control systems to Frank Espinoza, a supervisor or a member of the safety committee.
- Assist in fire hazard assessment.

TRAINING

Northern Arizona University / Facility Services will ensure every employee is provided training on fire protection and emergency planning. This training will be provided at no cost to the employee and held during their working hours.

Training will be provided:

- At the time of assignment
- At least annually thereafter; annual training for all employees will be provided within one year of their previous training

Northern Arizona University / Facility Services will provide additional training when tasks or procedures are added or change, that may affect the employee's work. It is acceptable for additional training to be limited to addressing only the changes or additions to the employees' exposure.

Northern Arizona University / Facility Services will use only training material that is appropriate in content and vocabulary to the educational level, literacy, and language of employees.

TRAINING COMPONENTS

Northern Arizona University / Facility Services is committed to informing employees about all fire hazards with which they may come into contact. Frank Espinoza or a designate from the safety committee will review the FPP with all employees and inform them of any fire hazards a new assignment might present.

Frank Espinoza will ensure all employees at Northern Arizona University / Facility Services are informed and trained in the following minimum elements for the Emergency Action Plan and Fire Protection Program:

- Fire hazards at the worksite
- Means of controlling or removing fire hazards at the worksite
- Procedures for reporting a fire or other emergency.
- Procedures for emergency evacuation for all areas of work, including type of evacuation and exit route assignments.
- Safe assembly areas designated for all work areas in the event of evacuation.
- Procedures to be followed by employees who are requested to remain to operate critical plant operations before they evacuate, if applicable.
- Procedures to account for all employees after evacuation.
- Procedures employees are to follow when performing rescue or medical duties.
- The members in the chain of command that employees can contact for information about the plans or for an explanation of their duties under the plans.
- Proper operation of fire extinguishers provided by the company if the EAP allows employees to fight incipient stage fires rather than evacuate.
- The hazards involved in incipient stage firefighting. Employees are instructed to ensure the local emergency response service (Fire Department) is notified before attempting to extinguish any fire, and that if a fire is not immediately extinguished, or the fire recurs to evacuate immediately.
- Where employees have been provided portable fire extinguishers, *Northern Arizona University / Facility Services* will provide training on the general principles of fire extinguisher use and the hazards involved with incipient-stage firefighting. This training will occur upon hire and repeated annually.

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions;
- Contents or a summary of the training sessions;
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the training.

FIRE PREVENTION PLAN

Northern Arizona University / Facility Services is committed to providing a safe workplace and, will ensure procedures are in place to protect employees in the event of any emergency, including fire emergencies. Accordingly, Northern Arizona University / Facility Services will ensure there is a Fire Protection Program written and available to employees as required by OSHA regulations.

This plan will include the following:

- A list of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard;
- Procedures to control accumulations of flammable and combustible waste materials;
- Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials;
- The name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and the name or job title of employees responsible for the control of fuel source hazards.

DETERMINING FIRE HAZARDS

A fire is essentially the rapid oxidation of a chemical. It requires heat, oxygen, and fuel in the right proportion. Different types of fuel react in different ways and require different levels of heat and oxygen to ignite; however, once the chemical reaction begins, fire provides a source of heat for continued ignition until one of the essential aspects of combustion — fuel, heat or oxygen — is removed and the reactions end. See figure 1.

Figure 1

The Northern Arizona University / Facility Services safety committee will perform an area-by-area assessment of fire hazards and record them by location on the “Major Fire Hazards” list. The assessment will ascertain and document whether the hazard is a fuel or ignition source, control systems in place to protect against fire, and the name or job title of the individual who is responsible for removing or minimizing the listed hazard.

The goal is to systematically eliminate fire hazards wherever possible; ensure a means to prevent a fire if the hazard cannot be removed; inform employees about fire hazards in their workspace; and identify the party responsible for controlling any given fire hazard. Fire hazard identification plays a central role in the FPP, and all employees are expected to contribute their efforts to identify and mitigate fire hazards in the workplace.

Employees will familiarize themselves with the safety data sheet of any hazardous chemicals with which they work and know proper handling and storage procedures to reduce hazards. Flammable and combustible material will be stored and staged in amounts as small as possible for operations and away from sources of ignition. It is important for employees to monitor the workplace for changes that might pose additional fire hazards.

FIRE PROTECTION EQUIPMENT AND SAFEGUARDS

LOCAL FIRE ALARM SYSTEMS

An alarm system to alert employees and the local fire department will provide a distinctive signal in case of fire or other emergency. The alarm needs to be audible above ambient noise levels and/or seen over ambient light levels.

Northern Arizona University / Facility Services will establish how the alarm will be sounded and maintain the alarm system. Employee training will include an explanation of the system and the preferred means of reporting an emergency. (A verbal alert is sufficient for employers with fewer than 10 employees, provided all employees can hear it.)

If the protected premises has an emergency power supply, the local fire alarm system must have a secondary source of power.

The alarm system/boxes must be mounted in a location where the system will not be activated by vibration or jarring. It must be mounted permanently to a wall or post and protected against physical damage.

The alarm system/boxes must be located on each floor so that the maximum distance to a box is 200 feet. The box must be unobstructed, readily accessible, and in the regular path of travel to an exit. The box must be identified by a sign or light that is visible from a distance of at least 200 feet.

If applicable, the alarm code and reporting instructions must be posted conspicuously at phones and at employee entrances. If the alarm system is used to alert fire brigade members, or for any other purpose, it must use a distinctive signal for each purpose.

After the alarm is sounded during an emergency or a test, the alarm system will be reset as quickly as possible. If the system has components that wear out quickly — or are consumed or destroyed when the alarm is activated — spare components will be readily available to reset the system with as little delay as possible.

INSPECTION, MAINTENANCE AND TESTING

Northern Arizona University / Facility Services will provide for the frequent testing of all alarm systems and make sure they remain in operating condition. A local, unsupervised fire alarm system must be tested by a qualified, trained, and authorized employee or an outside service not less than once a week to insure operability by the activation of not less than 1 box, not using the same box in consecutive tests, and replacing power supplies as necessary.

Tests for systems that are capable of being supervised will occur at least annually.

PORTABLE FIRE EXTINGUISHERS

Any portable fire extinguisher provided will:

- Be fully charged and operable
- Be kept in a conspicuous place when not in use
- Not use carbon tetrachloride, chlorobromomethane, or other toxic vaporizing extinguishing agents
- Not be operated by inverting the extinguisher to rupture a cartridge or initiate an uncontrollable pressure-generating chemical reaction to expel the extinguishing agent
- Be protected from freezing (if subject to freezing)

Fire extinguishers are composed of a variety of materials depending on the type of fire they are designed to eliminate. All extinguishers will contain contents under high pressure:

Dry Chemicals: These types of extinguishers contain dry chemicals, ordinarily a bicarbonate derivative (such as sodium bicarbonate (baking soda)), in foam or powder form. The purpose is to smother the fire source with a chemical that breaks down into carbon dioxide. CO^2 removes and/or displaces oxygen, which is the active fuel behind a fire. Dry chemical extinguishers are generally red in color and have a pressure gauge at the top near the lever.

Water: Water-type extinguishers contain water under air pressure. They are not always the most desirable option, such as in the event of an electrical fire where water would escalate the situation. The cylinder of the extinguisher is often recognizable by being silver in color.

Carbon Dioxide: This highly pressurized carbon dioxide is released at a very low temperature, addressing the fire by not only displacing the oxygen, but also freezing temperatures. You may typically recognize a CO^2 extinguisher by a horn at the end of the hose and a lack of pressure gauge.

All portable fire extinguishers will be selected based on the fire hazards present and distributed to minimize travel distances for employees to use.

Below is a table that describes the uses for which individually rated fire extinguishers are designed. Fire extinguishers are required by law to display clear rating labels on the cylinder, as well as inspection tags that must reflect a maintenance inspection date on an annual (at minimum) basis.

A	B	C	D	K
Ordinary solid combustibles	Flammable liquids and gases	Energized electrical equipment	Combustible metals	Oils and fats

Table 1

The numbers used for the classification of fire extinguishers indicate different things. For Type A fires, a 1 would have the equivalent of 1¼ gallons of water, a 2 would be equivalent to 2½ gallons, 3 would be 3¾ gallons of water, and so forth. For Type B and Type C fires, the number represents the square footage that the extinguishing agent would cover. For example, a number 2 would cover two square feet and a 5 would extinguish an area five square feet, and so forth.

Not all fire extinguishers are manufactured exactly alike. Variations may include operating instructions or distance the user should stand from the fire when dispersing contents. See the required cylinder labeling for specific information.

Each 3,000 square feet of protected buildings during construction requires a fire extinguisher rated at least 2A, spaced within 100 feet of any point of the protected area. In multi-story construction, each floor needs its own extinguisher rated at least 2A, adjacent to the stairwell

Northern Arizona University / Facility Services will provide a fire extinguisher rated not less than 10B within 50 feet of anywhere there is more than 5 gallons of flammable or combustible liquids being used on the jobsite (aside from vehicle fuel tanks)

INSPECTION, MAINTENANCE AND TESTING

Northern Arizona University / Facility Services is responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace. Maintenance checks of portable fire extinguishing equipment will occur at least annually. The dates of fire extinguisher checks will be recorded; the record of these checks will be retained for at least a year after the last check or the life of the shell (whichever is less). An individual trained to perform hydrostatic testing will test each portable fire extinguisher with suitable equipment. Such testing is also called for when portable fire extinguishers show new evidence of corrosion or mechanical wear.

Each extinguisher in the workplace will be accompanied by a record securely fixed to the extinguisher that indicates:

- Name of the person or agency who performed the last test, and the test date;
- Signature of the person who performed the test; and
- Serial number or other identifier of the fire extinguisher that was tested.

ALTERNATIVES TO PORTABLE FIRE EXTINGUISHERS

During construction activities, a 55-gallon drum with two fire pails may substitute for a fire extinguisher with a 2A rating.

A ½-inch diameter garden-type hose no longer than 100 feet can substitute for the same, as long as it can discharge at least 5 gallons per minute and the stream ranges at least 30 feet horizontally.

Further, 100 feet or fewer of 1½-inch hose with a nozzle capable of discharging water at 25 gallons or more per minute may be substituted, if the hose line can reach all points in the area. (Make sure the hose connections are compatible with local firefighting equipment.)

OTHER FIRE PROTECTION SYSTEMS

Northern Arizona University / Facility Services will meet or exceed all legal requirements for any fire protection system in the workplace and keep in good working order all safeguards designed to protect employees during emergencies, including fire retardant paints and solutions. Any other fire protection systems in use will also meet applicable regulatory requirements and may include the following:

- Temperature limit switches
- Flashback arresters
- Fixed extinguishing systems
- Automatic sprinkler systems
- Fire detection systems
- Fire brigades
- Standpipe and hose systems

During demolition activities involving combustible materials, charged hose lines that are supplied by hydrants, water tank trucks with pumps, or equivalent, must be available.

WATER SUPPLY

A water supply adequate for the operation of firefighting equipment must be available as soon as there is an accumulation of combustible materials. Underground water mains must be made available as soon as practicable where they are to be provided.

SPRINKLERS

If there will be an automatic sprinkler fire protection system, install, and place it in service as soon as permitted following completion of each story.

Ensure that sprinklers are spaced to provide a maximum protection area per sprinkler, a minimum of interference to the discharge pattern by building or structural members or building contents and suitable sensitivity to possible fire hazards.

Maintain a 36” clearance between the top of stored material and sprinkler heads.

A stock of extra sprinklers must be on hand or readily available for each temperature rating and type so that the system can be returned to readiness as soon as possible.

An automatic sprinkler system having 20 or more sprinklers must have at least one automatic water supply capable of providing design water flow for at least 30 minutes.

During demolition or alterations, keep automatic sprinkler installations in service as long as reasonable. Only authorized personnel may operate sprinkler control valves. Expedite sprinkler system modifications made to permit alterations or additional demolition so that the automatic protection may be returned to service as quickly as possible. Check sprinkler control valves daily at close of work to ensure service.

No one may occupy a portion of a structure (except as permitted under law) that must be protected by automatic sprinklers until the sprinkler system is operable and has been approved.

STANDPIPES

If standpipes are required, or exist in structures being altered, they must be brought up as soon as applicable laws permit and will be maintained as construction progresses in such a manner that they are always ready for fire protection use. Standpipes will be provided with Siamese fire department connections on the outside of the structure, at the street level, and conspicuously marked. Local codes may specify lighting or painting requirements. There must be at least one standard hose outlet at each floor.

During demolition, maintain a standpipe as long as possible in operable condition for firefighting use. Do not demolish the standpipe further than one floor below the floor being demolished.

FIRE PROTECTION

Controlling fire hazards (e.g. accumulations of flammable and combustible materials) and ensuring safe storage of building materials is a priority of the highest order for Northern Arizona University / Facility Services and its employees. Controlling fuel sources demands all workers maintain a tidy work area and dispose of refuse in the appropriate receptacle; it also calls for due consideration of piles and stacks or materials at the worksite. Controlling means of ignition requires following appropriate safety guidelines especially around electricity, open flame, or any work that may produce arc, sparks, excessive heat, etc.

NO SMOKING, NO OPEN FLAME

Smoking is prohibited at the jobsite at all times. Signs must be posted according to local requirements alerting employees and the public to this prohibition. Open fires may not be ignited or maintained at the worksite. Only approved heaters may be used in designated locations in such a way to prevent fires.

IGNITION HAZARDS

Electrical wiring onsite must be installed safely by qualified personnel and in compliance with applicable regulations. If equipment is powered by an internal combustion engine, make sure it is located so that the exhausts are well away from combustible materials. If the exhausts are piped outside, verify there is a 6 in. clearance between piping and combustible materials. If portable battery powered lighting equipment is used in connection with flammable gases or liquids, ensure it is approved for hazardous locations.

During the cleaning or ventilation of tanks and vessels that contain hazardous concentrations of flammable gases or vapors nozzles, lines, or hoses for air, inert gas, or steam must be bonded to the tank or vessel shell and neither attached nor detached in hazardous concentrations of flammable gases or vapors.

All debris and refuse must be disposed of promptly (at the end of each shift or more frequently as required), especially if it is combustible. If material is to be disposed of by burning onsite, such disposal must be approved and must comply with all relevant safety controls. Ensure materials susceptible to spontaneous ignition (oily rags) are stored only in a listed disposal container.

Hotwork must be completed according to appropriate guidelines, and appropriate fire watch must be established and maintained to ensure safety of any operation that presents a fire hazard.

TEMPORARY BUILDINGS

- No temporary building may adversely affect a means of exit.
- Temporary buildings erected within another building must be of noncombustible construction or of combustible construction with a fire resistance rating of at least 1 hour.
- Temporary buildings, not inside another building and not used for the storage, handling, or use of flammable or combustible liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, must be located at least 10 feet from another building or structure.
- Groups of temporary buildings, not exceeding 2,000 square feet in size total, will be considered a single temporary building.

OPEN YARD STORAGE

Combustible materials may not be piled higher than 20 feet and must be piled in such a way to ensure the stability of the pile.
Where driveways go between or around combustible storage piles, they must be at least 15 feet wide and free from any obstruction. A driveway grid formed by such driveways may not exceed 50 ft. by 150 ft.
Make sure the storage area is clean and any plant life is controlled to prevent additional fire hazards. Piles of combustible material must be organized, orderly and 10 feet or more from buildings. Ensure appropriate fire extinguishers (at least 2A) are easily accessible.

INDOOR STORAGE

Make sure materials stored indoors do not block exits or impede exit in any way and are piled to maintain a 36” clearance between the top of the stored material and sprinkler heads.
Maintain safe clearance between material piles and lights or heating elements. Also, provide a barricade or ensure at least 24” around the path of travel to fire doors. Never store material within 36” of a fire door.

ACCESS FOR FIREFIGHTING

Vehicle access to a construction, remodel, or demolition site must be maintained at all times within 100 feet (consult local codes) of available fire department connections. Temporary vehicle access must be maintained until permanent access is established. Such roads may need to be inspected by local authorities to comply with local laws. Horizontal and vertical clearance for such access routes must be sufficient for emergency vehicle approach and meet applicable local codes.

FLAMMABLE AND COMBUSTIBLE LIQUIDS

Flammable and combustible liquids must be stored and handled in approved containers and tanks. Handling and use of flammable liquid materials in quantities of 5 gallons or less requires approved safety cans or DOT-approved containers. Flammable liquids that are hard to pour may be stored, handled and used in quantities of one gallon or less in their original container.

Ensure flammable or combustible liquids are kept clear of areas used for exits or safe passage of people.

This section applies to the handling, storage, and use of flammable and combustible liquids with a flashpoint below 200°F but not to:

- Bulk transportation of flammable and combustible liquids
- Storage, handling, and use of fuel oil tanks and containers connected with oil burning equipment.

INDOOR STORAGE

Outside of an approved storage cabinet, limit storage of flammable or combustible liquids to 25 gallons. An approved storage cabinet must adhere to the following specifications:

- The bottom, sides, and top will be constructed of an exterior grade of plywood at least 1 in. thick, which will not break down or delaminate under standard fire test conditions.
- All joints must be rabbeted and fastened in two directions with flathead wood screws.
- When more than one door is used, there will be a rabbeted overlap of not less than 1 inch.
- Steel hinges will be mounted in such a manner as to not lose their holding capacity due to loosening or burning out of the screws when subjected to fire.
- These cabinets will be painted inside and out with fire retardant paint.
- Approved metal storage cabinets are acceptable.
- Cabinets must be labeled in conspicuous lettering, “Flammable-Keep Fire Away.”

Any one storage cabinet is limited to 60 gallons of flammable liquids, and 120 gallons of combustible liquids. Any one storage area is limited to three storage cabinets. Higher quantities must be stored inside a storage room.

INDOOR STORAGE ROOMS

Storage rooms inside must be sufficiently fire-resistive for their use and comply with test specifications outlined in “Standard Methods of Fire Test of Building Construction and Material, NFPA 251-1969” and table 2.

Fire Protection Provided*	Fire Resistance	Maximum size	Total allowable quantities gals. / sq. ft. / floor area
Yes	2 hrs.	500 sq. ft.	10
No	2 hrs.	500 sq. ft.	4
Yes	1 hr.	150 sq. ft.	5
No	1 hr.	150 sq. ft.	2

Table 2

**** Fire protection system will be sprinkler, water, spray, carbon dioxide or other system approved by a nationally recognized testing laboratory for this purpose.***

Automatic extinguishing systems will be designed and installed to meet the following requirements:

- Openings to other rooms or buildings require noncombustible liquid-tight raised sills or ramps at least 4 inches in height, or the floor in the storage area must be at least 4 inches below the surrounding floor;
- Openings will be equipped with approved self-closing fire doors;
- The room will be liquid-tight where the walls join the floor;
- A permissible alternate to the sill or ramp is an open-grated trench, inside of the room, which drains to a safe location;
- Where other portions of the building or other buildings are exposed, windows will be protected as set forth in the Standard for Fire Doors and Windows, NFPA No. 80-1970, for Class E or F openings;
- Wood of at least 1-inch nominal thickness may be used for shelving, racks, dunnage, scuff boards, floor overlay, and similar installations;
- Materials that will react with water and create a fire hazard may not be stored in the same room with flammable or combustible liquids;
- Wiring and equipment in such rooms must be approved for Class I, Division 1, Hazardous Locations as outlined in CFR 1926.449;
- Every storage room must have one clear three-foot wide aisle
- Containers over 30 gallons capacity cannot be stacked on top of each other.

Each indoor storage room must be equipped with either a gravity or a mechanical exhausting system. Such a system must adhere to the following specifications:

- It must commence not more than 12 inches above the floor;
- It must be designed to provide for a complete change of air within the room at least 6 times per hour;
- If a mechanical exhausting system is used, it must be controlled by a switch located outside of the door;
- Ventilating equipment and any lighting fixtures operated by the same switch
- An electric pilot light will be installed adjacent to the switch if flammable liquids are dispensed within the room;
- Where gravity ventilation is provided, the fresh air intake, as well as the exhausting outlet from the room, must be on the exterior of the building where the room is located;

Limit the quantity of flammable or combustible liquids near any spraying operations to the minimum required for operations. This should not exceed a supply for 1 day or one shift. Bulk storage of portable containers of flammable or combustible liquids will be in a separate, constructed building detached from other important buildings or cut off in a standard manner.

STORAGE OUTSIDE BUILDINGS

Flammable and combustible liquids in excess of the amount permitted in inside storage rooms will be stored outside of buildings.

Limit groupings of containers (not more than 60 gallons each) to 1,100 gallons in any one pile or area. Piles or groups must be separated by a 5-foot clearance and placed 20 feet or further away from a building.

Within 200 feet of such piles, ensure a 12-foot-wide access for fire control approach.

The area reserved for storing flammable and combustible liquids must be graded to divert spills away from building. Alternatively, the area may be surrounded by a curb or dike at least 12 inches high if provisions are made for draining off accumulations of ground or rain water, or spills of the stored liquids. Drains must terminate at a safe location and be accessible to operation under fire conditions.

OUTDOOR PORTABLE TANK STORAGE

- Portable tanks must be at least 20 feet from any building.
- Two or more portable tanks, grouped together, having a combined capacity in excess of 2,200 gallons, must be separated by a 5-foot-clear area.
- Individual portable tanks exceeding 1,100 gallons must be separated by a 5-foot-clear area.
- There must be a 12-foot-wide access way within 200 feet of each portable tank, to permit approach of fire control equipment.
- Storage areas will be kept free of weeds, debris, and other combustible material not necessary to the storage.
- Portable tanks, not exceeding 660 gallons, must have emergency venting and other devices, as required by chapters III and IV of NFPA 30-1969, The Flammable and Combustible Liquids Code.
- Portable tanks, in excess of 660 gallons, must have emergency venting and other devices, as required by chapters II and III of “The Flammable and Combustible Liquids Code, NFPA 30-1969”.

FIRE CONTROL FOR FLAMMABLE OR COMBUSTIBLE LIQUID

- At least one portable fire extinguisher, with a rating of at least 20-B units, must be located outside of, but not more than 10 feet from, the door opening into any room used for storage of more than 60 gallons of flammable or combustible liquids.
- At least one portable fire extinguisher having a rating of at least 20-B units must be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.
- When sprinklers are provided, they will be installed in accordance with the “Standard for the Installation of Sprinkler Systems, NFPA 13-1969”.
- At least one portable fire extinguisher having a rating of not less than 20-B:C units will be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable or combustible liquids.

DISPENSING LIQUIDS

- Areas where combustible liquids are transferred more than 5 gallons at a time must be separated from other activity by 25 ft. or construction with a fire resistance rating of 1 hour. Drainage in such areas to control spills is required as is ventilation sufficient to maintain flammable vapor concentrations below 10 percent of the lower flammable limit.
- Flammable liquid transfer between two containers requires the containers to be electrically bonded.
- Draw or transfer flammable or combustible liquids from vessels, containers, or tanks within a building or outside 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 or pump, through an approved self-closing valve. Transferring by means of air pressure on the container or portable tanks is prohibited.
- Protect dispensing units against collision damage.
- Dispensing devices and nozzles for flammable liquids must be of an approved type.

HANDLING LIQUIDS AT POINT OF FINAL USE

- Keep Flammable liquids in closed containers when not in use.
- Dispose of leakage or spillage of flammable or combustible liquids promptly and safely.
- Flammable liquids may be used only where there are no open flames or other sources of ignition within 50 feet of the operation, unless conditions warrant greater clearance.

SERVICE AND REFUELING AREAS

- Flammable or combustible liquids must be stored in approved closed containers, in tanks located underground, or in above-ground portable tanks
- Tank trucks must comply with the requirements covered in the “Standard for Tank Vehicles for Flammable and Combustible Liquids, NFPA No. 385-1966”
- Only approved types of dispensing hoses may be used
- The dispensing nozzle will be an approved automatic-closing type without a latch-open device
- Do not abandon underground tanks
- Provide clearly identified and easily accessible switch(es) at a location remote from dispensing devices to shut off the power to all dispensing devices in the event of an emergency
- Heating equipment of an approved type may be installed in the lubrication or service area where there is no dispensing or transferring of flammable liquids, provided the bottom of the heating unit is at least 18 inches above the floor and is protected from physical damage
- Heating equipment installed in lubrication or service areas, where flammable liquids are dispensed, must be of an approved type for garages, and will be installed at least 8 feet above the floor
- No smoking or open flames will be permitted in the areas used for fueling, servicing fuel systems for internal combustion engines, receiving or dispensing of flammable or combustible liquids
- Post conspicuous and legible signs prohibiting smoking
- Shut off motors of equipment being fueled during the fueling operation; and provide each service or fueling area with at least one fire extinguisher having a rating of not less than 20-B:C located so that an extinguisher will be within 75 feet of each pump, dispenser, underground fill pipe opening, and lubrication or service area.

FORMS & ATTACHMENTS

Please find on the following page the Major Fire Hazards Form, which may be reproduced freely by Northern Arizona University / Facility Services for the purposes of implementing and maintaining a safety and health program.

Major Fire Hazards Form									
Location	**Fire Hazard**	**Fuel source hazard**	**Ignition source hazard**	**Handling, storage, and/or maintenance procedures and other relevant protections (include PPE)**	**Name or job title of responsible party**				
Example									
Site Gate	cigarette butts at gate	Yes	Yes	Ensure all materials have been completely extinguished and properly disposed of. Fire extinguisher is inside office.	Housekeeping: Employees, Custodian Fire extinguisher: *Frank Espinoza*				

POLICY

Northern Arizona University / Facility Services will manage or eliminate hazards in the workplace to the greatest extent possible with engineering controls and work practice controls. However, if such controls fail to provide employees sufficient protection, Frank Espinoza or designate will provide employees with personal protective equipment (PPE) and ensure proper use thereof. PPE minimizes exposure to a range of hazards. All protective devices must meet the following minimum requirements:

- Provide adequate protection against the hazards for which they are designed
- Be of safe design and construction for the work to be performed
- Be reasonably comfortable when worn under the designated condition
- Fit snugly and not unduly interfere with the movements of the wearer
- Be durable
- Be capable of being disinfected
- Easily cleaned
- Be distinctly marked to facilitate identification of the manufacturer

HAZARD ASSESSMENT

As explained in the chapter on Job Hazard Analysis, hazard assessment is the backbone of the Northern Arizona University / Facility Services safety and health program. Recognizing and documenting hazards is the first step to protecting employees from them. An initial walk-through to develop a list of potential hazards should be followed by a review of records and an analysis of the facility layout to determine what controls would best protect workers. If engineering and administrative controls are unable to protect employees from hazards they face, Frank Espinoza and the safety committee will determine what personal protective equipment is necessary

Northern Arizona University / Facility Services job hazard analysis is an ongoing process. Quarterly inspections and periodic reassessments will look for changes that may affect occupational hazards for workers and will determine if PPE remains viable (in terms of condition, age and appropriateness) to protect a worker from hazards on the job.

Northern Arizona University / Facility Services must certify and document the required workplace hazard assessment in a way that identifies the following:

- Workplace evaluated
- Person certifying the evaluation has been performed
- Date of the hazard assessment
- Document as a certification of hazard assessment

RESPONSIBILITIES

Ensuring the effective use of personal protective equipment is a cooperative effort between Northern Arizona University / Facility Services and its employees.

EMPLOYER RESPONSIBILITIES

It is the responsibility of Northern Arizona University / Facility Services to:

- Identify in the hazard assessment where PPE is appropriate and what type is necessary
- Identify and provide properly fitting PPE for employees
- Inform employees how and when to use identified PPE
- Enforce PPE use
- Train employees in the use and care of PPE
- Ensure employees maintain PPE
- Replace worn or damaged PPE
- Ensure employee provided PPE is adequate
- Periodically review, update and evaluate the effectiveness of the PPE program

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the Northern Arizona University / Facility Services safety committee to:

- Develop, conduct, and document training for PPE
- Assist in hazard assessments
- Make recommendations to management concerning elements of the PPE program

EMPLOYEE RESPONSIBILITIES

Northern Arizona University / Facility Services employees are expected to:

- Attend PPE training sessions provided by management

Northern Arizona University / Facility Services requires employees use personal protective equipment (PPE) appropriate to the hazards of their job. This equipment may include protection for the following: eyes, face, feet, hands, head, and body.

Employees required to use such equipment will be trained in all aspects of its use, maintenance, and applicability.

The following list of PPE is available to employees and will be used as required: SAFETY

- Use, and properly wear, all PPE provided by the employer
- Properly care for, clean, and maintain all PPE
- Inform a supervisor of the need to repair or replace PPE

TRAINING

Northern Arizona University / Facility Services will ensure every employee is provided training on personal protective equipment. This training will be provided at no cost to the employee during working hours.

Northern Arizona University / Facility Services will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

TRAINING COMPONENTS

Northern Arizona University / Facility Services will ensure training for every employee in the following minimum elements:

- When PPE is necessary
- What specific PPE is necessary
- How to properly put on, take off, adjust and wear PPE
- Limitations of PPE
- Proper care, maintenance, useful life and disposal of the PPE

Affected employees must demonstrate an understanding of all training and the ability to use PPE properly before they will be permitted to perform work requiring PPE.

Northern Arizona University / Facility Services will provide retraining for any affected employee who is unable to demonstrate the understanding or skills to use PPE properly. Circumstances that require retraining include, but are not limited to the following:

- When there have been changes in the workplace that have rendered previous training obsolete
- When there have been changes to PPE used that render previous training obsolete
- When an employee demonstrates or expresses inadequacies in understanding or skill needed to use assigned PPE properly

TRAINING RECORDS

Training records will include the following information:

- Dates of the training sessions.
- Contents or a summary of the training sessions.
- Names and qualifications of persons conducting the training.
- Names and job titles of all persons attending the training sessions.

Employee training records will be maintained for 3 years from the date on which the training occurred.

PPE SELECTION

Northern Arizona University / Facility Services will select only PPE of safe design and construction and will work with employees to ensure PPE remains clean and reliable. In selecting PPE used to control hazards in the workplace, Northern Arizona University / Facility Services will consider comfortable fit, providing sizes appropriate to the affected employees, and ensure any PPE used will be compatible to provide sufficient protection. Comfort and ease of use is an important consideration because workers are more likely to wear comfortable PPE.

All PPE at Northern Arizona University / Facility Services, including any employee-owned PPE, will meet at least the minimum standards and requirements to provide sufficient protection for workers. Following are the standards referenced by OSHA for select groups of PPE:

- Eye and Face: ANSI Z87.1-1989 (or 1989(R-1998), or 2003)
- Head: ANSI Z89.1-1986 (or 1997, or 2003)
- Foot: ANSI Z41.1-1991

However, alternative protective equipment is acceptable if Northern Arizona University / Facility Services demonstrates it is at least as effective as equipment constructed according to the above standards.

NON-PROVIDED PPE

Northern Arizona University / Facility Services will provide all PPE and replacement PPE at no cost to employees except for the following:

- Non-specialty safety-toe protective footwear, non-specialty prescription eyewear, provided they may be worn away from work
- Shoes or boots with metatarsal protection if Northern Arizona University / Facility Services provides separate metatarsal guards
- Logging boots
- Everyday clothing
- Clothing worn only for protection from weather
- Replacement PPE the employee has intentionally damaged or lost
- Where the employee provides his or her own adequate PPE.

WORK CLOTHING

Northern Arizona University / Facility Services requires employees to wear clothing appropriate to the work and conditions. Examples of this stipulation include clothing that provides protection against high temperature hazards that can cause burns, and not wearing loose clothing like ties or loose fitting clothing near moving machinery. Employees will not wearing jewelry that might contact or electric circuitry.

Also any clothing contaminated with a hazardous material (e.g. flammable liquids, toxic substances, irritants or oxidizers) must be removed immediately and properly cleaned before it can be worn again.

EYE AND FACE PROTECTION

Northern Arizona University / Facility Services will ensure adequate protection against the following:

- Flying particles
- Molten metal
- Liquid chemicals
- Acids or caustic liquids
- Chemical gases or vapors
- Potentially infected material
- Potentially harmful light radiation

When there is a hazard from flying particles, eye protection will provide side protection, or Northern Arizona University / Facility Services will provide effected employees with detachable side protectors.

- Employees will ensure that face and eye protectors are used by only the person to whom the items are issued.
- Eye and face PPE must have the manufacturer's identification distinctly marked.

PRESCRIPTION LENSES

Everyday glasses will not provide sufficient protection against the types of hazards that require eye protection. Employees who wear prescription lenses to correct their vision must wear either eye protection that incorporates their prescription or that can be worn over glasses without compromising the glasses' ability to correct the wearer's vision.

If Northern Arizona University / Facility Services requires more than one worker to wear the same piece of eyewear, employees must disinfect the protective eyewear after each use.

TYPES OF EYE PROTECTION

Safety Spectacles: These protective eyeglasses have safety frames constructed of metal or plastic and impact-resistant lenses. Side shields are available on some models.

Goggles: These tight-fitting eye protectors completely cover the eyes, eye sockets and the facial area immediately surrounding the eyes and provide protection from impact, dust, and splashes. Some goggles will fit over corrective lenses.

Welding Shields: Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter, and slag chips produced during welding, brazing, soldering, and cutting operations. OSHA requires filter lenses to have a shade number appropriate to protect against the specific hazards of the work being performed in order to protect against harmful light radiation.

Laser Safety Goggles: These specialty goggles protect against intense concentrations of light produced by lasers. The type of laser safety goggles an employer chooses will depend upon the equipment and operating conditions in the workplace.

Face Shields: These transparent sheets of plastic extend from the eyebrows to below the chin and across the entire width of the employee's head. Some are polarized for glare protection. Face shields protect against nuisance dusts, potential splashes, or sprays of hazardous liquids, and smaller particles, but will not provide adequate protection against larger impact hazards. Face shields must be worn over the top of basic eye protection devices such as goggles or safety spectacles.

Typical uses for face shields include, but are not limited to, the following situations: woodworking operations where chips and particles fly; metal machining that causes flying particles; buffing, polishing, wire brushing, and grinding; operations that cause flying particles or objects; spot welding; and handling of hot or corrosive materials.

LASER OPERATIONS

Laser light radiation can be extremely dangerous to the unprotected eye, and direct or reflected beams can cause permanent eye damage.

Laser retinal burns can be painless, so it is essential that all personnel in or around laser operations wear appropriate eye protection.

Laser safety goggles should protect for the specific wavelength of the laser and must be of sufficient optical density for the energy involved. Safety goggles intended for use with laser beams must be labeled with the laser wavelengths for which they are intended to be used, the optical density of those wavelengths and the visible light transmission.

Laser Safety Glass		
Intensity, CW maximum power density (watts/cm²)	Attenuation	
	Optical density (O.D.)	Attenuation factor
10^{-2}	5	10^5
10^{-1}	6	10^6
1.0	7	10^7
10.0	8	10^8

Table 1

When a face shield is used in atmospheres or working areas requiring special conditions of non-conductivity or non-sparking, the equipment and materials used must meet those requirements. A face shield must be plainly and permanently labeled, identifying it as a "non-conductive face shield" or "non-sparking face shield."

WELDING OPERATIONS

The intense light associated with welding operations can cause serious and sometimes permanent eye damage if operators do not wear proper eye protection. The intensity of light or radiant energy produced by welding, cutting, or brazing operations varies according to a number of factors including the task producing the light, the electrode size, and the arc current. Table 2 shows the minimum protective shades for a variety of welding, cutting, and brazing operations in general industry and in the shipbuilding industry.

Helmets or hand shields must be used during all arc welding or arc cutting operations, excluding submerged arc welding. Helpers or attendants must be provided with proper eye protection. A hand shield must be constructed of materials similar to those used for a helmet, in a like manner, to protect the body from direct radiant energy.

Table 2 -- Filter Lenses for Protection Against Radiant Energy

Operations	Electrode Size 1/32 in.	Arc Current	Minimum (*) 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
Gas metal arc welding and flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon arc cutting	(Light)	Less than 500	10
	(Heavy)	500-1000	11
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting	(light)(**)	Less than 300	8
	(medium)(**)	300-400	9
	(heavy)(**)	400-800	10
Torch brazing			3
Torch soldering			2
Carbon arc welding			14

Filter Lenses for Protection Against Radiant Energy				
Operations		Plate Thickness – inches	Plate Thickness – mm	Minimum (*) Protective Shade
Gas Welding	Light	Under ⅛	Under 3.2	4
	Medium	⅛ to ½	3.2 to 12.7	5
	Heavy	Over ½	Over 12.7	6
Oxygen Cutting	Light	Under 1	Under 25	3
	Medium	1 to 6	25-150	4
	Heavy	Over 6	Over 150	5

Footnote (*) 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. Footnote (**) These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

HEAD PROTECTION

Northern Arizona University / Facility Services will protect employees from potential head injuries by providing proper head protection and accessories, and ensuring that employees wear these items to protect themselves from injury. Hard hats and helmets can protect employees from impact and penetration hazards, as well as from electrical shock and burn hazards.

Northern Arizona University / Facility Services will ensure employees wear head protection if any of the following apply:

- Objects might fall from above and strike them on the head;
- They might bump their heads against fixed objects, such as exposed pipes or beams
- There is a possibility of accidental head contact with electrical hazards or any other harmful contacts or exposures
- There is a risk of injury from any of the following:
  - Electric shock
  - Hair entanglement
  - Chemicals
  - Temperature extremes

Some examples of occupations in which employees should be required to wear head protection include construction workers, carpenters, electricians, linemen, plumbers and pipefitters, timber and log cutters, welders, among many others. Whenever there is a danger of objects falling from above, such as working below others who are using tools or working under a conveyor belt, head protection must be worn. Hard hats must be worn with the bill forward to protect employees properly.

In general, protective helmets or hard hats should do the following:

- Resist penetration by objects
- Absorb the shock of a blow
- Be water-resistant and slow burning
- Have clear instructions explaining proper adjustment and replacement of the suspension and headband, which should be replaced if slack, twisted, worn out, sweat-soaked, etc.

Hard hats must have a hard outer shell and a shock-absorbing lining that incorporates a headband and straps that suspend the shell from 1 to 1¼ inches (2.54 cm to 3.18 cm) away from the head. This type of design provides shock absorption during an impact and ventilation during normal wear.

A metallic head device must not be furnished by an employer or used by an employee for head protection, except where it has been determined that the use of other types of protective helmets or safety hats or caps is impractical, such as where chemical reaction will cause the deterioration of other types of head protection.

TYPES OF HARD HATS/HELMETS

Northern Arizona University / Facility Services will select protective headgear that meets ANSI standard requirements and will ensure employees wear hard hats/helmets to provide appropriate protection against potential workplace hazards. Hard hat selection must consider all hazards on the worksite, including electrical hazards. This can be done through a comprehensive hazard analysis and an awareness of the different types of protective headgear available.

Hard hats are divided into three industrial classes:

- **Class G** (formerly Class A) hard hats (General) provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).
- **Class E** (formerly class B) hard hats (Electrical) provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.
- **Class C** hard hats (Conductive) provide lightweight comfort and impact protection but offer no protection from electrical hazards.

In addition, hard hats/helmets that protect against impacts are classified as either:

Type I – Helmets that are intended to reduce the force of impact resulting from a blow only to the top of the head.

Type II – Helmets that are intended to reduce the force of impact resulting from a blow to the top or sides of the head.

Another class of protective headgear on the market is called a “bump hat,” designed for use in areas with low head clearance. They are recommended for areas where protection is needed from head bumps and lacerations. These are not designed to protect against falling or flying objects and are not ANSI approved. It is essential to check the type of hard hat employees are using to ensure that the equipment provides appropriate protection. Each hat should have a label inside the shell that lists the manufacturer, the ANSI designation, and the class of the hat.

SIZE AND CARE CONSIDERATIONS

Head protection that is too large or too small is inappropriate for use, even if it meets all other requirements. Protective headgear must fit appropriately on the body and for the head size of each individual. Most protective headgear comes in a variety of sizes with adjustable headbands to ensure a proper fit (many adjust in ⅛-inch increments). A proper fit should allow sufficient clearance between the shell and the suspension system for ventilation and distribution of an impact. The hat should not bind, slip, fall off, or irritate the skin.

Some protective headgear allows for the use of various accessories to help employees deal with changing environmental conditions, such as slots for earmuffs, safety glasses, face shields, and mounted lights. Optional rims may provide additional protection from the sun and some hats have channels that guide rainwater away from the face. Protective headgear accessories must not compromise the safety elements of the equipment.

Periodic cleaning and inspection will extend the useful life of protective headgear. A daily inspection of the hard hat shell, suspension system, and other accessories for holes, cracks, tears or other damage that might compromise the protective value of the hat is essential. Paints, paint thinners and some cleaning agents can weaken shells of hard hats and may eliminate electrical resistance. Consult the helmet manufacturer for information on the effects of paint and cleaning materials on their hard hats. Never drill holes, paint, or apply labels to protective headgear as this may reduce the integrity of the protection. Do not store protective headgear in direct sunlight, such as on the rear window shelf of a car, since sunlight and heat can damage them.

Hard hats with any of the following defects should be removed from service and replaced:

- Perforation, cracking, or deformity of the brim or shell;
- Indication of exposure of the brim or shell to heat, chemicals or ultraviolet light and other radiation (in addition to a loss of surface gloss, such signs include chalking or flaking).

Always replace a hard hat if it sustains an impact, even if damage is not noticeable. Suspension systems are available as replacement parts, and should be replaced when damaged, or when excessive wear is noticed. It is not necessary to replace the entire hard hat when deterioration or tears of the suspension systems are noticed.

HOODS

A hood must be made of materials that combine all of the following:

- Have mechanical strength and lightness of weight to a high degree
- Be non-irritating to the skin when subjected to perspiration
- Be capable of withstanding frequent cleaning and disinfection
- Materials used in the manufacture of hoods must be suitable to withstand the hazards to which the user may be exposed.
- A hood must be designed to provide adequate ventilation for the wearer.

A protective helmet must be used in conjunction with a hood where there is a head injury hazard and the hood must be designed to accommodate helmets.

ACCESSORIES

Faceshield Protection: Faceshield devices can be attached to the helmet without changing the helmet strength and electrical protection. A metal faceshield bracket system can be used on a Class G helmet; however, if a Class E helmet is to be used in an area where Class E protection is required, a type of bracket and shield system that will not conduct electricity (has a dielectric rating) should be used.

Ear Muffs: The required degree of hearing protection should be considered prior to selecting ear muff attachments. If ear muffs are to be attached to helmets, metal attachments are acceptable for Class G helmets. Attachments with a dielectric rating must be used for Class E helmets.

Sweat Bands: If sweat bands are necessary, they must not interfere with the effectiveness of the helmet headband system. Some sweatband devices are made to fit on the headband. For electrical work, metal components must not be used to attach sweat bands to helmets.

Winter Liners: There are many varieties of winter liners. One type fits over the hard hat assembly. It must be flame retardant and elasticized to give the user a snug, warm fit. Other styles fit under the helmet. If the liner is to be used with a Class E helmet, it must have a dielectric rating. Regardless of the warmth characteristics, the liner and helmet combination should be compatible. The liner and helmet must fit properly to give the employee proper impact and penetration protection.

Chin Straps: When wind or other conditions present the possibility of the hard hat being accidentally removed from the head, chin straps can be used. If chin straps are used, they should be the type that fastens to the shell of the hard hat. If the chin straps fasten to the headband and suspension system, the shell may blow off and strike another employee.

Hair Enclosures: employees must wear a hat, cap, or net if there is a danger of hair entanglement in moving machinery or equipment, or where there is exposure to means of ignition. Hair enclosures must completely enclose all loose hair; be adjustable to accommodate all head sizes; be designed to be reasonably comfortable to the wearer.

FOOT & LEG PROTECTION

Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials must wear protective footwear. In addition, employees whose work involves exposure to hot substances or corrosive or poisonous materials must have protective gear to cover exposed body parts, including legs and feet. If an employee's feet may be exposed to electrical hazards, nonconductive footwear must be worn. On the other hand, workplace exposure to static electricity may necessitate the use of conductive footwear.

An employer must ensure that employees wear protective footwear when working in areas where any of the following occur:

- Employees' feet are exposed to electrical hazards.
- There is a danger of foot injuries due to falling or rolling objects, such as barrels or tools.
- There is a danger of sharp objects, such as nails or spikes, piercing the soles of shoes.
- There is exposure to molten metal that might splash on feet or legs.
- There is possible exposure to chemical spills

Employees must also wear proper footwear (including protective footwear when necessary) when working on or around hot, wet, or slippery surfaces.

Foot and leg protection choices include the following:

- Leggings or high boots made of a suitable material (e.g. leather, rubber) for workers exposed to dangerous chemical spill and heat hazards such as molten metal or welding sparks.
- When an employee uses a chain saw, he must wear chaps or leg protectors, made from material designed to resists cuts, covering from at least upper thigh to mid-calf.
- Metatarsal guards protect the instep area from impact and compression. Made of aluminum, steel, fiber, or plastic, these guards may be strapped to the outside of shoes. Footwear designed to newer versions of ANSI Z41 and the ASTM standards require metatarsal protection to be built into the footwear.
- Toe guards fit over the toes of regular shoes to protect the toes from impact and compression hazards. They may be made of steel, aluminum, or plastic.

An employer who chooses to provide employees with toe guards must demonstrate that they are as protective as an incorporated toebox used in safety-toe footwear.

- Combination foot and shin guards protect the lower legs and feet, and may be used in combination with toe guards when greater protection is needed.
- Safety shoes have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in roofing, paving, and hot metal industries. The metal insoles of some safety shoes protect against puncture wounds. Safety shoes may also be designed to be electrically conductive to prevent the buildup of static electricity in areas with the potential for explosive atmospheres or nonconductive to protect workers from workplace electrical hazards.
- If a hazard is created from a process, environment, chemical, or mechanical irritant that could cause an injury or impairment to the feet by absorption or physical contact, other than from impact, the employer must provide any of the following to the employee:
  - Boots
  - Overshoes
  - Rubbers
  - Wooden-soled shoes
  - An equivalent of the above

SPECIAL PURPOSE SHOES

Electrically conductive shoes provide protection against the buildup of static electricity. Employees working in explosive and hazardous locations such as explosives manufacturing facilities or grain elevators must wear conductive shoes to reduce the risk of static electricity buildup on the body that could produce a spark and cause an explosion or fire.

Foot powder should not be used when wearing protective conductive footwear because it provides insulation, reducing the conductive ability of the shoes. Silk, wool, and nylon socks can produce static electricity and should not be worn with conductive footwear. Conductive shoes must be removed when the task requiring their use is completed.

Employees exposed to electrical hazards must never wear conductive shoes. Electrical hazard, safety-toe shoes are nonconductive and will prevent the wearers' feet from completing an electrical circuit to the ground. These shoes can protect against open circuits of up to 600 volts in dry conditions, and should be used in conjunction with other insulating equipment and additional precautions to reduce the risk of a worker becoming a path for hazardous electrical energy.

The insulating protection of electrical hazard, safety-toe shoes may be compromised if the shoes become wet, the soles are worn through, metal particles become embedded in the sole or heel, or workers touch conductive grounded items. Note: Nonconductive footwear must not be used in explosive or hazardous locations.

Foundry shoes insulate the feet from the extreme heat of molten metal. They keep hot metal from lodging in shoe eyelets, tongues or other shoe parts. These snug-fitting leather or leather-substitute shoes have leather or rubber soles and rubber heels. All foundry shoes must have built-in safety toes.

CARE OF PROTECTIVE FOOTWEAR

As with all protective equipment, safety footwear should be inspected prior to each use. Shoes and leggings should be checked for wear and tear at reasonable intervals. This includes looking for cracks or holes, separation of materials, broken buckles, or laces. The soles of shoes should be checked for pieces of metal or other embedded items that could present electrical or tripping hazards. Employees should follow the manufacturers' recommendations for cleaning and maintenance of protective footwear.

HAND & ARM PROTECTION

If a workplace hazard assessment reveals employees face potential injury to hands and arms that cannot be eliminated through engineering and work practice controls, Northern Arizona University / Facility Services will ensure employees wear appropriate protection. Potential hazards that require protection include skin absorption of harmful substances, chemical or thermal burns, electrical dangers, bruises, abrasions, cuts, punctures, fractures, amputations, and harmful temperature extremes.

Protective equipment includes gloves, finger guards, and arm coverings. In addition, items such as machine guards and barriers are examples of engineering controls that may eliminate hazards to the hands and arms.

TYPES OF PROTECTIVE GLOVES

There are many types of gloves available today to protect against a wide variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. No gloves can provide protection against all potential hand hazards. Employees must use gloves specifically designed for the hazards and tasks found in their workplace. Gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device.

The following are examples of some factors that may influence the selection of protective gloves for a workplace:

- Type of chemicals handled (toxic properties of the chemical(s)).
- Chemical concentration and temperature (the higher the concentration and temperature, the shorter the breakthrough time).
- Nature of contact (total immersion, continual contact, splash, etc.)
- Duration of contact.
- Area requiring protection (hand only, forearm, arm).
- Degree of dexterity (fine motor work).
- Grip requirements (dry, wet, oily).
- Thermal protection.
- Size and comfort.
- Abrasion/cut resistance requirements.
- Other job hazards (such as biological, electrical, and radiation hazards).

Gloves are made from a wide variety of materials and are designed for many types of workplace hazards. In general, gloves fall into four groups:

- Gloves made of leather, synthetic fibers, or metal mesh.
- Fabric and coated fabric gloves.
- Chemical protective gloves.
- Insulating rubber gloves (See 29 CFR 1910.137, Electrical Protective Equipment, for detailed requirements on the selection, use and care of insulating rubber gloves).

LEATHER, CANVAS OR METAL MESH GLOVES

- Sturdy gloves made from metal mesh, leather or canvas provide protection against cuts and burns. Leather or canvas gloves also protect against sustained heat.
- Leather gloves protect against sparks, moderate heat, blows, chips, and rough objects. These gloves can be used for tasks such as welding.
- Aluminized gloves provide radiant heat protection by reflection and insulate/reduce heat conduction with a liner or insert. Employees working with molten materials would benefit from this type of glove.
- Aramid fiber gloves such as Kevlar, protect against heat, are cut- and abrasion-resistant, and wear well. Employees working in jobs such as firefighting, automotive work, metal fabrication, glass and ceramic handling would benefit from this type of glove.
- Synthetic gloves of various materials offer protection against heat and cold, are cut- and abrasion-resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.
- Metal mesh hand, wrist, arm, and finger protective wear protects against knife cuts; however, it offers very little, if any, protection against punctures. Plastic dots can be adhered to the metal mesh to facilitate gripping.

FABRIC AND COATED FABRIC GLOVES

Fabric and coated fabric gloves are made of cotton or other fabric to provide varying degrees of protection.

- Fabric gloves protect against dirt, slivers, chafing and abrasions. They do not provide sufficient protection for use with rough, sharp, or heavy materials. Adding a plastic coating will strengthen some fabric gloves.
- Coated fabric gloves normally are made from cotton flannel with napping on one side. By coating the un-napped side with plastic, fabric gloves are transformed into general-purpose hand protection offering slip-resistant qualities. These gloves are used for tasks ranging from handling bricks and wire to chemical laboratory containers. When selecting gloves to protect against chemical exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions.

CHEMICAL- AND LIQUID-RESISTANT GLOVES

Chemical-resistant gloves are made with different kinds of rubber: natural, butyl, neoprene, nitrile and fluorocarbon (viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol, and polyethylene. These materials can be blended or laminated for better performance. As a general rule, the thicker the glove material, the greater the chemical resistance but thick gloves may impair grip and dexterity, having a negative impact on safety

Some examples of chemical-resistant gloves include:

- Butyl gloves are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid, and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters, and nitro-compounds. Butyl gloves also resist oxidation, ozone corrosion, and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.
- Natural (latex) rubber gloves are comfortable to wear, which makes them a popular general-purpose glove. They feature outstanding tensile strength, elasticity, and temperature resistance. In addition to resisting abrasions caused by grinding and polishing, these gloves protect workers' hands from most water solutions of acids, alkalis, salts and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. Hypoallergenic gloves, glove liners and powderless gloves are possible alternatives for workers who are allergic to latex gloves.

- Neoprene gloves are made of synthetic rubber and offer good pliability, finger dexterity, high density, and tear resistance. They protect against hydraulic fluids, gasoline, alcohols, organic acids, and alkalis. They generally have chemical and wear resistance properties superior to those made of natural rubber.
- Nitrile gloves are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene. Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when working with oils, greases, acids, caustics, and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones, and acetates.

CARE OF PROTECTIVE GLOVES

Protective gloves should be inspected before each use to ensure they are not torn, punctured, or made ineffective in any way. A visual inspection will help detect cuts or tears but a more thorough inspection by filling the gloves with water and tightly rolling the cuff towards the fingers will help reveal any pinhole leaks. Gloves that are discolored or stiff may also indicate deficiencies caused by excessive use or degradation from chemical exposure. Interiors of gloves must be kept free of corrosive or irritating contaminants.

Any gloves with impaired protective ability should be discarded and replaced. Reuse of chemical-resistant gloves should be evaluated carefully, taking into consideration the absorptive qualities of the gloves. A decision to reuse chemically exposed gloves should take into consideration the toxicity of the chemicals involved and factors such as duration of exposure, storage, and temperature. All gloves must be sanitized and clean before reissue.

BODY PROTECTION

Employees who face possible bodily injury of any kind that cannot be eliminated through engineering, work practice, or administrative controls must wear appropriate body protection while performing their jobs. In addition to radiation, the following are workplace hazards that could cause bodily injury, and require protection:

- Temperature extremes
- Hot splashes from molten metals and other hot liquids
- Potential impacts from tools, machinery, and materials
- Hazardous chemicals
- Wetness

There are many varieties of protective clothing available for specific hazards. Employers are required to ensure that their employees wear personal protective equipment only for the parts of the body exposed to possible injury. Examples of body protection include laboratory coats, coveralls, vests, jackets, aprons, surgical gowns, and full body suits.

If a hazard assessment indicates a need for full body protection against toxic substances or harmful physical agents, the clothing should be carefully inspected before each use, it must fit each worker properly, and it must function properly and for the purpose for which it is intended.

Protective clothing comes in a variety of materials, each effective against particular hazards, such as:

- Paper-like fiber, which is used for disposable suits provide protection against dust and splashes.
- Treated wool and cotton, which adapts well to changing temperatures, is comfortable and fire-resistant, and protects against dust, abrasions and rough, irritating surfaces.
- Duck, which is a closely woven cotton fabric that protects against cuts and bruises when handling heavy, sharp, or rough materials.
- Leather, which is often used to protect against dry heat and flames.
- Rubber, rubberized fabrics, neoprene, and plastics, which protect against certain chemicals and physical hazards. When chemical or physical hazards are present, check with the clothing manufacturer to ensure that the material selected will provide protection against the specific hazard.

HEARING PROTECTION

Determining the need to provide hearing protection for employees can be challenging. Employee exposure to excessive noise depends upon a number of factors, including:

- The loudness of the noise as measured in decibels (dB).
- The duration of each employee's exposure to the noise.
- Whether employees move between work areas with different noise levels.
- Whether noise is generated from one or multiple sources.

Generally, the louder the noise, the shorter the exposure time before hearing protection is required. For instance, employees may be exposed to a noise level of 90 dB for 8 hours per day (unless they experience a Standard Threshold Shift) before hearing protection is required. On the other hand, if the noise level reaches 115 dB hearing protection is required if the anticipated exposure exceeds 15 minutes. For a more detailed discussion of the requirements for a comprehensive hearing conservation program, see the chapter on hearing protection.

If engineering and work practice controls do not lower employee exposure to workplace noise to acceptable levels, employees must wear appropriate hearing protection. It is important to understand that hearing protectors reduce only the amount of noise that gets through to the ears. The amount of this reduction is referred to as attenuation, which differs according to the type of hearing protection used and how well it fits. Hearing protectors worn by employees must reduce an employee's noise exposure to within the acceptable limits.

Types of hearing protection include the following:

- Single-use earplugs are made of waxed cotton, foam, silicone rubber, or fiberglass wool. They are self-forming and, when properly inserted, they work as well as most molded earplugs.
- Pre-formed or molded earplugs must be individually fitted by a professional and can be disposable or reusable. Reusable plugs should be cleaned after each use.
- Earmuffs require a perfect seal around the ear. Glasses, facial hair, long hair, or facial movements such as chewing may reduce the protective value of earmuffs.

SAFETY BELTS, LIFELINES, AND LANYARDS

The only acceptable use of lifelines, safety belts, and lanyards is to safeguard employees. If a lifeline, safety belt or lanyard is subjected to in-service loading; it must be removed from service and not used again.

- Lifelines must be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds.
- If a lifeline is subject to cutting or abrasion, as may be the case on rock scaling operations, it must be at least ⅞-inch wire core manila rope. Otherwise, it may be a ¾-inch manila or equivalent, with a nominal breaking strength of at least 5,400 pounds.
- Safety belt lanyards will be at least ½-inch nylon and provide for a fall that does not exceed 6 feet. They must also have a nominal breaking strength of 5,400 pounds.
- Hardware on safety belts and lanyards in use must be drop forged or pressed steel or cadmium plated according to federal specifications. The surface must be smooth and free of sharp edges.
- Safety belt and lanyard hardware, except rivets, must withstand a tensile loading of 4,000 pounds without cracking, breaking, or taking a permanent deformation.

For more information, see the “Fall Protection” chapter.

OTHER PPE

COOLING VESTS AND SUITS

Personal cooling vests and suits are available for wear in operations involving extreme heat conditions. One design requires the use of a supplied air system. The air enters the vest or coverall through a tube in which it is cooled by as much as 40 degrees. The cooled air is channeled out over the upper torso and around the neck area when only the vest is being used. When the coverall or full body cooling type of PPE is used, the cooling air is also channeled to the leg and arm areas.

There is a type of body cooling system that does not require an electrical, air, or water supply. This vest is made of durable flame-resistant cotton shell fabric. Sewn underneath the outer shell are layers of light metallic insulation that reflect radiant heat outward and cooling inward toward the body. Pouch-like areas are accessible for quick and easy installation of segmented, semi-frozen gel cooling packets. These gel packs, often referred to as plastic ice, provide approximately twice the cooling effect of the same volume of water ice. The gel packs will not leak, even if punctured. They can be refrozen overnight in an ordinary freezer.

Other systems use supplied cooling air and a manifold system of tubes to channel the cool air to the body extremities. Outer surfaces are frequently made of aluminum or other heat-reflective material, depending on the type and source of the heat conditions.

HIGH VISIBILITY APPAREL

High visibility apparel must be used by workers involved in traffic control, such as flaggers or law enforcement officers, or for employees who work on the roadways, such as sanitation, utility or construction workers, and emergency responders. The apparel should be high visibility orange, yellow, yellow-green, or a fluorescent version so that it contrasts with the surrounding area. Reflective material visible from all sides for 1,000 feet must be worn during dark hours.

FLOTATION VESTS

Employees working over or near water, where the danger of drowning exists, will be provided with approved life jackets or buoyant work vests. These vests are available as flotation pads inside high visibility international orange nylon shells or as vinyl coated flotation pads of international orange. The flotation vests must be U.S. Coast Guard approved.

Additionally, in any other workplace where employees work over or near water, or use boats, approved life jackets, buoyant work vests or other flotation devices must be provided. All buoyant work vests and life preservers will be checked for defects before and after each use.

WELDING AND HIGH HEAT

Coveralls, jackets, pants, and aprons are available for operations involving high heat or molten metal splashes. Leather is the traditional protective material for many welding operations. Where there is exposure to radiant heat as well as molten metal splashes, aluminized garments may be used. They reflect up to 95 percent of the radiant heat. Flame-resistant cotton coveralls designed for comfort and protection are sometimes preferred. Whatever the type of clothing used for welding operations, it should not have external pockets or cuffs. Fabrics of silica, ceramic, and fiberglass eliminate the need for asbestos and are now available for welding operations. Protective clothing with asbestos will not be used.

FORMS & ATTACHMENTS

Please find on the following pages the PPE Hazard Assessment Certification Form, which may be reproduced freely by Northern Arizona University / Facility Services for the purposes of implementing and maintaining a safety and health program.

PPE Hazard Assessment Certification Form

Workplace:	**Conducted By:**
Address:	**Date:**
Area(s):	**Job or Task:**

EYES

Work activities, such as:

- ☐ abrasive blasting
- ☐ sanding
- ☐ chopping
- ☐ sawing
- ☐ cutting
- ☐ grinding
- ☐ drilling
- ☐ punch press operations
- ☐ sanding
- ☐ sawing
- ☐ grinding
- ☐ hammering
- ☐ chipping
- ☐ other:

Work-related exposure to:

- ☐ airborne dust
- ☐ dirt
- ☐ UV
- ☐ flying particles/ objects
- ☐ blood splashes
- ☐ hazardous liquid chemicals & mists
- ☐ chemical splashes
- ☐ molten metal splashes
- ☐ glare/ high intensity lights
- ☐ laser operations
- ☐ intense light
- ☐ hot sparks
- ☐ other:
- ☐

Can hazard be eliminated without the use of PPE?

- ☐ Yes
- ☐ No

If no, use:

- ☐ Safety glasses
- ☐ Safety goggles
- ☐ Dust-tight goggles
- ☐ Impact goggles
- ☐ Welding helmet/shield
- ☐ Chemical goggles
- ☐ Chemical splash goggles
- ☐ Laser goggles
- ☐ Shading/Filter (# ___)
- ☐ Welding shield
- ☐ Other:

- **With:**
  - ☐ Side shields
  - ☐ Face shield
  - ☐ Shaded
  - ☐ Prescription

FACE

Work activities, such as:

- ☐ cleaning
- ☐ cooking
- ☐ siphoning
- ☐ painting
- ☐ dip tank operations
- ☐ pouring
- ☐ other:
- ☐ foundry work
- ☐ welding
- ☐ mixing
- ☐ pouring molten metal
- ☐ working outdoors

Work-related exposure to:

- ☐ hazardous liquid chemicals
- ☐ extreme heat
- ☐ extreme cold
- ☐ potential irritants
- ☐ other:

Can hazard be eliminated without the use of PPE?

- ☐ Yes
- ☐ No

If no, use:

- ☐ Face Shield
- ☐ Shading/Filter (# ____)
- ☐ Welding shield
- ☐ other:

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866-478-6980

PPE Hazard Assessment Certification Form (pg. 2)

HEAD

Work activities, such as:

- ☐ building maintenance
- ☐ confined space operations
- ☐ construction
- ☐ electrical wiring
- ☐ walking/working under catwalks
- ☐ walking/working on catwalks
- ☐ walking/working under conveyor belts
- ☐ working with/around conveyor belts
- ☐ walking/working under crane loads
- ☐ utility work
- ☐ other:

Work-related exposure to:

- ☐ beams
- ☐ pipes
- ☐ exposed electrical wiring or components
- ☐ falling objects
- ☐ fixed object
- ☐ machine parts
- ☐ other:

Can hazard be eliminated without the use of PPE?

☐ Yes ☐ No

If no, use:

- ☐ Protective Helmet
  - ☐ Type G (low voltage)
  - ☐ Type E (high voltage)
  - ☐ Type C
  - ☐ Bump cap (not ANSI-approved)
- ☐ Hair net or soft cap
- ☐ other:

HANDS/ARMS

Work activities, such as:

- ☐ baking
- ☐ cooking
- ☐ grinding
- ☐ welding
- ☐ working with glass
- ☐ using computers
- ☐ using knives
- ☐ dental and health care services
- ☐ garbage disposal
- ☐ computer work
- ☐ material handling
- ☐ sanding
- ☐ sawing
- ☐ hammering
- ☐ using power tools
- ☐ working outdoors
- ☐ other:

Work-related exposure to:

- ☐ blood
- ☐ irritating chemicals
- ☐ tools or materials that could scrape, bruise, or cut
- ☐ extreme heat
- ☐ extreme cold
- ☐ animal bites
- ☐ electric shock
- ☐ vibration
- ☐ musculoskeletal disorders
- ☐ sharps injury
- ☐ other:
- ☐

Can hazard be eliminated without the use of PPE?

☐ Yes ☐ No

If no, use:

- ☐ Gloves
  - ☐ Chemical resistance
  - ☐ Liquid/leak resistance
  - ☐ Temperature resistance
  - ☐ Abrasion/cut resistance
  - ☐ Slip resistance
  - ☐ Latex or nitrile
  - ☐ Anti-vibration
- ☐ Protective sleeves
- ☐ Ergonomic equipment
- _____
- ☐ Other:

PPE Hazard Assessment Certification Form (pg. 3)

FEET/LEGS

Work activities, such as:

- ☐ building maintenance
- ☐ construction
- ☐ demolition
- ☐ food processing
- ☐ foundry work
- ☐ working outdoors
- ☐ logging
- ☐ plumbing
- ☐ trenching
- ☐ use of highly flammable materials
- ☐ welding
- ☐ other:

Work-related exposure to:

- ☐ explosive atmospheres
- ☐ explosives
- ☐ exposed electrical wiring or components
- ☐ heavy equipment
- ☐ slippery surfaces
- ☐ impact from objects
- ☐ pinch points
- ☐ slippery/wet surface
- ☐ crushing
- ☐ sharps injury
- ☐ blood
- ☐ chemical splash
- ☐ chemical penetration
- ☐ extreme heat/cold
- ☐ fall
- ☐ other:

Can hazard be eliminated without the use of PPE?

- ☐ Yes

If no, use:

- ☐ Safety shoes or boots
  - ☐ Toe protection
  - ☐ Electrical protection
  - ☐ Puncture resistance
  - ☐ Anti-slip Soles
- ☐ No
- ☐ Leggings or chaps
- ☐ Foot-Leg guards
- ☐ Metatarsal protection
- ☐ Heat/Cold protection
- ☐ Chemical resistance
- ☐ Other:

BODY/SKIN

Work activities, such as:

- ☐ Baking or frying
- ☐ battery charging
- ☐ dip tank operations
- ☐ fiberglass installation
- ☐ sawing
- ☐ other:

Work-related exposure to:

- ☐ chemical splashes
- ☐ extreme heat
- ☐ extreme cold
- ☐ sharp or rough edges
- ☐ irritating chemicals
- ☐ other:

Can hazard be eliminated without the use of PPE?

- ☐ Yes

If no, use:

- ☐ Vest
- ☐ Coveralls, Body suit
- ☐ Raingear
- ☐ Apron
- ☐ No
- ☐ Welding leathers
- ☐ Abrasion/cut resistance
- ☐ other:

BODY/WHOLE

Work activities, such as:

- ☐ building maintenance
- ☐ construction
- ☐ logging
- ☐ computer work
- ☐ working outdoors
- ☐ utility work
- ☐ other:

Work-related exposure to:

- ☐ working from heights of 10 feet or more
- ☐ impact from flying objects
- ☐ impact from moving vehicles
- ☐ sharps injury
- ☐ blood
- ☐ electrical/static discharge
- ☐ hot metal
- ☐ sparks
- ☐ musculoskeletal disorders
- ☐ chemicals
- ☐ extreme heat/cold
- ☐ elevated walking/working surface
- ☐ working near water
- ☐ injury from slip/trip/fall
- ☐ other:

Can hazard be eliminated

- ☐ Yes

If no, use:

- ☐ Fall Arrest/Restraint
- ☐ Traffic vest
- ☐ Static coats/overalls
- ☐ Flame resistant jacket/pants
- ☐ Insulated jacket
- ☐ Cut-resistant sleeves/wristlets
- ☐ No
- ☐ Hoists/Lift
- ☐ ergonomic equipment _____
- ☐ Other:

With

- ☐ Hood
- ☐ Full sleeves

PPE Hazard Assessment Certification Form (pg. 4)

LUNGS/RESPIRATORY

Work activities, such as:

- ☐ cleaning
- ☐ mixing
- ☐ painting
- ☐ fiberglass installation
- ☐ compressed air or gas operations
- ☐ confined space work
- ☐ floor installation
- ☐ ceiling repair
- ☐ working outdoors
- ☐ pouring
- ☐ sawing
- ☐ other:

Work-related exposure to:

- ☐ dust or particulate
- ☐ toxic gas/vapor
- ☐ chemical irritants (acids)
- ☐ welding fume
- ☐ asbestos
- ☐ pesticides
- ☐ organic vapors
- ☐ oxygen deficient environment
- ☐ paint spray
- ☐ extreme heat/cold
- ☐ other

Can hazard be eliminated without the use of PPE?

- ☐ Yes
- ☐ No

If no, use:

- ☐ Dust mask
- ☐ Disposable particulate respirator
- ☐ Replaceable filter particulate w/cartridge
- ☐ PAPR (air recycle)
- ☐ PPSA (Air supply)

With:

- ☐ Face shield
- ☐ acid/gas crtg
- ☐ organic crtg
- ☐ pesticide crtg
- ☐ spray paint crtg
- ☐ half-faced
- ☐ full-faced
- ☐ hooded

EARS/HEARING

Work activities, such as:

- ☐ generator
- ☐ ventilation fans
- ☐ motors
- ☐ sanding
- ☐ pneumatic equipment
- ☐ punch or brake presses
- ☐ use of conveyers
- ☐ grinding
- ☐ machining
- ☐ routers
- ☐ sawing
- ☐ sparks
- ☐ other:

Work-related exposure to:

- ☐ loud noises
- ☐ loud work environment
- ☐ noisy machines/tools
- ☐ punch or brake presses
- ☐ other:

Can hazard be eliminated without the use of PPE?

- ☐ Yes
- ☐ No

If no, use:

- ☐ Ear muffs
- ☐ Ear plugs
- ☐ Leather welding hood

POLICY

Northern Arizona University / Facility Services is committed to the safety and health of its employees. To identify and control hazards presented by products that contain materials, chemicals or components that may cause injury or illness in the workplace, Northern Arizona University / Facility Services has in place a Hazard Communication Program (HCP) to provide information to employees about any hazardous materials to which they are exposed.

If Northern Arizona University / Facility Services employees are exposed to any hazardous chemical, Northern Arizona University / Facility Services designates Frank Espinoza to ensure a written HCP is created, communicated to all employees, and maintained according to all applicable regulations, standards and industry best practices.

All aspects of this policy and the Northern Arizona University / Facility Services Hazard Communication Program are subject to annual review by Frank Espinoza and the safety committee to ensure the effectiveness of the policy, to guarantee a safe working environment forNorthern Arizona University / Facility Services employees, and to reflect any regulatory changes to which the policy must respond.

The Hazard Communication Program (HCP) describes how Northern Arizona University / Facility Services will meet all applicable requirements regarding identifying hazardous chemicals, labeling under the GHS guidelines, providing availability of safety data sheets (SDSs), and employee information and training.

The HCP also will include the following:

- A list of chemicals (SDSs) in inventory known to present a hazard to Northern Arizona University / Facility Services employees
- Methods Northern Arizona University / Facility Services will use to inform employees of hazards presented by non-routine tasks
- Methods Northern Arizona University / Facility Services will use to inform employees of hazards associated with chemicals contained in unlabeled pipes in their work areas

RESPONSIBILITIES

Hazard communication is a cooperative effort between Northern Arizona University / Facility Services and its employees.

EMPLOYER RESPONSIBILITIES

- It is the responsibility of Northern Arizona University / Facility Services (through Frank Espinoza) to:
- Establish a Hazard Communication Program if employees work with or around any potentially hazardous material
- Ensure that proper safeguards are in place to ensure the safety of personnel working with or around hazardous chemicals
- Ensure that every employee can readily access a list of hazardous chemicals that exist in the workplace, as well as in formation on the hazards they present (safety data sheets)
- Ensure all hazardous chemicals in the workplace are labeled and have a complete safety data sheet on file
- Ensure all employees are trained on the Hazard Communication Program (HCP)
- Provide support for the implementation of HCP; and
- Review the HCP at least annually to evaluate the effectiveness of the program
- Report the use of known carcinogens to the state OSHA division as required.

SAFETY COMMITTEE RESPONSIBILITIES

It is the responsibility of the Northern Arizona University / Facility Services safety committee to:

- Assist in the creation and implementation of the Northern Arizona University / Facility Services Hazard Communication Program
- Assist in the development and delivery of HCP training
- Identify issues of non-compliance and hazards related to the use of hazardous chemicals
- Recommend steps to promote safety compliance and adherence to all safety and health policy
- Provide an avenue for employees to share concerns and recommend changes regarding chemicals in the workplace to help ensure a safer work environment

EMPLOYEE RESPONSIBILITIES

Every Northern Arizona University / Facility Services employee is expected to:

- Follow safety policy and adhere to all precautions and safety requirements when working with or around hazardous chemicals
- Understand the hazards of the chemicals in the workplace by reviewing Safety Data Sheets before using any hazardous chemical
- Understand how to lessen or prevent exposure to hazardous chemicals through safe work practices and use of personal protective equipment
- Understand emergency procedures in the event of exposure to these chemicals
- Verify the proper labeling of chemicals at the worksite, and the presence of SDSs for each
- Report any deficiencies in hazard communication as soon as safely possible to his or her supervisor
- Attend and participate actively in safety trainings

TRAINING

Northern Arizona University / Facility Services will provide training covering all aspects of the Hazard Communication Program. Northern Arizona University / Facility Services will provide training on hazardous chemicals in their employee's work area at the time of assignment and whenever a new hazard is introduced to their work area.

All employees who may be exposed to hazardous chemicals under normal operating conditions while performing their job duties in their assigned work areas must receive training. Northern Arizona University / Facility Services may design training or use training designed to cover categories of hazards or specific chemicals.

The HCP will be made available upon request to any employee (or their designated representatives) and any regulatory official with the authority to demand it.

TRAINING COMPONENTS

Frank Espinoza will ensure that all employees at Northern Arizona University / Facility Services are informed and trained in the following minimum elements for hazard communication:

- The requirements of regulatory bodies, industry standards and best safety practices regarding specific chemicals
- Operations in the employee's work area that involve hazardous chemicals
- Physical, health, simple asphyxiation, combustible dust, and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area
- Reading and understanding hazardous chemical labeling, including pictograms, signal words, hazard statements, and precautionary statements
- The availability and location of the written HCP, list of hazardous chemicals, and safety data sheets (SDSs)
- How to detect the presence or release of a hazardous chemical in the work area
- The classified and unclassified hazards of chemicals in the work area
    - The Globally Harmonized System of Classification (GHS) determines if a substance or mixture meets their criteria for a hazardous substance, meaning harmful to the environment or to humans. OSHA has adopted the GHS classification of chemicals. Those substances that are identified as hazardous are referred to as Classified. Substances that have not yet been classified are referred to as 'Hazards Not Otherwise Classified' (HNOC) or Unclassified.
- Measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented for employee protection
- The details of the HCP, including an explanation of all labels and SDSs, and how employees can obtain and use the appropriate hazard information. Training must include the order of information on the SDS and how to obtain and use the hazard information.

TRAINING RECORDS

- Training records will include the following information:
    - Dates of the training sessions
    - Contents or a summary of the training sessions
    - Names and qualifications of persons conducting the training
    - Names and job titles of all persons attending the training sessions
- Northern Arizona University / Facility Services will maintain employee training records for 3 years from the date on which training occurred.

HAZARD DETERMINATION & COMMUNICATION

Northern Arizona University / Facility Services will rely on the evaluation of the chemical manufacturer or importer of any hazardous chemicals at the worksite to provide the identifying labels and safety data information required for the HCP.

LABELS

The GHS does not specify a label format or layout, but requires the inclusion of several elements. All hazardous material containers at Northern Arizona University / Facility Services will be labeled, tagged, or marked with the following:

1. Product Identifier. The product identifier must match the identifier on the safety data sheet and include the chemical identity of the substance or ingredients in a mixture that contribute to the product's hazards.

2. Pictograms. Pictograms are combinations of graphical elements that convey information about the product's hazards. GHS hazard pictograms are a black symbol on a white field within a red diamond.

3. Signal Word. Signal words indicate the severity of the product's hazard. "Danger" indicates severe hazards while "Warning" indicates less sever hazards.

4. Hazard Statements. Hazard statements are assigned based on the nature of the product's hazards.

5. Precautionary Statements. Precautionary statements inform the reader about how to prevent or minimize the negative effects of storing or handling the product unsafely. They fall into four categories: prevention, response, storage, and disposal.

6. Supplier Identification. The supplier identification includes the name, address, and telephone number that can be used to locate or communicate with the manufacturer or supplier.

Other Elements: GHS permits competent authorities to require or allow additional information and specify where it must be presented on the product label as long as it does not impede, contradict, or confuse the standard information. Examples include transport pictograms, precautionary pictograms, first-aid recommendations, universal product codes, general usage information, etc.

For unclassified hazards, the label requires supplementary information, a description of the unclassified hazards and appropriate precautionary measures to ensure safe handling and use.

- Alternatively, hazardous material containers at Northern Arizona University / Facility Services can be marked with the product identifier and words, pictures, symbols, or combination thereof, to provide at least general information regarding the hazards of the chemicals. Labeling is done in conjunction with other information immediately available to employees under the HCP to provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.
- In lieu of affixing labels to individual containers, the Northern Arizona University / Facility Services HCP may rely on signs, placards, process sheets, batch tickets, operating procedures or similar written materials, as long as the alternative method provides workers with the same information. See the signage provisions of the National Fire Protection Association contained in NFPA 704 – Standard System for the Identification of the Hazards of Materials for Emergency Response, 2007.
- A container for a hazardous substance into which the substance has been transferred for immediate use does not have to be labeled. Labels are necessary, however, for any container that is stored.
- No employee will remove or deface labels or other forms of warnings.
- Northern Arizona University / Facility Services will ensure every label is legible in English, but may present the chemical's hazard information in another language, as long as it is also present in English.
- Do not make available any container known to have contained a hazardous substance unless the container has been thoroughly cleaned to remove all traces of any hazardous substance, except where the container is refilled with the same substance.
- Ensure that every container is correctly labeled with regard to its contents.

SAFETY DATA SHEETS

Northern Arizona University / Facility Services will continuously compile and keep at the workplace a list of all known hazardous chemicals that are present

The GHS does not specify a specific format or layout for the data sheet, but requires the inclusion of several elements, which will include the following section numbers and headings, and the information about the chemical associated with each:

- Section 1, Identification
- Section 2, Hazard(s) identification
- Section 3, Composition/information on ingredients
- Section 4, First-aid measures
- Section 5, Fire-fighting measures
- Section 6, Accidental release measures
- Section 7, Handling and storage
- Section 8, Exposure controls/personal protection
- Section 9, Physical and chemical properties
- Section 10, Stability and reactivity
- Section 11, Toxicological information
- Section 12, Ecological information
- Section 13, Disposal considerations
- Section 14, Transport information
- Section 15, Regulatory information
- Section 16, Other information, including date of preparation or last revision.

A sample SDS form is included at the end of this chapter

EMERGENCY PLANNING

Facilities that maintain Extremely Hazardous Substances (EHS) on-site in quantities greater than corresponding threshold planning quantities must cooperate in emergency plan preparation with local/state governments. Local governments are required to prepare chemical emergency response plans, and to review plans at least annually. State governments are required to oversee and coordinate local planning efforts.

For a complete list of related requirements, see the Emergency Planning and Community Right-to-Know Act (EPCRA), passed by Congress in 1986. This section, and the two that follow, contain the major provisions of the EPCRA.

REPORTING

Facilities must immediately report to state and local officials accidental releases of EHS chemicals and "hazardous substances" in quantities greater than corresponding Reportable Quantities (RQs) defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Information about accidental chemical releases must also be available to the public.

The EPA requires facilities that manufacture, use, or store 500 pounds or the Threshold Planning Quantity (whichever is less), of an extremely hazardous substance (EHS), report to state and local officials, and to local fire departments, inventories of all on-site chemicals for which safety data sheets exist. Facilities that manufacture, use, or store 10,000 pounds of any hazardous chemical must also follow the same reporting procedures (gasoline and diesel fuel are the only hazardous chemicals to have higher threshold levels).

Facilities, as applicable, must complete and submit a toxic chemical release inventory form (Form R) annually. Form R must be submitted for each of the over 600 TRI chemicals that are manufactured or otherwise used above the applicable threshold quantities.

COMMUNITY RIGHT TO KNOW

In addition to providing employees with information regarding the hazards of chemicals in the workplace, employers must also, upon request, inform members of the public about the health and environmental hazards posed by stored or released chemicals. The public is also entitled to know the approximate quantities of chemicals stored or released at a given workplace. If an employer denies a reasonable request, the requesting party may then file an application for information with the state agency that has jurisdiction, or federal OSHA.

HAZARD CONTROL

Employers must protect workers against the potential negative health effects of exposure to hazardous substances by ensuring employees use respirators and appropriate equipment if they are, or may be, exposed to substances at levels above permissible exposure limits (PELs).

PERMISSIBLE EXPOSURE LIMITS (PELS)

Approximately 500 PELs have been established by OSHA as part of 29 CFR 1910.1000 (see tables Z-1 and Z-2). Companies should meet the standards for the 1988/1989 updated OSHA PELs, and should also check to see if their state OSHA (if applicable) has more stringent standards for specific hazardous substances.

MULTI-EMPLOYER WORKPLACES

If hazardous chemicals present risk to employees of another employer, Northern Arizona University / Facility Services will ensure the HCP includes the methods to do the following for the other employers on the site:

- Provide onsite access to SDSs for each hazardous chemical to which their employees may be exposed
- Inform them of any precautionary measures that need to be taken for worker protection during normal operating conditions and foreseeable emergencies
- Inform them of the labeling system used in the workplace

MULTIPLE WORKPLACES

If employees must travel between workplaces during a shift, Northern Arizona University / Facility Services may keep the HCP at only the primary workplace facility.

NON-ROUTINE TASKS

Before employees begin work on hazardous non-routine tasks, the appropriate supervisor will give affected employees information about hazardous chemicals to which the employee may be exposed during such activity. This information will include the following:

- Specific chemical hazards
- Protective/safety measures employees can take
- Measures Northern Arizona University / Facility Services has taken to reduce the hazards

HAZARDOUS CHEMICALS IN UNLABELED PIPES

If there are hazards associated with chemicals in the piping system in the work area, a supervisor must inform employees working around the pipes and provide information about the chemical and its hazards. Labels to relay this information are good practice for workplaces that transport potentially hazardous chemicals through pipes, and may be required by other regulations.

Standards for labeling pipes in the workplace can be found in ANSI A13.1-2007.

FORMS & ATTACHMENTS

Please find on the following pages the below documents, which may be reproduced freely by Northern Arizona University / Facility Services for the purposes of implementing and maintaining a safety and health program.

- Hazardous Chemical labels
- Chemicals Known to Present a Hazard form
- Sample SDS form

Hazardous Chemical Label

HAZARDOUS CHEMICAL

NAME OF CHEMICAL:

_____

Physical Hazards:

_____

Health Hazards, Target Organs, or Systems:

_____

Optional Information, such as Personal Protective Equipment or Safe Handling:

_____

HAZARDOUS CHEMICAL

NAME OF CHEMICAL:

_____

Physical Hazards:

_____

Health Hazards, Target Organs, or Systems:

_____

Optional Information, such as Personal Protective Equipment or Safe Handling:

_____

HAZARDOUS CHEMICAL

NAME OF CHEMICAL:

_____

Physical Hazards:

_____

Health Hazards, Target Organs, or Systems:

_____

Optional Information, such as Personal Protective Equipment or Safe Handling:

_____

HAZARDOUS CHEMICAL

NAME OF CHEMICAL:

_____

Physical Hazards:

_____

Health Hazards, Target Organs, or Systems:

_____

Optional Information, such as Personal Protective Equipment or Safe Handling:

_____

Chemicals Known to Present a Hazard Form						
Chemical name	**SDS on File?**		**Labeled?**		**Training Program?**	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**

SAFETY DATA SHEET — 16 Sections

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier			[WHMIS Classification]	
Product Use				
Manufacturer's Name		Supplier's Name		
Street Address		Street Address		
City	Province	City		Province
Postal Code	Emergency Telephone	Postal Code		Emergency Telephone
Date SDS Prepared	SDS Prepared By		Phone Number	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients *(specific)*	%	CAS Number	LD 50 of Ingredient *(specify species and route*	LC 50 of Ingredient *(specify species)*

SECTION 3 — HAZARDS IDENTIFICATION

Route of Entry ❒ Skin Contact ❒ Skin Absorption ❒ Eye Contact ❒ Inhalation ❒ Ingestion
[Emergency Overview]
WHMIS Symbols
Potential Health Effects

SECTION 4 — FIRST AID MEASURES

Skin Contact
Eye Contact
Inhalation
Ingestion

SECTION 5 — FIRE FIGHTING MEASURES

Flammable ❒Yes ❒ No	If yes, under which conditions?	
Means of Extinction		
Flashpoint (° C) and Method	Upper Flammable Limit (% by volume)	Lower Flammable Limit (% by volume)
Autoignition Temperature (°C)	Explosion Data — Sensitivity to Impact	Explosion Data — Sensitivity to Static Discharge
Hazardous Combustion Products		
[NFPA]		

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures

SECTION 7 — HANDLING AND STORAGE

Handling Procedures and Equipment
Storage Requirements

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits ❒ ACGIH TLV ❒ OSHA PEL ❒ Other *(specify*
Specific Engineering Controls *(such as ventilation, enclosed process)*
Personal Protective Equipment ❒ Gloves ❒ Respirator ❒ Eye ❒ Footwear ❒ Clothing ❒ Other
If checked, please specify type

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Odor and Appearance	Odor Threshold (ppm)
Specific Gravity	Vapor Density (air = 1)	Vapor Pressure (mmHg)
Evaporation Rate	Boiling Point (° C)	Freezing Point (° C)
pH	Coefficient of Water/Oil Distribution	[Solubility in Water]

SECTION 10 — STABILITY AND REACTIVITY

Chemical Stability ❒ Yes ❒ No	If no, under which conditions?
Incompatibility with Other Substances ❒ Yes ❒ No	If yes, which ones?
Reactivity, and under what conditions?	
Hazardous Decomposition Products	

SECTION 11 — TOXICOLOGICAL INFORMATION

Effects of Acute Exposure	
Effects of chronic exposure	
Irritancy of Product	
Skin sensitization	Respiratory sensitization
Carcinogenicity-IARC	Carcinogenicity - ACGIH
Reproductive toxicity	Teratogenicity
Embrotoxicity	Mutagenicity
Name of synergistic products/effects	

SECTION 12 — ECOLOGICAL INFORMATION

[Aquatic Toxicity]

SECTION 13 — DISPOSAL CONSIDERATIONS

Waste Disposal

SECTION 14 — TRANSPORT INFORMATION

Special Shipping Information	
	PIN
TDG	[DOT]
[IMO]	[ICAO]

SECTION 15 — REGULATORY INFORMATION

[WHMIS Classification]	[OSHA]
[SERA]	[TSCA]
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.	

SECTION 16 — OTHER INFORMATION

POLICY

Northern Arizona University / Facility Services has established this electrical safety policy to protect all employees from the hazards of working with and around electricity. This policy is intended for employees who may be exposed to electrical hazards on the job. Employees who are qualified and assigned the duties of performing electrical work should refer to the “Electrical Work” chapter of this manual for additional information. Qualified workers (electrical trade workers) require additional training and or certification.

Many workers in manufacturing and construction deal with potential electrical hazards when working with power equipment and tools, but office personnel and others can also be exposed to these hazards. For that reason, all employees must be trained on electrical hazards and how to avoid them.

RESPONSIBILITIES

EMPLOYER RESPONSIBILITY

Northern Arizona University / Facility Services will ensure:

- All tools and equipment will meet the required safety standards
- Approved personal protective equipment will be provided to employees as needed
- A written electrical safety program will be created and all employees will be trained on the program

SAFETY COMMITTEE RESPONSIBILITIES

If Northern Arizona University / Facility Services has established a safety committee, it will be responsible for:

- Assisting in the creation and implementation of the Northern Arizona University / Facility Services electrical safety program
- Assisting in the development and delivery of electrical safety training
- Identifying issues of non-compliance and hazards related to the use electrical equipment
- Recommending steps to promote safety compliance and adherence to all safe work practices
- Providing an avenue for employees to share concerns and recommend changes regarding electrical safety in the workplace to help ensure a safer work environment

EMPLOYEE RESPONSIBILITIES

Every Northern Arizona University / Facility Services employee is expected to:

- Follow safe work practices and adhere to all precautions and safety requirements when working with or around electrical equipment or circuits
- Understand how to lessen or prevent exposure to electrical hazards through safe work practices and use of personal protective equipment
- Use only hand tools, electric tools, extension cords, and other equipment that is in good repair.
- De-energize electric power circuits and/or equipment before working near, inspecting, or making repairs.
- Understand emergency procedures in the event of an electrical accident
- Report any potential electrical hazards as soon as safely possible to his or her supervisor
- Attend and participate actively in safety trainings
- Exercise good judgment when working near energized lines (including underground and overhead lines). Comply with OSHA regulations and the National Electric Code, NFPA 70 (2015).

HAZARDS

ELECTRICAL SHOCK

An electrical shock is received when electrical current passes through the body. Current will pass through the body in a variety of situations. Whenever two wires are at different voltages, current will pass between them if they are connected. Your body can connect the wires if you touch both of them at the same time. Current will pass through your body.

The severity of injury from electrical shock depends on the amount of electrical current and the length of time the current passes through the body. For example, $^{1}/_{10}$ of an ampere (amp) of electricity going through the body for just 2 seconds is enough to cause death. The amount of internal current a person can withstand and still be able to control the muscles of the arm and hand can be less than 10 milliamperes (milliamps or mA).

The table below shows what usually happens for a range of currents (lasting one second) at typical household voltages. Longer exposure times increase the danger to the shock victim. For example, a current of 100 mA applied for 3 seconds is as dangerous as a current of 900 mA applied for a fraction of a second (0.03 seconds). The muscle structure of the person also makes a difference. People with less muscle tissue are typically affected at lower current levels. Even low voltages can be extremely dangerous because the degree of injury depends not only on the amount of current but also on the length of time the body is in contact with the circuit.

LOW VOLTAGE DOES NOT MEAN LOW HAZARD!

Effects of Electrical Current* on the Body	
Current	**Reaction**
1 milliamp	Just a faint tingle.
5 milliamps	Slight shock felt. Disturbing, but not painful. Most people can "let go." However, strong involuntary movements can cause injuries.
6–25 milliamps (women)† 9–30 milliamps (men)	Painful shock. Muscular control is lost. This is the range where "freezing currents" start. It may not be possible to "let go."
50–150 milliamps	Extremely painful shock, respiratory arrest (breathing stops), severe muscle contractions. Flexor muscles may cause holding on; extensor muscles may cause intense pushing away. Death is possible.
1,000–4,300 milliamps (1–4.3 amps)	Ventricular fibrillation (heart pumping action not rhythmic) occurs. Muscles contract; nerve damage occurs. Death is likely.
10,000 milliamps (10 amps)	Cardiac arrest and severe burns occur. Death is probable.
15,000 milliamps (15 amps)	Lowest over-current at which a typical fuse or circuit breaker opens a circuit!
*Effects are for voltages less than about 600 volts. Higher voltages also cause severe burns. †Differences in muscle and fat content affect the severity of shock.	

ELECTRICAL BURNS

The most common shock-related, nonfatal injury is a burn. Burns caused by electricity may be of three types: electrical burns, arc burns, and thermal contact burns. Electrical burns can result when a person touches electrical wiring or equipment that is used or maintained improperly. Typically, such burns occur on the hands. Electrical burns are one of the most serious injuries you can receive. They need to be given immediate attention. Additionally, clothing may catch fire and a thermal burn may result from the heat of the fire.

Arc-blasts occur when powerful, high-amperage currents arc through the air. Arcing is the luminous electrical discharge that occurs when high voltages exist across a gap between conductors and current travels through the air. This situation is often caused by equipment failure due to abuse or fatigue. Temperatures as high as 35,000°F have been reached in arc- blasts.

Arc blast, or arc flash, usually occurs when working on or near high voltage sources. This work should only be performed by a qualified person.* Additional information on this topic is available in the Arc Flash chapter (if included) in this manual.

* OSHA defines a “qualified person” as someone who has received mandated training on the hazards and on the construction and operation of equipment involved in a task.

ELECTRICAL FIRES

Electricity is one of the most common causes of fires and thermal burns in homes and workplaces. Defective or misused electrical equipment is a major cause of electrical fires. If there is a small electrical fire, be sure to use only a Class C or multipurpose (ABC) fire extinguisher, or you might make the problem worse.

All fire extinguishers are marked with letter(s) that tell you the kinds of fires they can put out. Some extinguishers contain symbols, too.

Thermal burns may result if an explosion occurs when electricity ignites an explosive mixture of material in the air. This ignition can result from the buildup of combustible vapors, gasses, or dusts. Occupational Safety and Health Administration (OSHA) standards, the NEC, and other safety standards give precise safety requirements for the operation of electrical systems and equipment in such dangerous areas. Ignition can also be caused by overheated conductors or equipment, or by normal arcing at switch contacts or in circuit breakers.

PREVENTING ELECTRICAL ACCIDENTS

To prevent electrical accidents, Northern Arizona University / Facility Services will take the following steps:

- Establish proper rules and procedures on working around electrical control cabinets without getting hurt
- Make sure all employees know the importance of de-energizing (shutting off) electrical sources before performing repairs
- Equip voltage-regulating equipment with color-coded wiring
- Ensure that all workers are trained in CPR
- Prevent injuries and deaths by remembering the following points:
- Test electrical circuits to make sure that they are de-energized before performing any work Note: only qualified personnel can perform work on circuits, including testing
- Be sure to lock out and tag out circuits so they cannot be re-energized
- Always assume a conductor is dangerous

PERSONAL PROTECTIVE EQUIPMENT

Employees who are not working directly on energized parts, equipment, or circuits may still be required to wear PPE to prevent the risk of electrical injury. This equipment must meet OSHA/ANSI requirements and be appropriate for the parts of the body that need protection and the work performed. When working near electrical circuits, or on equipment that could become energized, employees should:

Wear electrically protective gloves
Wear insulated shoes
Use only insulated tools

FIRST AID FOR ELECTRICAL INJURIES

If a co-worker is shocked or burned by electricity, the following actions need to be taken.

Shut off the electrical current if the victim is still in contact with the energized circuit. While you do this, have someone else call for help. If you cannot get to the switchgear quickly, pry the victim from the circuit with something that does not conduct electricity such as dry wood. Do not touch the victim yourself if he or she is still in contact with an electrical circuit! You do not want to be a victim, too!

Do not leave the victim unless there is absolutely no other option. You should stay with the victim while Emergency Medical Services (EMS) is contacted. The caller should come back to you afterwards to verify that the call was made. If the victim is not breathing, does not have a heartbeat, or is badly injured, quick response by a team of emergency medical technicians (EMT's) or paramedics gives the best chance for survival.

Once you know that electrical current is no longer flowing through the victim, call out to the victim to see if he or she is conscious (awake). If the victim is conscious, tell the victim not to move. It is possible for a shock victim to be seriously injured but not realize it. Quickly examine the victim for signs of major bleeding. If there is a lot of bleeding, place a cloth (such as a handkerchief or bandanna) over the wound and apply pressure. If the wound is in an arm or leg and keeps bleeding a lot, gently elevate the injured area while keeping pressure on the wound. Keep the victim warm and talk to him or her until help arrives.

If the victim is unconscious, check for signs of breathing. While you do this, move the victim as little as possible. If the victim is not breathing, someone trained in CPR should begin artificial breathing, then check to see if the victim has a pulse.

Quick action is essential! To be effective, CPR must be performed within 4 minutes of the shock. If you are not trained in CPR or first aid, now is the time to get trained—before you find yourself in this situation! Ask your supervisor how you can become certified in CPR.

You also need to know the location of:

- Electricity shut-offs ("kill switches").
- First-aid supplies.
- A telephone so you can find them quickly in an emergency.

CREATE A SAFE WORK ENVIRONMENT

A safe work environment is created by controlling contact with electrical voltages and the currents they can cause. Electrical currents need to be controlled so they do not pass through the body. In addition to preventing shocks, a safe work environment reduces the chance of fires, burns, and falls.

You need to guard against contact with electrical voltages and control electrical currents in order to create a safe work environment.

A safe work environment is not enough to control all electrical hazards. You must also work safely. Safe work practices help you control your risk of injury or death from workplace hazards. If you are working on electrical circuits or with electrical tools and equipment, you need to use safe work practices.

Before you begin a task, ask yourself:

What could go wrong?
Do I have the knowledge, tools, and experience to do this work safely?

All workers should be very familiar with the safety procedures for their jobs. You must know how to use specific controls that help keep you safe. You must also use good judgment and common sense.

Make your environment safer by doing the following:

- Treat all conductors—even “de-energized” ones—as if they are energized until they are locked out and tagged.
- Lock out and tag out circuits and machines.
- Prevent overloaded wiring by using the right size and type of wire.
- Prevent exposure to live electrical parts by isolating them.
- Prevent exposure to live wires and parts by using insulation.
- Prevent shocking currents from electrical systems and tools by grounding them.
- Prevent shocking currents by using GFCIs.
- Prevent too much current in circuits by using overcurrent protection devices.

ELEMENTS OF ELECTRICAL SAFETY

Northern Arizona University / Facility Services employees will use the three-stage approach to safety: recognize, evaluate, and control hazards. To be safe, you must think about your job and plan for hazards. To avoid injury or death, you must understand and recognize hazards. You need to evaluate the situation you are in and assess your risks. You need to control hazards by creating a safe work environment, by using safe work practices, and by reporting hazards to a supervisor. If you do not recognize, evaluate, and control hazards, you may be injured or killed by the electricity itself, electrical fires, or falls.

RECOGNIZE HAZARDS

The first part of the safety model is recognizing the hazards around you. Only then, can you avoid or control the hazards. It is best to discuss and plan hazard recognition tasks with your co- workers. Sometimes others see hazards that we overlook. Of course, it is possible to be talked out of our concerns by someone who is reckless or dangerous. Do not take a chance. Careful planning of safety procedures reduces the risk of injury.

Knowing where to look helps you to recognize hazards.

- Inadequate wiring is dangerous.
- Exposed electrical parts are dangerous.
- Overhead power-lines are dangerous.
- Wires with bad insulation can give you a shock.
- Electrical systems and tools that are not grounded or double-insulated are dangerous.
- Damaged power tools and equipment are electrical hazards.
- Using the wrong PPE is dangerous.
- Using the wrong tool is dangerous.
- Some on-site chemicals are harmful.
- Defective ladders and scaffolding are dangerous.
- Ladders that conduct electricity are dangerous.
- Electrical hazards can be made worse if the worker, location, or equipment is wet.
- Overloaded circuits are dangerous

HAZARD INDICATORS

- Tripped circuit breakers and blown fuses show that too much current is flowing in a circuit. This condition could be due to several factors, such as malfunctioning equipment or a short between conductors. You need to determine the cause in order to control the hazard.
- An electrical tool, appliance, wire, or connection that feels warm may indicate too much current in the circuit or equipment. A qualified person should evaluate the situation.
- An extension cord that feels warm may indicate too much current for the wire size of the cord. You must decide when action needs to be taken.
- A cable, fuse box, or junction box that feels warm may indicate too much current in the circuits.
- A burning odor may indicate overheated insulation.
- Worn, frayed, or damaged insulation around any wire or other conductor is an electrical hazard because the conductors could be exposed. Contact with an exposed wire could cause a shock. Damaged insulation could cause a short, leading to arcing or a fire. Inspect all insulation for scrapes and breaks. You need to evaluate the seriousness of any damage you find and decide how to deal with the hazard.
- A GFCI that trips indicates there is current leakage from the circuit. First, you must decide the probable cause of the leakage by recognizing any contributing hazards. Then, you must decide what action needs to be taken.

Any of these conditions, or “clues,” tell you something important: There is a risk of fire and electrical shock. The equipment or tools involved must be avoided. You will frequently be caught in situations where you need to decide if these clues are present. A supervisor needs to be called if there are signs of overload and you are not sure of the degree of risk. Ask for help whenever you are not sure what to do. By asking for help, you will protect yourself and others.

EVALUATE HAZARDS

After you recognize a hazard, your next step is to evaluate your risk from the hazard. Obviously, exposed wires should be recognized as a hazard. If the exposed wires are 15 feet off the ground, your risk is low. However, if you are going to be working on a roof near those same wires, your risk is high. The risk of shock is greater if you will be carrying metal conduit that could touch the exposed wires. You must constantly evaluate your risk.

Combinations of hazards increase your risk. Improper grounding and a damaged tool greatly increase your risk. Wet conditions combined with other hazards also increase your risk. You will need to make decisions about the nature of hazards in order to evaluate your risk and do the right thing to remain safe.

There are “clues” that electrical hazards exist. For example, if a GFCI keeps tripping while you are using a power tool, there is a problem. Do not keep resetting the GFCI and continue to work. You must evaluate the “clue” and decide what action should be taken to control the hazard.

CONTROL HAZARDS

Once electrical hazards have been recognized and evaluated, they must be controlled.

In order to control hazards, you must first create a safe work environment, and then work in a safe manner. Generally, it is best to remove the hazards altogether and create an environment that is truly safe. When OSHA regulations and the NEC are followed, safe work environments are created.

However, you never know when materials or equipment might fail. Prepare yourself for the unexpected by using safe work practices. Use as many safeguards as possible. If one fails, another may protect you from injury or death.

Controlling electrical hazards (as well as other hazards) reduces the risk of injury or death.

HAZARD TYPES

WIRING HAZARDS

An electrical hazard exists when the wire is too small a gauge for the current it will carry. Normally, the circuit breaker in a circuit is matched to the wire size. However, in older wiring, branch lines to permanent ceiling light fixtures could be wired with a smaller gauge than the supply cable.

For example, let’s say a light fixture is replaced with another device that uses more current. The current capacity (ampacity) of the branch wire could be exceeded. When a wire is too small for the current it is supposed to carry, the wire will heat up. The heated wire could cause a fire.

When you use an extension cord, the size of the wire you are placing into the circuit may be too small for the equipment. The circuit breaker could be the right size for the circuit but not right for the smaller-gauge extension cord. A tool plugged into the extension cord may use more current than the cord can handle without tripping the circuit breaker. The wire will overheat and could cause a fire.

The kind of metal used as a conductor can cause an electrical hazard. Special care needs to be taken with aluminum wire. Since it is more brittle than copper, aluminum wire can crack and break more easily. Connections with aluminum wire can become loose and oxidize if not made properly, creating heat or arcing. You need to recognize that inadequate wiring is a hazard.

EXPOSED ELECTRICAL PARTS HAZARDS

Electrical hazards exist when wires or other electrical parts are exposed. Wires and parts can be exposed if a cover is removed from a wiring or breaker box. The overhead wires coming into a home may be exposed. Electrical terminals in motors, appliances, and electronic equipment may be exposed. Older equipment may have exposed electrical parts. If you contact exposed live electrical parts, you will be shocked. You need to recognize that an exposed electrical component is a hazard.

OVERHEAD POWER-LINE HAZARDS

Most people do not realize that overhead power-lines are usually not insulated. More than half of all electrocutions are caused by direct worker contact with energized power-lines. Power-line workers must be especially aware of the dangers of overhead lines. In the past, 80% of all lineman deaths were caused by contacting a live wire with a bare hand. Due to such incidents, all linemen now wear special rubber gloves that protect them up to 34,500 volts. Today, most electrocutions involving overhead power-lines are caused by failure to maintain proper work distances.

Shocks and electrocutions occur where physical barriers are not in place to prevent contact with the wires. When dump trucks, cranes, work platforms, or other conductive materials (such as pipes and ladders) contact overhead wires, the equipment operator or other workers can be killed. If you do not maintain required clearance distances from power-lines, you can be shocked and killed. (The minimum distance for voltages up to 50kV is 10 feet. For voltages over 50kV, the minimum distance is 10 feet plus 4 inches for every 10 kV over 50kV.) Never store materials and equipment under or near overhead power-lines. You need to recognize that overhead power-lines are a hazard.

DEFECTIVE INSULATION HAZARDS

Insulation that is defective or inadequate is an electrical hazard. Usually, a plastic or rubber covering insulates wires. Insulation prevents conductors from coming in contact with each other. Insulation also prevents conductors from coming in contact with people.

Extension cords may have damaged insulation. Sometimes the insulation inside an electrical tool or appliance is damaged. When insulation is damaged, exposed metal parts may become energized if a live wire inside touches them.

Electric hand tools that are old, damaged, or misused may have damaged insulation inside. If you touch damaged power tools or other equipment, you will receive a shock. You are more likely to receive a shock if the tool is not grounded or double-insulated. (Double-insulated tools have two insulation barriers and no exposed metal parts.) You need to recognize that defective insulation is a hazard.

IMPROPER GROUNDING HAZARDS

When an electrical system is not grounded properly, a hazard exists. The most common OSHA electrical violation is improper grounding of equipment and circuitry. The metal parts of an electrical wiring system that we touch (switch plates, ceiling light fixtures, conduit, etc.) should be grounded and at 0 volts. If the system is not grounded properly, these parts may become energized. Metal parts of motors, appliances, or electronics that are plugged into improperly grounded circuits may be electrified. When a circuit is not grounded properly, a hazard exists because unwanted voltage cannot be safely eliminated. If there is no safe path to ground for fault currents, exposed metal parts in damaged appliances can become energized.

Extension cords may not provide a continuous path to ground because of a broken ground wire or plug. If you come in contact with a defective electrical device that is not grounded or grounded improperly), you will be shocked. You need to recognize that an improperly grounded electrical system is a hazard.

Electrical systems are often grounded to metal water pipes that serve as a continuous path to ground. If plumbing is used as a path to ground for fault current, all pipes must be made of conductive material (a type of metal). Many electrocutions and fires occur because (during renovation or repair) parts of metal plumbing are replaced with plastic pipe, which does not conduct electricity. In these cases, the path to ground is interrupted by nonconductive material.

A ground fault circuit interrupter, or GFCI, is an inexpensive lifesaver. GFCIs detect any difference in current between the two circuit wires (the black wires and white wires). This difference in current can occur when electrical equipment is not working correctly, causing leakage current. If leakage current (a ground fault) is detected in a GFCI-protected circuit, the GFCI switches off the current in the circuit, protecting you from a dangerous shock. GFCIs are set at about 5 mA and are designed to protect workers from electrocution. GFCIs are able to detect the loss of current resulting from leakage through a person who is beginning to be shocked.

If this situation occurs, the GFCI switches off the current in the circuit. GFCIs are different from circuit breakers because they detect leakage currents rather than overloads. Circuits with missing, damaged, or improperly wired GFCIs may allow you to be shocked. You need to recognize that a circuit improperly protected by a GFCI is a hazard.

OVERLOAD HAZARDS

Overloads in an electrical system are hazardous because they can produce heat or arcing. Wires and other components in an electrical system or circuit have a maximum amount of current they can carry safely. If too many devices are plugged into a circuit, the electrical current will heat the wires to a very high temperature. If anyone tool uses too much current, the wires will heat up. The temperature of the wires can be high enough to cause a fire. If their insulation melts, arcing may occur. Arcing can cause a fire in the area where the overload exists, even inside a wall.

In order to prevent too much current in a circuit, a circuit breaker or fuse is placed in the circuit. If there is too much current in the circuit, the breaker "trips" and opens like a switch. If an overloaded circuit is equipped with a fuse, an internal part of the fuse melts, opening the circuit. Both breakers and fuses do the same thing: open the circuit to shut off the electrical current.

If the breakers or fuses are too big for the wires they are supposed to protect, an overload in the circuit will not be detected and the current will not be shut off. Overloading leads to overheating of circuit components (including wires) and may cause a fire. You need to recognize that a circuit with improper overcurrent protection devices—or one with no overcurrent protection devices at all—is a hazard.

Overcurrent protection devices are built into the wiring of some electric motors, tools, and electronic devices. For example, if a tool draws too much current or if it overheats, the current will be shut off from within the device itself. Damaged tools can overheat and cause a fire. You need to recognize that a damaged tool is a hazard.

WET CONDITIONS HAZARDS

Working in wet conditions is hazardous because you may become an easy path for electrical current. If you touch a live wire or other electrical component—and you are well-grounded because you are standing in even a small puddle of water—you will receive a shock.

Damaged insulation, equipment, or tools can expose you to live electrical parts. A damaged tool may not be grounded properly, so the housing of the tool may be energized, causing you to receive a shock. Improperly grounded metal switch plates and ceiling lights are especially hazardous in wet conditions. If you touch a live electrical component with an uninsulated hand tool, you are more likely to receive a shock when standing in water.

Remember: you don't have to be standing in water to be electrocuted. Wet clothing, high humidity, and perspiration also increase your chances of being electrocuted. You need to recognize that all wet conditions are hazards.

ADDITIONAL HAZARDS

In addition to electrical hazards, other types of hazards are present at job sites. Remember that all of these hazards can be controlled.

There may be chemical hazards. Solvents and other substances may be poisonous or cause disease.

Frequent overhead work can cause tendonitis (inflammation) in your shoulders.

Intensive use of hand tools that involve force or twisting can cause tendonitis of the hands, wrists, or elbows. Use of hand tools can also cause carpal tunnel syndrome, which results when nerves in the wrist are damaged by swelling tendons or contracting muscles.

Low back pain can result from lifting objects the wrong way or carrying heavy loads of wire or other material. Back pain can also occur because of injury from poor working surfaces such as wet or slippery floors. Back pain is common, but it can be disabling and can affect young individuals.

Chips and particles flying from tools can injure your eyes. Wear eye protection.

Falling objects can hit you. Wear a hard hat.

Sharp tools and power equipment can cause cuts and other injuries. If you receive a shock, you may react and be hurt by a tool.

You can be injured or killed by falling from a ladder or scaffolding. If you receive a shock—even a mild one—you may lose your balance and fall. Even without being shocked, you could fall from a ladder or scaffolding.

You expose yourself to hazards when you do not wear PPE. All of these situations need to be recognized as hazards.

HAZARD CONTROL

LOCK-OUT AND TAG-OUT CIRCUITS AND EQUIPMENT

Create a safe work environment by locking out and tagging out circuits and machines. Before working on a circuit, you must turn off the power supply. Once the circuit has been shut off and de-energized, lock out the switchgear to the circuit so the power cannot be turned back on inadvertently. Then, tag out the circuit with an easy-to-see sign or label that lets everyone know that you are working on the circuit.

If you are working on or near machinery, you must lock out and tag out the machinery to prevent startup. Before you begin work, you must test the circuit to make sure it is de-energized.

OSHA requires companies to have adequate machine-specific procedures for lock-out/tag-out. These should be written procedures that are on site and readily available to employees. Provide training on lock-out/tag-out to both authorized and affected employees. Interlocks may not be used as lockout or as equivalent lockout protection.

For more information on lock-out/tag-out procedures, see the “Controlling Hazardous Energy” chapter (if included) of this manual.

CONTROL INADEQUATE WIRING HAZARDS

Electrical hazards result from using the wrong size or type of wire. You must control such hazards to create a safe work environment. You must choose the right size wire for current expected in a circuit. The wire must be able to handle the current safely. The wire’s insulation must be appropriate for the voltage and tough enough for the environment. Connections need to be reliable and protected.

Maximum Current Different Wire Sizes Can Safely Conduct							
Gauge	12 AWG (stranded)	12 AWG (solid)	10 AWG	8 AWG	6 AWG	2 AWG	1/0 AWG
Amperage	25 amps	25 amps	30 amps	40 amps	55 amps	95 amps	125 amps

CONTROL HAZARDS OF FIXED WIRING

The wiring methods and size of conductors used in a system depend on several factors:

- Intended use of the circuit system
- Building materials
- Size and distribution of electrical load
- Location of equipment (such as underground burial)
- Environmental conditions (such as dampness)
- Presence of corrosives
- Temperature extremes

Fixed, permanent wiring is better than extension cords, which can be misused and damaged more easily. NEC requirements for fixed wiring should always be followed. A variety of materials can be used in wiring applications, including nonmetallic sheathed cable (Romex®), armored cable, and metal and plastic conduit. The choice of wiring material depends on the wiring environment and the need to support and protect wires.

Aluminum wire and connections should be handled with special care. Connections made with aluminum wire can loosen due to heat expansion and oxidize if they are not made properly. Loose or oxidized connections can create heat or arcing. Special clamps and terminals are necessary to make proper connections using aluminum wire. Antioxidant paste can be applied to connections to prevent oxidation.

CONTROL HAZARDS OF FLEXIBLE WIRING

Electrical cords supplement fixed wiring by providing the flexibility required for maintenance, portability, isolation from vibration, and emergency and temporary power needs. Flexible wiring can be used for extension cords or power supply cords. Power supply cords can be removable or permanently attached to the appliance. **DO NOT** use flexible wiring in situations where frequent inspection would be difficult, where damage would be likely, or where long-term electrical supply is needed. Flexible cords cannot be used as a substitute for the fixed wiring of a structure.

Flexible cords must not be

- Run through holes in walls, ceilings, or floors.
- Run through doorways, windows, or similar openings (unless physically protected).
- Attached to building surfaces (except with a tension take-up device within 6 feet of the supply end).
- Hidden in walls, ceilings, or floors.
- Hidden in conduit or other raceways.

USE THE RIGHT EXTENSION CORD

The size of wire in an extension cord must be compatible with the amount of current the cord will be expected to carry. The amount of current depends on the equipment plugged into the extension cord. Current ratings (how much current a device needs to operate) are often printed on the nameplate. If a power rating is given, it is necessary to divide the power rating in watts by the voltage to find the current rating. For example, a 1,000-watt heater plugged into a 120-volt circuit will need almost 10 amps of current. Let's look at another example: A 1- horsepower electric motor uses electrical energy at the rate of almost 750 watts, so it will need a minimum of about 7 amps of current on a 120-volt circuit. However, electric motors need additional current as they startup or if they stall, requiring up to 200% of the nameplate current rating. Therefore, the motor would need 14 amps.

Add to find the total current needed to operate all the appliances supplied by the cord. Choose a wire size that can handle the total current.

American Wire Gauge (AWG)	
Wire Size	***Handles Up To***
#10 AWG	30 amps
#12 AWG	25 amps
#14 AWG	18 amps
#16 AWG	13 amps
Remember: The larger the gauge number, the smaller the wire!	

The length of the extension cord also needs to be considered when selecting the wire size. Voltage drops over the length of a cord. If a cord is too long, the voltage drop can be enough to damage equipment. Many electric motors only operate safely in a narrow range of voltages and will not work properly at voltages different from the voltage listed on the nameplate. Even though light bulbs operate (somewhat dimmer) at lowered voltages, do not assume electric motors will work correctly at less-than-required voltages. In addition, when electric motors start or operate under load, they require more current. The larger the size of the wire, the longer a cord can be without causing a voltage drop that could damage tools and equipment.

The grounding path for extension cords must be kept intact to keep you safe.

A typical extension cord grounding system has four components:

1. A third wire in the cord, called a ground wire.
2. A three-prong plug with a grounding prong on one end of the cord.
3. A three-wire, grounding-type receptacle at the other end of the cord.
4. A properly grounded outlet.

CONTROL HAZARDS OF EXPOSED LIVE ELECTRICAL PARTS

Isolate Energized Components

Electrical hazards exist when wires or other electrical parts are exposed. These hazards need to be controlled to create a safe work environment. Isolation of energized electrical parts makes them inaccessible unless tools and special effort are used. Isolation can be accomplished by placing the energized parts at least 8 feet high and out of reach, or by guarding. Guarding is a type of isolation that uses various structures—like cabinets, boxes, screens, barriers, covers, and partitions—to close-off live electrical parts.

Take the following precautions to prevent injuries from contact with live parts:

- Immediately report exposed live parts to a supervisor.
- Unless qualified, you should never attempt to correct the condition yourself without supervision.
- Provide guards or barriers if live parts cannot be enclosed completely.
- Use covers, screens, or partitions for guarding that require tools to remove them.
- Replace covers that have been removed from panels, motors, or fuse boxes.
- Even when live parts are elevated to the required height (8 feet), care should be taken when using objects (like metal rods or pipes) that can contact these parts.
- Close unused conduit openings in boxes so that foreign objects (pencils, metal chips, conductive debris, etc.) cannot get inside and damage the circuit.

CONTROL HAZARDS OF EXPOSURE TO LIVE ELECTRICAL WIRES

Use Proper Insulation

Insulation is made of material that does not conduct electricity (usually plastic, rubber, or fiber). Insulation covers wires and prevents conductors from coming in contact with each other or any other conductor. If conductors make contact, a short circuit is created.

In a short circuit, current passes through the shorting material without passing through a load in the circuit, and the wire becomes overheated. Insulation keeps wires and other conductors from touching, which prevents electrical short circuits. Insulation prevents live wires from touching people and animals, thus protecting them from electrical shock.

Insulation helps protect wires from physical damage and conditions in the environment. Insulation is used on almost all wires, except some ground wires and some high-voltage transmission lines. Insulation is used internally in tools, switches, plugs, and other electrical and electronic devices.

Special insulation is used on wires and cables that are used in harsh environments. Wires and cables that are buried in soil must have an outer covering of insulation that is flame-retardant and resistant to moisture, fungus, and corrosion.

In all situations, you must be careful not to damage insulation while installing it. Do not allow staples or other supports to damage the insulation. Bends in a cable must have an inside radius of at least 5 times the diameter of the cable so that insulation at a bend is not damaged. Extension cords come with insulation in a variety of types and colors. The insulation of extension cords is especially important.

Since extension cords often receive rough handling, the insulation can be damaged. Extension cords might be used in wet places, so adequate insulation is necessary to prevent shocks. Because extension cords are often used near combustible materials (such as wood shavings and sawdust) a short in an extension cord could easily cause arcing and a fire.

Insulation on individual wires is often color-coded. In general, insulated wires used as equipment grounding conductors are either continuous green or green with yellow stripes. The grounded conductors that complete a circuit are generally covered with continuous white or gray insulation. The ungrounded conductors, or “hot” wires, may be any color other than green, white, or gray. They are usually black or red.

CONDUCTOR AND CABLE MARKINGS

Conductors and cables must be marked by the manufacturer to show the following:

- Maximum voltage capacity
- AWG size
- Insulation-type letter
- Manufacturer’s name or trademark

CONTROL SHOCK HAZARDS

When an electrical system is not grounded properly, a hazard exists. This is because the parts of an electrical wiring system that a person normally touches may be energized, or live, relative to ground. Parts like switch plates, wiring boxes, conduit, cabinets, and lights need to be at 0 volts relative to ground. If the system is grounded improperly, these parts may be energized. The metal housings of equipment plugged into an outlet need to be grounded through the plug.

Grounding is connecting an electrical system to the earth with a wire. Excess or stray current travels through this wire to a grounding device (commonly called a “ground”) deep in the earth. Grounding prevents unwanted voltage on electrical components. Metal plumbing is often used as a ground. When plumbing is used as a grounding conductor, it must also be connected to a grounding device such as a conductive rod. (Rods used for grounding must be driven at least 8 feet into the earth.

Sometimes an electrical system will receive a higher voltage than it is designed to handle. These high voltages may come from a lightning strike, line surge, or contact with a higher voltage line. Sometimes a defect occurs in a device that allows exposed metal parts to become energized. Grounding will help protect the person working on a system, the system itself, and others using tools or operating equipment connected to the system. The extra current produced by the excess voltage travels relatively safely to the earth.

Grounding creates a path for currents produced by unintended voltages on exposed parts. These currents follow the grounding path, rather than passing through the body of someone who touches the energized equipment. However, if a grounding rod takes a direct hit from a lightning strike and is buried in sandy soil, the rod should be examined to make sure it will still function properly. The heat from a lightning strike can cause the sand to turn into glass, which is an insulator. A grounding rod must be in contact with damp soil to be effective.

Leakage current occurs when an electrical current escapes from its intended path. Leakages are sometimes low-current faults that can occur in all electrical equipment because of dirt, wear, damage, or moisture. A good grounding system should be able to carry off this leakage current. A ground fault occurs when current passes through the housing of an electrical device to ground. Proper grounding protects against ground faults. Ground faults are usually caused by misuse of a tool or damage to its insulation. This damage allows a bare conductor to touch metal parts or the tool housing.

When you ground a tool or electrical system, you create a low-resistance path to the earth (known as a ground connection). When done properly, this path has sufficient current-carrying capacity to eliminate voltages that may cause a dangerous shock. Grounding does not guarantee that you will not be shocked, injured, or killed from defective equipment. However, it greatly reduces the possibility.

EQUIPMENT GROUNDING REQUIREMENTS

Equipment needs to be grounded under any of these circumstances:

- The equipment is within 8 feet vertically and 5 feet horizontally of the floor or walking surface.
- The equipment is within 8 feet vertically and 5 feet horizontally of grounded metal objects, you could touch.
- The equipment is located in a wet or damp area and is not isolated.
- The equipment is connected to a power supply by cord and plug and is not double-insulated.

USE OF GFCIS

The use of GFCIs have lowered the number of electrocutions dramatically. A GFCI is a fast- acting switch that detects any difference in current between two circuit conductors. If either conductor comes in contact—either directly or through part of your body—with a ground (a situation known as a ground fault), the GFCI opens the circuit in a fraction of a second. If a current as small as 4 to 6 mA does not pass through both wires properly, but instead leaks to the ground, the GFCI is tripped. The current is shut off.

There is a more sensitive kind of GFCI called an isolation GFCI. If a circuit has an isolation GFCI, the ground fault current passes through an electronic sensing circuit in the GFCI. The electronic sensing circuit has enough resistance to limit current to as little as 2 mA, which is too low to cause a dangerous shock.

GFCIs are usually in the form of a duplex receptacle. They are also available in portable and plug-in designs and as circuit breakers that protect an entire branch circuit. GFCIs can operate on both two- and three-wire ground systems. For a GFCI to work properly, the neutral conductor (white wire) must:

- Be continuous
- Have low resistance
- Have sufficient current-carrying capacity

GFCIs help protect you from electrical shock by continuously monitoring the circuit. However, a GFCI does not protect a person from line-to-line hazards such as touching two “hot” wires (240 volts) at the same time or touching a “hot” and neutral wire at the same time. Also, be aware that instantaneous currents can be high when a GFCI is tripped. A shock may still be felt. Your reaction to the shock could cause injury, perhaps from falling.

Test GFCIs regularly by pressing the “test” button. If the circuit does not turn off, the GFCI is faulty and must be replaced.

The NEC requires that GFCIs be used in these high-risk situations:

- Electricity is used near water.
- The user of electrical equipment is grounded (by touching grounded material).
- Circuits are providing power to portable tools or outdoor receptacles.
- Temporary wiring or extension cords are used.

Specifically, GFCIs must be installed in bathrooms, garages, outdoor areas, crawl spaces, unfinished basements, kitchens, and near wet bars.

BOND COMPONENTS TO ASSURE GROUNDING PATH

In order to assure a continuous, reliable electrical path to ground, a bonding jumper wire is used to make sure electrical parts are connected. Some physical connections, like metal conduit coming into a box, might not make a good electrical connection because of paint or possible corrosion. To make a good electrical connection, a bonding jumper needs to be installed.

A metal cold water pipe that is part of a path to ground may need bonding jumpers around plastic anti-vibration devices, plastic water meters, or sections of plastic pipe. A bonding jumper is made of conductive material and is tightly connected to metal pipes with screws or clamps to bypass the plastic and assure a continuous grounding path. Bonding jumpers are necessary because plastic does not conduct electricity and would interrupt the path to ground.

Additionally, interior metal plumbing must be bonded to the ground for electrical service equipment in order to keep all grounds at the same potential (0 volts). Even metal air ducts should be bonded to electrical service equipment.

CONTROL OVERLOAD CURRENT HAZARDS

When a current exceeds the current rating of equipment or wiring, a hazard exists. The wiring in the circuit, equipment, or tool cannot handle the current without heating up or even melting.

Not only will the wiring or tool be damaged, but the high temperature of the conductor can also cause a fire. To prevent this from happening, an overcurrent protection device (circuit breaker or fuse) is used in a circuit. These devices open a circuit automatically if they detect current in excess of the current rating of equipment or wiring. This excess current can be caused by an overload, short circuit, or high-level ground fault.

Overcurrent protection devices are designed to protect equipment and structures from fire. They do not protect you from electrical shock! Overcurrent protection devices stop the flow of current in a circuit when the amperage is too high for the circuit. A circuit breaker or fuse will not stop the relatively small amount of current that can cause injury or death. Death can result from 20 mA (.020 amps) through the chest. A typical residential circuit breaker or fuse will not shut off the circuit until a current of more than 20 amps is reached!

However, overcurrent protection devices are not allowed in areas where they could be exposed to physical damage or in hazardous environments. Overcurrent protection devices can heat up and occasionally arc or spark, which could cause a fire or an explosion in certain areas. Hazardous environments are places that contain flammable or explosive materials such as flammable gasses or vapors (Class I Hazardous Environments), finely pulverized flammable dusts (Class II Hazardous Environments), or fibers or metal filings that can catch fire easily (Class III Hazardous Environments). Hazardous environments may be found in aircraft hangars, gas stations, storage plants for flammable liquids, grain silos, and mills where cotton fibers may be suspended in the air.

Special electrical systems are required in hazardous environments.

If an overcurrent protection device opens a circuit, there may be a problem along the circuit. (In the case of circuit breakers, frequent tripping may also indicate that the breaker is defective.) When a circuit breaker trips or a fuse blows, the cause must be found.

A circuit breaker is one kind of overcurrent protection device. It is a type of automatic switch located in a circuit. A circuit breaker trips when too much current passes through it. A circuit breaker should not be used regularly to turn power on or off in a circuit, unless the breaker is designed for this purpose and marked “SWD” (stands for “switching device”).

A fuse is another type of overcurrent protection device. A fuse contains a metal conductor that has a relatively low melting point. When too much current passes through the metal in the fuse, it heats up within a fraction of a second and melts, opening the circuit. After an overload is found and corrected, a blown fuse must be replaced with a new one of appropriate amperage.

AVOID WET WORKING CONDITIONS AND OTHER DANGERS

Remember that any hazard becomes much more dangerous in damp or wet conditions. To be on the safe side, assume there is dampness in any work location, even if you do not see water. Even sweat can create a damp condition!

AVOID OVERHEAD POWER LINES

Be very careful not to contact overhead power lines or other exposed wires. More than half of all electrocutions are caused by contact with overhead lines. When working in an elevated position near overhead lines, avoid locations where you (and any conductive object you hold) could contact an unguarded or uninsulated line. You should be at least 10 feet away from high-voltage transmission lines.

Vehicle operators should also pay attention to overhead wiring. Dump trucks, front-end loaders, and cranes can lift and make contact with overhead lines. If you contact equipment that is touching live wires, you will be shocked and may be killed. If you are in the vehicle, stay inside. Always be aware of what is going on around you.

USE PROPER WIRING AND CONNECTORS

- Avoid overloads — Do not overload circuits.
- Test GFCIs — Test GFCIs monthly using the “test” button.
- Check switches and insulation — Tools and other equipment must operate properly.
- Make sure that switches and insulating parts are in good condition.
- Use three-prong plugs — Never use a three-prong grounding plug with the third prong broken off.

When using tools that require a third-wire ground, use only three-wire extension cords, with three-prong grounding plugs, and three-hole electrical outlets. Never remove the grounding prong from a plug! You could be shocked or expose someone else to a hazard. If you see a cord without a grounding prong in the plug, remove the cord from service immediately.

Use extension cords properly — If an extension cord must be used, choose one with sufficient ampacity for the tool being used. An undersized cord can overheat and cause a drop in voltage and tool power. Check the tool manufacturer’s recommendations for the required wire gauge and cord length. Make sure the insulation is intact. To reduce the risk of damage to a cord’s insulation, use cords with insulation marked “S” (hard service) rather than cords marked “SJ” (junior hard service). Make sure the grounding prong is intact. In damp locations, make sure wires and connectors are waterproof and approved for such locations. Do not create a tripping hazard.

Check power cords and extensions — Electrical cords should be inspected regularly using the following procedure:

Remove the cord from the electrical power source before inspecting.

Make sure the grounding prong is present in the plug.

Make sure the plug and receptacle are not damaged.

Wipe the cord clean with a diluted detergent and examine for cuts, breaks, abrasions, and defects in the insulation.

Coil or hang the cord for storage. Do not use any other methods. Coiling or hanging is the best way to avoid tight kinks, cuts, and scrapes that can damage insulation or conductors.

You should also test electrical cords regularly for ground continuity using a continuity tester as follows:

- Connect one lead of the tester to the ground prong at one end of the cord.
- Connect the second lead to the ground wire hole at the other end of the cord.
- If the tester lights up or beeps (depending on design), the cord's ground wire is okay. If not, the cord is damaged and should not be used.
- Do not pull on cords — Always disconnect a cord by the plug.
- Use correct connectors — Use electrical plugs and receptacles that are right for your current and voltage needs. Connectors are designed for specific currents and voltages so that only matching plugs and receptacles will fit together. This safeguard prevents a piece of equipment, a cord, and a power source with different voltage and current requirements from being plugged together. Standard configurations for plugs and receptacles have been established by the National Electric Manufacturers Association (NEMA).
- Use locking connectors — Use locking-type attachment plugs, receptacles, and other connectors to prevent them from becoming unplugged.

USE AND MAINTAIN TOOLS PROPERLY

Your tools are at the heart of your craft. Tools help you do your job with a high degree of quality. Tools can do something else, too. They can cause injury or even death! You must use the right tools for the job. Proper maintenance of tools and other equipment is very important. Inadequate maintenance can cause equipment to deteriorate, creating dangerous conditions.

Inspect tools before using them — Check for cracked casings, dents, missing or broken parts, and contamination (oil, moisture, dirt, corrosion). Damaged tools must be removed from service and properly tagged. These tools should not be used until they are repaired and tested.

Use the right tool correctly — Use tools correctly and for their intended purposes. Follow the safety instructions and operating procedures recommended by the manufacturer. When working on a circuit, use approved tools with insulated handles. **However, do not use these tools to work on energized circuits. A lways shut off and de-energize circuits before beginning work on them.**

Protect your tools — Keep tools and cords away from heat, oil, and sharp objects. These hazards can damage insulation. If a tool or cord heats up, stop using it! Report the condition to a supervisor immediately. If equipment has been repaired, make sure that it has been tested and certified as safe before using it. Never carry a tool by the cord. Disconnect cords by pulling the plug—not the cord!

Use double-insulated tools — Portable electrical tools are classified by the number of insulation barriers between the electrical conductors in the tool and the worker. The NEC permits the use of portable tools only if they have been approved by Underwriter's Laboratories (UL Listed). Equipment that has two insulation barriers and no exposed metal parts is called double-insulated.

When used properly, double-insulated tools provide reliable shock protection without the need for a third ground wire. Power tools with metal housings or only one layer of effective insulation must have a third ground wire and three-prong plug.

Use multiple safe practices — Remember: A circuit may not be wired correctly. Wires may contact other "hot" circuits. Someone else may do something to place you in danger. Take all possible precautions.

ATTACHMENTS

The following pages contain a Safe Electrical Practices Checklist that can be reproduced and used by Northern Arizona University / Facility Services and its employees to ensure any electrically related work is performed safely.

"SAFE ELECTRICAL WORK PRACTICES" CHECKLIST

- Are all employees required to report (as soon as practical) any obvious hazard to life or property observed in connection with electrical equipment or lines?
- Are employees instructed to make preliminary inspections and/or appropriate tests to determine what conditions exist before starting work on electrical equipment or lines?
- When electrical equipment or lines are to be serviced, maintained, or adjusted, are necessary switches opened, locked out, and tagged?
- Are portable hand-held electrical tools and equipment grounded or are they of the double-insulated type?
- Do extension cords have a grounding conductor? Are multiple plug adaptors prohibited?
- Are ground-fault circuit interrupters installed on each temporary 15, 20, or 30 ampere, 125-volt AC circuit at locations where construction, demolition, modifications, alterations, or excavations are being performed? OR…
- Do you have an assured equipment-grounding conductor program in place?
- Are all temporary circuits protected by suitable disconnecting switches or plug connectors at the junction with permanent wiring?
- Is exposed wiring and cords with frayed or deteriorated insulation repaired or replaced promptly?
- Are flexible cords and cables free of splices or taps?
- Are clamps or other securing means provided on flexible cords or cables at plugs, receptacles, tools, equipment, and are the cord jackets securely held in place?
- Are all cords, cable, and raceway connections intact and secure?
- In wet or damp locations, are electrical tools and equipment appropriate for the use or locations (or otherwise protected)?
- Are electrical power lines and cables located (overhead, underground, underfloor, other side of walls) before digging, drilling, or similar work begins?
- Is the use of metal measuring tapes, ropes, hand lines, or similar devices with metallic thread woven into the fabric prohibited where these could come into contact with energized parts of equipment or circuit conductors?
- Is the use of metal ladders prohibited in areas where the ladder or the person using the ladder could be exposed to energized parts of equipment, fixtures, or circuit conductors?
- Are all disconnecting switches and circuit breakers labeled to indicate their use or equipment served?
- Are disconnecting means always opened before fuses are replaced?
- Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?
- Is sufficient access and working space provided and maintained around all electrical equipment to permit ready and safe operations and maintenance?

- Are all unused openings (including conduit knockouts) of electrical enclosures and fittings closed with appropriate covers, plugs, or plates?
- Are electrical enclosures such as switches, receptacles, and junction boxes provided with tight-fitting covers or plates?
- Are employees prohibited from working alone on energized lines or equipment more than 600 volts?
- Are employees forbidden (unless properly qualified/certified) from working closer than 10 feet from high-voltage (more than 750 volts) lines?
- Have all underground utilities been located prior to any excavation work?
- Is all digging within 4 feet of power lines done by hand?
- Are power lines de-energized? Has the utility company been consulted before digging?
- Has the power company been notified if work is to be done near overhead lines?
- Are live parts of electrical circuits de-energized before an employee works on or near them?
- Are all exposed energized parts in the temporary power supply protected from possible contact?
- Are all power-supply circuit disconnects marked according to their functions?
- Is splicing allowed on extension cords only if they are larger than size 12 and the splicing retains insulation protection equal to the original extension cord?
- Are all plug connections used with the voltage for which they were designed?
- Do you always ensure that flexible cords are not immersed in water or exposed to damage from vehicles?
- Are all junction boxes used in a wet environment waterproof?
- Are you using a GFCI, or has an AEGCP been established?