



Environmental Health & Safety

Procedures for Working Alone with Hazardous Materials, Processes, or Equipment

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Background

Due to the nature of the Arizona State University (ASU) environment, it is often necessary for students or workers to be alone in campus buildings and after the regularly scheduled closure times for either special projects or ongoing work. Working alone in certain circumstances or environments requires special arrangements to minimize potential risks of injury.

It is the responsibility of each department to develop and implement written procedures to protect the well-being of students who work alone under conditions that present a risk of injury.

Purpose

To assess the environment and establish safe work practices to eliminate or minimize risks when students or workers are alone.

To ensure procedures are developed, in so far as are reasonably practicable, and to ensure the health and safety of individuals who perform work alone in a potentially hazardous environment or with hazardous materials or equipment.

SCOPE

This guidance applies to the entire ASU Community who performs tasks or duties on any ASU premises or in fieldwork situations.

Program

Each department should conduct a hazard assessment and eliminate or control the hazards of working alone. The hazard assessment should be reviewed on an annual basis or when new situations are introduced or changed.

Principle Investigators or his or her department representatives should establish procedures to ensure the safety of individuals who work alone on campus. These procedures should be designed for the specific needs of a department and take into account those environments that have a particularly high potential to be hazardous.

Individuals working alone should be informed by their department representative of the procedures established by the campus for individuals working under the conditions above. Where individuals work alone, a means of communication to gain assistance in an emergency should be available as well as what to do in an emergency. Additionally, arrangements should be made for other individuals to

check regularly on the welfare of persons working alone.

This guide discusses situations on campus where working alone could put an individual at risk. It summarizes best practices and outlines procedures to help ensure the safety of those who work alone. It is meant to assist campuses in developing and implementing written procedures to protect the well-being of individuals who work alone.

GENERAL ASSUMPTIONS

It is generally inappropriate for undergraduate students to work alone. Exceptions may be made for low-risk work, if the PI or representative verifies that an individual undergrad student fully understands normal and emergency procedures, uses all required protective equipment and that required emergency equipment is available and operating properly.

Where the PI or representative deems it is necessary for undergrad students to work alone, departments should ensure that students are qualified and trained in work and emergency procedures, including use of emergency equipment.

All ASU students, including graduate researchers and visitors, should work only under conditions where the availability of emergency aid is compatible with the risk. Whenever doubt exists, the PI or representative should review the work assignment and define the emergency aid compatible with the work assignment.

BEST PRACTICES FOR MANAGEMENT

There are many steps that should be taken to help ensure the safety of those who work alone. Best practices for any situation where individuals work alone include the following.

- Assessing the hazards of the work area to identify existing or potential working alone hazards on their campus.
- Taking corrective actions or measures to prevent or minimize hazards or incidents from occurring.
- Assess the requirements for emergency equipment, emergency aid and practical means of obtaining assistance based upon the nature and degree of exposure to the hazard.
- Ensuring emergency aid is available and compatible with the work assignment.
- Training and educating students of the hazards and methods used to control or eliminate them so they can perform their work safely.

- Evaluating safety measures on a regular basis to ensure that these measures are effective, taking into account any new changes in the operation.
- Providing an effective system of communication between any individual who works alone and a person capable of assisting the individual.
- Ensure incidents are reported, investigated and documented.

BEST PRACTICES FOR STUDENTS OR WORKERS

- Report all accidents of work site incidents immediately to campus security and his or her department.
- Participate in work area hazard assessments and the implementing of procedures to eliminate or control hazards of working alone.
- Adhere to appropriate measures established for working alone.
- Follow all safety instructions provided.
- Report suspicious activity to campus security.

GUIDELINES FOR HAZARD ASSESSMENT PROCEDURES

The hazard assessment will ensure that working alone is undertaken safely. This assessment should review the means of entry to the workplace and the means of leaving the workplace, the equipment that may be required to use, the exact tasks that are required to be undertaken, any substances required to be handled, the environment and atmosphere in which one works and any people or clients with whom one is required to interact.

Factors to consider when assessing hazardous working conditions include:

- length of time the individual will be alone (What is the reasonable length of time for the individual to be alone?);
- length of time will the individual need to be alone to finish the job; and
- determining if it is reasonable for the individual to be alone at all.

2. Communication

- What forms of communication are available?
- Is it necessary to “see” the work, or is voice communication adequate?
- Will an emergency communication system work properly in all situations?
- Is the communication system tested frequently?

3. Location of the work

- Is the work in a remote or isolated location? (A remote location does not have to be far away. Storage rooms that are rarely used can be considered remote or isolated).
- Is there communication such as a phone, radio or monitoring such as a camera?

4. Type or nature of the work

- Is there adequate training and education provided for the individual to be able to work alone safely?
- If personal protective equipment is required, is it available, is it in good working order, and has the individual been trained in its use, care and storage?
- What machinery, equipment and tools will be used?
- Is there a high risk activity involved?
- Is fatigue likely to be a factor? (Never work alone when tired)
- Are there extremes of temperature?
- Is there a risk of animal attack, or poisoning/allergic reaction from insect/animal bites?
- If the individual is working inside a locked building, how will emergency services be able to get in?
- Does the work involve working with money or other valuables?
- Is there a possibility of interference, such as violence or criminal activity from other people?

5. Characteristics of the individual who is working alone

- Are there physical limitations that may increase the risk?
- Does the individual have adequate levels of experience and training? (e.g., first aid, communication systems repair, vehicle breakdowns, relevant administrative procedures and/or outdoor survival.)

GUIDELINES FOR EVALUATION AND HAZARD CONTROL PROCEDURES

Departments should assess and prioritize the working alone hazards that have been identified and evaluate possible means of elimination or control. Contact EH&S for additional assistance in evaluating working alone hazards.

Examples of controls implemented after the initial hazard assessments include the following.

- Restricted building access to the building – card key, or “after hours

- permit” after regular scheduled closing times.
- Department doors are locked when working alone after hours. (Ensure emergency services are able to get into locked buildings).
 - Carry a first aid kit, emergency supplies and a cell phone when traveling alone on ASU business.
 - Post signage, emergency contact information, and develop a communication system.
 - Establish a check-in procedure. Make sure regular contact is kept with all workers. (Personal check by another person, or periodic telephone contact)
 - Where possible, position employees in locations of highest visibility.
 - Require the use of a “buddy system” in high-risk situations – ensure that individuals are aware that this option is available to them.
 - Where appropriate, consider the use a security system such as video surveillance cameras, mirrors, observation windows, etc.; however, ensure that informed consent is obtained from employees prior to use.
 - Schedule high risk tasks during normal business hours, or when another worker is capable of helping if an emergency situation arises.

AFTER-HOURS PERMITS

A system of after-hours permits can help prevent untrained persons from gaining access to laboratories and other hazardous locations within buildings. However, after-hours permits will not contribute directly to assuring safety when working alone.

COMMUNICATION SYSTEMS

A communication system can provide effective radio, telephone, or other electronic communication between an individual who works alone and persons capable of assisting the individual in an emergency or if the individual is injured or ill.

TRAINING

Individuals should be trained to increase awareness of methods for identification, hazard reduction and prevention when working alone and dealing with situations or individuals that present a potential risk.

APPENDIX A: POTENTIALLY HAZARDOUS CAMPUS ACTIVITIES

The following are examples of hazardous activities/operations/conditions on campus where working alone may present a risk of injury. Based on specific hazard assessments it may be determined that such activities should be closely monitored, restricted or outright disallowed while working alone.

- Work involving flammable and combustibles
- Work with equipment under high pressure
- Work with cryogenics or infectious agents
- Work with acutely hazardous or toxic chemicals
- Work with heavy machinery or equipment
- Work with portable and stationary power tools
- Welding, hot work and similar operations
- Electrical work and high energy
- Working at heights
- Work with Class IIIB and IV lasers and certain radioactive materials
- Work with infectious sharps or moving blades
- High temperature cooking equipment, ovens and kilns
- Field studies, including the use of watercraft, traps, nets, and live specimens, poisonous plants/animals, work with research animals
- Work in remote or isolated areas

Campus departments where working alone under certain conditions may present risk of injury:

NATURAL AND PHYSICAL SCIENCES

Chemicals, flammables, combustibles, gases, pressure, broken glass, lasers, radioactive material, preservatives, pathogens, toxins, hand tools, live specimens, radiation sources, high energy, lasers, power tools, electrical hazards, high pressures, tripping hazards when working in the dark, acids, bases, heavy equipment/rocks, farm equipment, field work/research farms, extreme weather conditions, laboratory functions

VISUAL AND PERFORMING ARTS

Welding, spray painting, foundry, stationary and portable power tools, high temperatures, chemicals, flammables, gases, high pressure, compressed gases, dusts, silica, heavy metals, acids, heights, electrical hazards, handling cash

ARCHITECTURE

Portable and stationary power tools, heights, structural collapses, spray paints

ENGINEERING

Radiation sources, welding, portable and stationary power tools, high temperatures, electrical hazards.

APPENDIX B: DETERMINING THE NECESSARY TYPE OF EMERGENCY AID

The availability, type and means of summoning emergency help depends on the nature of the hazard and the degree of exposure to the hazard. Examples of this philosophy are noted on the following table¹:

Examples	Nature of Hazard	Emergency Aid	Emergency Equipment
Example 1	When a person has a high degree of direct exposure to high explosives, high energy, toxins, cryogenics, high pressure, or toxic gases and the emergency aid cannot be in the same location as the worker.	This emergency aid should be at the nearest safe location and the person monitored continuously by remote control.	Closed circuit TV and/or intercom are satisfactory means of continuous monitoring. Wear appropriate PPE.
Example 2	When a person has a high degree of exposure to open handling of flammables and combustibles.	A second person must be available to provide immediate aid and summon additional emergency aid.	Fire extinguisher nearby. Telephone and emergency contact numbers available.
Example 3	When a person is exposed to moving machinery or blades with adequate emergency stops.	An alarm may be attached to the emergency stop to summon emergency aid.	Emergency stops. Telephone and emergency contact numbers available. Wear appropriate PPE.
Example 4	When the exposure is low and the nature of the hazard make an operation relatively safe	A check procedure by telephone at definite intervals may be adequate.	Telephone and emergency contact numbers available.
Example 5	When a person works at heights, around noisy machinery, or hot work.	A second person must be available to check on the individual and provide immediate aid and summon additional emergency aid.	Telephone and emergency contact numbers available. Wear appropriate PPE.

¹ Examples on this table are not all inclusive and are meant strictly as a guide in formulating the most appropriate emergency aid procedures according to the nature of the hazards involved.

APPENDIX C: BASIC COMPONENTS OF A WORKING ALONE PROGRAM

- Identify persons that work alone
- Assess hazardous working conditions
- Assess requirements for emergency equipment and emergency aid
- Provide appropriate emergency equipment & means of communication
- Establish written procedures to ensure health and safety
- Establish responsibilities
- Provide training in normal work procedures & emergency procedures
- Review established procedures annually

APPENDIX D: SITUATIONS THAT MIGHT PUT INDIVIDUALS WORKING ALONE AT RISK

Individuals who perform work alone, without routine interaction with other workers or the public may be unable to get immediate help. The primary prevention strategy is to control the hazards associated with the work. Some examples of hazardous work include hot work operations in art studios, work with heavy machinery and certain laboratory functions.

Preventative measures for hazardous work include:

Safe Work Procedures – Have written safety procedures for hazardous work and enforce their use.

Equipment Safety – Ensure that workers use equipment as intended and according to the manufacturer's specification. All equipment used in a work area should be maintained in good working condition.

Equipment and Supplies – Appropriate first aid and emergency supplies, including personal protective equipment, must be provided to workers who are working alone.

Communication Plan – Establish a communication system to gain assistance in case of emergency. If students are working alone in remote or isolated areas, a sign-out procedure can be established to track their whereabouts. An "overdue worker" procedure should also be in place for locating workers who fail to report on time.

APPENDIX E: DEFINITIONS

Hazard: Means a situation, condition or object that may be dangerous to the safety or health of the person working alone.

Work Area: Any location where ASU business, academic projects or research is performed and is considered a part of the work area; including traditional business, classroom, and physical plant environments, field locations, collaborative sites, shops, studios, labs, or other off-site work locations.

Working Alone: Is defined as the performance of any work by an individual who is not directly supervised by another person, or within audible or visible range of another individual, and where assistance is not immediately available in the event of an injury, illness or emergency.

Work: Means physical or mental effort or activity directed toward the production or accomplishment of something...regardless of employment status.

APPENDIX F: CONTACT INFORMATION FOR EMERGENCY AND NON-EMERGENCY SITUATIONS

Emergency Contact Telephone Numbers:

In case of emergency: Call 9-1-1, preferably from a campus telephone number. If calling on a cell phone, tell 9-1-1 that you are at ASU and which campus (Tempe has its own Police Dept.).

After an emergency is resolved, notify your immediate supervisor.

Non-Emergency Contact Information:

General information requests: EHS@asu.edu or call (480) 965-1823

Facilities Maintenance Dispatch: (480) 965-3633

Police Dispatch: (480) 965-3456