



FIRE SAFETY MANUAL

Fire Prevention Office
Northern Arizona University
501 East Pine Knoll Dr.
Flagstaff, Arizona 86011

Phone: 928-523-1873

Email: jeff.young@nau.edu

Web: <https://in.nau.edu/facility-services/office-of-the-fire-marshal/>

TABLE OF CONTENTS

<u>Introduction</u>	4
<u>Compliance and Responsibilities</u>	4
<i>President, Vice-Presidents, Deans, Chairs, Directors</i>	
<i>Supervisors</i>	
<i>Employees</i>	
<i>Students</i>	
<u>Office of the Fire Marshal</u>	4
<u>Operations/Fire Life Safety</u>	5
<u>Housing and Residence Life</u>	5
<u>Planning and Development</u>	5
<u>Electrical Fire Safety</u>	5
<i>Extension Cords</i>	
<i>Electrical Panels</i>	
<i>Electrical Outlet and Switches</i>	
<i>Electrical Wiring and Appliances</i>	
<u>Emergency Evacuation Procedures</u>	6
<i>Evacuation Procedures</i>	
<i>Individuals Requiring Assistance</i>	
<u>Fire Extinguishers</u>	8
<i>Rules for Fire Extinguishers</i>	
<i>Inspection & Maintenance</i>	
<i>Tampering/Vandalism</i>	
<i>Reporting Damaged or Discharged Extinguisher</i>	
<u>Fire Drills</u>	9
<i>Purpose of the drills</i>	
<i>General Fire Drill Procedures</i>	
<u>Fire Prevention Measures</u>	10
<i>Open Flames and Smoking</i>	
<i>Housekeeping</i>	
<i>Space Heaters</i>	
<i>Fire Lanes and Emergency Access</i>	
<u>Fire Safety Inspection and Corrective Actions</u>	11
<i>University Departments</i>	
<i>Common Violations</i>	
<u>Fire Safety Education and Training</u>	12
<i>Fire Safety Training</i>	
<i>Fire Safety Equipment</i>	
<i>Fire Alarm Procedure</i>	
<i>Evacuation</i>	

Fire Works and Pyrotechnics	12
<i>Fireworks</i>	
<i>Pyrotechnics</i>	
<i>Explosives</i>	
Means of Egress	13
<i>Exit Stairwells</i>	
<i>Exit Doors</i>	
<i>Fire Doors & Shutters</i>	
<i>Exit Corridors & Hallways</i>	
<i>Exit Discharge</i>	
Open Flames, Bonfires and Open Burning	14
<i>Open Burning</i>	
<i>Bonfires</i>	
<i>Hot Work</i>	
<i>Open Flame Devices</i>	
Public Assembly Events	15
<i>Definition of Public Assembly</i>	
<i>Event Coordinator</i>	
<i>Indoor Events</i>	
<i>Outdoor Events</i>	
<i>Room Capacity</i>	
<i>Exit Requirements</i>	
<i>Set-up Plans</i>	
<i>Outdoor Spaces</i>	
<i>Tents & Membrane Structures</i>	
<i>Expositions</i>	
<i>Event Decorations</i>	
<i>Light Decorations</i>	
<i>Open Flames</i>	
<i>Fireworks</i>	
<i>Bonfires</i>	
Storage Fire Safety	16
<i>Compressed Gas Cylinders</i>	
<i>General Storage</i>	
<i>Flammable Storage</i>	
<i>Maximum Allowable Container Capacity</i>	
<i>High Stack Storage</i>	
<i>Storage of Hazardous Materials</i>	
Required Operational Permits	18
<i>Any condition, operation, or use of materials considered being hazardous</i>	
<i>Bonfire – Recreational Fire</i>	
<i>Cellulose Nitrate Film</i>	
<i>Cryogenic Fluids</i>	
<i>Compressed Gas Cylinders</i>	
<i>Hazardous Materials:</i>	
<i>Hot Work Operations</i>	
<i>Laboratories, vocational areas that use, handle and store hazardous materials</i>	
<i>Pyrotechnics</i>	
<i>Open Flames or Open Burning</i>	
<i>Stationary Lead-Acid Battery Systems</i>	
<i>Special Events</i>	
<i>Storage of Chemicals</i>	

Introduction

The Fire Prevention Program was implemented to protect faculty, staff, students, visitors, contractors, property and assets of Northern Arizona University. The Fire Safety Manual serves as a guide for establishing and maintaining fire safety conditions at the University. NAU is under the jurisdiction of the University Fire Marshal by appointment from the Office of the Arizona State Fire Marshal (OSFM).

Compliance and Responsibility

Due to the danger of injury or death from fire-related emergencies; faculty, staff, students and contractors must comply with this program. Any hazardous or emergency situation must be reported to the proper authorities. Failure to do so could result in the possible loss of life and property. Persons who knowingly and/or willingly violate the provisions of this program may be subject to disciplinary action.

The responsibility for fire prevention rests on all levels of the University!

The President of the University

As the chief executive, The President has ultimate responsibility for establishing and maintaining environmental health and safety programs for the University, and provides continuing support for the Fire Safety Program.

Vice-Presidents, Deans, Chairs, and Directors

These administrators are responsible for enforcing fire safety programs in areas under their control, and providing assistance in conducting safety inspections, correcting violations, and implementing fire prevention and evacuation policies.

Supervisors

Supervisors must brief employees on the specific hazards of their work area, on fire reporting and evacuation plans, and fire extinguisher locations.

Employees

New employees, when attending the initial orientation, will receive an overview of the safety programs provided by the Office of the Fire Marshal and should become familiar with the services. Employees should comply with fire safety guidelines and receive refresher training annually.

Students

Students should familiarize themselves with the fire safety guidelines of NAU Fire Safety Manual and Residential Life. They should report vandalism and fire hazards to the Office of the Fire Marshal or Residential Life.

The Office of the Fire Marshal

The Office of the Fire Marshal is established within the jurisdiction under the direction of the State Fire Code Official. The function of the Fire Marshal Office shall be the implementation, administration and enforcement of the provisions of the fire code.

The Fire Marshal Office:

- Provides a fire-safe environment for employees, faculty, students and visitors.
- Coordinates and reports code compliance inspections.
- Responds to fire incidents and conducts investigations.
- Assists in the response to reports from the State Fire Marshal.
- Acts as liaison to other local and state regulatory agencies.
- Regulates university departments on allowable quantities of flammable materials in storage.
- Monitors fire detection and fire suppression systems.
- Develops and publicizes the university fire policy.
- Conducts emergency evacuation exercises.
- Review, approve and issue permits for new fire protection system installations.
- Review, approve and issue permits for new construction, and renovation of buildings.

Operations/Fire Life Safety (FLS)

The Fire Life Safety Department within Facility Services is responsible for the testing, inspection and maintenance of the campus fire safety equipment.

- Inspects, tests, and maintains fire detection and suppression systems.
- Coordinates the inspections, tests and maintenance of all fire extinguishers.
- Inspects and tests emergency exit signs and lighting.
- Inspects and tests building fire protection features.
- Corrects fire code deficiencies in a timely manner.
- Assists in the design of fire suppression, detection and alarm systems

Housing and Residence Life

Northern Arizona University's (NAU) Housing and Residential Life supports the student population with living quarters on the university's campus. NAU must ensure all operations and living quarters are safe and compliant with all applicable federal, state, and local codes, standards, and ordinances, e.g., Building Codes and Fire Codes.

- Provide fire safety education for student residents and housing staff.
- Conducts monthly in-house code compliance inspections for residence halls and apartments.
- Assists and coordinates emergency evacuation exercises for housing units.
- Corrects fire code violations in a timely manner.

Planning, Design and Construction

The NAU Planning, Design and Construction Department along with Facility Services are responsible for ensuring each facility or area within a facility complies with applicable codes and regulations in regards to designing, constructing, or remodeling.

Electrical Fire Safety

Electrical fires claim the lives of 200 Americans each year and injure 1,500 more. Some of these fires are caused by electrical system failures and appliance defects, but many are caused by misuse and poor maintenance of electrical appliances, incorrectly installed wiring, overloaded circuits, and improper use of extension cords.

The following are simple steps to take to prevent the loss of life and property resulting from electrical fires.

Electrical Wiring and Appliances

- Supervisors should periodically inspect all electrical equipment and cords to ensure proper use and safe conditions. Improper use of electrical devices to obtain more outlet capacity can result in overloaded circuits and fire.
- Be sure all electrical equipment is properly grounded. If any evidence is found of frayed, cracked or damaged wiring or electrical outlets, the equipment affected should be taken out of service until repairs are made.
- Coffee makers, and all other appliances with exposed heating elements are prohibited. Approved space heaters and other appliances should not be placed under desks or in other enclosed areas. These appliances should be unplugged after each use and stored only after they are cool enough to touch. They should be operated away from combustible materials such as files, curtains, trash containers.

Wiring

In order to prevent high resistance connections, only licensed electricians are permitted to work on electrical wiring or electrical equipment.

Extension Cords

Electrical extension cords are an acceptable means of providing TEMPORARY electrical power; however, they cannot be used as a substitute for permanent electrical wiring

- The use of extension cords should be minimal and used only when a flexible, temporary connection is necessary.
- The cord and the outlet should be checked periodically to ensure overheating is not occurring. Extension cords cannot be used for fixed wiring, and should never be tacked, stapled, tied, hidden under rugs or draped over pipes or other supports, fastened to or through woodwork, ceilings or walls. When there is a permanent need of an electrical outlet, one should be installed by an authorized electrician.
- Used for non-heat producing devices.
- UL approved and Factory Mutual listed, and three-wire grounded cords.
- Not connected, spliced together, or piggybacked.
- Visible and protected from damage.
- Approved for use for temporary wiring for holiday displays, artwork, or vendors at special events provided they meet the above requirements.
- Plugged into a permanent outlet.

Electrical Panels and Service Equipment

Electrical Panels must:

- Not be obstructed for 36 inches in all directions around the panel and in front for access.
- Have the panel cover and panel door securely in place and closed.
- Have all breaker and main switches clearly marked as to the equipment area they control.
- Be identifiable as an electrical panel. Do not cover or paint to match the wall, etc.

Electrical Panels must not:

- Be locked.
- Have the breakers taped or otherwise secured in the "on" position.
- Have any work performed on the panel by anyone who is not a licensed electrician.

Electrical Outlets/Switches

Electrical outlets are quite often not thought of as being a fire hazard. It is possible that an overload on the electrical system can cause an outlet to spark. The following safety requirements must be complied with.

Outlets must:

- Have the cover plate securely fastened to the outlet box.
- Be replaced when broken.
- Have an approved cover.
- Have a ground fault circuit interrupter if within 6 feet of a water source.
- Be at least one foot from combustible items such as trashcans, boxes of paper, etc.

Multi-outlet assemblies

Power strips must be properly placed, equipped with fuses or circuit breakers, plugged to a permanent outlet, grounded 3-wire type, and UL approved.

Emergency Evacuation Procedures

The purpose of the Emergency Evacuation Procedures is to establish minimum requirements that will provide a reasonable degree of life safety from fire and similar emergencies in NAU buildings and structures. The Emergency Evacuation Procedures will be utilized to evacuate all occupants regardless of the type of emergency. Failure to leave the building when a fire evacuation alarm is sounding is a violation of State law.

GENERAL

A fire emergency exists whenever:

- A building fire evacuation alarm is sounding. (Campus buildings will be immediately and totally evacuated whenever the building fire alarm is sounding.)
- There is presence of smoke, or the odor of burning.
- An uncontrolled fire or imminent fire hazard occurs in any building or area of the campus.
- There is a spontaneous or abnormal heating of any material, an uncontrolled release of combustible or toxic gas or other material, or a flammable liquid spill.

When a fire emergency exists, an individual will accomplish, or attempt to accomplish, the following actions:

- Activate fire alarm system located along exit routes.
- Evacuate the building. Do not use elevators.
- Call 523-3000 or 911 from a safe area and give name, location, and nature of emergency.
- Remain at a safe location at least 100 feet away from the building until you are told to re-enter by the City Fire Department, University Police Officer, or other emergency personnel.

EVACUATION PROCEDURES

When a fire evacuation alarm is sounding, all occupants will:

- Shut down any experiments or procedures that should not be left unattended.
- Take or secure all valuables, wallets, purses, keys, etc.
- Evacuate the building immediately and in an orderly manner. The last occupant to leave a room should close the door leading to the corridor.
- Never use the elevators. In most university buildings, elevators are automatically recalled to the street floor or transfer level upon the activation of the buildings' fire alarm system.
- Proceed to the nearest and safest exit.
- If possible, assist non-ambulatory occupants to areas of refuge, or to ground level exits. Normally the assistance is in the form of notifying emergency responders of the location of these individuals or by actually providing guidance to safe areas.
- Crawl low, under the smoke to breathe cleaner air if there is a fire. Test doors for heat before opening them by placing the back of your hand against the door so you do not burn your palm and fingers. Do not open a hot door, but find another exit route. Keep "fire doors" closed to slow the spread of smoke and fire.
- If trapped during an emergency:
 - Stay calm and take steps to protect yourself.
 - Go to a room with an outside window, and telephone for help if possible.
 - Stay where rescuers can see you and wave a light-colored cloth to attract attention.
 - Open windows if possible, but be ready to shut them if smoke rushes in.
 - Stuff clothing, towels, or newspapers around the cracks in doors to prevent smoke from entering your room.

Remain at a safe location at least 100 feet away from the building until instructed to re-enter by the City Fire Department, University Police Officer, or other emergency personnel.

Individuals Requiring Assistance

Individuals requiring assistance should proceed to the nearest stairway and request assistance from other evacuees. Do not obstruct the stairway or door leading to the stairway. If the location becomes unsafe, move to a different exit stairway and call for help until rescued. It is suggested that people with disabilities prepare for emergencies in advance by learning the locations of exit corridors and exit stairways, areas of safe refuge, emergency communications, by planning an escape route, and by showing a classmate, co-worker, or instructor how to assist him/her in case of an emergency. Individuals with speech impairment should carry a whistle or have other means of attracting attention. All exit corridors and stairways are marked with exit signs and are protected with self-closing fire rated doors. These are the safest areas during an emergency.

Ways to help individuals who require assistance

- Become familiar with the individuals who require assistance in your area.
- Inform hearing impaired persons when a fire evacuation alarm is sounding.
- Assist visually impaired persons to an exit stairway.
- Inform University Police, Command Post outside the building, or call 523-3000 or 911 of disabled persons located inside the building that you are unable to evacuate safely.
- In the extreme case where you must physically evacuate a disabled person, you should ask that person how to safely carry or assist.

WHEN THE EVACUATION ALARM SOUNDS, “EVERYONE MUST LEAVE THE BUILDING”

The following fire safety requirements must be strictly observed with regard to means of egress.

Fire/Smoke Doors

Two of the most important functions of doors in terms of life safety are to act as a barrier to fire and smoke and to serve as components in a means of egress.

- Fire and smoke rated doors shall not be blocked open.
- The self-closing devices shall not be disconnected or rendered inoperable.
- For special situations that the door must be held open for movement of furniture, equipment or other large size items, the person responsible for the move will provide an individual at the door to ensure the door is not left open, if the building is evacuated.
- Door chocks or foot stops may not be installed on any fire rated door. Also, furniture, appliances, etc., may not be used to hold the door open.
- Doors that need to be left open for high traffic areas or for visual security may be authorized by the Fire Marshal and an approved magnetic release device shall be installed.
- Obstructions that will prohibit fire and smoke rated doors from closing and latching without human intervention are not permitted.

Fire Extinguishers

NOTE: Hand held fire extinguishers are provided in all NAU buildings and should only be used by properly trained personnel or emergency responders. Hand held extinguishers are not intended for faculty, staff or student use. **Do not attempt to use a fire extinguisher if you have not been properly trained.**

REMEMBER: A fire extinguisher is no substitute for the Fire Department. Always call the Fire Department first no matter how small you think the fire is.

Rules for Fighting Fires

Fires can be very dangerous and you should always make certain to not endanger yourself or others when attempting to put out a fire. For this reason, when a fire is discovered and **you are properly trained:**

- Assist any person, who is in any immediate danger to safety, if it can be accomplished without risk to you.
- Activate the building fire alarm system or notify the fire department by dialing 523-3000 or 911. When you activate the building fire alarm system, it will notify other occupants, and it will shut down the air-handling units to prevent the spread of smoke throughout the building.
- Only after completing the above two, you may use an extinguisher **only if you are properly trained** and the fire is small.

NEVER FIGHT A FIRE IF:

You do not know what is burning and you do not know what type of fire extinguisher to use.

Even if you have an ABC extinguisher, there may be something in the fire, which could explode or produce toxic smoke. Chances are you know what is burning, or at least have a pretty good idea, but if you do not know, let the fire department handle it.

The fire is spreading rapidly beyond the spot where it is started. The time to use the fire extinguisher is in the incipient or beginning stages of the fire. If the fire is spreading quickly, it is best to simply evacuate the building, closing doors as you leave.

Tampering/Vandalism

Tampering or vandalizing a fire extinguisher consists of the following:

- Discharging the extinguisher for any other reason than to extinguish a fire.
- Relocating an extinguisher without approval.
- Damaging any part of the extinguisher intentionally or accidentally through carelessness.

Reporting Damaged or Discharged Extinguisher

Never put an extinguisher back in its place after use. If an extinguisher is discharged, even for a few seconds or if it is damaged in any way, report the fire extinguisher and its location to Fire Life Safety by calling Facility Services Work Control Center 523-4227.

Fire Drills

Fire Life Safety conducts fire drills in all university buildings as required by state law. The primary concern in the event of a fire is to get everyone out of the building as quickly as possible. To do this, occupants must be prepared in advance for a quick and orderly evacuation. A trained group will act more calmly under emergency situations, thereby dispelling panic, which has caused more casualties than fire itself. Slow evacuation and panic account for the large majority of all fatalities in fires.

Purpose of Fire Drills:

- To allow occupants to familiarize themselves with drill procedures, location of fire exits, and the sound of the fire alarm.
- To allow fire prevention to monitor the timeliness and effectiveness of evacuations.
- To gauge whether or not persons evacuate the building as legally required.
- To check if fire protection equipment, such as fire doors, is being used properly.
- To gauge how long it takes to evacuate each building, and which exits are generally used.

General Fire Drill Procedures

- Fire drills are arranged and supervised by the Fire Life Safety Department with the cooperation of the NAU Police Department.
- The date and time will be scheduled when most occupants are in the building.
- The Fire Life Safety Specialist will inform Campus Police of the exact times the alarm will be pulled for the drill.
- The Fire Life Safety Specialist will activate the fire alarm.
- After evacuation occupants shall proceed to a pre-determined location and wait for the instruction of emergency personnel to re-enter.
- The Fire Life Safety Specialist shall silence and reset the panel when everyone has evacuated the building.
- Fire drills will be monitored for effectiveness and documented.
- Fire drills will be held at least: Semi-annually in residential occupancies and annually in all other buildings.

Prevention Measures

It is of the utmost importance to be aware of conditions that may cause a fire emergency and thereby endanger the safety of occupants in the workplace and the residence halls. The major causes of fires at the workplace include overloaded electrical outlets and extension cords, misuse of space heaters, mishandling of flammables, and improper storage of combustibles, unsupervised cooking, and improper disposal of smoking materials on campus grounds. Implementing fire prevention measures is the key in an attempt to insure one's personal safety and the safety of roommates, officemates, and friends.

In cooperation with the Office of the Fire Marshal, building managers should do the following:

Prevention Measures

- Make certain that a copy of the "Fire and Emergency Procedures" is posted in a conspicuous location on each floor.
- Have an understanding and knowledge of the contents of the "Fire and Emergency Procedures."
- Regularly observe emergency evacuation routes, fire extinguishers and emergency and exit lights.
- Immediately report any missing equipment or any other problems discovered to FLS.
- Regularly observe the lobby, corridors, stairwells, and keep them clear of obstructions.
- Regularly observe all exits to keep them clear of obstructions at all times.
- Regularly observe fire doors to make certain they are closed at all times; report inoperable doors to the Facility Services Work Control Center 523-4227.
- Inspect offices in search of:
 - Overloaded circuits
 - Frayed or damaged electrical cords
 - Improperly used extension cords
 - Improperly used appliances/space heaters

Open Flames and Smoking

- The use of candles or any other open-flame devices is strictly prohibited in all University buildings (Exception – when approved/permitted by the Fire Marshal).

Northern Arizona University is a tobacco and smoke free campus.

- Smoking and the use of all tobacco products, including those not approved by the FDA for cessation, is prohibited at all facilities including those owned, operated or leased by Northern Arizona University. This policy includes, but is not limited to, the use of cigarettes, e-cigarettes, hookah, e-hookah, chew, dip, snuff, cigars, pipes and vaporizers.
- Smoking and the use of all tobacco products shall not permitted in any enclosed space, including private residential space or private vehicles on university property.
- Smoking and the use of all tobacco products shall be prohibited outdoors on all NAU campus properties including parking lots and athletic facilities.
- This policy applies to all members of the campus community, including but not limited to students, faculty, staff, contractors, vendors, affiliates, volunteers and visitors to the NAU campus regardless of the purpose for the visit.

Housekeeping

- Fire doors must be kept closed at all times unless they are held open by an approved device connected to the fire alarm system.
- Exits, stairways and passageways leading to and from exits must be kept free of obstructions at all times. Furnishings, decorations, combustible objects, or flammables must not block exits, access to exits, or any means of egress. Dispose of all waste material as soon as possible in trash/recycle receptacles or dumpsters. Waste materials must never be piled in corridors or stairwells while awaiting removal.
- Flammable and combustible materials should be present in the work area only in the quantities required for the day's job. These materials must be placed in an approved storage area at the end of each day.
- Materials must not obstruct sprinkler head or be piled around fire extinguishers, fire alarm pull stations, or sprinkler and stand pipe control valves. To obtain proper distribution of water from sprinklers, a minimum of 18 inches of clear space is required below sprinkler deflectors. Non-sprinkled buildings shall maintain 24 inches of clear space below the ceiling.

Space Heaters

- Space heaters are not recommended appliances for use. Consult Facilities Services to have your temperature adjusted in your area. However, if a space heater is used, the following guidelines must be followed:
 - The heater must have an automatic safety switch that turns the unit off when tipped over.
 - Units shall possess Underwriter Laboratory or other testing agency listing or label.
 - Space heaters with exposed heating elements are prohibited.
 - Before using the heater, inspect the electrical cord. Look for frayed wire or cracked insulation. If there are any defects in the cord or unit, DO NOT USE. Plug heaters directly into a wall electrical outlet. Never use an extension cord with the heater.
 - Never leave the unit on while you are out of your office. Always check to ensure unit is off before leaving your office for lunch or at the end of the day.
 - Do not place the heater near combustible materials such as papers, magazines or office furniture. Allow at least three feet clearance between the heater and combustible material.
 - Do not place the heater in or near wet areas or in high traffic areas such as exits.
 - Before operating the heater, always read and follow the manufacturer's operating instructions.

Fire Lanes and Emergency Access

In the event a fire should occur, it is critical that emergency responders be able to access the building, or location of the emergency. Fire lanes and emergency access routes have been provided for this purpose.

- Fire Lanes (normally marked in red on the curb) may not be blocked at any time. This includes temporary parking for the purpose of "just dropping something off" and service vehicles.
- Fire hydrants, fire department connections, or other emergency equipment may not be obstructed at any time. Parking is prohibited within fifteen feet of a fire hydrant, or fire department connections.

Fire Safety Inspections and Corrective Actions

All University buildings are inspected annually by the Fire Marshal to ensure they comply with all applicable State Fire Codes. All fire code deficiencies identified are subsequently noted in a detailed report and forwarded to VP for Capital Planning and Campus Operations, AVP Facility Services/Operations to coordinate corrective actions.

University Departments

Each department is responsible for correcting code violations that are reported to departmental personnel by the Office of the Fire Marshal.

COMMON FIRE VIOLATIONS

- Extension cord used as permanent wiring device. (extension cords are for temporary use)
- Daisy Chain assemblies (plugging a power strip into another power strip).
- Blocked Exits.
- Furnishing and debris blocking egress.
- Excessive storage.
- Unapproved storage in mechanical, electrical or boiler rooms.
- Unsecured compressed gas cylinders.
- Improper storage of flammable liquids.
- Storage within 18 inches of ceiling equipped with sprinkler heads (24 inches for ceilings without sprinklers).
- Propping open fire rated egress doors with a door wedge or other material.
- Unapproved portable space heaters not equipped with proper safety function. (Usually found under desks).

Fire Safety Education and Training

Educating and training the University community is a vital component of the fire safety program. This section has been designed to address these issues and should be used as a resource for all employees and students. The goal of the Office of the Fire Marshal is to educate and train staff, faculty, residence hall assistants, and student clubs and organizations in the following areas:

- Fire prevention and safety measures.
- Fire drill and emergency evacuation procedures.
- Dangers of tampering with safety equipment and failing to respond to safety procedures.
- Detection and reporting of fire and safety hazards.

Fire Safety Training

- Fire reporting and fire drill evacuation procedures - this type of training is site specific since various buildings have different reporting and evacuation procedures.
- Fire prevention and safety measures. Emergency response - this training is specific to those individuals designated to respond to certain types of emergencies in order to perform specialized functions.

Fire Safety Equipment

Modern office buildings are designed with fire detection and suppression systems to protect life and property from fire. These fire safety systems include automatic sprinklers, smoke alarms and heat detectors. A major step has been made in the installation of fire safety equipment in NAU residence halls and other buildings. Today, most NAU buildings are sprinkled and equipped with updated fire alarm systems.

Fire Alarm Activation Procedure

All employees should be familiar with fire alarm pull station locations in their building. The building's alarm should be immediately activated in the event of a fire, or if a person smells or sees smoke. Even if the fire is small, the alarm should be activated, because a fire can grow quickly and endanger building occupants. After activating the alarm, get out of the building and call 523-3000 or 911 from a safe location. Provide the emergency dispatcher with the name and location of the building, and information about the fire. The NAU Police Department will notify the City Fire Department.

Evacuation

The primary concern in the event of a fire is to evacuate everyone from the building as quickly and safely as possible. In order to accomplish this, occupants must be prepared in advance for a quick and orderly evacuation. Evacuations must be practiced periodically in order to get used to the procedures.

Fire Works and Pyrotechnics

FIREWORKS - *Any composition or device for the purpose of producing a visible or an audible effect for entertainment purposes by combustion, deflagration or detonation*

PYROTECHNICS - *Controlled exothermic chemical reactions timed to create the effects of heat, hot gas, sound, and dispersion of aerosols, emission of visible light or a combination of such effects to achieve the maximum effect from the least volume of pyrotechnic composition.*

- The possession, storage or use of fireworks is strictly prohibited on the NAU campus.
- Pyrotechnics and special effects displays upon University Property are considered for approval on a case-by-case basis. Advance approval is required from the NAU Fire Marshal. Only select locations are considered. Discharge or trajectory of any device over an audience, campus building, environmentally sensitive zone, or occupied parking area is strictly prohibited.
- The possession, storage or use of explosives on campus is strictly prohibited (Special use - approved by the Fire Marshal and the City of Flagstaff).

Means of Egress

A common cause of fire deaths is blocked exits or exit paths. Blocked exits are probably the most preventable and the one most likely to result in criminal negligence charges. It is therefore essential that there is access for quick evacuation during an emergency.

The following fire safety requirements must be strictly observed with regard to means of egress.

Fire/Smoke Doors

Two of the most important functions of doors in terms of life safety are to act as a barrier to fire and smoke and to serve as components in a means of egress.

- Fire and smoke rated doors shall not be blocked open.
- The self-closing devices shall not be disconnected or rendered inoperable.
- For special situations that the door must be held open for movement of furniture, equipment or other large size items, the person responsible for the move will provide an individual at the door to ensure the door is not left open, if the building is evacuated.
- Door chocks or foot stops may not be installed on any fire rated door. Also, furniture, appliances, etc., may not be used to hold the door open.
- Doors that need to be left open for high traffic areas or for visual security may be authorized by the Fire Marshal and an approved magnetic release device shall be installed.
- Obstructions that will prohibit fire and smoke rated doors from closing and latching without human intervention are not permitted.

Corridors, Egress Routes and Exit Doors

In an emergency, one of the most important requirements is to ensure that all occupants can leave the building safely. To accommodate this, corridors, hallways, stairwells and exits are designed and constructed to allow people to leave the building by the safest and quickest method possible.

Obstructions

- No corridor, aisle way, stairwells or component of a means of egress may be obstructed.
- Non-combustible furniture in lobbies must not obstruct the minimum width of egress and be arranged so there is a direct path through the lobby to the EXIT.
- Wires, cables or extension cords may not be laid across corridors, aisles or pathways.
- EXIT doors must remain unlocked during hours in which the building is occupied. Special locking devices must be approved by the Fire Marshal's office.
- Furniture, artwork, wall hangings, statues, etc. which protrude from the walls must not obstruct the minimum width, nor present a tripping, injury or other safety hazard.

Items Not Permitted in Corridors, Stairwells and Other Egress Components

- Flammable storage cabinets of any size.
- Compressed gas bottles of any size.
- Carts, cabinets, shelves or other items on which combustibles or flammables are likely to be stored.
- Chemicals, munitions, pyrotechnics or any other hazardous material.
- Bicycles, Skateboards or other riding equipment.
- Any item that will impede the normal or emergency flow of traffic, or will obstruct any emergency device.
- Portable heaters, coffee pots, food warmers, printers, copiers or other devices that may present a hazard.
- Unprotected high voltage, electrical or gas powered equipment of any sort.
- Any combustible material and overstuffed furniture, boxes, etc.

Atriums and Large corridors

The open spaces at the base of atriums and large corridors must be left clear at all times. If there is a need to use these open spaces temporarily for any kind of function, it must be done in a way that is not obstructing passage. The Office of the Fire Marshal must be consulted in advance for proper safety precautions.

Open Flames

Open Burning

Open burning is defined as any open/exposed flame, whether indoors or outdoors, which could cause a potential fire hazard. Examples are bonfires, campfires, candle light vigils, luminaries, leaf burning, artwork involving flames, pyrotechnics of any kind, etc. Open burning on any NAU property must be approved in writing by the Fire Marshal.

Open Burning (Indoors)

Open burning indoors (particularly when such burning might activate any type of fire alarm detection/suppression system) is normally prohibited. Special exceptions may be authorized under the following conditions:

- A written request is sent to Fire Marshal at least two weeks in advance prior to the event.
- The proposed burning will not endanger the occupants of the facility.

Open Burning (Outdoors)

Open burning outdoors will be authorized under the following conditions.

- A written request is sent to Fire Marshal at least two weeks in advance of the event.
- The proposed burning will not endanger any adjacent building, vehicles or vegetation.
- The burn location will not block access for emergency vehicles to any building, street, or emergency device.
- Open flame fires will not be within fifty feet from any building, vehicle, or vegetation, or twenty five feet from any flammable storage. The distance may vary according to the size of the event.
- The event coordinator will be responsible for providing Fire Guards in the burning area.
- The coordinator will be responsible for complete extinguishing and removal of all materials used in the open burning.
- A five to thirty minute watch will be made of the area to ensure there is no residual heat left in the material.

Hot Work

- Hot work operation is any that involves open flames or producing heat and/or sparks. This includes, but is not limited to: welding and allied processes, hot mopping, heat treating, grinding, thawing pipe, the use of power-driven fasteners, hot riveting and similar applications. These operations create heat, sparks and hot slag that have the potential to ignite flammable and combustible materials in the area surrounding hot work activities.
- The Fire Code requires a permit for all hot work operations.
- FLS issues Hot Work Permits for the University. Anyone requiring a permit must make application forty-eight (48) hours before the start of work. A safety inspection of the work area prior to the start of work will occur by an FLS representative.
- The permit shall be valid for a twenty-four (24) hour period and should be posted in the area of hot work for the duration of the activity.

Open Flame Devices

- Sky lanterns are prohibited.
- Decorative portable torches such as Tiki torches are prohibited.

Public Assembly Events

The Fire Marshal Office shall be contacted for fire safety requirements and approval for outdoor public assembly events, and indoor special events that attract large crowds (home shows, trade shows, concerts and other large public assembly events).

Fire and Life Safety

Public assembly events involve various risk factors associated with having large numbers of people in one location. The primary risk factors are the high occupant density, and occupants not being familiar with the area. This risk can be reduced through proper event planning and management.

In order to comply with the requirements of the Fire Safety Code, it is necessary for the Fire Marshal to make certain approvals for events as noted in these guidelines. Required approvals and inspections should be requested as far in advance as possible.

Events Coordinator

Persons hosting an event should assign an events coordinator to oversee on-site logistics for indoor and outdoor events.

Indoor Events

The events coordinator must:

- Become familiar with the location of fire alarms and emergency exits. In the event of an emergency, the coordinator will pull the fire alarm, supervise evacuation of the building, and call 523-3000 or 911 from a safe location.
- Ensure the maximum allowable occupant load numbers posted inside the assembly area are not exceeded.
- Ensure exits are unobstructed at all times during the event.
- Ensure decorations are in accordance with event decorations guidelines.

Outdoor Events

The events coordinator must:

- Provide a site plan to Office of the Fire Marshal indicating locations of activities and equipment, tents and canopies, electrical outlets and cords, propane heaters, booths, etc. to verify that proper clearances and access are maintained.
- In the event of an emergency, supervise evacuation of the area and call 523-3000 or 911.
- Provide fire extinguishers throughout the event site (for emergency responders). Contact the Office of the Fire Marshal for the type, quantity, and placement of the fire extinguishers.

Room Capacity

Information on room capacities can be obtained from the Office of the Fire Marshal. The fire code will determine the size of the occupant load. Be aware that the occupant load is the maximum capacity based on the net clear floor area.

Stages and other obstructions, seating arrangements and use of tables will decrease the capacity. The type of event is also a determining factor when planning.

Exit Requirements

The placement of stages, seats, equipment (including wiring), and security arrangements affect exits and access to exits. Exits must remain unobstructed and provide clear access to the outside at all times. Wires or cables cannot be placed in front of exits or on steps, and must be properly taped down to the floor, or covered to avoid tripping hazards.

Outdoor Spaces

A fenced outdoor assembly occupancy shall have not less than two remote means of egress from the enclosure. Unless otherwise required by one of the following:

- If more than 1000 persons are to be served by such means of egress, there shall be not less than three means of egress.
- If more than 2000 persons are to be served by such means of egress, there shall be not less than four means of egress.

Tents

Tents are considered buildings and must meet most of the same requirements. Tent materials must be properly certified as flame retardant. Some tents have attached labels, but when labels are not attached sponsors, promoters, or other production personnel must have documentation that certifies the tent material is flame retardant. Certification must be based on NFPA 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films. Flooring for tents must be non-combustible. Straw, hay, wood chips, mulch, or other similar materials are prohibited from use as flooring. The Fire Marshal must approve in advance the use of open flames (including those used for cooking or warming food) and heaters.

Tent suppliers must be able to certify that tents have been erected in accordance with manufacturer recommendations, industry standards, and code requirements.

Expositions

Expositions of products or other displays have a number of special requirements. Contact the Office of the Fire Marshal for consultation and event planning.

Event Decorations

Decorations are common factors in the spread of fire. It is necessary to ensure that all decorations used meet the requirements of safety and fire resistance.

- Decorations cannot conceal or obstruct, in whole or part, exits, exit lights, fire alarm pull boxes, fire hose cabinets, fire extinguishers, sprinkler heads, smoke detectors, or other fire related items.
- All decorations used in corridors, lobbies, assembly rooms; dining rooms, classrooms and offices must be non-combustible or flame retardant.
- If trees or plants (natural or artificial) are used, keep them out of corridors and away from doorways.
- No candles or open flame devices are permitted without approval of the Fire Marshal.
- Do not decorate corridors with wrapping paper.
- Remove all decorations, wrappings and trees immediately after the event

Light Decorations

- Use only electric decorative lights and associated wiring for decorative lights that are UL listed.
- Flame producing devices such as, but not limited to candles, may not be used without prior approval from the Fire Marshal.
- Mixing and matching lights can create a fire hazard. Keep outside lights outside and inside lights inside.
- Check the light bulbs, sockets, wires and plugs to make sure nothing is cracked, broken or exposed. Discard any defective light strands.
- Keep lights away from flammable and/or combustible materials.
- Extension cords used for temporary decorations must be UL listed.
- Keep all cords out of high-traffic areas where they could create a tripping hazard.
- Do not run cords through, under or behind a door, furniture or carpet. Such practice could lead to a fire.
- Electrical outlets should not be overloaded
- All lights should be turned off before leaving the building.

Storage Fire Safety

Cylinder handling and storage

- All cylinders must have proper labeling and stored in an upright position.
- Cylinders must remain secured to a wall, permanent fixture or an approved cart at all times.
- Empty cylinders shall be marked as empty and removed at next scheduled pickup.
- Cylinders must not block exit routes from the lab or building.

General Storage

This section pertains to any room or building used for temporary or long-term storage of combustibles.

- Combustible materials must be separated from other hazardous materials such as flammables, corrosives, explosives, oxidizers etc.
- Combustible storage is prohibited in all mechanical and electrical rooms, spaces or areas.
- Storage of materials in buildings shall be orderly and stacks shall be stable.
- Storage areas must be separated from other areas by a one-hour fire barrier with a fire rated, self-closing door, and be protected by fire detection and/or suppression systems.
- Stored materials must be kept at least thirty-six inches from any heat source.
- Storage height shall maintain 18 inches from the sprinkler head or 24 inches from the ceiling in areas without sprinkler heads.
- Aisles in storage rooms must have a minimum width of 28 inches to allow for evacuation, and permit firefighters to gain access to the most remote area of the room.
- Storage cannot block fire extinguishers, fire alarm pull stations, emergency or exit lighting, access to evacuation routes or the exit door, emergency equipment or prevent entry of emergency personnel.
- Storage under stairs is not permitted unless the area is enclosed and protected with a one-hour fire rated enclosure and a detection and/or suppression system.
- Doors to storage rooms may not be "propped" open at any time.
- Contact Property Management for proper disposal of surplus, obsolete and unused property.

Flammable Storage

It is critical that flammables are used properly and stored safely.

- Quantities of flammable materials that exceed the permitted amount required approval/permit from the Fire Marshal (See Operation Permit Section).
- Indoor storage of LP-Gas cylinders is prohibited (except as approved by the Fire Marshal and require approval/permit – see Operational Permit Section).
- Flammable liquids shall be stored in approved metal safety cans, glass or approved plastic containers.
- Rooms used for flammable storage must be constructed to meet the requirements for one-hour fire rating, ventilation, heating, electrical systems, fire detection and/or suppression systems.
- Flammables are not permitted to be stored in basements of buildings.
- A "daily use" of flammable liquids may be stored on open shelves. "Daily use" refers to a small amount of consumable flammables that are expected to be used in a repetitive nature, and the amount used would not constitute more of a hazard than other ordinary combustibles in the room.
- Flammables, required to be stored away from combustibles, will be stored in an approved flammable storage cabinet. This cabinet will be labeled and incorporate self-closing doors.
- Flammable storage will be kept at least 50 feet from open flames or other heat sources.
- Oily or grease-laden rags must be placed in a self-closing oily rag can for proper cleaning or disposal.
- Ordinary combustibles (boxes, cardboard, upholstered furniture, paper) may not be stored in flammable storage.

Maximum Allowable Container Capacity

(Instructional Vocational and Laboratory Work Areas)

Container Type	<u>Flammable Liquids</u>			<u>Combustible Liquids</u>	
	IA	IB	IC	II	IIIA
Glass	1 pt	1 qt	1 gal	1 gal	1 gal
Metal or approved Plastic	1 gal	1 gal	1 gal	1 gal	1 gal
Safety Can	2.1 gal	2.1 gal	2.1 gal	2.1 gal	2.1 gal

Flammable liquid waste containers stored in laboratory work areas shall not exceed 5 gal.

High Stack Storage

This type of storage has become increasingly popular for space saving purposes for records and commodities. This also presents a different type of hazard for fire safety and firefighting.

- It is highly recommended that non-combustible materials be used in the construction of storage racks. This reduces the amount of fire spread should a fire occur.
- Under no circumstances may storage of materials be closer than eighteen inches of sprinkler heads.
- Aisle widths in high rack storage, which also requires the use of mechanical devices such as forklifts or carts, must be of sufficient width to allow personnel evacuation if a cart is in the aisle.
- Maximum storage height for standalone pile is 12 feet – Storage over 12 feet requires approval/permit from the Fire Marshal (See Operation Permit Section).

Storage of Hazardous Materials

Hazardous products may produce a substantial amount of toxic vapors, as well as react with a fire to create a fast moving or explosive situation. Storage of such materials must be strictly controlled. Proper storage and handling of these materials will be determined by the Fire Marshal (See Operation Permit Section).

- Hazardous materials may not be stored within 50 feet of any open flame or heat source.
- Hazardous materials shall never be stored in an egress corridor.
- Hazardous materials must not obstruct evacuation routes or be stored under stairs.
- Hazardous materials must be stored in separate cabinets or rooms according to their reactive properties.

Required Operational Permits

Operations and materials that require Fire Marshal Operational Permit:

- Any condition, operation, or use of materials considered being hazardous, dangerous, or unsafe
- Cellulose nitrate film
- Cryogenic fluids
- Flammable and combustible liquids
- Hazardous waste handling
- High Pile Storage
- Hot Work Operations
- Laboratories, research, and other similar buildings or areas within buildings, must have permits to operate, store, and use hazardous chemicals
- LP Gas – permanent and temporary storage tanks
- Open flames, bonfires or open burning
- Pyrotechnics
- Special Events – Temporary membrane structures, tents and canopies
- Stationary lead-acid battery systems
- Storage of hazardous materials over the exempt amounts
- Use and storage of compressed gases

Required permits shall be obtained from the Office of the Fire Marshal. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection.

- Hazardous Material Operational Permit shall constitute permission to maintain, store or handle materials; or to conduct processes which produce conditions hazardous to life or property. Such permission shall not be construed as authority to violate, cancel or set aside any of the provisions of this permit or other applicable regulations or laws of the jurisdiction.
- Issued permit shall be kept on the premises designated therein at all times and shall be readily available for inspection by the fire code official.
- Permits are not transferable and any changes in occupancy, operation, new hazardous materials shall require that a new permit be issued.
- Prevention, control and mitigation of dangerous conditions related to storage, dispensing, use and handling of hazardous materials shall be in accordance with the NAU Fire Code. When a material has multiple hazards, all hazards shall be addressed.

An Operational Permit is required to store, transport on site, dispense, use or handle hazardous materials in excess of the amounts listed below:

Type of Material	Amount
Combustible Liquids	10 gallons
<u>Corrosive Materials</u>	
Gases	Any Amount
Liquids	5 Gallons
Solids	10 pounds
<u>Flammable Materials</u>	
Gases	Any amount
Liquids	5 gallons
Solids	5 pounds
<u>Highly Toxic materials</u>	
Gases	Any amount
Liquids	Any Amount
Solids	Any Amount
<u>Toxic Materials</u>	
Gases	Any Amount
Liquids	5 Gallons
Solids	10 pounds
Oxidizing Materials	Any Amount
Organic Peroxides	Any Amount
Pyrophoric Materials	Any Amount
Unstable(reactive)Reactive materials	Any Amount
Water Reactive Materials	Any Amount
Compressed Gases	Any Amount
Cryogenic Fluids	Any Amount