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Virginia Military Institute

Fire and Life Safety Program

VIRGINIA MILITARY INSTITUTE

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TO: Cadets, Faculty and Staff

Subject: The VMI Fire and Life Safety Program

Ensuring a safe academic and work environment is essential as we enter into the 2012-13 academic year. Your involvement and awareness will help us achieve this goal.

Every year, approximately 4,000 people die from fire and over 25,000 are injured, not to mention the millions of dollars in property damage which occurs. Additionally, approximately 5,600 people die from fatal injuries suffered in the workplace. The saddest part is that many of these tragedies are preventable. That's why proper fire and safety education is critical in minimizing loss of life and property.

I ask you to take the time to familiarize yourself with the information contained in this very important document and put it to use each day.

Please direct your observations and suggestions for improvement to Mr. Mike Jennings, VMI Fire and Safety Office at extension 7040.

Thank you for your support.

Jeffrey H. Curtis
Colonel, USAF (Ret.)
Chief of Staff

Enclosure: VMI Fire and Life Safety Program

Great Challenge. Lifetime Reward.™

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1 Introduction

The potential for injury, loss of life or loss of property from a fire or safety related incident is a daily risk on Post. This plan takes a proactive approach to recognizing and evaluating safety risks and instituting appropriate steps to remove or reduce them.

1.1 Mission Statement

- To provide a safe and healthy living, learning, and working environment for every member on Post by ensuring safe work practices through education and consultation.
- To achieve compliance throughout Post with all safety and health regulations on the local, state and federal level as economically as possible.
- To identify a Fire and Safety Office to act as liaison with external regulatory agencies
- To monitor Post compliance through audit, program development, education, and consultation.
- To reduce risk from a fire or safety incident through a team approach involving Post employees and departments.

1.2 Purpose

This is an information resource to assist Post employees and departments in creating and maintaining a safe environment. This program will enable employees to take appropriate action to ensure their own safety, the safety of co-workers, Cadets and visitors in the event of an emergency. This program was developed to support the VMI Fire and Safety Office mission: to help individuals and departments prevent incidents and achieve compliance with all Post, state and federal regulations. Finally, this program directly supports the VMI mission to establish and maintain a safe and healthful living, learning and working environment.

1.3 Application

- All employees and departments on Post are responsible to ensure that work is performed safely and work areas are maintained in a safe manner.
- All offices, departments, and individuals must create and ensure a safe environment.
- Each department should assign an individual(s) the duties of "Safety Coordinator", to implement this program.
- As "employers," all responsible parties must ensure compliance with safety and health regulations to the best of their ability, with available resources.

1.4 Implementation

This plan provides guidelines for identifying, monitoring, and addressing fire safety issues at The Virginia Military Institute. The plan describes emergency procedures used in support of the Institute Continuity of Operations Plan, fire safety equipment, drills and inspections that reduce the possibility of fires. This plan is evaluated annually as part of the Institute Emergency Exercise Plan Schedule, developed by the Institute Emergency Management Coordinator, and revised as needed by the VMI Fire and Safety Office.

The rules, regulations, and recommendations in this manual are in conformity with codes established by the National Fire Prevention Association (NFPA), The Virginia Statewide Fire Prevention Code (VSFC), the International Fire Code (IFC), the Uniform Statewide Building Code (USBC), International Building Code (IBC), the Occupational Safety and Health Administration (OSHA), the National Incident Management System (NIMS), The Virginia Military Institute's Continuity Of Operations Plan (COOP).

2 Responsibilities

The health and safety of employees, Cadets and visitors is of paramount importance to everyone working and learning at the Post. The concern the Post displays for its employees, Cadets and visitors mirrors the character and strength of The Virginia Military Institute's commitment to its academic mission. Each employee and department is expected to perform in a safe and healthy manner in compliance with the regulatory requirements.

2.1 The Virginia Military Institute (VMI)

The Occupational Safety and Health Administration (OSHA) requires VMI to provide each employee "a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm". All employees – including managers and supervisors – play a role in helping VMI meet this general obligation. It is VMI's mission to provide a safe and healthy living, learning, and working environment for employees, Cadets and visitors. The VMI Fire and Safety Office strives to obtain the highest level of safety that can reasonably be achieved. The VMI Fire and Safety Office personnel will assist all VMI departments with the evaluation of their workplace, work processes or with obtaining proper approvals from regulatory authorities when required.

2.2 Supervisors

Departments are expected to maintain safe and healthy living, learning and working environments for faculty, staff, Cadets and visitors. Supervisors must implement the requirements of this program to ensure compliance with applicable codes, regulations and policies. They must also be aware of applicable training requirements necessary under OSHA programs or the fire code. Supervisors should periodically inspect and/or coordinate the inspection of workplaces to identify hazards. The VMI Fire and Safety Office will assist in eliminating identified hazards. This responsibility will fall to the highest supervisory level of each departmental unit unless otherwise specified.

2.3 Building Coordinator

- Building coordinators serve an important role in both emergency preparedness and building maintenance. Their duties include serving as primary contact between occupants and support offices (i.e. VMI Police, VMI Fire and Safety Office and VMI Physical Plant)

Checks of the building include the following:

- Supports the VMI Fire and Safety Office, and VMI Police during fire drills (P2 will activate fire alarms)
- Exit Lights/Emergency Lights are working correctly
- Fire Doors remain closed at all times
- Stairways remain clear
- Accessible exit ways
- Evacuation maps are current and posted in all rooms and hallways
- Electrical devices for appliances are used correctly
- Electrical panel boxes remain clear and accessible
- Flammable/Combustible materials stored as required by the Fire and Life Safety Program
- Assist safety officer during building fire inspections/correct violations within time specified by the VMI Fire and Safety Officer

Building Coordinators prepare buildings for safe evacuation before an emergency and assist in the evacuation during an emergency, in accordance with the VMI COOP evacuation plans.

2.4 Employees and Cadets

Staff, faculty, Cadets and visitors play an important part in ensuring safety. All should do what they can to protect themselves and others, and respond appropriately during emergencies. Employees should avail themselves of all information pertaining to the safe work conduct, regardless of the setting. Cadets should also participate in fire and life safety programs and respect the safety of others. The VMI Fire and Safety Office can offer safety training programs for both employees and Cadets.

2.5 Contractors

Contractors working on Post are expected to observe and abide by all Post, state and federal regulations, policy and codes.

3.1 Emergency Evacuation Planning

No one expects an emergency or disaster to affect them or their work area. However, an emergency or a disaster can strike anyone, anytime and anywhere. A workplace emergency is an unforeseen situation that threatens Cadets, staff, faculty and visitors, disrupts or shuts down part or all of the Post, or causes physical or environmental damage. Emergencies may be natural or manmade and include the following:

- Floods
- Hurricanes
- Tornadoes
- Fires
- Toxic gas releases
- Chemical spills
- Radiological accidents
- Explosions
- Civil disturbances
- Workplace violence resulting in bodily harm and trauma

An emergency evacuation plan details the actions one must take to ensure employee safety from fire and other emergencies. A department emergency action plan should be comprehensive. It should address any issue that may arise during an emergency, including those that are worksite specific (e.g., hazardous materials, type of fire alarm system, etc.)

A Hazard Assessment Checklist is found in Appendix C; the checklist is only a tool to assist identifying hazards in the work area or building. It is not meant to be an Emergency Evacuation Plan. If there is more than one worksite, each site should have an emergency action plan developed that is specific to the conditions at that site.

At a minimum, an emergency evacuation plan must include the following:

- A preferred method for reporting fires and other emergencies, (VMI COOP Plan)
- An evacuation policy and procedure, (VMI COOP Plan)
- Emergency escape procedures and route assignments, such as floor plans, workplace maps, and safe areas, (VMI Physical Plant)
- A contact list within the department responsible for the emergency plan, (VMI COOP Plan)
- Procedures for assigned employees that perform or shut down critical VMI operations, operate fire extinguishers or perform other essential services that cannot be shut down for every emergency alarm before evacuation, (VMI Physical Plant)
- Rescue and medical duties for assigned employees (VMI COOP Plan).

Designate an assembly location and procedures to account for all employees after an evacuation.

Specific elements must be included in an Emergency Evacuation Plan as follows.

1. Written Emergency Evacuation Plan	An Emergency Evacuation Plan program template is available in Appendix C. Use as a guide for developing an Emergency Evacuation Plan.
2. Alarm Systems	Methods should be established for alerting workers in the event of an emergency. If an audible alarm is used, it must be distinctive from any other type of alarm used in the building. In buildings where no fire alarm system is present, a method of verbal communication must be established to notify building occupants.

3. Training	All employees must be trained to assist in a safe and orderly evacuation in the event of an emergency. All those covered by the plan should be trained at the following times: – Initially when the plan is developed – When responsibilities or designated actions change – When the plan is changed – When first hired or transferred to the Department. General training for all employees should address the following: – Individual roles and responsibilities; – Threats, hazards and protection from hazards; – Notification, warning and communications procedures; – Means for locating family members in an emergency; – Emergency response procedures; – Evacuation, shelter and accountability procedures; – Location and use of common emergency equipment; – Emergency shutdown procedures

Once an emergency evacuation plan is reviewed and all employees have received proper emergency response training as stated in the previous section, practice drills should be held as often as necessary to keep employees prepared. Building Coordinators will assist with Mass evacuation drills and fire drills.

4 Fire Drills and Evacuations

Fire drills are a vital part of a comprehensive Post fire and life safety program. Fire drills will familiarize occupants with procedures and help make those procedures part of an established routine.

Post wide fire drill frequency is listed in Appendix F.

If a fire alarm sounds and there has been no prior notification that it is a drill, take immediate action, evacuate the building and find protection.

Providing well-marked exits does not ensure life safety during a fire or emergency. Exit drills are needed so that occupants will know how to make an efficient and orderly escape. Before a fire, occupants should:

- Know the location of the fire alarm pull stations and how to activate them.
- Know the location of two exits.
- Know the location of and how to use fire extinguisher
- Post the phone numbers of the VMI Police (911) near their phone.
- Report any tampering or malfunctioning of fire protection equipment to the VMI Fire and Safety Office.
- Know the location of the predetermined assembly point, as outlined in the (VMI COOP Plan).
- Keep fire doors closed.

4.1 Drills

The Commandant Staff will conduct fire drills in the Barracks on a quarterly basis. The Commandants Staff will ensure proper coordination with the VMI Police. The Commandant's staff will notify the VMI Police, and the VMI Fire and Safety Office at least five days before the fire drill. Personnel will be assigned to check exits, search for stragglers, count occupants once they are outside, and to control reentry into the building. Drills will be conducted under varying conditions (e.g., blocking a fire exit) and unexpected times to help simulate the actual conditions that may occur in a fire. Emphasis will be placed

upon orderly evacuation with proper discipline rather than speed. The Commandants Office will submit a completed Fire Drill Report Form (Appendix A) to the VMI Fire and Safety Office within five business days of completing the fire drill.

IF THERE IS A FIRE

SOUND THE ALARM

If a fire is discovered, sound the building fire alarm.

LEAVE THE BUILDING

Try to assist others ONLY if it can be done safely.

Move to designated assembly area and remain out of the way of the fire department.

Do not go back into the building until the fire department says it is safe to do so.

CALL THE FIRE/POLICE DEPARTMENT – 911

Dial 911 or use an "emergency" phone.

Give as much information as possible to the 911 operator.

4.1.1 Procedures for Reporting a Fire

If you discover or suspect a fire:

- Pull the nearest fire alarm station to alert residents.
- Leave the building.

  (Try to rescue others ONLY if you can do so safely)
- Move away from the building and out of the way of the fire department.

  (Do not go back into the building until the fire department says it is safe to do so)

- Call the Fire/Police Department.

  (Dial 911)

4.1.2 Procedures for Exiting

- Exit the building as calmly and quickly as possible using the nearest safe exit. Do not use the elevator.
- Alert all persons in your area.
- Close doors on your way out, leave the door unlocked, wear a coat and shoes, and take a towel to place over your face in case of smoke.
- Proceed to the assigned assembly area. Remain outside until the appropriate signal is given to re-enter.
- If all exits are blocked go back to your room, close the door and call 911 to report your location.
- If your clothing should catch on fire, drop and roll to smother the flames.
- Feel the doorknob with the back of your hand before opening any door. If it is hot do not open the door. Brace yourself behind the door, crouch low, and open the door slightly if it is warm. If heat or heavy smoke is present, close the door and stay in your room. Stay low to the floor.
- The emergency responders on scene will assume control of the building. Cadets and staff must give full cooperation to the emergency responder on site.

4.1.3 Responding to a Fire Emergency

If a fire emergency occurs, all persons at The Virginia Military Institute have the responsibility to take immediate and appropriate action. The Emergency Evacuation Plan will be activated and all personnel must evacuate the building.

There is no expectation for an employee to attempt to extinguish a fire or otherwise remain in their workplace upon being notified of a fire emergency. However, assigned employees may be required to

maintain critical equipment or services or to arrange for the orderly shutdown of hazardous processes. Such a requirement should be contained in the employee's job description.

4.1.4 Emergency Procedures in case of fire

If you cannot safely leave the room, seal the cracks around the door with wet towels. Call 911 to report your location.
Open the window a few inches for fresh air and hang a brightly colored cloth or bed sheet out the window to alert the Fire Department of your location. If you have flashlights use it to signal at night.
If smoke gets in your room, keep low and dampen a cloth with water, place it over your nose and breathe lightly through it.
Stay calm. Do not jump from windows above the second floor. Rescue personnel have the proper equipment to get to you quickly.

4.2 Evacuation Plans

Evacuation plans shall be posted by the Physical Plant in all rooms and floors of all Academic Buildings. The plans show the locations of fire exits. The plans are conspicuously located and updated as needed by the Physical Plant.

4.2.1 Non Residential Buildings

- *Training*: The building coordinator will instruct all cadets, employees and housekeeping personnel in fire evacuation procedures for academic buildings.
- *Drills*: Fire drills will be conducted in VMI buildings according to Appendix F, through the coordination of Building Coordinators, VMI Police and the VMI Fire and Safety Office.
- *Evacuation Plans:* Evacuation plans for non-residential buildings will be posted at each classroom, elevator bank or in hallways. The plans show the locations of all exits. The plans are conspicuously located and updated as necessary by the Physical Plant. At the beginning of each semester it is the responsibility of the building coordinator to go over the evacuation plan and direct occupants to the nearest safe exit in case of an actual alarm.

4.2.2 Emergency Evacuation for Persons with Disabilities

The following provides a general guideline of the evacuation procedures for persons with disabilities during fire and other building emergencies. Faculty, staff, and Cadets with disabilities must work with building coordinators to identify their primary and secondary evacuation routes from each building they use. In that regards, individuals with disabilities that may preclude them from quickly exiting from a building need to:

- Be familiar with evacuation options.
- Seek evacuation assistants who are willing to assist in case of an emergency.
- Ask supervisors, instructors or building coordinators about the evacuation plan.

Some VMI buildings have accessible exits at ground level that can be used during an emergency. However, in many buildings, people will need to use stairways to reach building exits. Elevators cannot be used because they have been shown to be unsafe to use in an emergency and in some buildings they are automatically recalled to the ground floor.

4.2.2.1 Evacuation Options

Persons without disabilities must evacuate to the nearest exit. Persons with disabilities have four basic evacuation options.

- *Horizontal Evacuation:* using building exits to the outside ground level or going into unaffected wings of multi-building complexes.
- *Stairway evacuation*: using steps to reach ground level exits from the building
- *Stay in Place:* unless danger is imminent, remaining in a room with an exterior window, a telephone, and a solid or fire-resistant door is a viable option. With this approach, the person may keep in contact with emergency services by dialing 911 and reporting his or her location directly. Central Dispatch will immediately relay the individual's location to on-site emergency personnel, who will determine the necessity for evacuation. Phone lines are expected to remain in service during most building emergencies. If the phone lines fail, the individual can signal from the window by waving a cloth or other visible object.
- The "Stay in Place" approach may be more appropriate for sprinkler protected buildings or buildings where an area of refuge is not nearby or available. It may also be more appropriate for an occupant who is alone when the alarm sounds. A solid or fire-resistant door can be identified

by a fire label on the jam and frame. Non-labeled 1 3/4 inch thick solid core wood doors hung on a metal frame also offer good fire resistance.

- *Area of Refuge*: with an evacuation assistant, going to an area of refuge away from obvious danger the evacuation assistants will then go to the building evacuation assembly point and notify the on-site emergency personnel of the location of the person with a disability. Emergency personnel will determine if further evacuation is necessary.

  Usually, the safest areas of refuge are enclosed stairways if unable to go to the outside. Other possible areas of refuge include: fire rated corridors or vestibules adjacent to exit stairs, and pressurized elevator lobbies. Many buildings feature fire rated corridor construction that may offer safe refuge. Taking a position in a rated corridor next to the stair is a good alternative to a small stair landing crowded with the other building occupants using the stairway.

  For false or needless alarms or an isolated and contained fire, a person with a disability may not have to evacuate. The decision to evacuate will be made by the incident commander on site, and a decision will be communicated as expeditiously as possible.

4.2.2.2 Disability Guidelines

Prior planning and practicing of emergency evacuation routes are important in ensuring a safe evacuation.

- *Mobility Impaired - Wheelchair*

  Persons using wheelchairs should stay in place, or move to an area of refuge with their assistant when the alarm sounds. The evacuation assistant should then proceed to the evacuation assembly point outside the building and tell the VMI Police or the responding fire officials the location of the person with a disability. If the person with a disability is alone, he/she should phone emergency services at 911 with their present location and the area of refuge they are headed too.

  If the stair landing is chosen as the area of refuge, please note that many buildings have relatively small stair landings, and wheelchair users are advised to wait until the heavy traffic has passed before entering the stairway.

  Stairway evacuation of wheelchair users should be conducted by trained professionals (i.e. the fire department or other trained emergency responders). Only in situations of extreme danger

should untrained people attempt to evacuate wheelchair users. Moving a wheelchair down stairs is never safe.

- *Mobility Impaired - Non-Wheelchair*

  Persons with mobility impairments, who are able to walk independently, may be able to negotiate stairs in an emergency with minor assistance. If danger is imminent, the individual should wait until the heavy traffic has cleared before attempting the stairs. If there is no immediate danger (detectable smoke, fire, or unusual odor), the person with a disability may choose to stay in the building, using the other options, until emergency personnel arrive and determine if evacuation is necessary.

- *Hearing Impaired*

  Some buildings on Post are equipped with fire alarm strobe lights; however, many are not. Persons with hearing impairments may not hear audio emergency alarms and will need to be alerted of emergency situations. Emergency instructions can be given by writing a short explicit note to evacuate.

  Reasonable accommodations for persons with hearing impairments may be met by modifying the building fire alarm system, particularly for occupants who spend most of their day in one location.

- *Visually Impaired*

  Most people with a visual impairment will be familiar with their immediate surroundings and frequently traveled routes. Since the emergency evacuation route is likely different from the commonly traveled route, persons who are visually impaired may need assistance in evacuating. The assistant should offer their elbow to the individual with a visual impairment and guide him or her through the evacuation route. During the evacuation the assistant should communicate as necessary to ensure safe evacuation.

A form for reporting and recording fire drills is included as Appendix A. The VMI Fire and Safety Office will keep a copy of these reports when completed.

5 Public Assembly Occupancies

5.1 Definition of a Public Assembly

Assembly occupancies include, but are not limited to, all buildings or portions of buildings used for gathering together 50 or more persons for such purposes as education, deliberation, worship, entertainment, eating, drinking, amusement, awaiting transportation or similar uses, or that are used as a special amusement building regardless of occupant load. (NFPA Life Safety Code).

Examples of assembly occupancies found both on and off Post include large lecture halls, auditoriums, sports arenas, theaters and restaurants. All assembly areas are required to have signs posted indicating occupancy limit.

Public assembly events involve various risk factors associated with having large numbers of people in one location. The primary risk factors are high occupant density, occupants that are not familiar with the building, occupants who may be impaired due to consumption of alcohol or drugs, and events held where there is limited lighting. These risks can be managed through proper event planning management and proper coordination with proper authorities.

All persons planning public assembly events are encouraged to contact the VMI Fire and Safety Office for information and assistance. Consultation is available by telephone, email, or meeting and at the event site.

In order to comply with the requirements of the Virginia State Fire Prevention Code, it may be necessary to contact the VMI Fire and Safety Office to request permits and/or approvals as noted in Appendix G. Required approval and inspections must be requested as far in advance as possible.

The employees or attendants of the area must be trained in emergency evacuation procedures and practice their duties during fire drills. They must also be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment where provided. In “live” theaters, motion picture theaters, auditoriums, and other similar assembly occupancies, an audible announcement must be made not more than ten minutes prior to the start of each program to notify occupants of the location of the exits to be utilized in case of fire or other emergency and any other emergency procedures unique for the assembly area.

5.2 Planning and Management Guide

5.2.1 Information and Assistance

General Information for Event Planning	Planning for all events should begin by contacting the VMI Fire and Safety Office when fire or life safety is in question.
	All persons planning public assembly events are encouraged to contact the VMI Fire and Safety Office. 464-7040 Consultation is available by telephone, email, meeting, and at the event site. In order to comply with the requirements of the Virginia Statewide Fire Prevention Code, it is necessary for Safety Office personnel and/or the State Fire Marshal's Office (SFMO) to make certain approvals as noted in these guidelines. Required approvals and inspections should be requested as far in advance as possible. The Lexington Fire Department personnel are required to be present for certain events such as indoor pyrotechnics, outdoor fireworks, and large scale events. The sponsors and/or VMI Police also provide services for events that may have security concerns.
Definition of Public Assembly	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, occupants that are not familiar with the building, and in some cases reduced lighting levels within the venue. These risks can be managed through proper event planning and management. The Virginia State Fire Prevention Code defines public assembly occupancy as follows:

	Assembly occupancies include but are not limited to, all buildings or portions of buildings, used for gathering together 50 or more persons for such purposes as deliberation, worship, entertainment, eating, drinking, amusement, or awaiting transportation. Examples of assembly occupancies found on Post include large meeting rooms and classrooms, auditoriums with fixed or loose chair seating, multi-purpose rooms, concert halls, theaters, sports arenas, field houses, restaurants and libraries.
Tents Are Considered Buildings	Tents must meet most of the same requirements as buildings.
Outdoor Spaces	Enclosed open areas must meet the same requirements as buildings. Fenced open areas must have at least two exits—or more, depending upon the number of people within the enclosure. Temporary Stages and/or stands must be installed under a work order from the VMI Physical Plant.
Large Scale Events	All events intended to, or that have the potential to, attract large crowds must be coordinated through a number of Post departments. These include but are not limited to: The office of the Chief of Staff, VMI Police, Physical Plant, and the VMI Fire and Safety Office

5.2.2 Fire and Life Safety Planning and Management Information

Room Capacity	Information on Post room capacities may be obtained from the VMI Physical Plant Office. They determine the legal capacities according to Virginia Statewide Fire Prevention Code (SFPC) for existing buildings/areas. Be aware that the occupant load is the maximum capacity based on the net clear floor area. Stages and other obstructions, seating arrangements and the use of tables will decrease the capacity. The type of event is also a determining factor. When planning for an event consider the following:	
	Use	*Minimum area per person*
	Concentrated (concerts, dances, lectures)	7 sq ft per person
	Less concentrated (dining room, exhibit room)	
	Fixed seats	15 sq ft per person

	Stage (persons on stage)	# of fixed seats 15 sq ft per person
Exits	The number of exits required from the room/area is based on the capacity.	
	Number of person's	*Minimum number of exits*
	1 - 500 persons	2 remote exits (minimum)
	501 - 1000 persons	3 remote exits (minimum)
	More than 1000 persons	4 remote exits
	Exits must remain unobstructed and provide clear access to the outside at all times. Wires or cables are not permitted to be placed in front of exits or on steps. All wires or cables on floors must be properly taped down or covered to avoid creating tripping hazards.	
Set-up Plans	The placement of stages, seats, equipment (including wiring), and security arrangements affect the exits and access to exits.	
	Standard set-up plans exist in most buildings. The management of the respective facilities maintains these plans. Set-up plans for other spaces, spaces that are not routinely used for public assembly (including lobbies and atriums), or any plans that are different from existing standard plans must be reviewed in advance by Safety Office and /or Physical Plant Engineering personnel for conformance with the SFPC.	
	The use of "festival" style seating (e.g., general admission without the use of actual seats) is prohibited for venues that have an occupant load of 1000 or greater.	
Tents	Tents over 900 square feet are required to obtain a permit from the VMI Physical Plant. Permits should be requested 30 days in advance, from the VMI Physical Plant. Permit located in Appendix I	
	Tent material must be properly certified as flame retardant. Some tents have attached labels. When labels are not attached, sponsors, promoters, or other production personnel must provide documentation that certifies that the tent material is flame retardant.	
	Flooring for tents must be non-combustible. Straw, hay, wood chips, mulch, or other similar combustible materials are prohibited from use as flooring in tents.	

	Use of open flames (including those used for cooking or warming of food) and heaters must be approved in advance by Safety Office personnel.
	Tent suppliers must be able to certify that tents have been erected in accordance with the manufacturer recommendations, industry standards, and code requirements.
Special Amusement Buildings	Any building or portion of a building that is permanent, temporary, or mobile that is occupied for amusement, entertainment or educational purposes and is arranged such that the means of egress to an exit is not readily apparent due to visual or audio distractions is a 'special amusement building'. Examples include haunted houses and carnival amusement trailers.
Expositions	Expositions of products or other displays have a number of special requirements. Contact Safety Office personnel for guidance on this issue.
Exit Notices (Announcements)	The person in charge of a theater or place of assembly is required to call the attention of everyone present, immediately before the beginning of an event, to the location of exits and to state that the exits are not locked. The person in charge must also announce the following: *"Notice. For your own safety, look for the nearest exit.* *In case of emergency, walk; do not run, to that exit."* This requirement can be met by any of the following methods: 1. Notices made orally 2. Notices shown on the cinema screen 3. Notices printed on the back of a program (by itself, in 1/4 inch high letters) 4. Notices displayed on a fixed sign visible from all points in an assembly room.
Decorations and Theatrical Scenery	All materials used for decorations and theatrical scenery, including the drop used behind stages during concerts, must be fire rated to reduce flame spread. Sponsors, promoters, or other production personnel must have documentation that certifies that the material meets the fire rated requirement. Safety Office personnel may ask to see these certificates prior to the start of an event. There must be documentation to certify that the material is acceptable, Decorations must not block exits or fire safety equipment, nor impede the function of the fire curtain if one is present.

Open Flames	Safety Office personnel must approve open flames used during public assembly events for any purposes other than decoration and cooking (unless otherwise noted). This includes, but is not limited to, any open flame used in the course of a performance. (See Open Flames and Burning section in the Fire and Life Safety Program.) Religious events and weddings conducted in JM Hall are exempt, but must have a fire extinguisher close by during activities involving open flame. Open flames used for decoration and cooking must comply with the table below. Users are required to have adequate safety precautions and are encouraged to contact Safety Office personnel for consultation.
Candles and Decorative Devices	Class I, Class II liquids, and LP gas may not be used, unless authorized by the VMI Fire and Safety Office.
	Liquid or solid fueled lighting devices containing more than 8 ounces of fuel must self-extinguish and not leak fuel at more than 0.25 teaspoon per minute if tipped over.
	Devices or holders must be constructed to prevent the spillage of liquid fuel or wax at the rate of more than 0.25 teaspoon per minute when the device or holder is in the upright position.
	Candles with protected flames may be used on tables used for food service where securely supported on substantial noncombustible bases located to avoid the danger of ignition of combustible materials.
	Devices that do not self extinguish must return to the upright position if tilted to an angle of more than 45 degrees from vertical.
	Flames must be enclosed. Openings on the side must not be more than 3/8-inch diameter. Openings on the top must be distant enough from the flame so that a piece of tissue paper placed on the top will not ignite in 10 seconds.
	Non-combustible chimneys are required to be securely attached to the device. Chimney is not required if the device is self-extinguishing.
	Shades, if used, must be non-combustible.
	Fuel canisters must be safely sealed for storage.
Cooking	Equipment fueled by small heat sources that can be readily extinguished by water,

	such as candles or alcohol-burning equipment, including solid alcohol may be used.
	Flamed dishes, such as cherries jubilee or crepe suzette, may be used, if a fire extinguisher is located in the area of use.
	Small portable LP gas cooking equipment (less than 2 lbs) may be used under the following conditions: • Equipment must be listed for indoor use in commercial restaurants by an approved listing agency such as Underwriters Laboratories (UL) or Factory Mutual Systems (FM). • Equipment must be used in strict accordance with the manufacturers and listing agency's instructions including replacement fuel and parts.
Performing Arts	Small open flames used by outdoor performers, such as jugglers, are approved on a case-by-case basis. Contact the VMI Fire and Safety Office to arrange a review of the proposal. Performers must be prepared to demonstrate their safety procedures and may be required to have certificates of insurance.
Open Fires (outdoors)	Any open fire, with the exception of small-contained cooking fires, requires an Open Fire Permit in accordance with the Virginia Statewide Fire Prevention Code and written permission from the VMI Fire and Safety Office.
	Open fires are limited to the dimensions of 5' X 5' X 5' and must be at least 50 feet from buildings and other exposures. Open fires may also need approval by the VMI Physical Plant and/or the Virginia Department of Environmental Quality. Open fires are limited to the hours between 4:00pm - 12:00 midnight. Other environmental restrictions may also apply. The Open Burn Permit includes directions for obtaining necessary approvals. Appendix E
Pyrotechnics/ Fireworks	The indoor and outdoor use of pyrotechnics is strictly regulated and requires proper approval and permits. Indoor pyrotechnics and outdoor fireworks displays require an *Application for the Display of Pyrotechnics/Fireworks at VMI* to be made and approved by the State Fire Marshal's Office. The event sponsor or producer must apply for the approval no less than 30 workdays prior to the event. The VMI Fire and Safety Office can provide the documentation required by the State Fire Marshal's Office, prior to fireworks displayed on state property.
Fog Machines	The use of fog machines during a performance, dance, or other public assembly event may activate smoke detectors and/or obscure exits. Areas where fog machines are going to be used must be evaluated so that accidental activation of the fire alarm

	system or obscuring of exits is avoided. Contact the VMI Fire and Safety Office to arrange an evaluation of the proposal.
Event Staff/ Crowd Managers	Crowd Managers are responsible for maintaining clear exits, ensuring that there is no overcrowding, initiating a fire alarm if necessary, directing occupants to exits, and providing general fire and life safety awareness. A minimum of 1 Crowd Manager is required for every 250 occupants. Crowd Managers may be comprised of ushers, house managers, gate personnel, security personnel, police aides, or police officers. Employees or attendees of assembly occupancies must be trained in emergency evacuation procedures and practice this training during drills. They must also be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment, where provided. VMI Fire and Safety Office personnel are available to provide training for all persons with this responsibility.
Post Event Procedures	At least one person should be responsible for completing a Post event check. Items to check for include verifying that: all smoking materials (where smoking is allowed) and open flames have been safely extinguished (where open flames are approved); unnecessary electrical equipment has been turned off; and, any obviously hazardous condition has been corrected. This is extremely important in residential facilities.
Generators	Generators must meet all electrical code requirements including proper grounding. All wires that may pose a tripping hazard must be covered or otherwise secured. Generators must be located so that exhaust does not enter buildings or tents.
Emergency Medical Services (EMS)	As an organizer of an event on Post, emergency services must be considered (e.g. VMI Police, rescue squad, fire department) and be summoned in the event of an emergency. For events where a public or pay telephone is not immediately accessible, a cell phone or similar means must be available on site to summon emergency services.(911).
	Organizers of events should consider whether it would be prudent to have emergency medical services on standby at the event. Coordinate with the VMI Police.
	VMI may require that EMS be available for certain size/type events. The number and level of EMS required will determined during pre-event planning. Events of over 2000 or 7000 persons will generally be required to have a minimum of one or two ambulance(s) on-site respectively. Coordinate with the VMI Police.

6 Means of Egress (Exiting)

6.1 Elements of Egress

An obvious, adequate, and unobstructed means of egress is the first line of defense for building occupants in any emergency. The "*means of egress*" has three parts:

Exit Access	The exit access (portion of a means of egress that leads to the entrance of an exit)
Exit	The exit (portion of a means of egress that is separated from other areas of the building from which escape is to be made by walls, floors, doors, or other means that provide the path necessary for the occupants to proceed with reasonable safety to the exterior of the building)
Exit Discharge	The exit discharge (that portion of a means of egress between the termination of the exit and a public way)

6.2 Egress Policy

General	The means of egress from each part of the structure, including exits, stairways, egress doors, and any panic hardware must be maintained in a safe condition and available for immediate use and free of all obstructions. These same obstructions cannot be located in a manner that interferes with fire-fighting access. Combustible materials such as paper signs and posters cannot exceed more than 10% of the total wall area.
	Items located in stairwells or that block exit doors, restrict corridors, or block access to fire emergency equipment constitute serious fire and life safety hazards and are violations of the State Fire Prevention Code.
Stairwells and Corridors	Stairwells and corridors are intended to provide a safe and adequate means for building occupants to exit the building and for emergency personnel to access

	the building during an emergency.
	Tables, showcases, holiday decorations (Christmas trees), vending machines or other obstructions cannot obstruct aisles, passageways or stairways during hours when the building is open to the public.
	Display boards, signs, coat racks and any other movable equipment that obstructs the path of egress are prohibited. Draperies and similar hangings must be fire retardant and cannot obscure an exit.
	Any storage in stairwells is prohibited at all times. The State Fire Prevention Code does not permit equipment, such as vending machines, trash cans or other items to be placed in any stairwell. This is to ensure safe egress for occupants in the event of an emergency.
Aisles	In each room where chairs and/or tables are utilized, the arrangement needs to provide for ready egress by aisle paths and aisles to each egress door.
	The minimum required width is 44 inches where serving an occupant load greater than 50, and 36 inches where serving an occupant load of 50 or less for the entire room.
	Chairs, table or other objects cannot obstruct the clear width of aisles.
Posting Egress Routes	Egress routes must be posted, at eye-level, where the exit path is not immediately obvious. Egress routes should be graphically illustrated and posted in: - remote areas; - office suites; - long hallways; - rooms or areas occupied by more than 49 people; - laboratories; and, - Protected corridors
Egress Awareness	Building occupants should take the time to become more familiar with their building. Occupants should think of an emergency scenario that would require them to evacuate, and then determine a primary and an alternative means of egress for themselves. They should also become more familiar with what is going on above and below the level where they normally work. Employees should walk the halls and notice the placement of portable fire extinguishers. If

	the building is so equipped, notice the location of other fire protection systems, such as fire alarm system pull stations and sprinkler heads.
Fire Lanes	Designated fire lanes must be maintained free of obstructions and vehicles to allow efficient and effective operation of fire apparatus. Fire lanes are required to have a minimum width of 18 feet. Signs and markings designating the fire lanes must be maintained in a clean and legible condition at all times. Signs must be replaced when necessary to ensure adequate visibility.
Elevator Recall	All modern Post elevators with a travel distance of 25 feet or more above or below the primary level of elevator access for emergency fire fighting or rescue personnel may have elevator recall installed. This means, when a smoke detector is activated the elevator will automatically be recalled to the primary floor. Older elevators that do not have this capability will be upgraded as funding becomes available.

7 Fire Prevention

Fire prevention starts with identifying fire hazards. All members of the Post, faculty, staff, Cadets and visitors have a personal obligation to be aware of fire hazards and to reduce or eliminate the risk of fire on Post.

7.1 Elements of Fire Prevention Planning for all VMI Departments

- Develop a list of all major fire hazards
- Ensure proper handling and storage procedures for hazardous materials.
- Identify potential ignition sources and the means used to control them.
- Develop a list of fire protection equipment necessary to control each major hazard.
- Establish procedures to control the accumulation of flammable and combustible waste materials.
- Establish procedures for regular inspection and maintenance of safeguards installed on heat-producing equipment to prevent accidental ignition of combustible materials.
- Identify by name or job title employees responsible for control of fuel source hazards.

In addition, the department must communicate certain information to employees, which includes:

- Informing each employee of the fire hazard(s) to which he or she is exposed.
- Review with employees, when they are initially assigned to a job, those parts of the fire prevention plan that are necessary for employees to protect themselves from potential fire hazards.
- Review the fire prevention plan again with any employee that is reassigned to a new job with different hazards.
- Review the plan with all employees any time a change is made to the plan.
- Review the plan with all new hires.

7.2 Identifying Common Fire Hazards

The following is a list of common fire hazards that may be in the workplace.

Scrap, waste materials, dust and trash	When these items are allowed to accumulate, the risk of fire is increased. Under the right conditions, the buildup of dust from wood, plastic or certain metal operations can lead to a fire or explosion.
Unsafe use, storage, dispensing or disposal of flammable materials	Flammable materials can be a prime source of fire and explosion
Improper storage of combustible materials	Ordinary combustible materials, like paper, cardboard, wood and products made from these materials, can present a fire hazard when they are allowed to accumulate or are stored improperly.
Use of extension cords and multiple plug adapters	Extension cords and multiple plug adapters may only be used for temporary operations. Overloaded circuits damaged wiring and defective switches and outlets can all lead to electrical fires. Power strips with circuit breaker protection and 3 to 20 foot cords may be used in place of residential extension cords and multiple plug adapters. Each power strip must be plugged directly into the wall outlet. The Fire Code prohibits "daisy" chaining power strips into one another.
Hot work hazards	Any operation involving heated materials or open flames presents a fire hazard. *Hot Work Procedures* have been developed. Refer to page 50 section **7.5** for more information.
Inadequate machine and equipment maintenance	Machines that are not lubricated properly can overheat and start a fire. Electrical problems and equipment defects can lead to a fire. Routine inspection and maintenance of all machines and equipment can prevent fire hazards.
Careless smoking	Smoking is prohibited in facilities owned or leased by VMI. Some exceptions are made for residential facilities. Outdoors, discarded smoking materials carelessly tossed in waste containers or into landscaping can easily start a fire. Use approved waste containers

	to discard smoking materials.
Plastic and foam items	Departments using foam or plastic cups, utensils, etc. close to heat sources may not realize that these materials are combustible. Foam cups left next to a coffee maker can quickly start a fire. Plastic and foam burn rapidly and give off dense toxic black smoke.
Electric space heaters/ Coffee pots	Electric space heaters are prohibited in all buildings and Barracks throughout Post. If space heaters are needed, authorization from the VMI Fire and Safety Office is required. Coffee pots used in VMI facilities must be turned off each day. A person(s) should be designated in each work area to complete this task.
Portable fans	Small portable fans help improve ventilation in an area. They can also pose a fire hazard if placed near combustible materials or where the blades of the fan can easily catch items. Damaged wiring and mounting portable fans in walls increase the fire risk. Fans should be turned off at the end of each day.
Aerosol spray cans	Read labels of all spray cans to identify those with flammable gas-propellants. Butane and propane are the most common propellants and should never be exposed to heat or flames.
Materials that spontaneously combust	Oily rags or other materials soaked in oil can start a fire by themselves if placed in areas where the air does not circulate.
Non-complaint rénovation or maintenance	Renovation or maintenance projects that do not meet the requirements of the Virginia building or fire codes can result in improper egress, improper construction methods or materials, electrical hazards, and so on.

7.3 Interior Finishes and Decorations

Interior decorations are a common factor in the spread of fire. Decorations used during the holiday seasons are always a large concern. It is necessary to ensure that all decorations used meet the requirements of safety and fire resistance.

Interior Finish	The following are requirements to consider when planning a renovation or

	refinish of walls, ceilings and floors: • All new finishes must meet the minimum requirements of NFPA standards and the building code	
Approvals	Normally, specific written approvals for holiday decorations will not be required. Written approval will be required if the decorations may interfere with any safety system or may conflict with one or more of the safety requirements in this policy.	
Documentation	Any decoration, whether purchased from a store, dealer, catalog or other business or if handmade, will require documentation acceptable to the VMI Fire and Safety Office and/or the SFMO that the materials used meet the fire safety standards.	
Materials (fire resistance)	All materials used in decorations must meet the minimum requirements of NFPA 701, Standard Methods of Fire Tests for Flame Resistant Textiles and Films. The VMI Fire and Safety Office will provide the specific requirements upon request. It is recommended that the VMI Fire and Safety Office be contacted for consultation prior to purchasing or installing decorations if the rating is in question.	
General requirements include:	Vegetation	Vegetation such as hay stacks, leaves, branches, large amounts of plant cuttings, etc. may not be used in any Virginia Military Institute building.
	Live holiday trees	May not be used in any Virginia Military Institute's facilities. Faculty housing may have live trees, but should be watered daily. Refer to the electrical section below.
	Locations	Decorations must not be attached to, hung from, or obstruct any emergency device, including sprinkler heads and piping. Combustible decorations must not be hung from ceilings in such a way that a fire could ignite the decorations and endanger the occupants before evacuation. Unauthorized items found during inspections will be required to be removed.

	Electrical	• Electrical lights, decorations, and cords must comply with the following conditions: • The device must be tested and approved by a recognized testing laboratory such as Underwriters' Laboratory (UL) or Factory Mutual (FM). The device must bear the appropriate label, sticker or tag supplied by the manufacturer. • Do not use electrical decorations or cords on combustible vegetation, dry trees, curtains or any other combustible material that may be ignited by the heat or potential electrical short of the device. • Extension cords may be used—on a temporary basis only—for decorations. The cord must be plugged directly into a building receptacle, not another extension cord. • Multiple electrical devices may be plugged into an approved "Power Strip" which incorporates a breaker, on/off switch, is surge protected, and can reach the outlet without connection to another "surge protector" or an extension cord. Each power strip must be plugged directly into a wall outlet. This allowance does not apply to heat producing devices, which must be plugged directly into an outlet.
		• Electrical decorations must be turned off and should be unplugged at the end of the day or when the building will be unoccupied for an extended period. • Electrical decorations or cords must not be laid or taped across floors in such a way that they may cause a tripping hazard or interfere in any way with evacuation. • Any electrical decoration or cord that is damaged, worn, showing signs of overheating, etc. must be taken out of service and repaired or replaced.
Amount of Decorations	This program does not specifically limit the use of decorations; rather, a general rule of thumb by the Life Safety Code limits combustible material to 10% of the existing wall space of an area. The amount of decorations used will be limited by the following criteria:	

	• Decorations must not obstruct any corridor, exit or safety device. • Decorations must not exceed the amount of combustibles that could be contained by any existing extinguishing system or quickly brought under control with a fire extinguisher. • No amount of any combustibles that would aid in the rapid spread of fire such that it could endanger or entrap the occupants The amount of decorations may affect the occupant load of the area if such decorations cover any required floor area used in the calculation of the occupant load.	
Luminaries	Luminaries are permitted for use both in the electrical and candle versions under the following conditions:	
	Indoors	• Candle type luminaries will not be used indoors. • Electric luminaries may be used according to the requirements of the electric section on the preceding page.
	Outdoors	• Candle and/or electrical luminaries are permitted outdoors. • Candle types must be in an approved luminary's bag with at least 2" of sand (or like non-combustible material) in the bottom of the bag. The candle must be of a size that will allow adequate space between the candles and bag so as not to ignite the bag. • Candle types will not be placed within five (5) feet of combustible material, such as leaves or paper decorations. • An individual will be designated to supervise, control and manage the luminaries, and ensure that they are properly extinguished and properly discarded. • Candles must be extinguished at the end of the night or event unless the area is supervised. • Electrical luminaries must be rated for outdoor use. • Electrical cords and extension cords will not be placed so as to cause a tripping or fire hazard (i.e., frayed or narrated cords running along a path of dry leaves).

7.4 Basic Fire Prevention Strategies

After identifying the hazards in the area, take action to eliminate or control these hazards and prevent fires.

7.4.1 Housekeeping

Accumulation of combustible materials	The accumulation of combustible materials (such as cardboard boxes, magazine/journals and paper products) is prohibited. Combustible material must never be stored any closer than 36" from a heating appliance or electrical light. Properly dispose of those items no longer in use to avoid stacking and accumulation on counters, top of cabinets and desks.
Storage	Store materials in such a way that they will not obstruct the fire suppression sprinkler heads; making sure items stored are 18 inches below sprinkler heads if the area is protected by a fire suppression system (sprinklers) and 24 inches from sprinkler heads if there is no fire suppression system. Exceptions are allowed for attached wall shelving unless located directly under a sprinkler head. If wall shelving is located directly under sprinkler head, a clearance of 18” must be maintained.
Decorations	Decorations, signs and other items cannot be hung on or near the sprinkler head.
Obstructing Portable Fire Extinguishers	Do not obstruct access to portable fire extinguishers. They must be clearly visible at all times.
Blocking Fire Doors	Ensure the fire doors are unobstructed and operate freely. Never block fire doors in the open position with wedges or stoppers. These doors are to remain closed to reduce fire and smoke spread through the rest of the building.
Spills on Floor	Correct any condition causing leaks or drips of flammable or combustible liquids and keep floor area free of spills.
Hoarding	Maintain premises free of unneeded and unnecessary combustible materials. Surplus or properly discard unused items being stockpiled or hoarded. Hoarding increases the risk of fire and possible structural damage due to increased weight loading on floors.
Clear Passage	Keep passageways clear of obstacles, including furniture and equipment.

7.4.2 Fire-Rated Doors and Fire-Resistant Barriers

Fire-rated Doors	Fire-rated doors are generally found at any opening to a corridor, stairwell, storage room, and mechanical and/or electrical equipment room.
	Blocking doors with wedges or other items allows smoke and fire to spread rapidly through a building, possibly preventing occupants from quickly evacuating during a fire emergency. Items used to illegally prop open fire doors will be confiscated when found.
Magnetic Door Hold Open Devices	Magnetic door hold open device are permitted only if they are tied into the fire alarm system or to single station smoke detector located in front of the door.
Renovation Projects	All building materials used in renovation and building projects must meet the state fire code requirements for fire-resistance, and all work must be performed in accordance with the building code requirements.
Fire stopping	All penetrations of floors, ceilings, and/or walls are avenues for smoke and heat travel. These penetrations must be properly fire stopped where required. This includes the replacing of ceiling tile when disturbed for any reason.

7.4.3 Electrical & Mechanical Equipment

Electrical defects, generally due to poor maintenance, mostly in wiring, motors, switches, lamps and hot elements are the number one cause of fires in industry. Fires in mechanical equipment are usually due to friction and contact with hot surfaces. By adhering to the following guidelines electrical and mechanical fires can be prevented.

- Use only UL or FM approved equipment.
- Install and maintain electrical equipment according to the National Electric Code.
- Establish regular maintenance on equipment.
- Ensure that extension cords are UL listed, suitable for the application, and only used as a temporary measure.
- Use proper size and type of fuses. Do not by-pass fuses.
- Ensure that terminal connections are clean and tight.

- Use only approved equipment in hazardous locations where flammable vapors, liquids, gases, and combustible dust are present.
- Do not store materials within three feet of an electrical panel, clear access is required at all times.
- Check your work area for frayed wires; ensure that electrical equipment is working properly.
- When an electrical malfunction occurs always have it repaired as soon as possible.
- Do not use temporary or makeshift wiring.
- Properly lubricate machinery.
- Properly adjust and/or align machinery.
- Ensure that hot pipes are clear of combustible materials.
- Provide ample clearance around boilers, furnaces, and heaters.
- Keep soldering irons off combustible surfaces.
- Remove combustible dust and lint from bearings and shafting.
- Keep oil holes for bearings covered.
- Ensure that penetrations through fire walls, floors, or ceilings are fire stopped.
- Do not store combustible materials in mechanical storage rooms.

Wiring, Switches and Plugs	Inspect all wiring, switches and plugs. Report any damage found to the Physical Plant.
Electrical Outlets	All electrical outlets, junction boxes, and electrical panels are required to have proper cover plates at all times. If a cover plate is found missing, contact the Physical Plant to have the hazard corrected.
Junction Boxes and Electrical Panels	Junction boxes and the breakers/disconnects in electrical circuit panels are required to be properly labeled advising what it controls for emergency response and maintenance personnel.
Wet Electrical Cords	Do not use electric cords or equipment that is damp or wet unless they are approved for such use. Do not connect or disconnect electrical cords or equipment with wet hands.
Overloaded Motors or	Do not overload motors or circuits; overloaded motors and circuits can easily be

Circuits	a source of ignition.
Lighting Fixtures	Report any problems with lighting fixtures to the Physical Plant immediately.
Faulty Heating Elements	Faulty heating elements can be a source of fire. Report any problem with heating equipment to the Physical Plant immediately.
Extension Cords	The improper use of electrical extension cords is strictly prohibited. Do not use extension cords in place of the permanent wiring in the building or for extended periods of time. If electrical power is needed and there is no outlet available, have additional outlets installed or use a power strip with breaker protection. Each power strip must be plugged directly into a wall outlet. Heavy duty, single appliance extension cords may be used for temporary use only, and must be plugged directly into an outlet.
Multiple Plug Electrical Adapters	The improper use of multiple plug electrical adapters is strictly prohibited. Remove the multiple plug adapters and install permanent electrical wall outlets or replace with power strips with breaker protection. Each power strip must be plugged directly into a wall outlet.
Do not try to fix electrical problems!	Report all electrical problems immediately to the Physical Plant, so that a qualified electrician can make the repairs.

7.4.4 Flammable and Combustible Materials

(See Appendix B for definitions, classifications and guidance on the storage of flammable and combustible materials.)

Flammable liquids are among the most common occupational hazards found in the work place. Flammable liquids can easily vaporize and form flammable and explosive mixtures in air. The flammability properties of a chemical should be checked before it is used. The danger of fire and explosions can be eliminated or reduced by strict handling, dispensing, and storage procedures.

7.4.4.1 Ventilation

Ventilation is essential to prevent a buildup of vapors that could lead to fire and explosion. Vapors must be controlled by confinement, local exhaust, or general room ventilation. Ventilation systems should be designed to keep the vapor concentration below 25% of the lower flammability level. Room ventilation is normally adequate to prevent the accumulation of dangerous concentrations of vapors if only very small quantities are released.

7.4.4.2 Ignition sources

Flammable liquids should never be heated with an open flame. Containers should always be kept closed to reduce the possibility of flammable vapors contacting an ignition source. When flammable liquids are used, all unnecessary ignition sources should be removed. Ignition sources include open flames, electrical equipment, hot surfaces, and static sparks.

7.4.4.3 Smoking

Carelessly discarded smoking materials are a major source of fires. Smoking is absolutely prohibited in all VMI facilities. "No Smoking" and “Smoking” areas should be conspicuously posted. Matches and smoking materials must be discarded in a safe container rather than on the floor. Smoking is prohibited in areas where flammable liquids are used or stored.

7.4.4.4 Warning signs

"No Smoking" and "Flammable Liquids" signs shall be prominently posted in areas where flammable liquids are used or stored.

7.4.4.5 Fire extinguishers

Appropriate fire extinguishers must be located in work areas using flammable liquids.

7.4.4.6 General storage

Flammable liquids should not be stored near heat, ignition sources, powerful oxidizing agents, or other reactive chemicals. Flammable liquids should not be stored near an exit, stairway, or any area normally used for the safe egress of people. Storage in glass bottles should be avoided if possible. If glass must be used, the bottle should be protected against breakage. The quantity of flammable liquids should be limited to what is immediately needed. As much as possible, working quantities should be stored in safety cans. Flammable liquids should not be stored above eye level. Store solvent soaked rags in closed metal containers and empty frequently.

7.4.4.7 Flammable Storage Cabinets

Quantities of flammable liquids greater than 10 gallons must be stored in flammable storage cabinets, approved safety cans, or a properly designed flammable storage room. Approved storage cabinets are designed to protect flammable liquids from involvement in an external fire for 10 minutes. All cabinets must comply with OSHA and NFPA requirements. Metal or wooden cabinets may be used if they comply with thickness and construction specifications. Maximum storage limits for flammable liquids in approved storage cabinets are 120 gallons. Of this total, only 60 gallons of Class I and Class II liquids are allowed. No more than three such cabinets may be stored in a fire area. Storage cabinets are not required to be vented. Venting a cabinet may defeat the cabinet's purpose of protecting the contents from involvement in a fire for 10 minutes. Cabinets must be labeled in conspicuous lettering "Flammable-Keep Fire Away."

7.4.4.8 Safety Cans

Portable approved safety cans may be used to safely store, carry, and pour flammable and combustible liquids. The main purpose of the safety can is to prevent an explosion of the container when it is heated. Safety cans must be UL listed and FM approved, and properly labeled to identify contents. All approved cans must have a lid that is spring loaded to close automatically after filling or pouring. The lid also acts as a relief valve when pressure builds up in the can. A flame arrestor screen must be inside the cap spout to prevent fire flashback into the can.

7.4.4.9 Refrigerators

Flammable solvents must not be stored in standard refrigerators; explosions may result from the ignition of confined vapors by sparking electrical contacts. These refrigerators should be posted as unsafe for storage of flammable liquids. Only explosion-safe or explosion-proof refrigerators may be used. Explosion-safe or flammable storage refrigerators have been modified to eliminate the spark producing mechanisms. Explosion-proof refrigerators not only protect against flammable vapors inside the unit, but may also be used in rooms that have an explosive atmosphere. These units must be permanently wired to the electrical system.

7.4.4.10 Container size

Flammable and combustible liquids must be stored in appropriate containers according to their classification. Containers of flammable and combustible liquids are limited to the following sizes:

Class	Glass or Plastic	Metal (non DOT)	Metal (DOT)	Safety Cans
Class IA	1 pt	1 gal	60 gal	2 gal
Class IB	1 qt	5 gal	60 gal	5 gal
Class IC	1 gal	5 gal	60 gal	5 gal
Class II	1 gal	5 gal	60 gal	5 gal
Class III	1 gal	5 gal	60 gal	5 gal

7.4.4.11 Inside storage rooms

Bulk quantities of flammable liquids, such as 30 or 55-gallon drums, must be stored in properly designed indoor storage rooms or outside storage areas. Indoor storage rooms containing flammable and combustible liquids must meet the requirements of OSHA Standard 1910-106(d). These standards include spill control measures, spark-proof electrical fixtures, fire suppression equipment, and ventilation requirements.

7.4.4.12 Electrical grounding

Transferring liquids from one metal container to another may produce static electricity sparks capable of igniting the flammable vapors. To discharge the static electricity, dispensing drums should be adequately grounded and bonded to the receiving container before pouring. Bonding between containers may be made by means of a conductive hose or by placing the nozzle of the dispensing container in contact with the mouth of the receiving container. If the container cannot be grounded, then the liquid should be poured slowly to allow the charge time to disperse.

7.4.4.13 Spills

Appropriate spill kits should be available in work areas using flammable liquids. Materials should absorb the solvent and reduce the vapor pressure so that ignition is impossible.

7.4.4.14 Transportation

Flammable solvents should be transported in metal or other protective containers.

Substitution	Where possible, flammable materials should be replaced by safer, less flammable materials to reduce the risk of fires. Any substituted material should be stable, non-toxic and should either be nonflammable or have a high flashpoint.

Storage	The proper storage of flammable liquids in a work area is required to reduce the risk of fire and prevent health hazards. Remember that the quantities that can be stored in one location are limited (see Appendix B) Storage areas should be provided with at least fire extinguishers, but a fire protection system should be considered for any large storage area. Flammable liquids storage cabinets should be used where greater quantities of liquids are needed. Contrary to popular thinking, they are not designed to contain a fire but are designed to prevent a fire outside from reaching the contents of the cabinet for a period of 10 minutes - just enough time to allow escape from the area. Limits for cabinets are: • No more than 120 gallons (454L) of Classes I, II, and IIIA combined in one cabinet. • Only three cabinets are allowed in each fire area unless each group of three can be separated by 100 feet. • If the building is sprinkler protected, the number can be doubled to six cabinets. • If stored amounts exceed the above limits, a separate inside storage room is required in accordance with the requirements found in NFPA 30, Chapter 4.
Handling	Flammable and combustible liquids require careful handling at all times. Containers should be tightly sealed when not in use, and liquids should be stored in an area where temperature is stable to prevent a buildup of internal pressure due to vaporization. Safety cans are a good risk management tool where smaller quantities of liquids are handled. They prevent spillage and have spring-loaded safety caps that prevent vapors from escaping and act as a pressure vent if the can is engulfed in fire, preventing explosion and rocketing of the can, which could spread the fire. Users are expected to limit the risk of a fire by reducing the quantities of liquids located outside of storage cabinets/areas. Quantities of flammable and combustible liquids located outside of storage cabinets/areas should be restricted to one day's supply or to what can be used during a single shift. Some flammable liquids, such as xylem, toluene, benzene and gasoline have a tendency to accumulate a static electric charge. If the charged is released a spark can be produced and ignition can result. To prevent the buildup static charge, it is important to bond metal dispensing and receiving containers together before pouring – each container is wired together and one container is

	connected to a good ground point to allow any charge that may develop to drain away safely. Because there is no easy way to bond plastic containers, their use should be limited to smaller sizes – no more than 4L.
Ventilation	To prevent the accumulation of vapors inside a flammable or combustible materials storage room or area, a continuous mechanical ventilation system must be in place. Both makeup and exhaust air openings must be arranged to provide air movement directly to the exterior of the building. Any exhaust ventilation ducts must be exclusive to the system and used for no other purposes.
Elimination of Ignition Sources	All nonessential ignition sources must be eliminated where flammable liquids are used or stored. The following is a list of the most common sources of ignition. • Open flames from cutting and welding operations. • Furnaces • Matches • Heater, portable or fixed • Motors, switches, and circuit breakers need to be explosion-proof in areas where flammable liquids are used or stored. • Mechanical sparks from friction. Use non-sparking tools in these areas. • Proper grounding and bonding procedures must be used to eliminate static sparks when transferring flammable liquids to and from containers. • Smoking materials
Removal of Incompatibles	Materials that can contribute to a flammable liquid fire should not be stored with flammable liquids. (Examples: oxidizers and organic peroxides)
Spills	If a spill occurs, employees should take the following actions: • Limit its spread by containing the spill with a suitable absorbent material • Minimize vapors by covering the surface of the spill with the same material. • Notify the supervisor immediately and contact the VMI Police and the

	Physical Plant for assistance. • Make sure all sources of ignitions are shut off or controlled. • Begin cleanup right away.

7.4.5 Compressed Gas Cylinders

Compressed gas cylinders are especially dangerous because they possess both mechanical and chemical hazards. Due to the large amount of potential energy resulting from compression of the cylinder, gas cylinders should be handled as high-energy sources and as a potential explosive. In addition, the gases contained in the cylinders are hazardous because of flammable, toxic or corrosive properties. The most common hazard associated with gas cylinders is leakage from regulators that can allow the gas to diffuse throughout the room. Flammable gases can mix with the air and present fire and explosion risks.

7.4.5.1 Identification

The contents of compressed gas cylinders must be clearly identified and bear the appropriate DOT hazard label. Labels should not be removed or defaced. If the labeling on a cylinder becomes defaced, the cylinder should be marked "contents unknown" and returned to the manufacturer.

7.4.5.2 Transportation

Manual transportation of cylinders should always be done with a hand truck. Cylinders should be securely fastened with a strap or rope. The valve cap must be in place. Cylinders should never be lifted by the valve cap or dragged, rolled, dropped, or permitted to strike hard objects or another cylinder.

7.4.5.3 Training

Persons who handle flammable gas cylinders should be adequately trained in the physical and chemical properties of the gas and the proper methods to use the cylinders.

Hazards	Compressed gas cylinder can expose users and building occupants to both chemical and physical hazards.
	The gases in these cylinders can cause fire or explosion, may be toxic or can displace the oxygen in the area.
	Damage to cylinders can cause the cylinder to be propelled with great force.
Inspection	Perform a visual inspection before a delivery of the cylinder is accepted from the vendor. If the cylinder appears to be damaged or defective, refuse delivery!
	Routinely inspect cylinders that are in use for: • leaking regulators, • physical damage to the cylinder or valves, • obvious signs of defects, • deep rusting • pitting
	Do not use a cylinder that appears to be faulty. Take it immediately out of service and contact the vendor.
	All gas cylinders must have proper labeling. Labeling must also indicate if the cylinder is full, empty or in-service.
Storage	Gas cylinder must be properly secured at all times to prevent tipping, falling or rolling. They can be secured with straps or chains connected to a wall bracket or other fixed surface, or by use of a cylinder stand or cart.
	Store cylinders in a cool, dry, well-ventilated, fire-resistant area. Cylinders must be stored in compatible groups, with flammables separated from oxidizers and corrosives.
	Keep oxygen cylinders a minimum of twenty (20) feet from flammable and

	combustible materials.
	Cylinders can be separated with a barrier, such as concrete block wall, at least 5 feet high, having a fire rating of at least ½ hour.
	A gas cylinder storage area should be located where they cannot be knocked over or damaged by falling objects, and must be protected from vehicular impact.
	As with any hazardous material, gas cylinders cannot be stored in public hallways or unprotected areas. Nonflammable cylinders should not be located closer than 5 feet and flammable cylinders no closer than 25 feet from an exit or unprotected opening such as a window.
	When a cylinder is not being used, the valve should be closed and the valve protector secured in place. Never store gas cylinders near radiators or other heat sources.
	Bulk storage rooms must be specifically designed for this purposes otherwise quantities will be limited.
Handling	Be sure to close all cylinder valves when they are empty or not in use. Regulators must be removed and valve protection caps secured in place before moving cylinders.
	When transporting cylinders, always use a cylinder truck or cart to avoid cylinders tipping, falling or rolling. Never roll or drag a gas cylinder. Use appropriate lifting devices, such as cradles or nets when hoisting a cylinder with a crane or derrick for vehicle transport. Lifting a gas cylinder with a magnet, sling or by the valve protection cap can lead to disaster and is prohibited.
	When opening a valve on a cylinder, stand to one side of the regulator and open the valve slowly.
	Do not attempt or repair a gas cylinder regulator; call the distributor immediately.
Additional information	Additional information can be found in NFPA (National Fire Protection Association) Standard for the Storage, Use and Handling of Compressed and Liquefied Gases in Portable Cylinders.

7.4.6 Fire Protection Systems

Building Fire Alarms	Not all buildings on Post are equipped with building fire alarms. It is important to know if a building is equipped with an automatic central fire alarm.
	If a building is not equipped with a building fire alarm, occupants will need to communicate to others in the building by announcing "FIRE" as they exit the building or by other means as defined in the buildings Emergency Evacuation Plan. Emergency Evacuation planning is critical in all Post buildings, but especially important in those buildings with no fire alarm or detection system.
Automatic Fire Alarm Systems	Automatic fire alarm systems are installed to facilitate notification of building occupants of a fire emergency. Various types of smoke and heat detectors along with manual pull stations are linked to the alarm system; when activated, the fire alarm system calls Central Dispatch and VMI Police.
Manual Fire Alarm Pull Station (Red Boxes)	Manually activated pull stations are located along building exit routes. All buildings equipped with fire alarms will have manual pull stations (red boxes).
Fire Suppression Systems	Fire suppression systems are more commonly known as "sprinkler systems". They are present in Post buildings. The most common type uses water and is designed to extinguisher small fires and/or reduces the spread of fire to provide building occupants time to evacuate.
	It is a common misconception that if one sprinkler head goes off, they all go off. Fortunately, this is not the case. Automatic fire suppression heads activate at a predetermined temperature (acting as a heat detector) on an individual basis.
	Fire suppression systems are interconnected to the building fire alarm. When a sprinkler head is activated, it automatically activates the building fire alarm.
	The building fire alarm can also be activated by smoke detectors or manually without the sprinklers going off. This is how a fire drill is conducted.
Other Suppression Systems	Other types of fire suppression systems include dry pipe water and wet chemical systems. These systems are found where hazardous materials are located, in commercial kitchen hood exhaust systems (see next section), and in areas where freezing is a concern.
Commercial Kitchen Hood Exhaust System	Each existing commercial cooking appliance, such as a grill, deep fryer, or any other appliance that produces grease-laden vapors, is required to have an approved commercial kitchen exhaust hood and duct system that is protected

	with an automatic fire suppression system.
	These systems are required to be appropriate for the hazard. A wet chemical suppression system must be used, for example, over a deep fryer using vegetable oils.
	The sprinkler heads within the hoods require regular maintenance and cleaning to remove deposits of residue and grease from the system. The cleaning schedule must comply with the manufacturer's recommendations and the mechanical code.
Portable Fire Extinguishers (Additional information about selecting and using a portable fire extinguisher can be found in the training section of this program.)	Fire extinguishers can play an important role in the fire protection program. How successfully they can function, however, depends upon the following conditions having been met: • The fire extinguisher is properly located and in working order. • The fire extinguisher is of the proper type for the fire that has occurred. • The fire is discovered while still small enough for the fire extinguisher to be effective. • A person ready, willing, and able to use the fire extinguisher discovers the fire.
	Selection of the best portable fire extinguisher for a given situation depends on the following factors: • Nature of the combustibles or flammables that might be ignited. • Potential severity (size, intensity, and speed of travel) of any resulting fire. • Effectiveness of the fire extinguisher on that hazard. • Ease of use of the fire extinguisher. • Personnel available to operate the fire extinguisher and their physical abilities and emotional reactions as influenced by their training. • Ambient temperature conditions and other special atmospheric considerations (wind, draft, presence of fumes). • Suitability of the fire extinguisher for its environment. • Any anticipated adverse chemical reactions between the extinguishing agent and the burning materials. • Any health and operational safety concerns (exposure of operators during

	the fire control efforts). • Upkeep and maintenance requirements for the fire extinguisher.
	If assistance is needed to determine the type and distribution of portable fire extinguishers in a work area, contact the VMI Fire and Safety Office.

7.4.7 Building and Renovating Space

The Commonwealth of Virginia instituted a building permit policy that affects all state agencies. Under this policy, we are required to issue building permits for all renovations that are minor in nature. Contact the Physical Plant.

7.4.8 Miscellaneous Requirements

Landscaping	Landscaping must not: • Impede fire vehicle or emergency responder access to a building. • Obstruct access to fire hydrants, fire department connections or other fire sprinkler test valves or other emergency devices. • Obstruct or cause a tripping hazard for occupants evacuating a building to a public way. • Obstruct exits from doors, windows or other designated evacuation points from a building.
Breaches in fire or smoke rated barriers	• Holes in fire rated walls or smoke barriers will not be permitted unless the condition is allowed by the Virginia building code or has been approved by the Virginia Building Code Official. • Cables, equipment cords, etc. may not be placed in or run through any permitted opening in a rated fire wall or smoke barrier, such as through a door or within ventilation ductwork.
Wood and sheet metal workshops	• All wood and metal shavings produced by the work must be cleaned and removed from the building at the end of the job or the workday as appropriate. • All shops with machinery that produce hazardous shavings or dust must have an approved dust collection system. This system must be in operation

	at all times the equipment is in use.
Washer/Clothes Dryer operations	• Empty the lint catcher in clothes dryers after each load. • Check the area behind the washer and dryer periodically for lint or trash build-up and clean as necessary. • Dyer vents must exhaust to the exterior of the building.
Automotive and industrial shops	At the end of the work day, or as necessary: • Clean all work areas of oil to prevent a buildup. • Return all oils and flammables to their proper storage cabinets/areas. • Turn off all power equipment or unplug as necessary. • Turn off all fuel valves and power to systems at the end of the day.
	All hazardous and flammable materials (paints, thinners, etc.) must be properly stored in a flammable storage cabinet or room when not in use. See Appendix B for guidance on the storage, handling and use of flammable and combustible liquids.
	Parts washers may use flammable solvents. Check the Material Safety Data Sheet (MSDS) for the product used and follow the instructions on the MSDS and the guidance in Appendix B.
Art departments	• When using flammable liquids (such as gasoline, kerosene, etc.) to create or in a display of artwork, approval is required from the VMI Fire and Safety Office prior to the activity. • Electrical wiring and devices used in art creations or display must meet the requirements of the National Electrical Code for temporary wiring. Approved wiring methods must be used. • All hazardous and flammable materials (paints, thinners, etc.) must be properly stored in a flammable storage cabinet or room when not in use. • Heating devices such as blowtorches, hotplates and other such devices with open flames must be permitted with a Hot Work Permit. See the Hot Work Permit Appendix H..

7.5 Hot Work Permits

7.5.1 Fire Prevention and Suppression Procedures for Hot Work Operations

If not properly controlled, hot work operations present serious fire hazards that can lead to significant property damage, injury and/or loss of life. To ensure safe hot work activities the following procedures have been established. These procedures apply to all work performed on Post property.

7.5.2 Policy for Work Performed Outside a Designated Area and/or Temporary Operation

A Hot Work Permit must be issued for any temporary operation that may produce high heat, sparks, and/or open flames. These operations include, but are not limited to, the use of open flames, compressed gas or supplied fuel burning, brazing, cutting, grinding, soldering, thawing pipe, torch applied roofing, and welding.

7.5.3 Procedure to secure a Hot Work Permit

1. Any post employee or contractor performing work requiring a Hot Work Permit (example in Appendix H) must secure the permit BEFORE any work is to begin. This will require advance notice. A Hot Work Permit can be obtained by calling the VMI Fire and Safety Office at 464-7040
2. Hot Work cannot begin until the work site has been inspected for safety.
3. Persons doing Hot Work must indicate on the permit a start time and expiration date. The permit must be posted in plain view at the Hot Work location during the entire operation. the VMI Fire and Safety Office (whoever issued the permit) will ensure the work site is free of any hot spots or potential fire hazards during the work and up to 60 minutes after work is completed. Monitor area for 3 hours after job is completed.
4. It is important that the permit specifically states the location and start time of the hot work. This will allow the VMI Fire and Safety Office to respond to the permit quickly, so the work process will not be delayed.

5. Long-term jobs (more than one workday) may have a permit issued for the entire work schedule, but for no more than 30 calendar days. The VMI Fire and Safety Office will routinely check the work site to ensure the safety of the Hot Work being performed. If the work extends beyond the initial completion date, another permit must be secured for the additional time period.

7.5.4 VMI Safety Office Sprinkler Impairment Procedure

Whenever it is necessary to shut off a sprinkler system valve in order to do maintenance or repair work, the person who will shut the valve must contact the VMI Fire and Safety Office. (460-7040)
Answer all of the questions using this check sheet to help ensure complete planning:

- Is the exact sprinkler valve to be shut described by valve number?
    - ❑ Has the work to be done been described completely?
    - ❑ Have you planned the work so as to minimize the length of time the sprinkler system must be shut off?
    - ❑ Has the work area been inspected to make certain it has no combustible materials?
    - ❑ Arranged to stop all hazardous processes?
    - ❑ Arranged for a fire watch?
    - ❑ All preliminary work completed?
        - o Have you notified:
        - o The VMI Fire and Safety Office?
        - o VMI Physical Plant?
        - o VMI Police?
        - o Building Coordinator?
    - ❑ Plan to work continuously until the impairment is resolved?

- ➢ Is the Lock Out Tag in use?
- ➢ Has the valve been reopened? Has a standard 2-inch main drain test been conducted to make certain the system is restored?

- Have the appropriate personnel been notified that the valve is reopened?
    - VMI Police?
    - VMI Fire and Safety Office?
    - VMI Physical Plant?
    - Building Coordinator?

Whenever an automatic sprinkler system must be shut down the precautions taken should include the following.

- Notify the Physical Plant Help Desk, VMI Police and the Building Coordinator that the Sprinkler System will be shut down.
- Notify the VMI Fire and Safety Office of the impairment so they can follow-up to ensure all precautions are taken and the work completed on time.
- Shut down only one system at a time.
- Limit the extent and duration of the shutdown. Where possible provide temporary measures such as back feeding from hydrants still in service, or cross connection with sprinkler systems still in service, to maintain as much protection as possible.
- Work continuously on the impaired system until it is restored to service.
- Eliminate possible ignition sources by shutting down or stopping all hazardous operations in the affected area. This includes welding, flame cutting and other hot work operations, as well as operations that use flammable or combustible liquids.
- Provide a fire watch in the areas where the automatic sprinklers are impaired. Remember that in most facilities the automatic sprinkler system is also part of the fire detection and alarm system. When the sprinklers are shutdown, the alarms may also be out of service.
- Provide additional portable fire extinguishers and hose lines in the affected area. Hose lines will have to be fed from areas were the sprinklers are still in service.
- Expedite all work and work continuously until the impaired system(s) can be restored.

After completion of the work, verify restoration of the system by conducting appropriate tests on the system. For automatic sprinkler systems this should include a main drain test and an alarm test.

7.5.5 Supervisor Responsibilities

Persons that supervise workers conducting hot work in areas not designated or specifically approved for such work must:

- Be responsible for the safe handling and use of heating and use of heating, cutting, welding, or grinding equipment.
- Review the work location to determine if combustible materials, hazardous atmospheres, or hazardous materials are present in the work area.
- Protect combustibles from ignition by performing one or more of the following:
    - Move the work to a location free from dangerous combustibles. If the work cannot be moved, move the combustibles to a safe distance from the work area or properly shield the combustibles from ignition.
    - Ensure that hot work is not scheduled when operations that might expose combustibles to a source of ignition are being performed. Do not, for example, schedule hot work in an area when flammable liquids are being dispensed nearby.
- Ensure that equipment used is in proper working condition.
- Ensure that workers performing hot work are trained and know the procedures that apply to the specific work or task being performed.
- Ensure that fire protection and extinguishing equipment is available at the site.
- Ensure that a fire watch is present and in clear view of the job site for the duration of the work and for no less than 1 hour after the job has been completed.
- Where a fire watch is not required, the supervisor must ensure that a final check is made at the completion of work and 1 hour afterward to detect and extinguish smoldering fires and other sources of ignition.
- Each work crew performing hot work under a hot work permit must have a cell phone available onsite, that can be used to establish immediate contact with Central Dispatch # 911.

7.5.6 Annual Permit

Work areas where hot work is performed on a continual or on-going basis may be permitted for this work on a yearly basis. These designated hot work areas must be maintained free of combustible materials at all times, and must be inspected frequently to ensure that the area is safe for hot work to continue.

Policy for Work Performed in Shops and Other Designated Hot Work Areas

Post departments that perform hot work on a routine basis in a permanent shop or other designated work site will be exempt from the above permit requirements only if the area is inspected, approved and issued a permit by the hot work coordinator. These permits must be renewed only when changes in the shop warrant a repeat inspection. When approved by the VMI Fire and Safety Officer, a sign will be posted at the work site that reads "Hot Work Approved Area". The Inspector will re-inspect these areas during his or her annual fire and/or shop inspection of the approved area. Any deficiencies to the designated hot work area or shop must be corrected to continue the designation of "Hot Work Approved Area".

7.5.7 Contractors Conducting Hot Work

Contractors conducting hot work are required to have a hot work program and use a hot work permit.

7.5.8 Open Flames and Burning Permits

(Bonfires, Campfires, Candles, Incense, etc.)

Open burning is defined as any open/exposed flame, whether indoors or outdoors, that could cause a fire. Examples are candles, incense, bonfires, campfires, leaf burning, artwork involving flames, and pyrotechnics of any kind. Pyrotechnics are not covered in this section but can be found in the following section.

7.5.8.1 Approvals and Permit Application Process

Open burning on any VMI property must be approved by the VMI Fire and Safety Office and may also require approval by the Virginia State Fire Marshal's office.

7.5.8.2 Open Flames and Burning – Indoor

An open flame indoors, particularly when such burning will activate any type of fire alarm detection/suppression system, is normally prohibited.

7.5.8.3 Open burning – Outdoors

Open burning outdoors may be authorized under the following conditions:

1. A written request is sent to the VMI Fire and Safety Office using the "Open Burning Permit Application" found in Appendix E, at least ten (10) working days in advance of the event or operation.
2. The proposed burning will not endanger any adjacent buildings, vehicles or vegetation.
3. The burn location will not block access by emergency vehicles to any building, street or emergency equipment.
4. Open flame fires will not be within 50 feet of any flammable storage area (the distance may be increased according to the size of the event) or 25 feet of any building, vehicle or vegetation.
5. The host will be responsible for providing *portable fire extinguishers*, *emergency procedures* and trained personnel in the area of the open burn.
6. The host will contact the VMI Fire and Safety Office, VMI Police and occupants of adjacent buildings 24 hours in advance of the event or operation for final coordination.
7. The host of the open burning will be responsible for complete extinguishment and removal of all materials used in the open burning activity.
8. A 30 minute fire watch will be made (as determined by the VMI Fire and Safety Office) to ensure there is no

residual heat left in the material.

7.6 Pyrotechnics/Fireworks Permits

Approval for the display of fireworks on state property, including VMI property, must be obtained from the State Fire Marshal's Office (SMFO). The VMI Fire and Safety Office will help facilitate the approval process for sponsors of such events.

It is important to note that the SFMO is not obligated to issue its approval if they do not receive all the necessary information 30 work days prior to the requested display date.

In addition, the SFMO approval may stipulate certain conditions and approval for a specific date and time that is not transferable to any other date, time or activity.

7.6.1 Approval Process for Permit Application

The following information must be assembled and forwarded to the VMI Fire and Safety Office so that the application can be submitted for approval by the SFMO.

7.6.1.1 Definitions

- Discharge Site – the area immediately surrounding the fireworks mortars used for an outdoor fireworks display.
- Display Site – the immediate area where a fireworks display is conducted. This includes the discharge site, fallout area, and the required separation distance from mortars to spectator viewing areas. The display site does not include spectator viewing areas or vehicle parking areas.
- Fallout Area – the area over which aerial shells are fired. The shells burst over the area and unsafe debris and malfunctioning shells fall into this area.

7.6.1.2 Requirements

All aerial fireworks displays are subject to the requirements of the Virginia State Fire Prevention Code.

7.7 Tents and Temporary Structures

Tents and similar structures present a very high potential for accidents and injuries in the case of fire or collapse. Stages and platforms also present a similar potential from collapse and falls. In an effort to ensure the safety of occupants, and to comply with the Virginia Uniform Statewide Building Code, a permitting procedure has been established that applies to all tents and temporary structures erected on Virginia Military Institute property; which must be submitted a minimum of 30 days prior to erection of the tent or other temporary structure. (Appendix I)

For tents 900 square feet and smaller a permit is not required but the VMI Physical Plant Engineering Office must approve setup.

For tents 900 square feet and larger, OR any tent with more than 50 occupants, the VMI Physical Plant Engineering Office must approve and assist with permit requirements.

Methods of tent anchorage vary. Typically concrete blocks or barrels filled with water are used. If stakes are to be used Miss Utility and the Physical Plant Help Desk must be contacted at least five (5) business days prior to the setup. No stakes shall be driven until all public and VMI underground utilities are marked. Miss Utility can be reached by calling # 811.

The VMI Fire and Safety Office will inspect all tents erected on VMI. Any hazards identified during the inspection must be immediately abated or the tent or temporary structure must be removed and the permit shall be revoked.

All temporary facilities including tents, stages, and similar structures, which are erected on Virginia Military Institute property shall be designed, constructed, erected, and used in accordance with the Virginia Uniform Statewide Building Code and Fire Prevention Code.

8 Fire Inspections

Buildings	A comprehensive fire and life safety inspection of all VMI buildings is conducted annually by the VMI Fire and Safety Office, to ensure compliance with all state fire codes. Building coordinators will be contacted by the Fire and Safety Office prior to the fire safety inspections. Violation reports will be sent to the building coordinators of affected buildings. Identified hazards must be corrected in 30 days; a follow-up inspection will take place after 30 days, to verify corrections have been made.
	The SFMO issues occupancy permits for all construction and renovation projects. This is coordinated through the VMI Physical Plant or the VMI Construction Office.
Equipment	All building service equipment inspections are administrated through the VMI Physical Plant.
Fire Protection and Suppression Systems	All fire suppression and detection equipment is inspected by outside contractors. All fire inspection documentation is filed in the VMI Fire and Safety Office.
Barracks	Code compliance inspections are conducted in the Barracks and the VMI Health Center, every year by the State Fire Marshal's Office. At least 80% of all student rooms will be randomly inspected for fire code compliance. Personnel from the Barracks and the VMI Fire and Safety Office will accompany the SFMO on these inspections. When violations are observed: • The SFMO will record the violation • The Commandants Office and/or the Physical Plant will correct all violations.
	The Commandant's Office will perform a monthly fire safety inspection. This will include an inspection of all fire extinguishers, storage rooms for combustible materials, hallways for obstructions, exit lights, fire doors, and to ensure that fire evacuation procedures are conspicuously posted. The Physical Plant will be notified if fire protection equipment is not in compliance.
Building Plan Review for Construction and Renovation Projects	Building plans for new and renovated Post construction projects are reviewed by The VMI Construction Office, The VMI Fire and Safety Office and the Physical Plant Engineering Office, for compliance with life safety codes and applicable fire safety standards.

8.1 Fire Detection and Warning Equipment

8.1.2 Fire Alarms

Manual pull-stations are located along the means of egress, usually at exit doors, to provide a means to alert occupants to a hazardous condition. All alarms in academic buildings are connected to Simplex Monitoring.

8.1.2.1 Testing

Fire alarm systems are installed, repaired, and tested by outside contractors and the VMI Fire and Safety Office. All horns are checked for operation. In accordance with NFPA regulations an outside contractor tests the alarms in all buildings on an annual basis. Problems are corrected as quickly as possible. Records are maintained in the VMI Fire and Safety Office concerning all tests and inspections.

8.1.2.2 False Alarms

Persons who knowingly turn in a false fire alarm endanger the lives of others and may cause damage to the persons and equipment responding to the false alarm. This is a violation of the Code of the State of Virginia and may result in jail terms and/or fines. Persons maliciously activating fire alarms or fire detection equipment will be severely disciplined which may include dismissal from student residence, expulsion from school, and/or criminal prosecution.

8.1.2.3 Investigations

The VMI Police Department is responsible for investigating all fires reported on VMI property. The official police report and documents will be maintained in the Services & Records Division of the VMI Police Department. Information from the investigative package will be made available to the Fire and Safety Office.

8.1.3 Smoke Detectors

Smoke detectors respond to both visible and invisible products of combustion and sense fire at the earliest practical detection stage. Smoke detectors are used for numerous fire alarm functions ranging from warning occupants to automatically closing doors.

8.1.3.1 Locations

Residential buildings have single station smoke detectors in sleeping rooms. Detectors are located in halls and other public areas. Smoke detectors are also located in academic buildings and off-Post buildings. Some smoke detectors are connected to the fire alarm system and provide many functions such as shutting down air handler units, elevator recall, and release of magnetic door holders. These detectors are powered by the building fire alarm power source.

8.1.3.2 Inspections

Battery powered smoke detectors are inspected by the VMI Physical Plant as required. Hardwired smoke detectors are inspected annually by an outside contractor.

8.1.3.3 Maintenance

In order for smoke detectors to function properly they must be periodically cleaned and tested. The VMI Physical Plant's maintenance teams routinely change batteries before the start of the fall semester annually. Dust accumulates in detectors over time and reduces the ability of the detector to detect smoke. Simple vacuuming on a regular cycle increases life expectancy and reliability. Hardwired smoke detectors are cleaned and tested by an outside contractor on an annual basis, to ensure the sensing chamber and alarm circuits function properly.

8.1.3.4 Abuse

Misuse, deactivation or tampering with smoke or heat detectors is prohibited. Smoke detectors must not be covered or blocked. Nothing may be attached to the wiring of hardwired detectors.

8.1.4 Heat Detectors

Heat detectors typically operate when a preset temperature has been reached or a rapid temperature change occurs. Heat detectors are the least expensive fire detectors and have the lowest false alarm rate. They are also the slowest in detecting fires.

8.1.4.1 Locations

Heat detectors are frequently found in mechanical rooms, storage rooms, attics, and other normally unoccupied areas.

8.1.4.2 Inspection and Maintenance

An outside contractor tests heat detectors annually.

8.2 Fire and Life Safety Training

The best way to avoid a fire is to be knowledgeable of fire hazards and how to prevent them. The VMI Fire and Safety Office will provide training to any Virginia Military Institute employee, staff, faculty, and student organization upon request.

New Employees	All new employees of Virginia Military Institute attend orientation training, as part of this training; information about safety is supplied and reviewed. Supervisors are required to review the fire hazards and emergency procedures for the new employee's workplace during the first few days of employment.
Employees	A variety of fire and life safety training programs are available to all Virginia Military Institute employees. Training for targeted audiences on fire and life safety, emergency planning, emergency evacuation and portable fire extinguisher use can be arranged on

	request through the VMI Fire and Safety Office.
Cadets	Each year the Commandant's Office is required to provide fire and life safety training during their orientation in August.

8.3 Fire Suppression Equipment

The Post maintains appropriate fire suppression systems in each building to include: fire extinguishers, sprinkler systems, standpipes. The various fire suppression systems are inspected on a routine basis by representatives from the Physical Plant and by external contractors. Deficiencies noted during the inspections are reported to the VMI Fire and Safety Office.

8.3.1 Portable Fire Extinguishers

Portable fire extinguishers are the first line of defense against a fire. They are designed to extinguish or contain a small fire or open an escape route. Portable fire extinguishers are not designed to fight a large or spreading fire. Fire extinguishers may be used after the evacuation plan has started but only by trained staff.

8.3.1.1 Operation

Fire extinguishers must only be used by persons trained in their proper use.

<u>If you have the slightest doubt, get out and call 911</u>

- <u>Never fight a fire if</u>:

  The fire could block your escape route.

  You are unsure of the proper operation of the extinguisher.

You are in doubt that the extinguisher is designed for the type of fire or are large enough.

- Fight the fire only if all of the following are true:

  The fire department has been notified.

  The area has been evacuated.

  The fire is small and confined to its immediate area of origin (wastebasket, sofa, small appliance)

  You have a way out and can fight the fire with your back to an exit.

  You have the proper extinguisher and know how to use it.

  You use careful judgment and get out fast if the fire starts to spread.

- To operate a fire extinguisher, recall the word PASS:

  PULL the pin by grasping the extinguisher neck in one hand and removing the pin with the other.

  AIM the nozzle, hose, or horn at the base of the fire.

  SQUEEZE the handle to release the extinguishing agent.

  SWEEP from side to side at the base of the fire until it is out.

8.3.1.2 Responsibilities

Approximately 850 portable fire extinguishers are located throughout the Post. VMI Fire and Safety Personnel are responsible for training staff to use fire extinguishers. No one is expected to put themselves in harm's way during a fire emergency.

8.3.1.3 Types of fire extinguishers

Fire extinguishers vary in type based upon the extinguishing agent they contain. Every extinguisher must be clearly labeled to show the classification of the fires it is effective against. Pictograms show in blue the type of fire the extinguisher should be use against. Fires on which the extinguisher should not be used are shown in black with a red slash through the pictogram. Extinguishers may carry labels, pictograms or both.

Class A. Class A fire extinguishers are used to extinguish fires in ordinary combustibles such as wood, paper, cloth, rubber, and plastics. These extinguishers should not be used on electrical, flammable liquid or combustible metal fires. Extinguishers effective against this type of fire contain water or a special chemical agent.

Class B. Class B fire extinguishers are effective against flammable liquids and gas fires such as solvents, oil, gasoline, and grease. Dry chemical agents, wet chemical agents, carbon dioxide, and other agents are typically used. Water will only spread a flammable liquid fire and should not be used as an extinguishing agent for Class B fires.

Class C: Class C fire extinguishers are used to extinguish fires involving energized electrical equipment. Non-conducting agents such as dry chemical, carbon dioxide, or other compounds are used. Water should never be used to extinguish an electrical fire.

Class D: Class D fire extinguishers contain a special granular formulation that is effective against combustible metal fires such as sodium, potassium, magnesium, and lithium. Normal extinguishing agents must not be used against combustible metal fires because they may increase the intensity of the fire.

Class ABC. Class ABC fire extinguishers will put out most types of fires that could start on Post- (wood, paper, flammable liquids, and electrical fire). These extinguishers are also known as multi-purpose extinguishers. Most extinguishers on Post are classified as ABC.

8.3.1.4 Location

Fire extinguishers are installed according to guidelines established by ICC and NFPA. Laboratories, workshops and other areas in which flammable solvents are used must have an appropriate fire extinguisher. Travel distances should normally be less than 75 feet for ordinary combustibles and 50 feet for flammable liquids.

8.3.1.5 Access

Fire extinguishers should be readily accessible and the location of the extinguisher should be clearly identified. Fire extinguishers must be mounted off the floor and no higher than five feet. Extinguishers weighing more than 40 lbs. should be mounted no higher than 3 ft.

8.3.1.6 Inspections

All portable fire extinguishers are visually inspected each month. The VMI Physical Plant inspects, replaces missing, discharged or damaged fire extinguishers immediately.

8.3.1.7 Training

The VMI Fire and Safety Office offers training on the proper use of portable fire extinguishers for faculty, and staff. Training for Cadets will be conducted by the Commandant's Office. Cadets are not encouraged to use fire extinguishers. They are for use by trained staff only. Classes can be scheduled by calling the VMI Fire and Safety Office at 464-7040.

8.3.1.8 Maintenance

Every fire extinguisher has a record attached to the extinguisher showing the inspection date, maintenance date, type of extinguisher, and name of the person performing the maintenance that is attached upon completion of the routine yearly maintenance. The fire extinguisher tag is initialed each month by the VMI Physical Plant. Maintenance procedures include a thorough examination of mechanical parts, extinguishing agent and expelling means. Hydrostatic testing is performed within the time specified by the manufacturer according to NFPA 10. An outside contractor completes hydrostatic testing.

8.3.1.9 Records

The VMI Physical Plant is responsible for the inspection of all fire extinguishers, and maintaining an inventory of all fire extinguishers.

8.3.1.10 Misuse

Misuse of fire extinguishers is prohibited. Fire extinguishers are not to be removed from their proper locations or discharged unless there is a true fire emergency. Anyone found tampering with a fire extinguisher will be subject to disciplinary action. Report vandalism and/or discharged fire extinguishers to the VMI Physical Plant.

8.3.2 Overhead Fire Extinguishing Equipment

8.3.2.1 Kitchen Fire Protection Systems

Kitchen systems consist of cylinders of dry or wet extinguishing agent connected by piping to discharge nozzles. The nozzles are located in the kitchen hoods over cooking appliances such as grills and deep fat fryers. The extinguishing agent is activated by manual activation of a pull station or discharge button, or automatic activation of heat activated fusible links in the hood. Wet chemical systems use a foamy

material similar to soap that smothers and cools the fire. The wet extinguishing agent stays in the hood area and does not spread throughout the room.

Fire suppression systems in the kitchens are inspected and cleaned by an outside contractor. Hoods and ducts are cleaned quarterly. Filters are inspected and cleaned quarterly or as needed. Fusible links are replaced every six months. Each Building Coordinator conducts periodic inspections to oversee the work of the contractors.

8.3.2.2 Standpipes and Hose Systems

The purpose of a standpipe system is to provide hose connections inside the building, usually located in or near stairwells.

Use: All Standpipe outlets are for Fire Department use only. Hose connections should be in readily accessible locations, clearly visible, and in good working order.

Inspections: Standpipes are inspected every five years for water flow by an outside contractor. Inspection records are kept on file in the VMI Fire and Safety Office.

8.3.2.3 Automatic Sprinkler Systems

Automatic sprinkler systems are located in most VMI buildings.

Automatic sprinkler systems consist of a series of pipes and nozzles that distribute water when heat activates the sprinkler heads. Most sprinkler heads activate at 165 degrees F. Only the heads exposed to this heat will discharge. They are connected to the building fire alarm systems. Automatic sprinkler systems are extremely effective at preventing fire spread. In terms of life safety there have been no reported cases of multiple deaths occurring in fully sprinkled buildings where the system was operating properly.

8.3.2.4 Inspections

All automatic sprinkler systems are inspected quarterly by an outside contractor. Documentation is maintained in the VMI Fire and Safety Office.

8.3.2.5 Precautions

Storage shall be maintained at least 18 inches below the sprinkler head. Sprinkler heads must be kept clean and not painted. Ensure that all heads are pointed down. Do not block sprinkler heads. Sprinkler piping shall not be used to support ladders, equipment or other materials. Portable Fire Extinguishers

Training

Portable fire extinguishers are found in most buildings on Post. When used properly, they can save lives and property by putting out a small fire or containing it until the fire department arrives. They however, are not designed to fight a large or spreading fire. Extinguishers can be used to allow a safe exit from a burning building.

As an employee, am I expected to use these extinguishers to put out a fire before evacuating the area?	No. Employees are expected to evacuate the building, *unless* it is specifically part of a job description that an attempt will be made to control a fire. However, if you are properly trained to use a fire extinguisher and can evaluate the situation and extinguish a fire safely with no personal risk, then you may do so. The choice is yours.
Are certain employees required to be trained in the safe use of Fire Extinguishers?	Yes. Certain employees are required to attend portable fire extinguisher safety training: • Those who have specific duties as first responders as part of an Emergency Evacuation Plan; • Ushers and attendants at large public gatherings; • Those who work in laboratories; • Those involved in construction and renovation work, especially those performing utility and "hot work" (e.g., welding, cutting, brazing, and grinding). • Powered industrial truck operators.

Where can I get Portable Fire Extinguisher training?	This training is offered through the VMI Fire and Safety Office upon request. All VMI employees who are required to use a fire extinguisher, must have fire extinguisher training are required to attend a training session annually. Contact the VMI Fire and Safety Office to arrange for training.
Fire is fire, right? Aren't all fires the same?	Not at all. There are four main classifications of fire: Class "A" or ordinary combustibles, such as wood, paper, plastic, rubber, and clothe. Class "B" or flammable and combustible liquids, such as gasoline, oil, grease, tar, oil-based paint, lacquer and flammable gases. Class "C" Energized electrical equipment, including wiring, fuses boxes, circuit breakers, machinery and appliances. Class "D" or combustible metals, such as zirconium, titanium, potassium, and magnesium. Class "K" Wet chemical extinguishers designed specifically for kitchen fires involving high temperature cooking oils used for deep frying, grilling and other types of cooking.
Fire extinguishers all look the same to me...are they?	No. Fire Extinguishers come in many types, sizes, shapes, and colors. The two most common types are: ABC Multi-Purpose Dry Chemical, Stored Pressure Type - These are the most commonly found extinguishers on Post and can be used on all classes of fire except combustible metals. They range in size from 2 ½ to 20 lbs., and have an effective range of 5 to 20 feet. Carbon Dioxide (CO_2) Extinguisher - These are for small Class B or C fires only. They range in size from 5 to 20 lbs., and their effective range is 3 to 8 feet.

How do I use one of these things, anyway?	If you do fight the fire, remember the word PASS PULL the pin. *A*IM the hose or nozzle at the base of the fire *S*QUEEZE the handle to release the extinguishing agent. *S*WEEP from side to side. Keep the extinguisher aimed at the base of the fire and sweep back and forth until it appears to be out. Watch the fire area. If fire breaks out again, repeat the process.
Should you fight a fire?	*Before* you begin to fight a small fire: • Make sure everyone has left, or is leaving, the building. • Make sure the fire department has been called. • Be certain that the fire is confined to a small area, such as a wastebasket, and that it is not spreading beyond the immediate area. • Be sure that your back is to a safe and unobstructed exit to which the fire will not spread. • Be sure that your extinguisher is the proper size and type for the fire at hand and that you have been trained in how to use it.

It is reckless to fight a fire with an extinguisher in any other circumstances. Instead, leave the area immediately, close off the area and leave the fire for the fire department.

8.4 Emergency Procedures Training

As each department maintains their Emergency Evacuation Plan, employees must receive training on all elements of this plan upon its initiation. Thereafter, new employees must receive training when first assigned to the Department. Additional training is necessary only when an employee's required actions under the plan change, or when there are changes to the plan.

8.5 Public Assembly Emergency Procedures Training for Employees and Volunteers

Employees or attendees of assembly occupancies must be trained in emergency evacuation procedures and practice this training during drills. They must also be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment, where provided. The VMI Fire and Safety Office can provide training for all persons with this responsibility.

Appendix A

Fire Drill Report Form

Fire Drill Reporting Form

This form must be kept to comply with OSHA regulations and the fire code.

Please send a copy to the VMI Fire and Safety Office following each fire drill.

Date of Drill	
Time of Drill	
Location of Drill	
Building Coordinator (Print Name)	
Weather Conditions	
Number of Occupants	
Total Time to Evacuate (minutes)	
Other Information or Concerns	

Signature _____ _____

Date

Appendix B

Classes and Storage of Flammable and Combustible Liquids

Classes and Storage for Flammable and Combustible Liquids

Flammable liquid means any liquid having a flashpoint below 100 deg. F. (37.8 deg. C.), except any mixture having components with flashpoints of 100 deg. F. (37.8 deg. C.) or higher, the total of which make up 99 percent or more of the total volume of the mixture. Check the Material Safety Data Sheet (MSDS) for characteristics or classification of a particular liquid.

Classes of flammable liquids are divided into three categories as follows:

Class IA	Liquids having flashpoints below 73 deg. F. (22.8 deg. C.) and having a boiling point below 100 deg. F. (37.8 deg. C.).
Class IB	Liquids having flashpoints below 73 deg. F. (22.8 deg. C.) and having a boiling point at or above 100 deg. F. (37.8 deg. C.).
Class IC	Liquids having flashpoints at or above 73 deg. F. (22.8 deg. C.) and below 100 deg. F. (37.8 deg. C.).

Combustible liquid means any liquid having a flashpoint at or above 100 deg. F. (37.8 deg. C.) Combustible liquids are divided into two classes as follows:

Class II liquids	Liquids with flashpoints at or above 100 deg. F. (37.8 deg. C.) and below 140 deg. F. (60 deg. C.).
Class III liquids	Liquids with flashpoints at or above 140 deg. F. (60 deg. C.) Class III liquids are subdivided into two subclasses:

	Class IIIA liquids	Those with flashpoints at or above 140 deg. F. (60 deg. C.) and below 200 deg. F. (93.3 deg. C.).
	Class IIIB liquids	Those with flashpoints at or above 200 deg. F. (93.3 deg. C.).

When a combustible liquid is heated for use to within 30 deg. F. (16.7 deg. C.) of its flashpoint, it must be handled in accordance with the requirements for the next lower class of liquids, with Class I liquids being the most volatile. Check the MSDS sheets for characteristics or classification of a particular liquid.

Exempt Amounts

There are certain amounts of flammable and combustible liquids stored in each control area that are considered exempt. These amounts are significant enough, and if they are exceeded, then the area or building may have to be reclassified as a Hazardous Use Group under the building code. Excessive storage also constitutes a violation of the fire code. If storage exceeds these amounts, contact the VMI Fire and Safety Office.

Exempt amounts of flammable and combustible liquids per control area:

Condition	Flammable Liquids (US gallons)			Combustible liquids (US gallons)		
	IA	IB	IC	II	IIIA	IIIB
Inside; unprotected by sprinklers or cabinet.	30	60	90	120	330	13,200
Within approved cabinet; a non sprinkler protected structure.	60	120	180	240	660	26,400
In sprinkler protected structure; not in approved cabinet	60	120	180	240	660	unlimited
In sprinkler protected structure; in approved	120	240	360	480	1,320	unlimited

cabinet.						
Outside storage.	60	120	180	240	660	unlimited

There are also limitations on quantities stored in individual containers:

Container	Flammable Liquids (US gallons)		Combustible Liquids (US gallons)		
	IA	IB	IC	II	III
Glass or approved plastic.	1pt.	1qt.	1	1	1
Metal (other than DOT drum)	1	5	5	5	5
Safety cans	2	5	5	5	5
Metal drums (DOT specifications)	60	60	60	60	60
Approved portable tanks	660	660	660	660	660
Note: Nearest metric size is also acceptable.					

Appendix C

Emergency Evacuation Plan Template and Hazard Assessment Checklist

Virginia Military Institute
EMERGENCY EVACUATION PLAN

Policy Statement

According to the Virginia Military Institute's Continuity of Operations Plan (COOP) and the Virginia Military Institute's Fire & Life Safety Program, employees are not required to fight fires and should evacuate the building immediately in the event of a fire. The VMI Police has primary responsibility for managing fire emergencies and must be notified immediately of such situations at their emergency number by calling 911. Employees may use fire extinguishers to fight small fires; incipient stage fires (no larger than a waste paper basket) only if they have been trained in the proper use of a fire extinguisher and are confident in their ability to cope with the hazards of a fire. In such cases, fire-fighting efforts must be terminated when it becomes obvious that there is danger of harm from smoke, heat, or flames.

Emergency Coordinator

Building Coordinator is:

Emergency Coordinator is

This person should be contacted with any questions about this Emergency Evacuation Plan.

Reporting an Emergency:

IF THERE'S A FIRE, FOLLOW THESE PROCEEDURES:

SOUND THE ALARM

If a fire is suspected or discovered, sound the building fire alarm.

LEAVE THE BUILDING

Try to rescue others ONLY if it can be done safely.

Move away from the building and out of the way of the fire department.

Do not go back into the building until the fire department says it is safe to do so.

CALL THE FIRE/POLICE DEPARTMENT – 911

Dial 911 or use an "emergency" phone.

Give as much information as possible to the 911 operator.

Assist anyone who may be in danger if it can be done without endangering anyone. Exit the building in a calm manner using the stairs - never use elevators. Maintain a safe distance from the building, about 50 feet, to allow ample room for emergency personnel and equipment to access the building. Remain outside the building, even if the alarm is silenced, until the fire department has given the "all clear".

An attempt may be made to put out the fire if the individual has been trained, and is comfortable with using a fire extinguisher. Otherwise, immediately evacuate. Hazardous equipment or processes should be shut down before leaving unless doing so presents a greater hazard. Remember to close all doors.

Evacuation Procedures

Evacuate via the nearest stairwell or street/grade level exit. After exiting the building, go to your pre-assigned assembly point and remain there. At the assembly point, supervisors account for personnel and report any that are unaccounted for in accordance with the VMI COOP Plan.

The pre-designated assembly point for this building:

During an emergency, Cadets and visitors who may not be familiar with this plan must be informed of the requirement to evacuate.

Special attention should also be given to any persons with mobility impairments, especially those who are visitors or unfamiliar with the building.

Training

Employees must receive training on all elements of this plan upon its initiation. Thereafter, new employees must receive training when first assigned to the Department. Additional training is necessary only when an employee's required actions under the plan change, or when there are changes to the plan.

Identified Hazard in this Workplace

Below list any special hazards and any required special knowledge and/or training for occupants working in this building (for example, presence of a halon fire suppression system or hazardous materials used or stored in the building):

_____

_____

_____

_____

_____

Additional Duties

Certain persons may have additional duties under this plan. These duties may include assisting others during the evacuation, performing head counts at the assembly point, or shutting down hazardous equipment or operations. Below is a list detailing any additional duties and the person(s) responsible for performing them.

_____

_____

The preferred method of reporting fires and other emergencies:

Call 911

Emergency escape procedure:

Go to the nearest stairway or exterior exit, if safe to do so. Use alternative exits, if the nearest exit is blocked. Use emergency floor plans to determine alternative exits. Areas of refuge would be enclosed stairways.

Contact the VMI Fire and Safety Officer, at 7040 or by e-mail at jenningsmw@vmi.edu for questions concerning this plan.

Appendix D

Fire Prevention Plan Template

FIRE PREVENTION PLAN

DEPARTMENT OF _____

Policy Statement:" - Fire prevention starts with identifying fire hazards. All members of the Post community – faculty, staff, Cadets and visitors – have a personal obligation to be aware of fire hazards and to reduce or eliminate the risk of fire on Post.

Fire Prevention Plan Coordinator: The Department of _____ Fire Prevention Plan Coordinator is _____ (name and/or job title). This person should be contacted with any questions about this Fire Prevention Plan.

List of Workplace Fire Hazards and Prevention Strategies

Work Area	Fire Hazards	Prevention Strategy

Names and Job Titles of key personnel:

Name		Name	
Title		Title	
Address		Address	
Email		Email	
Phone		Phone	

Housekeeping

The accumulation of flammable and combustible materials including cardboard boxes, magazine/journals and paper products, flammable liquids and any other materials that will contribute the ignition or spread of a fire must be controlled. This department's housekeeping policy includes:

Training

All employees are encouraged to review, upon initial assignment, The Fire and Life Safety Program to protect themselves in the event of a fire emergency. The written plan should be kept in the workplace and made available for employee review.

The Fire Prevention Plan will be located _____

The training plan for Department _____ is:

Appendix E

Open Flame and Burn Permit Application

Date of Activity _____

☐ Approved

Open Burning Permit Application

Approval in accordance with the requirements of the Statewide Fire Prevention Code and written permission from the VMI Fire and Safety Office is required before the ignition of any open burning upon state owned property. The following are a list of those types of activities requiring an Open Burn Permit:

- recognized range or wildlife management practices
- prevention to control disease or pests
- providing heat for outdoor workers
- bonfires

Application must be made in writing at least ten (10) days prior to the request of this permit.

The following information is required:

Activity:
_____

Nature and quantity of material to be burned:
_____

Date of activity: _____

Scheduled time of activity_____

Location of activity:
_____

On-site fire-extinguishing equipment to be provided:
_____

Are personnel adequately trained to use fire-extinguishing equipment?
_____

If yes, describe training:
_____

If required, (see second page) written permission has been obtained from the local EPA:
_____

How will the waste be disposed of after the burn (especially bonfires)?
_____

Prohibited: Offensive or objectionable burning, due to smoke or odor emissions when atmospheric conditions or local circumstances make such fires hazardous. The VMI Fire and Safety Office reserves the right to order the extinguishments of any open burning that creates or adds to a hazardous or objectionable situation.

Name of Sponsoring Organization: _____

Contact person (print): _____ Email and/or phone: _____

Applicant _____

(Signature) (Date)

Safety Office Representative _____

(Approval signature) (Date)

Additional comments or requirements:

_____

Procedure - Complete this form, and submit it to the VMI Fire and Safety Office.

Restrictions

Location - The location for any open burning shall not be less than 50 feet from any structure, and provisions shall be made to prevent the fire from spreading to within 50 feet of any structure. Fires in approved containers shall be permitted, provided that such fires are not less than 15 feet from any structure.

Extreme caution should be used to prevent the ignition of any nearby trees, foliage, or grassland, vehicles or equipment, or any other object adjacent, above, or below the area of the fire.

Materials - Open burning shall not be utilized for waste disposal purposes, and it shall be minimized in size for the intended purpose, and the fuel shall be chosen to minimize the generation and emission of air contaminants.

Fuel for a bonfire shall consist only of seasoned dry firewood and shall be ignited with a small quantity of paper. Do not use flammable or combustible liquids or gases, reactive chemicals, rubber, plastics, or other unapproved methods of ignition.

Attendance - Any open burning shall be constantly attended until the fire is extinguished.

Fire suppression - One of the following, or the equivalent, shall be immediately available and ready for use in the area of the fire:

1) At least one portable fire extinguisher with a minimum 4-A rating

   (10-lb. ABC multi-purpose dry chemical);

2) Two portable fire extinguishers with a minimum 2-A rating

   (5-lb. ABC dry chemical or 2 1/2 gal. pressurized water);

3) Some other approved on-site fire extinguishing equipment, such as dirt, sand,

   Or water barrel, garden hose or water truck.

Training: Portable fire extinguisher training is required for those supervising the activity.

Bonfire size and duration - A bonfire shall not be more than 5 feet by 5 feet by 5 feet in dimension and shall not burn longer than 3 hours. The size and duration of the bonfire shall not be increased, except by special approval from the Fire Official.

I have read these restrictions. I understand them and agree to abide by them to the best of my ability.

Applicant:

_____

(Signature) (Date)

Appendix F

Building Fire Drill Frequency

Building	Classification	Frequency of fire drills
Barracks	R-2	Quarterly – All
BOQ	R-2-B	Quarterly – All
Cameron Hall	A-4-B	Quarterly – Employees
Carroll Hall	B	Annually – Employees
Clarkson McKenna	B-A	Quarterly – Employees
Cocke Hall	B-A	Quarterly – Employees
Crozet Hall	A	Quarterly – Employees
Hinty Hall	F-B	Annually – Employees
Hospital	B	Annually – Employees
Infill	B	Annually – Employees
JM Hall	A	Quarterly – Employees
Kilbourne Hall	B-S1	Annually – Employees
Mallory Hall	B-A	Quarterly – Employees
Marshall Hall	B-A	Quarterly – Employees
Maury Brooke Hall	B	Quarterly – Employees
Moody Hall	R-1	Quarterly – Employees
NEB	B-A	Quarterly – Employees
Neikirk	B	Annually – Employees
Paulette Hall	A	Quarterly – Employees
Pendleton Cole	B	Annually – Employees
Preston Library	B-A	Quarterly – Employees

Richardson Hall	B-A	Quarterly – Employees
Scott Shipp Hall	E-A3	Quarterly – Employees
Shell Hall	B-A	Annually – Employees
Smith Hall	B	Annually – Employees

Appendix G

Public Assembly Self Check List

Public Assembly Event Self-Check Form *Fire and Life Safety*	Fire - Police – Rescue 911 Safety Office– (540) 464-7040

DATE:_____ TIME: _____ LOCATION:_____

EVENT: _____ PERSON DOING CHECK:_____

Exit announcement read, displayed or Posted? __ Yes __No *(If "no", arrange to provide the required announcement.)*

Exit doors clear and unobstructed (on both sides)? __ Yes __ No *(If "no", remove the obstructions.)*

Exit paths clear and unobstructed all the way to outside? __ Yes __ No *(If "no", remove the obstructions.)*

Wires taped down or otherwise secured? __ Yes __ No __ n/a *(If "no", tape down or otherwise cover the wires.)*

Aisles clear and unobstructed? __ Yes __ No *(If "no", remove the obstructions.)*

Exit lights on and unobstructed? __ Yes __ No *(If "no", remove the obstructions.)*

Emergency lights unobstructed? __ Yes __ No *(If "no", remove the obstructions.)*

Floor set-up approved? __ Yes __ No __ n/a *(If "no", contact Safety Office immediately.)*

- Fire protection equipment unobstructed? __ Yes __ No *(If "no", remove the obstructions* from:
- *fire alarm pull stations;*
- *fire alarm horns, bells or speakers, and strobe lights;*
- *Fire extinguishers.*

Decorations non-flammable? __ Yes __ No __ n/a *(If "no", remove the materials.)*

Use of open flames approved? __ Yes __ No __ n/a *(If "no", extinguish and do not use.)*

Use of pyrotechnics approved? __ Yes __ No *(If "no" - contact the VMI Fire and Safety Office immediately)*

Crowd managers in place? __Yes__ No *(If "no", contact the VMI Fire and Safety Office.)*

- 1 crowd manager for every 250 occupants

Tents have proper certification and permits if required? __ Yes __ No __ n/a

- contact the VMI Fire and Safety Office 30 days in advance (Appendix I)
- flame retardant certification required at site
- structural integrity

Emergency Medical Services in place? __ Yes __ No

Post-event check completed? __ Yes __ No *(If "no", perform Post event check.)*

- smoking materials safely extinguished (where smoking is allowed)
- approved open flames safely extinguished
- unnecessary electrical equipment turned off
- no obvious hazards

Appendix H

Hot Work Permit

Example of Hot Work Permit: To obtain a Hot Work Permit, contact the VMI Fire and Safety Office at # 7040 or jenningsmw@vmi.edu.

HOT WORK PERMIT

BEFORE INITIATING HOT WORK, CAN THIS JOB BE AVOIDED?
IS THERE A SAFER WAY?

This Hot Work Permit is required for any temporary operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Torch Applied Roofing and Welding.

PART 1

INSTRUCTIONS

1. Firesafety supervisor:
   A. Verify precautions listed at right (or do not proceed with the work).
   B. Complete and retain Part 1.
   (Part 1A is a copy for expanded hot work awareness).
   C. Issue Part 2 to person doing job.

HOT WORK BEING DONE BY

☐ EMPLOYEE

☐ CONTRACTOR _____

DATE	JOB NUMBER

LOCATION/BUILDING AND FLOOR

NATURE OF JOB

NAME OF PERSON DOING HOT WORK

I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.

SIGNED (Firesafety Supervisor/Operations Supervisor)

PERMIT EXPIRES	DATE	TIME AM PM

NOTE: EMERGENCY NOTIFICATION ON BACK OF FORM. USE AS APPROPRIATE FOR YOUR FACILITY.

FM Global

F2630 (REV. 4/05)
PRINTED IN USA (4/05)

REQUIRED PRECAUTIONS CHECKLIST

8085187

☐ Available sprinklers, hose streams and extinguishers are in service/operable.

☐ Hot Work equipment in good repair.

Requirements within 35 ft (11 m) of work

☐ Flammable liquids, dust, lint and oily deposits removed.

☐ Explosive atmosphere in area eliminated.

☐ Floors swept clean.

☐ Combustible floors wet down, covered with damp sand or fire-resistive sheets.

☐ Remove other combustibles where possible. Otherwise protect with FM approved welding pads, blankets, and curtains, fire-resistive tarpaulins or metal shields.

☐ All wall and floor openings covered.

☐ FM Approved welding pads, blankets, and curtains installed under and around work.

☐ Protect or shut down ducts and conveyors that might carry sparks to distant combustibles.

Work on walls, ceilings or roofs

☐ Construction is noncombustible and without combustible covering or insulation.

☐ Combustibles on other side of walls, ceilings or roofs are moved away.

Work on enclosed equipment

☐ Enclosed equipment cleaned of all combustibles.

☐ Containers purged of flammable liquids/vapors.

☐ Pressurized vessels, piping and equipment removed from service, isolated and vented.

Fire watch/Hot Work area monitoring

☐ Fire watch will be provided during and for 60 minutes after work, including any coffee or lunch breaks.

☐ Fire watch is supplied with suitable extinguishers, and where practical, a charged small hose.

☐ Fire watch is trained in use of equipment and in sounding alarm.

☐ Fire watch may be required in adjoining areas, above and below.

☐ Monitor Hot Work area for 3 hours after job is completed.

Other Precautions Taken:

☐ _____

Appendix I

Tent Information

This information is to be provided by the Rental Company from which you are obtaining the tent.)

Owner/Co.: _____ Contact Person:_____

Phone No.: _____ Fax No.: _____

Tent to be erected by: ☐ Tent Owner OR ☐ Other (specify below)

Name: _____ Phone No.: _____

Contact Information

Applicant

Provide the name of the person who should be contacted by the VMI Physical Plant for information concerning this permit request.

Name: _____ Email Address: _____

Phone No.: _____ Fax No.: _____

Miss Utility

Miss Utility must be contacted by the vendor at 811 at least five days in advance of tent erection to mark the underground utilities located in the vicinity of the tent site.
Provide the name of the person or vendor who will be contacting Miss Utility.

Name: _____ Email Address: _____

Phone No.: _____

VMI Fire and Safety Office

Contact the VMI Fire and Safety office no less than two days in advance of tent erection to schedule a site inspection. The VMI Fire and Safety Office and/or the Virginia State Fire Marshal's Office will verify that the tent is erected and used in accordance with the information submitted on this form and in accordance with the Virginia State Fire Prevention Code.

Provide the name of the person who will be contacting the VMI Fire and Safety Office to schedule the inspection and serve as the contact person during inspections.

Name: _____ Email Address: _____

Phone No.: _____

Use

Event/Activity:_____

Contact Name: _____ Email Address: _____

Phone No.: _____

List all cooking and heating equipment that will be used: _____

_____

Any cooking or heating activity that involves open flames must not be conducted within 20 feet of any side of the tent.

Number of people in tent: _____

Estimate based on the number of chairs under the tent plus the number of persons standing.

Date of Tent Erection: _____ Date of Tent Removal: _____

Tent shall not be erected more than two days prior to the event activity and removed not more than two days after the event.

Site Plan

The following restrictions must be considered when choosing the location of the tent (if tent is 1,500 sq ft or more):

1. *20-foot minimum clearance must be maintained between the tent and all adjacent buildings, trees and shrubs, and/or other tents or structures.*
2. *The tent and the tent stakes must not damage or interfere with the function of the underground utilities.*
3. *Accessibility for handicapped persons must be provided, including an accessible path from a handicap parking space to the tent entrance and access to all activities conducted inside the tent.*

   Where will the tent be located: _____ *(Name of Field/Lot)*

   List grid reference from VMI map that locates the tent site: _____

   Size of tent: _____

   Width: _____ Length: _____

List all Buildings located less than 50 feet away from the tent site: *Tent must be more than 30 feet away from any building.*

1. _____ on the N S E W side of tent (circle one)
2. _____ on the N S E W side of tent (circle one)
3. _____ on the N S E W side of tent (circle one)
4. _____ on the N S E W side of tent (circle one)

Floor Plan

Proposed arrangement of furnishings – *36" isles must be provided to allow all occupant access to an exit in case of emergency.*

- ☐ Chairs Only - Audience arrangement with a podium or stage
- ☐ Tables and Chairs - Audience Arrangement
- ☐ Square Tables and Chairs - Dining Arrangement
- ☐ Round Tables and Chairs - Dining Arrangement
- ☐ Other - Please provide a floor plan*

Describe Tent Walls:

- ☐ No walls - All sides open to outside OR
- ☐ Closed Sidewalls – Please provide a floor plan*

*** This form and Floor Plan showing the furniture layout, isles and exit locations should be faxed to the VMI Physical Plant at 540-464-7682 attention Mike Jennings 30 days before event.**