BY ORDER OF THE COMMANDER 18TH WING (PACAF)

18TH WING INSTRUCTION 32-2001

6 JANUARY 2000

Civil Engineering



FIRE PREVENTION AND PROTECTION

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive (AFPD) 32-20, *Fire Protection*, and DOD Instruction (DODI) 6055.6, *Department of Defense Fire and Emergency Services Program*, Department of Labor – Occupational Safety and Health Administration (OSHA), Code of Federal Regulations (CFR), and National Fire Protection Association (NFPA) standards as Air Force policy unless otherwise directed in DOD or Air Force instructions. This instruction provides guidance for implementing and maintaining a sound fire prevention program and establishes responsibilities, procedures and practices for effective control and elimination of fire hazards. It applies to all military personnel, their dependents, civilian personnel (American and local national), tenants, contractors and concessionaires that reside or work on Kadena Air Base.

SUMMARY OF REVISIONS

This revision provides a table of contents for easy reference; defines the scope of this instruction; redefines the responsibility of the Base Fire Marshal, Fire Chief, special event coordinator and the Functional Manager; defines who is the Authority Having Jurisdiction (AHJ) and the role of the AHJ; adds the application of this instruction as it applies to new or existing facilities; redefines the use of permits for certain hazardous operations; redefines fire reporting procedures; adds plans review procedures and the role of Fire Protection Engineering; adds factors affecting the means of egress; adds the role of military and civilian sponsors as it applies to home fire safety; adds the responsibility of the Services Squadron and the Army Air Force Exchange Service (AAFES) as it applies to contractors and concessionaires; redefines the requirements of fire lanes; adds requirements for vacant buildings; redefines requirements of commercial cooking equipment; adds a clear area of 6 inches from all electrical outlets in living quarters; clarifies flammable liquid, combustible liquid and compressed gas storage; adds fuel dispensing system emergency shut-off procedures; defines qualifications for fireworks displays; adds procedures for spray application using flammable/combustible materials, treatment of floors and overstuffing of aircraft facilities during typhoon conditions; clarifies where fire detection, sprinkler systems and manual pull stations, shall be installed and when they shall be tested and maintained; defines where portable extinguishers may be used and located. New or revised material is indicated by a bar (|).

Chapter 1—	-ADMINISTRATION AND ENFORCEMENT
1.1.	Terminology.
1.2.	Scope.
1.3.	Responsibilities.
1.4.	Authority Having Jurisdiction (AHJ)
1.5.	Application.
1.6.	Permits.
1.7.	Fire Reporting
1.8.	Plans Review.
Chapter 2—	-MEANS OF EGRESS 1
2.1.	Definition
2.2.	Aisles and Exits
2.3.	Exit Discharge
2.4.	Illumination of Means of Egress. 1
2.5.	Emergency Lighting
2.6.	Marking of Means of Egress. 1
2.7.	Fire Escape Stairways. 1
2.8.	Locks, Latches and Alarm Devices. 1
2.9.	Factors Affecting Egress. 1
Chapter 3—	-GENERAL REQUIREMENTS 1
3.1.	Fundamental Requirements. 1
3.2.	Electrical Fire Safety. 1
3.3.	Managers of Public Assembly. 1
3.4.	Military and Civilian Sponsors
3.5.	Contractors and Concessionaires. 1
3.6.	Fire Lanes 1
3.7.	Vacant Buildings. 1
3.8.	Commercial Cooking Equipment. 1
3.9.	Smoking

18WGI32-2001 6 JANUARY 2000

3.10.	Mechanical Rooms.	17
3.11.	Combustible Waste and Refuse.	17
3.12.	Housekeeping.	17
3.13.	Dormitories and BOQs.	17
3.14.	Flammable and Combustible Liquids.	17
3.15.	Compressed Gas Cylinder Storage.	18
3.16.	Heating Appliances.	18
3.17.	Refueling.	18
3.18.	Fireworks.	18
3.19.	Spray Application Using Flammable and Combustible Materials.	19
3.20.	Treatment of Floors.	19
3.21.	Overstuffing of Aircraft Facilities during Typhoon Conditions.	20
Chapter 4—	-INSTALLED FIRE DETECTION - SUPPRESSION SYSTEMS	21
4.1.	Acceptance Tests.	21
4.2.	Fire Detection Systems.	21
		21
4.3.	Fire Sprinkler Systems.	21 21
4.3. 4.4.	-	
	Fire Sprinkler Systems.	21
4.4.	Fire Sprinkler Systems	21 22
4.4. 4.5.	Fire Sprinkler Systems	21 22 22
4.4. 4.5. 4.6.	Fire Sprinkler Systems	21 22 22 23

Chapter 1

ADMINISTRATION AND ENFORCEMENT

1.1. Terminology.

1.1.1. Fire Protection. Includes all aspects of engineering, prevention, suppression and related rescue operations.

1.1.2. Fire Prevention. The measures directed toward avoiding the occurrence of a fire.

1.1.3. Fire Hazard Risk Assessment Code (RAC). Any existing condition or situation, which, if not corrected, could result in the accidental ignition and subsequent fire that could cause personal injury and/or loss of life and property.

1.1.4. Fire Safety Deficiency (FSD). A condition which reduces fire safety below an acceptable level but of itself cannot cause a fire. This condition could cause a delay in the detection of a fire or increase the severity of the damage should a fire occur.

1.1.5. Installed Fire Protection Systems. Systems installed in various facilities for the purpose of fire detection, alarm and/or suppression of fire.

1.1.6. Occupant Load. The maximum number of persons that may occupy a building, or portion thereof, at any one time.

1.1.7. Functional Managers. The operating officials at the wing and group commander's staff exercising managerial control of an activity or operation. Tenant units are responsible for preparation and maintenance of their unit's hazard abatement plan.

1.1.8. Facility Managers. Individuals assigned responsibility for facilities under the functional manager's control. The functional manager will appoint these individuals and their names will appear on official civil engineer real estate records.

1.2. Scope.

1.2.1. The provisions of this Instruction are applicable to:

1.2.1.1. The inspection of buildings, processes, equipment, systems and other fire related life safety situations.

1.2.1.2. The investigation of fires, explosions, hazardous materials incidents and other related emergency incidents handled by the fire department.

1.2.1.3. The review of construction plans, drawings and specifications for life safety systems, fire protection systems, access, water supplies and processes, hazardous materials and other fire and life safety issues.

1.2.1.4. The fire and life safety education of fire brigades, employees, responsible parties and the general public.

1.2.1.5. Existing occupancies and conditions, the design and construction of new buildings, remodeling of existing buildings, and additions to existing buildings.

1.2.1.6. The storage, use, processing, handling and transportation of hazardous materials.

1.2.1.7. The design, alteration, modification, construction, maintenance, and testing of fire protection systems and equipment.

1.2.1.8. Access requirements for fire department operations.

1.2.1.9. Hazards from outside fires in vegetation, trash, building debris, and other materials.

1.2.1.10. The regulation and control of special events including but not limited to exhibits, trade shows, amusement parks, haunted houses and other similar special occupancies.

1.2.1.11. The interior finish, decorations, furnishings and other combustibles that contribute to fire spread, fire load and smoke production.

1.3. Responsibilities.

1.3.1. Base Fire Marshal. The 18th Civil Engineer Squadron Commander is designated as the base fire marshal and is responsible to the installation commander for the effective and efficient execution of the installation's fire protection program. Additionally, the fire marshal provides the fire chief with the necessary support to ensure the highest possible priority and funding of fire protection and prevention initiatives to accomplish mission support.

1.3.2. Fire Chief. The fire chief is directly responsible to the Base Fire Marshal for determining the resources required for the installation's overall fire protection program. The fire chief will establish and implement an effective fire protection and prevention program, including hazardous materials, mutual aid, initial emergency medical care, confined space rescue and emergency response programs.

1.3.3. Unit Commanders and Supervisors. Unit Commanders and supervisors at all levels are to ensure that sound fire prevention procedures are established for each facility under their control and supervision. They must:

1.3.3.1. Ensure each person receives a fire prevention orientation within 30 days after arriving on base. The organization documents this training.

1.3.3.2. Ensure fire prevention training is accomplished in accordance with AFOSH Standard 91-56, *Fire Protection and Prevention*, within the organization on a regular basis.

1.3.3.3. Contact 18 CES/CEFP for appropriate fire prevention lectures and fire extinguisher and systems training. The schedule will be set to include the maximum number of personnel and will recur annually.

1.3.3.4. Initiate administrative or disciplinary action where there is willful misconduct or negligence involving fire prevention. Action will be taken against any person who willingly breaks established rules and causes a fire to occur through carelessness or maliciously tampers with fire extinguishers, installed fire detection and/or fire suppression systems.

1.3.3.5. Contact Fire Prevention element when special events are held to schedule a fire prevention visit. One week prior notice shall be given for events such as concerts, haunted houses or other similar special gatherings.

1.3.4. Facility Managers. Facility managers are responsible to the commander for the fire safe condition of each building under their control. Alternates are to assume this responsibility in the absence of the facility manager. Their duties include, but are not limited to the following:

1.3.4.1. Insure copy of 18 WGI 32-2001 is kept on file for each occupied facility.

1.3.4.2. Accompany the fire inspector, or designate an alternate, during all scheduled visits, and take prompt corrective actions on all noted fire hazards or deficiencies.

1.3.4.3. Provide familiarization training to all personnel within their area of responsibility on fire reporting procedures and location and operation of first aid firefighting equipment.

1.3.4.4. Make periodic inspections of all assigned facilities to eliminate potential hazards, malpractices and infractions. This inspection shall consist of the following:

1.3.4.4.1. Insure exits are not blocked or obstructed and that exit doors are unlocked while the facility is occupied.

1.3.4.4.2. Check the operation and condition of exit and emergency lighting.

1.3.4.4.3. Check for improper use of extension cords.

1.3.4.4.4. Replace smoke detector batteries in personnel rooms annually during the second week of October to ensure proper function in case of a power outage.

1.3.5. Fire Prevention Visits. The Fire Protection Flight, Fire Prevention Element, conducts fire prevention visits annually to all base facilities, unless required more often by public law or other statutory requirement. The objective is to evaluate each organization's fire prevention program.

1.3.5.1. At the conclusion of the visit, the fire prevention inspector will brief the facility manager or alternate on the results of the visit.

1.3.5.2. If no hazards are noted or if discrepancies are corrected on the spot, the fire inspector will annotate the visit on the back of the AF Form 218, **Facility Fire Prevention/Protection Record**.

1.3.5.3. If hazards are discovered during the visit, the fire inspector will prepare AF Form 1487, **Fire Prevention Visit Report**. The inspector will itemize the hazards and/or discrepancies, assign the appropriate risk assessment code and/or fire safety deficiency and itemize corrective action required to eliminate the hazard and/or deficiency.

1.3.5.4. Functional and facility managers will take the necessary action to eliminate the hazards.

1.3.5.5. Functional managers will annotate all corrective actions taken to include job and work order numbers on AF Form 1487.

1.3.5.6. Functional managers will enter fire hazards documented as RAC's 1, 2 or 3 not corrected in 30 days into the Hazard Abatement Program using an AF Form 3, **Hazard Abatement Plan** as stated in AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program.*

1.3.6. Fire Drills. Fire Drills will be conducted by commanders and supervisors as required by NFPA 101, *Life Safety Code*, based on type of occupancy and directives pertaining to the operation or function in their area of responsibility.

1.3.6.1. Commanders and supervisors may obtain assistance in establishing frequency requirements and conducting evacuation drills by contacting the Fire Prevention Element at 634-4500.

1.3.6.2. The use of the building fire alarm system to conduct fire evacuation drills without the presence of a fire protection representative is prohibited.

1.3.7. Base Traffic. Firefighting vehicles responding to an emergency shall be given right-of-way when lights and sirens are on. All traffic shall immediately clear intersections, move as far as possible

to the left and come to a complete stop. Vehicles will not follow closer than 300 feet of a fire department vehicle when it is responding to an emergency.

1.4. Authority Having Jurisdiction (AHJ)

1.4.1. HQ USAF/ILE is the overall AHJ for Air Force fire protection policy and approval of permanent deviations to NFPA standards.

1.4.2. The Major Command Civil Engineer (MAJCOM/CE) is responsible for execution, oversight, and compliance with, DOD, Air Force and OSHA regulations and NFPA standards as implemented by the Air Force. The MAJCOM/CE is the AHJ for approval of long-term (more than 18 months) deviations to NFPA standards. MAJCOM/CEs forward all requests for permanent deviations to NFPA standards to HQ USAF/ILE for approval. They ensure that installation programs are provided with high priority and funding to maintain compliance with this program. They are also responsible for validation and coordination of long term and permanent deviations that are forwarded to HQ USAF/ILE.

1.4.3. The installation commander is the AHJ to approve the processes, procedures and programs developed locally for compliance with this instruction. The installation commander is the AHJ for approval of short-term (less than 18 months) deviations. The AHJ must ensure programs are assigned an appropriate priority for the associated risk and adequate funding for correction and compliance. They also approve Operational Risk Management (ORM) plans for deviations and forward to the MAJCOM/CE/SE. ORM plans must identify (1) functional areas in which the installation fails to comply with Air Force fire protection policies and (2) quantify the operational restrictions or other appropriate mitigating actions that fully offset the installation's failure to explicitly comply with those Air Force standards.

1.4.3.1. Base Fire Marshal. The Commander, 18th Civil Engineer Squadron (CES) is designated the Fire Marshal and serves as staff advisor to the Commander, 18th Wing, on fire protection matters. The Fire Marshal is authorized to abate any operations or processes considered to be a fire or explosive hazard.

1.4.3.2. The Fire Chief, in the absence of 18th Civil Engineer Squadron Commander, also serves as the Fire Marshal. The Fire Chief ensures full implementation of this instruction.

1.4.3.3. The Assistant Chief, Fire Prevention, is responsible for determining instruction compliance, adequacy of life safety and approving acceptable measures or equipment that meet the objectives of this instruction. During coordination, where agreement cannot be reached, the Installation Commander's decision prevails.

1.4.4. The authority having jurisdiction may delegate to other qualified individuals and organizations such powers necessary for the proper administration and enforcement of this instruction.

1.4.5. The authority having jurisdiction is authorized to inspect at all reasonable times, any facility or premises for dangerous or hazardous conditions or materials as set forth in this instruction. The authority having jurisdiction may order any person(s) to remove or remedy such dangerous or hazardous condition or material. Any person(s) failing to comply with such order shall be in violation of this instruction.

1.4.6. Where conditions exist and are deemed hazardous to life and property by the authority having jurisdiction, the authority having jurisdiction shall have the authority to summarily abate such hazardous conditions that are in violation of this instruction.

1.4.7. Any authority having jurisdiction engaged in fire prevention and inspection work is authorized at all reasonable times to enter and examine any building, structure, vehicle or premises for the purpose of making fire safety inspections. Before entering a private dwelling, the authority having jurisdiction shall obtain the consent of the occupant thereof or except in those instances where an emergency exists, with a security police or building manager escort.

1.4.8. Persons authorized to enter and inspect buildings, structures, vehicles, and premises, as herein set forth shall be identified by proper credentials issued by this governing authority.

1.4.9. The authority having jurisdiction shall have the authority to require plans and specifications to ensure compliance with applicable, codes, standards and instructions.

1.4.10. The authority having jurisdiction shall have the authority to develop and implement a public fire safety education program as deemed necessary for the general welfare with respect to the potential fire hazards within the jurisdiction.

1.4.11. Unqualified persons shall not impersonate fire inspectors, give fire related technical support, advice, or instruction without first consulting the authority having jurisdiction.

1.4.12. When any construction or installation work is being performed in violation of the plans and specifications as approved by the authority having jurisdiction, a verbal notice shall be issued to the contract monitor to stop work on that portion of the work in violation. The notice shall state the nature of the violation and no work shall be continued on that portion until the violation has been corrected.

1.5. Application.

1.5.1. This instruction applies to both new and existing conditions.

1.5.2. Where the requirement differs between this instruction and other referenced documents, the requirements of this instruction shall have precedence.

1.5.3. Buildings in existence or permitted for construction, prior to the adoption of this instruction shall comply with provisions stated previously or referenced for existing buildings.

1.5.4. When in fixed locations and occupied as buildings, vehicles, vessels or other mobile structures shall be treated as buildings and comply with this instruction.

1.5.5. Additions, alterations or repairs to any building shall conform to that required of a new building without requiring the existing building or structure to comply with all the requirements of this instruction. Additions, alterations or repairs shall not cause an existing building to become unsafe or adversely affect the performance of the building as determined by the authority having jurisdiction.

1.5.6. Where two or more classes of occupancy occur in the same building or structure, and are so intermingled that separate safeguards are impracticable, means of egress facilities, construction, protection and other safeguards shall comply with the most restrictive fire safety requirements of the occupancies involved.

1.6. Permits.

1.6.1. The Fire Prevention Element shall have the authority to issue permits for the following operations within the boundaries of this installation.

1.6.1.1. Starting or maintaining any open fire. Instructions and stipulations of the permit shall be adhered to. Cooking fires are exempt and do not require a permit. However, barbecue grills will not be used within 25 feet of a building or 50 feet from an aircraft or flammable storage locker. EXCEPTION: High rise apartment balconies and back patios of multiplex apartments may be used for barbecue.

1.6.1.2. Welding, Cutting and Brazing. These operations will comply with AFOSH Standard 91-5, *Welding, Cutting, and Brazing*.

1.6.1.2.1. All welding will be performed by qualified personnel and, if possible, be done in booths or rooms constructed for that purpose.

1.6.1.2.2. When welding outside of an approved booth or room, the Fire Protection Flight will be contacted to inspect the work site and equipment. If the operation is safe, an AF Form 592, **USAF Welding, Cutting and Brazing Permit,** will be issued per AFOSH Standard 91-5.

1.6.1.2.3. Certain shops that perform welding operations on a routine basis may, at the discretion of the Fire Protection Flight, be trained and certified to issue their own AF Form 592.

1.6.1.2.4. Prior to welding or cutting on piping, tanks or containers that contain or have contained flammable liquids, they will be thoroughly purged and vented. Detection equipment will be used to sample for explosive mixtures. The supervisor of the operation will contact 18th Wing Safety, 18th Civil Engineer Squadron Fire Protection Flight and the 18th Medical Group Bioenvironmental Engineering Flight to inspect the work site.

1.6.1.3. Tar Kettles on Roofs. Permits shall be obtained at least 2 working days prior to the placement of a tar kettle on a roof.

1.7. Fire Reporting

1.7.1. Fire Reporting Procedures. Early detection and notification of fire is critical, delayed or improper reporting has in many cases resulted in excessive fire damage and or loss of life. Upon recognition of a fire, immediately sound the alarm, evacuate the facility, phone the fire department using the 9-1-1 system and direct the responding crews. Some manual fire alarm systems installed in base facilities are "local alarm only". Consequently, they serve only to alert the occupants. Therefore, even though these systems are activated the Fire Department must still be notified.

1.7.2. All fires will be reported to the Fire Protection Flight regardless of size or type. Additionally, any condition that could result in a fire or create a hazardous situation must be reported immediately.

1.8. Plans Review.

1.8.1. For new construction, modification, or rehabilitation, the Fire Prevention Element shall have the authority to review construction documents and shop drawings.

1.8.2. It is the responsibility of the applicant to ensure that the construction documents include all of the fire protection requirements and that the shop drawings are correct and in compliance with the applicable codes and standards.

1.8.3. Fire Protection Engineering. The Engineer Flight or Maintenance Engineer Flight manages fire protection engineering requirements as prescribed by the current edition of MIL-HDBK-1008, *Fire Protection for Facilities Engineering, Design, and Construction*. The fire chief provides consultation

and design recommendations regarding firefighting operational requirements. The fire chief is not responsible for system design. The fire chief coordinates on design drawings to signify review and that firefighting operational recommendations are incorporated. This coordination does not indicate fire protection engineering design acceptance.

1.8.4. Review and approval by the authority having jurisdiction shall not relieve the applicant of the responsibility of compliance with this Instruction.

1.8.5. Where field conditions necessitate any substantial change from the approved plan, the authority having jurisdiction shall have the authority to require the corrected plans be submitted for approval.

Chapter 2

MEANS OF EGRESS

2.1. Definition. A means of egress is a continuous and unobstructed way of exit travel from any point in a building to a public way. The means of egress must be free from obstructions that would prevent its use.

2.2. Aisles and Exits. Aisles and exits must comply with NFPA Standard 101, Life Safety Code.

2.2.1. The minimum number of means of egress from any balcony, mezzanine, story or portion thereof shall be two. Such exits shall be remotely located from each other and shall be arranged and constructed to minimize the possibility that more than one can be blocked by any one fire or other emergency condition.

2.2.2. Exit doors must be visible, accessible and swing freely without restriction and the door and panic hardware must be in good repair.

2.2.3. Prior to blocking any door or exit, the facility manager will contact 18 CES/CEFP for approval.

2.3. Exit Discharge. All portions of an exit discharge must be of required width and size to provide occupants with safe access to a public way.

2.3.1. The minimum width of any corridor or passageway shall be 44 inches (112 cm) in the clear.

2.4. Illumination of Means of Egress. The floors of means of egress must be illuminated at all points, including: corridors, passageways, stairways, landings of stairways and exit doors.

2.5. Emergency Lighting. Emergency lighting shall be provided in the means of egress in all buildings as required by NFPA Standard 101.

2.6. Marking of Means of Egress.

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2.6.1. An approved sign must mark exits readily visible from all directions.

2.6.2. Where an exit or way to reach it is not readily apparent, an approved, readily visible sign will mark access.

2.6.3. Exit signs will be of such size, distinctive color, design and so located to be readily visible and contrast with interior decorations.

2.7. Fire Escape Stairways. Stairways must provide a continuous, unobstructed, safe path of travel to the exit discharge or a safe area.

2.7.1. Storage of combustible materials or flammable liquids underneath stairways is prohibited.

2.7.2. Fire escape stairways and landings must be kept free of stored items.

2.8. Locks, Latches and Alarm Devices.

2.8.1. Exit doors must be arranged to be readily opened from the egress side whenever the building is occupied.

2.8.2. No lock, padlock, hasp, bar, chain or other device will be installed or maintained on a door with panic hardware while the facility is occupied.

2.8.3. Where pairs of doors are required in a means of egress, each leaf of the pair must be provided with its own releasing device. Each leaf will be unlatched at the top and bottom for free swing during normal occupancy.

2.9. Factors Affecting Egress.

2.9.1. Hangings or draperies shall not be placed over exit doors or otherwise be located to conceal or obscure any exit. Mirrors shall not be placed on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of exit.

2.9.2. Where the Fire Prevention Element finds the required path of travel to be obstructed by furniture or other movable objects, they may require that they be fastened out of the way or may require that railings or other permanent barriers be installed to protect the path of travel against encroachment.

Chapter 3

GENERAL REQUIREMENTS

3.1. Fundamental Requirements. All Kadena Air Base employees shall be familiar with the contents of this instruction and the applicable sections of AFOSH Standard 91-56. This will provide a reasonable level of life safety and property protection from actual and potential fire hazards.

3.1.1. Anyone who deliberately or through negligence sets fire to or causes a fire in such a manner as to endanger the safety of any person or property will be in violation of this instruction, Federal Laws, and the Uniform Code of Military Justice.

3.1.2. When a fire alarm is activated all personnel, except those assigned to firefighting duties, must evacuate the building and remain a safe distance from the structure until told it is safe to return by firefighters. In buildings not equipped with a fire alarm system, the person discovering the fire will make every effort to ensure all personnel are alerted and the building is evacuated.

3.1.3. Fire Prevention Training. Fire prevention lectures and demonstrations are available upon request.

3.1.4. Military Family Housing Briefing. Occupants of military family housing are required to receive a fire prevention briefing within 30 days of occupancy. Presentation is scheduled through the Base Housing Office.

3.2. Electrical Fire Safety. All electrical appliances, fixtures or wiring will be installed and maintained per NFPA Standard 70, *National Electric Code*. Only 18 CES electricians or licensed electrical contractors may alter electrical wiring systems.

3.2.1. All switches, receptacles, junction boxes and control panels will have suitable cover plates or panel doors.

3.2.2. All unnecessary electrical equipment will be unplugged when not in use prior to leaving the work area or home.

3.2.3. A clearance of at least 18 inches will be maintained between electrical light fixtures and combustible materials.

3.2.4. Multi receptacle bars used for computers and other small appliances will be fused and listed by an approved testing agency (i.e. Underwriters Laboratory Inc.).

3.2.5. An extension cord or flexible wiring is prohibited from use when:

3.2.5.1. It is used as a substitute for fixed wiring.

3.2.5.2. It is run through walls, ceilings, floors, doors, windows or similar openings.

3.2.5.3. It is attached to building surfaces by nails, hooks, staples, glue or wrapped around beams/ columns.

3.2.5.4. It is concealed under carpets.

3.2.5.5. Cord size is smaller than the cord of the item being used.

3.2.5.6. It is plugged into another extension cord.

3.2.6. A clear area of at least 36 inches will be maintained around all circuit breaker panels. Each circuit shall be marked as to what it supports.

3.2.7. Individual air-conditioning units must be installed on the correct amp rated fuse.

3.2.8. Exposed coil hot plates are prohibited.

3.3. Managers of Public Assembly. Managers of public assemblies are responsible for the overall fire prevention and life safety program and must follow the guidance provided in AFOSH Standard 91-56.

3.4. Military and Civilian Sponsors. These individuals are responsible for briefing and enforcing fire prevention within and around the home.

3.5. Contractors and Concessionaires.

3.5.1. The Services Squadron Commander and the AAFES General Manager Kadena, will appoint a supervisor to ensure all contracted projects and concessionaires comply with this instruction.

3.5.2. Contracts carried out on Kadena Air Base will state the contractor's and concessionaires responsibilities for fire safety and compliance with fire safety standards.

3.5.3. Contractors will be briefed by 18 CES/CEFP before they start any project. Contractors shall comply with this instruction and the provisions covered in NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*.

3.5.4. 18 CES/CEFP will be advised of any new concessionaires opening on Kadena AB.

3.5.5. Construction management will advise 18 CES/CEFP, 1 week in advance of all scheduled pre-construction briefings.

3.5.6. Construction Fire Safety. This includes contractors and all base personnel performing construction or self-help projects. An AF Form 332, **Base Civil Engineering Work Request**, will be coordinated prior to any project.

3.5.6.1. Contractor supervisors and base contract monitors are responsible for fire safety at construction sites.

3.5.6.2. During the construction phase, a fire inspector is authorized to inspect the job site; any problems will be addressed to the contract monitor.

3.6. Fire Lanes.

3.6.1. Fire lanes shall be provided for all buildings that are set back more than 150 ft (45.75 m) from a public road or exceed 30 ft (9.14 m) in height and are set back over 50 ft (15.25 m) from a public road.

3.6.2. Fire lanes will be provided to allow clear access for fire apparatus to connect to fire protection equipment. (i.e. standpipe and sprinkler connections).

3.6.3. Fire lanes shall not be less than 20 ft (6.1 m) of unobstructed width, able to withstand live loads of fire apparatus and have a minimum of 13 ft 6 in. (4.1 m) of vertical clearance. An approved turnaround for fire apparatus shall be provided where an access road is a dead end and is in excess of 150 ft (45.8 m) in length. The turnaround shall have a minimum centerline radius of 50 ft (15.3 m). The grade of the fire lane shall be within the limits established by the authority having jurisdiction.

Exception No. 1: T or Y turnaround arrangements are permitted.

Exception No. 2: When acceptable to the authority having jurisdiction, turnaround arrangements other than a cul-de-sac may be used.

3.6.4. Where a bridge is required to be used as access, it shall be constructed and maintained using live design loading sufficient to carry the imposed loads of the fire apparatus. Where an elevated surface is used as access, that portion utilized by fire apparatus shall be constructed and maintained to accommodate fire apparatus.

3.6.5. Fire lanes shall be marked with freestanding signs or marked curbs, sidewalks, or other traffic surfaces that have the words "FIRE LANE NO PARKING" painted in contrasting colors at a size and spacing approved by the authority having jurisdiction.

3.6.6. Parking is not allowed in fire lanes; fire lanes must be free from obstructions at all times. Should it be necessary to park in a fire lane for vehicle loading or unloading, the operator must remain with the vehicle.

3.6.7. Vehicles shall park no closer than 20 feet from any fire hydrant, standpipe, or sprinkler connection.

3.6.8. Motor vehicles will not park on streets, passageways or fire lanes in such a way as to block access of fire apparatus.

3.6.9. Streets will not be barricaded or otherwise obstructed without prior notification of the Fire Protection Flight.

3.7. Vacant Buildings.

3.7.1. Every person owning or having charge or control of any vacant building shall remove all combustible waste and refuse therein and lock, barricade, or otherwise secure all windows, doors and other openings in the building to prohibit entry by unauthorized persons.

3.7.2. Buildings that are vacant shall maintain all required sprinklers and standpipe systems in service.

Exception: As approved by the authority having jurisdiction.

3.7.3. The authority having jurisdiction shall have the authority to require an inspection and test of any sprinkler system, standpipe system or fire alarm system that has been out of service for 30 days or more before restored back into service.

3.8. Commercial Cooking Equipment. Commercial cooking equipment will be maintained per AFOSH 91-56 and NFPA 1, *The Fire Prevention Code*.

3.8.1. Cooking equipment that produces grease-laden vapors (such as but not limited to, deep fat fryers, ranges, griddles, broilers, woks, tilting skillets and braising pans) shall be protected by fire extinguishing equipment.

3.8.1.1. Fire extinguishing equipment shall include both automatic wet chemical extinguishing systems as primary protection and portable fire extinguishers as secondary backup.

3.8.2. When a system is out of service for any reason, cooking equipment protected by that system will not be used.

3.8.3. Building managers are responsible for visually inspecting systems prior to cooking each day. This inspection is to provide reasonable assurance that the system is fully charged and operable.

3.8.4. The Fire Alarm Communication Center (FACC) will be notified prior to and after completion of any maintenance on a wet/dry chemical system.

3.8.5. The operation of any extinguishing system shall automatically shut off all sources of fuel and heat to all equipment requiring protection by that extinguishing system. Any gas appliance not requiring protection but located under the same ventilating equipment shall also be shut off. All shutdown devices shall be considered integral parts of the system and shall function with the system operation. This equipment shall be of the type that requires manual resetting prior to fuel or power restoration.

3.8.6. Hoods, grease removal devices, fans and ducts shall be cleaned to bare metal at frequent intervals prior to surfaces becoming heavily contaminated with grease or oily sludge. They shall be inspected and documented at least every 6 months.

3.8.7. Flammable solvents or other flammable cleaning aids shall not be used.

3.8.8. At the start of the cleaning process, electrical switches that may be accidentally activated shall be locked out.

3.8.9. Care shall be taken to not apply cleaning chemicals on fusible links or other detection devices of the automatic extinguishing system.

3.8.10. When cleaning procedures are completed, qualified personnel shall return all electrical switches, detection devices, and system components to an operable state. Cover plates shall be replaced and dampers and diffusers shall be positioned for proper airflow.

3.8.11. Deep fat fryers shall be equipped with a separate high limit control in addition to the adjustable operating control (thermostat) to shut off fuel or electricity when the fat temperature reaches 475° F (246° C), 1 in. (25.4 mm) below the surface. Deep fat fryers shall be calibrated annually to ensure the separate high limit control is properly functioning.

3.8.12. Operating Procedures.

3.8.12.1. Exhaust systems shall be operated during all periods of cooking.

3.8.12.2. Filter-equipped exhaust systems shall not be operated with filters removed.

3.8.12.3. Openings provided for replacing covers, dampers or any other means that would reduce the operating efficiency of the exhaust system shall not restrict air exhausted through ventilating equipment.

3.8.12.4. Instructions for manually operating the fire extinguishing system shall be posted conspicuously in the kitchen and shall be reviewed periodically with employees by the management.

3.9. Smoking.

3.9.1. Smoking is not permitted in or within 50 feet of a hangar, aircraft, repair dock, paint shops, gasoline storage or servicing areas, maintenance shops or other similarly hazardous locations unless designated in writing and approved by 18 CES/CEFP. 3.9.2. "No Smoking" signs are needed only for areas posted for fire, explosives or other safety hazards. All other areas are assumed to be "NO SMOKING" areas.

3.9.3. Ashtrays used for the disposal of smoking materials shall be used exclusively for smoking materials and shall be emptied daily. Metal containers with self-closing lids, stenciled "SMOKING MATERIALS ONLY", shall be provided in designated smoking areas. When these containers become half filled, the contents will be thoroughly soaked for no less than 15 minutes, placed in a sealed bag and discarded outside in a trash can or dumpster.

3.10. Mechanical Rooms. Mechanical rooms will not be used for storage purposes.

3.11. Combustible Waste and Refuse. Building managers will not allow combustible waste to accumulate in a manner to create a fire hazard. Dumpsters and trashcans shall be positioned 15 feet from any building.

3.12. Housekeeping. Good housekeeping relative to fire safety is the responsibility of commanders, supervisors, building managers and military housing sponsors.

3.12.1. Greasy and oily rags, paint rags and polishing cloths must be stored in self-closing metal containers after use.

3.12.2. Trash must be taken from shops and work areas daily.

3.12.3. Plastic, polyethylene and combustible trashcans will not be used unless UL-approved.

3.12.4. Mops shall be thoroughly rinsed after use and hung off the floor to prevent spontaneous combustion.

3.13. Dormitories and BOQs.

3.13.1. Cooking in dormitories not equipped with hood and exhaust systems is prohibited.

3.13.2. Burning of candles will only be allowed during times of prolonged power outages.

3.13.3. Bicycles will not be stored in halls or other common areas.

3.13.4. All combustible materials such as bedding materials and curtains must be kept a minimum of 6 inches from all electrical outlets to avoid a potential fire hazard. Additionally, all issues dealing with electrical safety, section 3.2, are applicable.

3.14. Flammable and Combustible Liquids.

3.14.1. Flammable and combustible liquids, including spray cans will be handled and stored per AFOSH Standard 91-43, *Flammable and Combustible Liquids* and AFMAN 23-210, *Joint Service Manual for Storage and Materials Handling*.

3.14.2. Gasoline, thinner and other volatile flammables will not be used for cleaning purposes.

3.14.3. Flammable and combustible liquids shall be stored in approved flammable storage lockers when not in use.

3.14.4. Not more than 120 gal (454 L) of Class I, Class II and Class IIIA liquids may be stored in a storage cabinet. Of this total, not more than 60 gal (227 L) may be of Class I and Class II liquids and

not more than three (3) such cabinets may be located in a single fire area, except that in an industrial occupancy, additional cabinets may be located in the same fire area if the additional cabinet or group of not more than three (3) cabinets is separated from other cabinets or group of cabinets by at least 100 ft (30 m).

3.14.5. Dip tanks must be properly grounded and be protected by self-closing metal lids with fusible links.

3.14.6. Dispensing storage drums shall have spring closing type faucets and drip pans in place.

3.14.7. When flammable and combustible liquids are spilled in large quantities, the spill will be reported immediately to the Fire Department.

3.14.8. Flammable and combustible liquid storage in Military Family Housing is permitted not to exceed 5 US gallons, if stored in an approved safety container and if located away from sources of ignition and outside the living portion of the quarters.

3.15. Compressed Gas Cylinder Storage.

3.15.1. General storage precautions can be found in AFMAN 23-210.

3.15.2. Compressed gas cylinders, full or empty, will be stored in an upright position, firmly secured, with the dome cap in place.

3.15.3. Cylinders shall be located to minimize exposure to excessive temperature, physical damage, and tampering.

3.15.4. Compressed gas cylinders will be stored in designated locations only. Oxygen and acetylene gas will be stored separated by a wall or 60 feet of distance. Storage areas will be separated and posted according to their hazard group.

3.16. Heating Appliances.

3.16.1. Use of portable kerosene space heaters is prohibited in all Kadena Air Base facilities. EXCEPTION: Heaters used in tent operations during training deployments

3.16.2. Portable electric space heaters are permitted. However, they must be equipped with a safety tip switch. EXCEPTION: Patient treatment areas of medical facilities and other hazardous areas as determined by the Fire Department

3.16.3. Space heaters must be kept at least 36 inches from combustible materials such as paper, furniture or curtains.

3.17. Refueling.

3.17.1. Fuel spills, regardless of size, will be immediately reported to the Fire Protection Flight in the most expedient manner possible.

3.17.2. Fuel Dispensing System. A clearly identified and easily accessible switch(es) or circuit breaker(s) shall be provided at a location remote from dispensing devices, including remote pumping systems to shut off the power to all dispensing devices in the event of an emergency.

3.18. Fireworks.

3.18.1. Fireworks are prohibited on Kadena Air Base. EXCEPTION: Authorized training devices and public displays of fireworks. Fireworks displays must be coordinated at least 1 month in advance with the Fire Protection Flight.

3.18.2. Displays of fireworks will be conducted by qualified explosive handling personnel or licensed contractors. These operators or contractors have the primary responsibility for safety and fire prevention. Fire protection will be provided by the Fire Protection Flight. However, the operator or contractor must provide portable fire extinguishers.

3.19. Spray Application Using Flammable and Combustible Materials.

3.19.1. Spray application operations shall not be conducted in a building classified as assembly, educational, institutional or residential, except in a room designed for the purpose, protected with an approved system of automatic sprinklers and separated vertically and horizontally from such occupancies by construction having not less than a 2 hour fire resistance rating. EXCEPTION: For temporary purposes, the procedure may occur with the prior approval of the Fire Protection Flight, 18th Wing Safety and 18th Medical Group Bioenvironmental Engineering.

3.19.2. All metal parts of spray booths, exhaust ducts and piping systems conveying flammable or combustible liquids or aerated combustible solids shall be properly electrically grounded in an effective and permanent manner.

3.19.3. Exhaust ducts shall be provided with ample access doors to facilitate cleaning.

3.19.4. Spray areas shall be protected with an approved automatic fire extinguishing system.

3.19.5. All spray areas shall be kept free from the accumulation of deposits of combustible residues. Combustible coverings (thin paper, plastic, etc.) and strippable coatings may be used to facilitate cleaning operations in spray areas. If residue accumulates to excess in booths, duct or duct discharge points or other spray areas, then all spraying operations shall be discontinued until conditions are corrected.

3.19.6. Personnel required to handle or use flammable or combustible materials shall be instructed in the safe handling, storage and use of the materials, as well as the emergency procedures that may be required.

3.19.7. Approved metal waste cans shall be provided wherever rags or waste are impregnated with sprayed material and all such rags or waste deposited therein immediately after use. The contents of waste cans shall be properly disposed of at least once daily at the end of each shift.

3.20. Treatment of Floors. Sanding, varnishing and polishing of large floor areas such as gyms and bowling lanes create a serious explosion hazard.

3.20.1. The Fire Protection Flight will be contacted before any floor treatment begins.

3.20.2. All unnecessary electrical exhaust fans, lights, motors and pilot lights will be shut off prior to any treatment of floors.

3.20.3. All electrical equipment used during floor treatment will be in good repair and conform to NFPA 70, *National Electric Code*. Buffers must be equipped with spark arrestors. No open flame devices are authorized. Doors and windows will be opened for ventilation.

3.21. Overstuffing of Aircraft Facilities during Typhoon Conditions. Aircraft hangar overstuffing during and prior to increasing typhoon conditions is authorized only if no maintenance, regardless of the reason, is performed on the aircraft inside these facilities.

Chapter 4

INSTALLED FIRE DETECTION - SUPPRESSION SYSTEMS

4.1. Acceptance Tests. Prior to final acceptance of any new fire detection or suppression system, the system will be tested in the presence of a Kadena Air Base fire official, a fire alarm technician and a utility shop representative if a sprinkler system is installed. The contractor must provide notification of a final acceptance test to the Fire Prevention Element no less than 2 weeks prior to the test for scheduling.

4.1.1. Prior to and after performing tests or maintenance on fire detection systems or fire suppression systems, technicians will inform the Fire Alarm Communications Center and the building manager. The building manager will notify the building occupants.

4.2. Fire Detection Systems. Responsibilities for functional managers, supervisors and facility managers are outlined in AFOSH Standard 91-56, and NFPA 72, *The Fire Alarm Code*.

4.2.1. Where detectors have been determined to be required, a total coverage system shall be installed. Total coverage shall include all rooms, halls, storage areas, basements, attics, lofts, spaces above suspended ceilings, other subdivisions and accessible spaces, the inside of all closets, elevator shafts, enclosed stairways, dumbwaiter shafts and chutes. Inaccessible areas shall not be required to be protected by detectors.

4.2.2. Upon completion of an installation or alteration, satisfactory tests of the entire system shall be made in the presence of the authority having jurisdiction. All functions of the system shall be tested, including operation of the system in various alarm and trouble modes for which it is designed (e.g., open circuit, grounded circuit, power outage, etc.)

4.2.3. Building managers and occupants must not tamper with or obstruct fire detection devices and alarm equipment. Compliance with the following provisions will help ensure fire detection systems function as designed and provide early detection of fire.

4.2.3.1. Painting of fire detection devices is prohibited.

4.2.3.2. Items will not be stored near fire or smoke detectors.

4.2.3.3. Only Fire Protection personnel and 18 CES/CEOIC technicians are authorized to open and operate fire alarm panels.

4.2.4. High heat generating maintenance equipment shall not be operated in buildings equipped with heat detectors.

4.2.5. Detectors shall be supported, in all cases, independently of their attachment to the circuit conductors.

4.2.6. Spot-type heat or smoke detectors shall be located on the ceiling not less than 4 in. (100 mm) from the side wall to the near edge or if on the side walls, between 4 in. (100 mm) and 12 in. (300 mm) from the ceiling to the top of the detector.

4.2.7. Smoke detectors shall not be located directly in the air stream of supply registers.

4.3. Fire Sprinkler Systems. Responsibilities for functional managers, supervisors and facility managers are outlined in AFOSH Standard 91-56 and NFPA 13, *The Fire Sprinkler Code*.

4.3.1. Building managers and occupants must not tamper with or obstruct fire sprinkler system components. Compliance with the following provisions will help ensure fire suppression systems function as designed and provide early extinguishment of fire.

4.3.1.1. Do not paint over any sprinkler system component without approval from the Fire Protection Flight.

4.3.1.2. Do not store items near sprinkler risers, heads or test valves.

4.3.1.3. Welding will not be conducted in sprinkled facilities when the system is out of service.

4.3.2. Water Supply. Sprinkler piping serving not more than six sprinklers for any isolated hazardous area shall be permitted to be connected directly to a domestic water supply system having a capacity sufficient to provide 0.15 gpm per sq. ft (6.1 L/min/m) of floor area throughout the entire enclosed area. An indicating shut-off valve shall be installed in an accessible location between the sprinklers and the connection to the domestic water supply.

4.3.3. Automatic sprinkler systems shall be maintained in full operating service at all times except when repairs or modifications are being made. Systems shall not be left out of service overnight or at other times when the building is not occupied. The Fire Department shall be immediately notified any time that a system is out of service.

4.3.4. Personnel who work in areas covered by halon or AFFF systems will be familiar with emergency evacuation procedures.

4.4. Manual Pull Stations. Responsibilities for functional managers, supervisors, and facility managers are outlined in AFOSH Standard 91-56 and NFPA 72, *The Fire Alarm Code*.

4.4.1. Building managers must train occupants annually on proper use of fire alarm systems.

4.4.2. Each fire alarm pull station shall be securely mounted. The bottom of the box shall be not less than 31/2 ft (1.1 m) and not more than 5 ft (1.4 m) above the floor level.

4.4.3. Manual fire alarm boxes shall be distributed throughout the protected area so that they are unobstructed, readily accessible and located in the normal path of exit from the area and as follows:

4.4.3.1. At least one box shall be provided on each floor of the premises.

4.4.3.2. Additional boxes shall be provided so that travel distance to the nearest box will not be in excess of 200-ft (61 m) horizontal distance on the same floor.

4.5. Maintenance and Testing.

4.5.1. Any non-required system that creates an unsafe or hazardous condition shall be removed.

4.5.2. Every required automatic sprinkler system, fire detection and alarm system, smoke control system, exit lighting, fire door and other items of equipment required by this instruction shall be continuously maintained in proper operating condition.

4.5.3. Systems shall be under the supervision of a responsible person who shall ensure that proper tests are made at specified intervals and have general charge of all alterations and additions.

4.5.4. Fire alarm signaling equipment shall be restored to service as promptly as possible after each test, alarm or maintenance and shall be kept in normal condition for operation.

4.5.5. A functional test shall be conducted on every required emergency lighting system at 30-day intervals for a minimum of 30 seconds. An annual test shall be conducted for the 1.5-hour duration. Equipment shall be fully operational for the duration of the test. Written records of testing shall be kept by the owning organization for inspection by the authority having jurisdiction.

4.5.6. Emergency generators used to provide power to emergency lighting systems shall be installed, tested and maintained in accordance with NFPA 110, *Emergency and Standby Power Systems*.

4.5.7. Elevators shall be subject to routine and periodic inspections and test. All elevators equipped with firefighter service shall be subject to a monthly operational test with written results.

4.5.8. Inoperative Systems. Urgent priority will be assigned for returning fire detection and suppression systems to service. The 18 CES/CEOIC technicians will notify Fire Alarm Communications Center of any system outage and provide estimated date it will be returned to service.

4.6. Standpipe Systems.

4.6.1. New buildings more than three stories in height or new buildings over 50 ft (15.25 m) in height above grade and containing intermediate stories or balconies shall be equipped with a standpipe system.

4.6.2. When a standpipe system or any portion thereof is out of service for any reason, notice shall be given to the local fire department and a sign shall be posted on each fire department connection indicating what portion of the system is out of service.

4.7. Fire Extinguishers.

4.7.1. Building managers' and organizational responsibilities for fire extinguishers are contained in AFOSH Standard 91-56, and NFPA 10, *The Fire Extinguisher Code*.

4.7.2. Fire Protection Flight and Fire Prevention Element personnel are available to assist commanders by providing academic and practical training on hand-held and flight line wheeled fire extinguishers.

4.7.3. Owning organizations are responsible for ensuring hand-held fire extinguishers are removed from use and delivered to fire extinguisher maintenance shop for maintenance/repair. They are also responsible for requisitioning a replacement for those fire extinguishers that are not repairable or reserviceable.

NOTE: 2.5 gallon water fire extinguishers, class A, are available upon request from the fire extinguisher maintenance shop, 632-6088, for any off road activity that may result in small brush/grass fires.

4.7.4. Flight line fire extinguishers will be checked daily by the using organizations. Unserviceable units will be delivered by the using organization to one of the serviceable/unserviceable areas (flight-line side of buildings, 3300, fire station # 2, or 3579, fire station # 3) for exchange.

4.7.5. Use of halogenated agent fire extinguishers shall be limited to 5 lb portable extinguishers mounted on board aircraft or 150 lb wheeled type extinguishers used for flight line applications only. Halon is a known ozone-depleting agent and is associated with certain health risks. The use of a self-contained breathing apparatus during operation of these extinguishers is highly recommended.

4.7.6. Hand-held fire extinguishers will not be moved from their designated location except to extinguish a fire.

4.7.7. Ensure extinguishers are hung or mounted on protective stands and are highly visible and easily accessible.

4.7.7.1. Cabinets housing extinguishers shall not be locked.

4.7.7.2. Extinguishers having a gross weight not exceeding 40 lb (18.14 kg) shall be installed so that the top of the extinguisher is not more than 5 ft (1.53 m) above the floor. Extinguishers having a gross weight greater than 40 lb (18.14 kg) (except wheeled types) shall be so installed that the top of the extinguisher is not more than $3\frac{1}{2}$ ft (1.07 m.) above the floor. In no case shall the clearance between the bottom of the extinguisher and the floor be less than 4 in. (10.2cm).

4.7.8. A monthly inspection of all portable hand-held fire extinguishers must be made and annotated on the attached inspection card by the facility manager or designated representative.

4.7.8.1. Check pressure and agent levels and insure tamper seals and pins are intact.

4.7.8.2. Visually check for damage and excessive corrosion.

4.7.9. During typhoon conditions, using organizations are responsible for weatherproofing (housing in shelters or securing) wheeled type flight line fire extinguishers and portable extinguishers mounted outdoors.

4.7.10. Fire Extinguisher Hands on Training. All personnel shall be trained upon assignment and annually thereafter on the use of fire extinguishers, standpipe and hose systems that they may be required to use. The initial training will be conducted by the Fire Protection Flight and Fire Prevention Element; refresher education shall be conducted by designated unit personnel with technical advice and assistance provided by the fire protection authority.

4.7.11. Flight line Fire Extinguisher Training. Newly assigned aircraft maintenance and servicing personnel will receive initial hands-on training on the use of 150 lb Halon 1211 flight line fire extinguisher. After initial training, personnel will receive annual refresher education from designated unit personnel.

4.8. Fire Doors.

4.8.1. Doors shall be operational at all times and will be kept closed, latched or arranged for automatic closing.

4.8.2. Areas around fire doors will be kept clear of anything that would obstruct or interfere with the free operation of a door.

4.8.3. Fusible links and heat-actuated release devices will not be painted.

4.9. Fire Hydrants.

4.9.1. Fire hydrants are for use by the Fire Department and will not be used indiscriminately for other purposes. The Fire Protection Flight is the approval authority for use of fire hydrants.

4.9.2. The FACC will be notified of any proposed water curtailment that will affect fire hydrants. An "Out of Service" sign will be placed on an inactive fire hydrant and removed when it is returned to service.

JAMES B. SMITH, Brigadier General, USAF Commander, 18th Wing