2 Community Risk Reduction and Code Compliance

2.1 Structural Fire Protection and Code Compliance

To successfully protect structures, fires must be prevented from starting. Parks located outside of established fire response zones do not have adequate or available fire suppression services. Only a small percentage of parks have structural fire suppression response capabilities. Life safety is the number one goal of the NPS Structural Fire Program, followed by cultural resource protection, property protection, and the prevention of structure fires.

Structural fire protection is achieved through:

- Communicating best practices to NPS employees and park partners, so everyone knows their responsibilities and are empowered to act on them.
- Identifying, reducing, and removing the potential for a fire to start in NPS structures.
- Mitigating potential hazards through an aggressive inspection and abatement program.
- Ensuring the fire code official (FCO) is involved in all phases of the construction process, including planning, design review, inspection, building commissioning, and acceptance.
- Ensuring fire protection systems are properly designed, installed, inspected, tested, and maintained by qualified persons.

The NPS is committed to protecting all resources entrusted to its care and focuses on preventing fires and minimizing the resulting damage in accordance with the authorities listed in Chapter 1, *Governance and Administration*.

Fire and life safety inspections, building construction, inspection, testing, and maintenance (ITM) of fire protection systems, and other fire code compliance issues are based on the International Fire Code (IFC), as adopted by the NPS in Appendix A. Additional codes that are applicable for NPS projects are National Fire Protection Association (NFPA) 909, *Code for the Protection of Cultural Resources Properties – Museums, Libraries, and Places of Worship*, and NFPA 914, *Code for Fire Protection of Historic Structures.*

Regions can develop guidance that meet or exceed code and policy requirements. Regions cannot lessen code requirements, though they can enhance code requirements specific to a region or park. Where code and policy afford discretion in a particular application, this manual shall not be read to remove that discretion.

2.2 Responsibilities

2.2.1 Park Level

- Fire prevention program objectives are to prevent fires, facilitate early intervention, and ensure safety of personnel. These objectives are accomplished through project design reviews, code enforcement, and fire safety education.
- For parks with employee housing, the person in charge of the housing program has a role in the prevention of fires. This effort must be closely coordinated with the PSFC to ensure fire safety issues are properly addressed. This includes, but is not limited to, compliance reporting via managers and spot inspections of all facilities by the NPS.

- Concessions managed operations and concessions managed housing within park boundaries are required to meet the same requirements as NPS entities. Concessioners may have staff or contracted employees to complete these requirements. This staff must be trained in accordance with Chapter 5, *Training and Certification*.
- For all housing issues or special conditions, contact the RSFM for guidance.
- While all park staff must take an active role in fire prevention, specific responsibilities need to be clearly delineated in the park's SFMP.

2.2.1.1 Superintendent

The superintendent shall communicate the importance of fire prevention and code enforcement through:

- Ensuring development and implementation of a SFMP.
- Budgeting for the ITM of all fire protection systems and equipment.
- Designating a park structural fire coordinator (PSFC) in writing.
- Ensure PFSCs have the time needed to complete assigned training and responsibilities.
- Ensuring adequate response to structure fire incidents using park firefighters and/or coordinate response and pre-incident planning with local agencies.

The superintendent shall provide sufficient time and resources for employees to receive training and information on:

- Emergency evacuation drills and accountability procedures.
- Means of reporting fires and other emergencies.
- Fire prevention in the workplace and at home.
- Portable fire extinguishers.
- Fire prevention procedures and responsibilities for places where large groups gather, known in the fire code as assembly occupancies.

2.2.1.2 Park Structural Fire Coordinator (PSFC)

The PSFC shall:

- Coordinate park structural fire needs with the RSFM.
- Attend and complete WASO approved PSFC training within one year of designation.
- Schedule and/or conduct annual fire and life safety inspections in all structures and to confirm deficiencies have been corrected or are being actively addressed.

- Develop and maintain the SFMP, ensuring it is updated annually and revised every five years.
    - Ensure that the *Museum Handbook, Part I, Chapter 9, Museum Fire Protection*, figure 9.4, Museum Fire Section of Park Structural Fire Management Plan, is attached to the SFMP if applicable.
- Assist with the scheduling, delivery, or development of emergency evacuation plans, emergency response plans, building evacuation drills, and portable fire extinguisher training.
- Confirm fire safety is provided during structure construction, alterations, and demolition.
- Coordinate with the facility manager to schedule ITM for all fire protection systems to ensure they are in compliance with manufacturer's recommendations and code requirements.
- Ensure each building has someone designated to check fire extinguishers, emergency lighting, and exit signs monthly and has developed a plan to accomplish annual maintenance.
- Develop a working relationship with outside fire responders to ensure they are familiar with all structures and help them develop pre-incident plans for these structures.
- Coordinate aid agreements with local fire response.
- Ensure a hot work permit program is in place in the park.
- Ensure all structure fire incidents are reported as outlined in Chapter 3, *Fire and Explosion Reporting and Investigation.*

2.2.1.3 Park Facility Management

Facility management shall:

- Become knowledgeable about, and follow the requirements of, DO-58 and RM-58: *Structural Fire Management* as they apply to construction, alterations, and changes of occupancy.
- Manage the ITM program for all fire protection systems (e.g., suppression and detection) and ensure compliance with fire codes and standards.
- Ensure the repairs of fire deficiencies found during inspection processes.
- Ensure all construction projects are reviewed and approved for fire code requirements by the FCO.
- Maintain current information on fire protection systems in the Facility Management Software System (FMSS), in collaboration with PSFC.

- Confirm fire safety is provided during structure construction, alterations, and demolition.

2.2.1.4 Park Supervisor

All park supervisors shall:

- Inform staff of relevant structural fire related standard operating procedures (SOPs).
- Provide guidance received from the PSFC to employees related to NPS structural fire protection and safety.
- Ensure employees have the time needed to complete assigned training and responsibilities.
- Be familiar with the evacuation plan for the structures they work in and appropriately tested.

2.2.1.5 Housing Manager

This section refers to NPS employee housing, also known as government furnished quarters.

The Housing Manager shall:

- Ensure that all housing occupants are aware of fire prevention responsibilities in their quarters. This includes ensuring that dependents are familiar with fire prevention instructions, know how to report fires, and know how to safely evacuate their quarters in the event of an emergency or fire.
- Ensure smoke alarms (hardwired or wireless) are installed to meet the requirements of IFC and NFPA 72, *National Fire Alarm and Signaling Code*. This requires smoke alarms in each sleeping room, outside each sleeping area, and on every floor. In instances where single station battery only operated smoke alarms still exist, the housing occupants need to ensure they are being maintained per manufacturer's instructions. Park housing policy needs to be clear on who is responsible for providing the batteries. **Under no circumstances will employees or their families be allowed to stay in government furnished quarters that do not have operable smoke alarms located in each bedroom, outside each bedroom, and on each floor, regardless of whether they are battery operated, hardwired, or wireless and interconnected.**
    - Ensure that carbon monoxide (CO) detection is installed in new and existing structures according to requirements in the IFC and manufacturer's instructions where the following conditions exist:
        - Fuel burning appliances and fireplaces
        - Fuel burning forced-air furnaces

- Attached garages

2.2.1.6 Chief of Commercial Services or designee

The concessioner is responsible for fire prevention and protection within their assigned concession facilities. The concessioner will ensure that all concession facilities meet federal codes, and that fire detection and suppression equipment is installed, tested, and maintained by the appropriate certified structural fire professional in accordance with applicable codes and standards, NPS policies, and guidelines including, but not limited to DO-58.

The chief of commercial services shall:

- Ensure that concessions contracts include requirements for fire prevention and safety, specifically to:
  - Brief concessions operators on their role in preventing fires.
  - Inspect concessions operations to ensure:
    - All employees participate in fire drills.
    - Annual portable fire extinguisher training is conducted.
    - Fire protection systems are properly inspected, tested, and maintained in accordance with IFC and NPS policy.
    - Annual fire and life safety building inspections are conducted in all concessions operated buildings by qualified staff.
      - Commercial cooking equipment is properly cleaned, maintained, and inspected in accordance with IFC.
- If housing is provided for concessions employees, ensures they are familiar with the concessions housing requirements.
- Coordinate with the park facility management or designee to ensure all construction projects are reviewed and approved by the RSFM.

2.2.2 Regional Level

- DO-58 identifies the regional director as the FCO for their respective areas of responsibility. The FCO requires a high degree of technical competency and expertise in the field of structural fire protection. Regional directors are encouraged to delegate this responsibility to the RSFM. The RSFM is the senior expert within a region on fire code application and implementation.
- RSFMs are responsible for assisting the national office in developing and implementing policy and providing guidance. Implementation of a successful program includes oversight of the inspection programs identified in this chapter and ensuring parks are complying with fire codes by providing plan review, onsite inspections, code enforcement and system acceptance testing.

2.2.3 National Level

- Establishes servicewide policy and adopts fire codes and standards, regarding structural fire protection and fire protection requirements.
- Identifies and develops training and education programs for all NPS employees to help them meet their structural fire management responsibilities.
- Maintains detailed comprehensive data of fire and life safety building inspections. This data clearly identifies fire prevention and fire code compliance hazards that exist in the parks.

2.3 Construction, Planning, and Design Review

For all new construction, renovation, recapitalization, repair, and modification projects, the FCO will be involved in all steps of the planning and design process, including reviewing, and accepting all fire and life safety plans. The FCO or designee will provide critical guidance on fire and life safety requirements by reviewing construction plans for conformance with the most current version of IFC, IWUIC, and NPS policy. The need for in-progress and final inspections, system commissioning, and the issuance of a fire and life safety certificate of compliance should all be discussed during these reviews.

Construction plans for all new construction and replacement projects shall meet the applicable requirements of the IFC, IBC, IEBC, and IRC. For Recapitalization projects exceeding $2 million, an in-depth review by the FCO shall be conducted to determine if structural fire system additions/improvements are related to and should be included in the scope of work for the project. Should the codes or standards change during the construction planning process, the codes, and standards current at time of contract award remain in effect.

Common review milestones for construction projects by the FCO are:

- Initial planning/PMIS submission
- Scope of work
- Pre-design (PD) stage
- Schematic Design (SD) stage
- Design Development (DD) stage
- Construction Documents (CD) stage
- Fire protection system commissioning and acceptance testing
- Structure inspection and comprehensive integrated testing of related systems
- Issuance of the fire and life safety certificate of compliance by the FCO

2.4 Alterations, Additions, Repair, or Rehabilitation

Alterations, additions, repair, and rehabilitation, as defined by the International Building Code (IBC), International Existing Building Code (IEBC), and International Residential Code (IRC), shall meet the applicable requirements of the IBC, IFC, IEBC, and IRC.

Construction projects in park housing structures classified as Group R-3 occupancies (dormitory) and those that are covered by the scope of IRC shall also meet the following requirements based upon valuation:

> For alteration, additions, repair, rehabilitation, or other improvement of existing buildings that are not protected by a fire sprinkler system, the FCO shall examine the proposed scope of work and/or construction documents and decide regarding the totality of work in the building, adequacy of water supply, and other proposed/potential life-safety enhancements. For buildings where the FCO determines that the scope of work and infrastructure changes support the installation of a fire sprinkler system, or that the work area, as defined in the applicable code, exceeds 50 percent of the building area, the fire code official shall require the entire building to meet the fire sprinkler requirements of IBC or IRC for new construction.

2.5 Change of Occupancy

Change of occupancy, as defined by the IFC, is change in the use of a building, or portion thereof. A change of occupancy shall not be made unless the use or occupancy is made to comply with the IFC and IEBC. Refer to the IFC and IEBC for specific requirements.

2.6 Day Labor Construction

Day labor construction projects refer to those projects carried out by non-contractual methods, usually by NPS or concession employees. All day labor construction projects that may have an adverse impact on any fire protection system, means of egress, or fire-resistive-rated construction must be coordinated through the PSFC and park facility manager, and approved by the FCO. Day labor electrical work is prohibited, unless conducted by a certified electrician or a Federal Wage System (FWS) 2805 electrician at wage grade 8 (WG-8) or higher.

2.7 Fire Safety During Construction

Structures are most vulnerable to fire when undergoing construction, demolition, or alteration. Special measures are required to either minimize the potential for a fire or aid in fire control and suppression. During the process of construction and repair, normal routines and oversight responsibilities are often suspended. Construction always subjects the building to new threats that are not normal to routine operation. Hasty demolition, security intrusion, arson, the use of potentially hazardous means, methods, equipment and materials, and people not familiar with the property are real threats. Maintaining a job site in a fire-safe manner is mandatory and is the responsibility of site management. This could be the superintendent, contractors, and/or designated fire protection personnel. While the NPS exercises oversight over its contractors, this section shall not be read to require the NPS to manage the day-to-day fire-safety obligations delegated to contractors.

2.8 Tiny Houses

A tiny house is a single dwelling unit of 400 square feet or less in floor area, excluding the loft, that provides independent living facilities for one or more persons, including permanent provisions for living, sleeping, cooking, and sanitation. Tiny houses shall meet the requirements of the International Residential Code (IRC), including Appendix BB. Tiny houses must be set on a pad and provided with

permanent electrical and/or gas, water, and wastewater connections that meet applicable IRC requirements.

2.9 Wildland-Urban Interface

The wildland-urban interface (WUI) area is a geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels, according to the *International Wildland-Urban Interface Code* (IWUIC). These areas pose tremendous challenges for the protection of property and life safety.

Since WUI fires are a high risk in many of our parks, the NPS adopted IWUIC in DO-58 and RM-18: *Wildland Fire Management*. The IWUIC mitigates the risk to life and structures from intrusion of fire from wildland fire exposures and fire exposures from adjacent structures to mitigate structure fires from spreading to wildland fuels by outlining code requirements for defensible space and maintenance for WUI areas. All NPS design and construction projects must consider wildland fire prevention, protection capability, and mitigation measures to reduce the potential for adverse impacts of fire in the IWUIC. Facility design and visitor management planning should consider preconstruction vegetation and fuels management and the use of fire-resistant design and materials. The IWUIC establishes code requirements for new construction, additions or alterations to existing structures, and maintenance of buildings, landscape materials, vegetation, and defensible space. Projects in the WUI will involve consultation with the FCO.

2.10 Leased Housing

As an alternative to construction, the NPS has the authority to lease housing at or near a park's location. This applies only when there is a shortage of adequate and affordable housing; the requirement for housing is temporary; and leasing is more cost-effective than construction. All leased housing must have a valid certificate of compliance for its intended use and comply with all applicable codes and ordinances adopted by the local jurisdiction for fire protection and life safety. These requirements are consistent with GSA's Leasing Desk Guide, *Appendix D*: *Fire Protection and Life Safety*.

Requests for leasing a one- or two-family dwelling for use as a seasonal dormitory, accommodating non-family members, must be approved by the local jurisdiction's fire code official before signing a lease. The building must now be regarded as a R-1, R-2, or R-3 occupancy, depending on the number of occupants, according to the IFC.

The local fire code official will determine if the building can be used as a R-1, R-2, or R-3 occupancy classification, according to the standard that the community holds and whether additional fire protection systems need to be installed prior to occupancy. The dwelling shall meet the fire and life safety requirements outlined by the local fire code official before the lease is signed and before the building is used for overnight occupancy. The decision of the local fire code official must be obtained in writing (e.g., letter, certificate of occupancy) and be kept on file at the park. The park will contact the RSFM to issue a determination.

2.11 Fire Protection Systems

Fire protection systems must be installed in buildings when required by code. Additional NPS policies or guidance may require greater protection or consideration than specified in the code. Fire protection

systems must be designed, installed, inspected, and commissioned by qualified personnel. Acceptance will be conducted by the FCO or their designee. During project planning, system design requirements such as water pressure and storage must be reviewed with the project engineers to ensure existing infrastructure can support new construction.

IFC defines industry standards for ensuring that fire protection systems work effectively through proper design, installation, and an ongoing ITM program. Properly designed, installed, and maintained fixed fire protection systems are the single most cost-effective means for the NPS to protect life and preserve its structures and their contents from the effects of a structure fire.

Fire Protection Systems Installation and ITM Guidance was developed to help parks understand what is meant when this document mandates compliance with IFC for the installation and ITM of fire protection systems. The RSFM must be involved to help determine the best solution for the current project. This section sets policy for when fire protection systems are required and who is authorized to design, install, and maintain these systems.

2.11.1 When to Install Fire Protection Systems

The IFC outlines the minimal requirement to provide a reasonable level of fire protection for all NPS buildings. In addition, the *Museum Handbook, Part I, Chapter 9, Museum Fire Protection* has requirements for the installation of fire detection and suppression (protection) systems, including fire sprinklers and alarms that exceed the IFC requirements. Any new building, newly acquired building, building undergoing significant alteration as described above, and/or any building undergoing a change of occupancy shall meet the requirements of the IFC and NPS policy prior to occupancy. This may include the installation of fire protection systems.

There are circumstances in the NPS where fire protection systems are necessary to protect life, significant and/or historic buildings, and buildings with irreplaceable artifacts. In addition to IFC requirements, the *Museum Handbook, Part I, Chapter 9, Museum Fire Protection* requires park managers to consider the installation of fire protection systems in buildings, even when not required by fire codes.

The following are a few examples of buildings where fire protection systems should be considered by the NPS when above and beyond fire code requirements:

- Structures that have a high-risk occupancy in areas that are so remote that manual fire suppression response is not an effective or viable option.
- Structures that are unique, one of a kind, or iconic. FMSS Asset Priority Index (API) data may be a useful source of information to determine significance.
- Structures that exhibit or store museum collections as required by the *Museum Handbook, Part I, Chapter 9, Museum Fire Protection*. Any building being built for or being renovated that houses collections should use the Museum Collections Assessment Matrix (Appendix B) to help determine the level of protection required.
- High-risk occupancies are buildings where large numbers of people gather, such as theaters or large visitor centers, and/or are unique, one-of-a-kind structures with unique construction features. In most instances, fire codes will require smoke

detection, fire alarms, and/or fire sprinklers in these occupancies. When they are not required by fire codes, and when manual fire suppression is not an effective option due to the distance of first responders, park managers must consult with the FCO to determine the adequate level of fire protection for each building.

2.11.2 Historic Structure and Museum Collections Fire Protection System Assessment Matrices

The Historic Structure and Museum Collections Fire Protection System Assessment Matrices in Appendix B are tools that can be used by the FCO in collaboration with the park's interdisciplinary team (IDT) to determine the types of fire protection systems that will be installed in these buildings. The types of systems selected depend on the building's fire risk, the significance of the building to the park's mission, and the importance of the building to the park's operations.

2.11.3 Fire Protection Systems Design

Design of fire protection systems requires a thorough understanding of fire codes and design standards and a solid background in fire protection engineering principles. Design review must be completed and approved by the FCO or approved designee.

Fire protection systems can be designed by:

- A fire protection engineer
- A NICET (National Institute for Certification in Engineering Technologies) Level III (or higher) Technician for the type of system designed
- As approved by the FCO

2.11.4 Fire Protection Systems Installation

The installation of fire protection systems requires skill in construction methods, knowledge of fire codes, and, at times, specific information about the system only obtainable from the manufacturer of the system. The FCO can assist with locating qualified and competent installers and available contracts. Individuals installing fire protection systems in NPS buildings must meet one or more of the requirements in Table 1: *Installation and ITM Requirements.*

Table 1*: Installation and ITM Requirements*

System Type	Installation and ITM Requirements
Fire Alarm	1. State or municipal certified/licensed fire alarm contractor 2. Qualified by the manufacturer 3. NICET Level II (or higher) 4. As approved by the FCO
Sprinkler System	1. State or municipal certified/licensed sprinkler contractor 2. NICET Level II (or higher) 3. As approved by the FCO
Hood and Specialty Suppression Systems	1. State or municipal certified/licensed contractor for the type of system 2. Qualified by the manufacturer 3. As approved by the FCO
Special Hazard Systems	1. State or municipal certified/licensed contractor 2. NICET Level II (or higher) 3. As approved by the FCO
All Other Systems	1. State or municipal certified/licensed contractor for the type of system 2. Qualified by the manufacturer 3. As approved by the FCO

2.11.5 Acceptance of Installed Fire Protection Systems

Ensuring a fire protection system is correctly installed and meets the requirements of fire codes are responsibilities of the FCO or approved designee. The logistics for system acceptance testing needs to be addressed early in the project. This may require travel funds for the FCO, or their designee, or extra funding in the contract for a fire protection engineering firm to perform the job. A representative of the installation company who possesses one of the qualifications listed in 2.11.4 Table 1 must be present at the acceptance testing to perform all the required tests to demonstrate the new system's performance. Test certificates are required for all new fire protection systems. Once all related deficiencies are corrected, and the FCO approves the fire protection systems, the new systems are considered "accepted."

Construction documents are required to be maintained by the park and made available upon request.

- Above ground test certificate (automatic sprinkler)
- Underground test certificate (fire hydrant and sprinkler system water supply)
- Backflow prevention device certificate
- Fire alarm record of completion (fire alarm system acceptance document)
- Suppression system record of completion (suppression system acceptance test)
- Building fire and life safety certificate of compliance with any modifications or alternative materials, design, and methods of construction and equipment documentation

2.11.6 Fire Protection Systems Inspection, Testing, and Maintenance (ITM)

Fire protection systems shall be inspected, tested, and maintained in accordance with the referenced NFPA standards listed in IFC to ensure installed systems work as designed. Job plans and forms are available on the Structural Fire Program site. Almost every system type needs to have ITM accomplished annually by a qualified person. However, many systems have more frequent requirements, such as weekly visual inspections of sprinkler valves, monthly checks of portable fire extinguishers, and periodic smoke alarm testing. There are many options available to conduct these inspections, including electronic monitoring or training building occupants or maintenance personnel.

2.11.6.1 ITM Qualified Personnel

ITM qualified personnel must meet the requirements outlined in Table 1, Section 2.11.4

2.12 Seasonal Shutdown

Many NPS buildings are shut down for seasonal conditions. If fire protection systems are also shut down, due to a lack of electricity or to avoid freezing pipes, there are certain procedures that need to be followed. First, the building is not to be occupied. Shutting down fire alarms and sprinkler systems need to be done by personnel trained to perform these tasks. Fire codes often call for a full acceptance test each time a system is brought back online. However, NPS policy does not require this, but does provide the following policy and guidance:

> Any building that is used for overnight occupancy must, prior to being reoccupied, have the system pass annual inspection and testing, in accordance with the latest edition of IFC. If this is accomplished through a contract, it is suggested that the contract include the requirement to bring the system back online and then perform annual ITM.

Some parks bring buildings back online at different times of the year. For example, a park with different elevations may bring buildings back into operation as the snow melts and they become accessible. Buildings that do not have overnight occupants are allowed one month from the time the building is brought back online to have the systems pass their annual ITM. This allows time to include several

buildings whose openings may be staggered into one contract. If there is a need for a longer time period, the FCO must be consulted.

2.13 Fire Protection System Impairments

All fire protection systems and/or fire alarm systems are to be always in service and fully functional, even during hot work operations, unless meeting the requirements of seasonal shutdown in Section 2.12. If a fire protection system is out of service, the building will either be evacuated or a fire watch shall be provided for all occupants left unprotected by the shutdown, where required by the FCO, until the fire protection systems have been returned to service.

During construction and renovation projects, a building's automatic fire detection and suppression system(s) must only be removed from service to the extent required to accomplish the work. Once the work requiring the system(s) to be removed from service is completed, the system(s) will be returned to service immediately, even when the facility is unoccupied.

Fire protection systems, including fire alarm systems, water supplies, and automatic sprinkler systems, are considered impaired any time the system(s) are out of service, either partially or wholly, planned, or unplanned. An impairment is any condition that affects the ability of the system to detect, control, or suppress a structure fire as it was designed. Examples of impairments include the closing of a sprinkler control valve, water main shut off, fire pump not operating properly, or leaks in the sprinkler piping. When impairments occur, it is important to have a plan in place to manage the impairment process and restore systems to service in accordance with the IFC and associated NFPA standards for the types of systems affected. The building may need to be evacuated or a fire watch may need to be put in place until the system is restored. The park should have procedures in place for impairments that follow the procedures outlined in IFC, Chapter 9, *Fire Protection and Life Safety Systems*.

2.13.1 Preplanned Impairment

A preplanned impairment is a planned out of service condition that occurs to perform work on a fire protection system.

2.13.2 Emergency Impairment

An emergency impairment is an unexpected occurrence that affects the operation of a fire protection system. Emergency action shall be taken to minimize potential injury and damage.

2.14 Fire and Life Safety Certificate of Compliance

Preoccupancy inspections are required prior to allowing occupation of a building. The FCO or their approved designee will provide these inspections to ensure compliance with fire codes. Based on the inspection findings, the FCO or designee will issue a fire and life safety certificate of compliance. Visitors and/or employees cannot occupy structures until the certificate of compliance is issued. If there is doubt as to whether a fire and life safety certificate of compliance is required, the FCO should be contacted for guidance. Fire and life safety certificates of compliance will be issued only upon completion of construction, after the acceptance testing of all fire and life safety systems have been accomplished and all defects and deficiencies have been corrected, or the FCO has approved a plan to correct deficiencies in a timely manner, and the building, along with all installed fire protection systems, have been entered into FMSS.

2.14.1 Temporary Occupancy

The FCO is authorized to issue a temporary fire and life safety certificate of compliance before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. The FCO shall set a time during which the temporary certificate of compliance is valid.

2.14.2 System Acceptance

Buildings, or portions thereof, required by this code to comply with this section shall not be issued a fire and life safety certificate of compliance until such time that the FCO determines that the provisions of Section 2.11.5 are compliant.

Exception: In buildings of phased construction, a temporary fire and life safety certificate of compliance, as approved by the FCO, shall be allowed, provided that those portions of the building to be occupied meet the requirements of this section and that the remainder does not pose a significant hazard to the safety of the proposed occupants or adjacent buildings.

2.15 Modifications & Alternative Materials, Design, & Methods of Construction and Equipment

Occasionally, there are practical difficulties involved in carrying out the provisions of IFC. The FCO shall have the authority to grant modifications or approve an alternative material, design, or method of construction provided that the proposed design is satisfactory and complies with the intent of the provisions of the code and does not lessen health, life, and fire safety requirements. The material, method, or work offered will not, in the discretion of the FCO, be less than the equivalent of that prescribed in the IFC in quality, strength, effectiveness, fire resistance, durability, and health, life, and safety requirements.

Any approvals of modifications or alternative materials, design, and methods shall be documented by the FCO and kept on file by the park and region with other documentation related to the building. The details of the action granting modifications shall be recorded and entered into the FMSS at the location level, if the decision involves the building itself, or at the asset level, if the decision involves only the asset. Research reports and/or further associated testing may be required to achieve a favorable outcome with an alternative materials, design, and methods request. The details of modifications or alternative materials, design, and methods are covered in IFC, Chapter 1, *Scope and Administration*.

2.16 FCO Appeal Process

The FCO is the delegated deciding official as it relates to code interpretation and compliance. The superintendent may appeal decisions of the FCO by submitting, in writing, an application for appeal. All appeals will be tracked and cataloged for reference and future enforcement. The appeal process shall follow the steps listed below:

1. The superintendent can appeal an FCO decision to the regional director. The regional director will review the appeal and either concur or non-concur with the FCO decision.
2. If the superintendent disagrees with the regional director's decision, they can appeal the FCO decision to the NPS fire chief on behalf of the Division Chief for Fire and Aviation (DFAM). The NPS Fire Chief will either concur or non-concur with the FCO and make a final decision.

2.17 Inspection and Abatement Programs

One of the key objectives of the NPS structural fire protection program is for all personnel to be able to recognize a fire or life safety hazard and to understand the procedures and notifications necessary to abate or eliminate the hazard. This is accomplished through a comprehensive inspection, education, and abatement program.

Park level structural fire programs must include:

- Review of construction plans or similar projects to ensure fire code and policy compliance.
- Preoccupancy inspections and acceptance of fire protection systems.
- Annual fire and life safety inspections for all structures. These inspections may be performed by either park personnel or local fire departments.
- Comprehensive risk-based assessments, which are fire and life safety structure inspections conducted by fire protection specialists.

2.17.1 Life Safety and Fire Protection Risk Assessment

The Life Safety and Fire Protection Risk Assessment is a physical survey and report conducted by qualified fire protection personnel which provides a complete evaluation of each park structure's construction, function, operational support systems, and occupancy as they impact fire protection and life safety. The report identifies risks to life, property, or park mission from the effects of potential fire incidents and documents deficiencies that require attention. The report serves as a reference document to NPS management for planning and prioritizing short-term projects to maintain satisfactory facility safety and long-range decisions regarding renovation, reinvestment, and preservation.

2.17.2 Fire and Life Safety Building Inspections

The PSFC is required to conduct annual fire and life safety inspections for all structures that are actively used for any purpose, including seasonally used structures and structures used solely for storage, with the exception of schools (K-12), day cares, medical clinics and detention facilities which require semi-annually inspections. Results are recorded and kept on file for a period of three years and uploaded to the SFPP database using the Annual Fire and Life Safety Building Inspection form.

More frequent inspections may be conducted, if the FCO or PSFC determines there is an increased potential of risk or hazard or there is a change in occupancy use or tenants. The PSFC schedules follow-up inspections as needed. All inspections with identified deficiencies will be forwarded to the proper supervisor who is responsible for creating a work order to mitigate the deficiency and closing the work order after the deficiency is mitigated. Parks desiring use of other fire and life safety inspection processes and data collection tools must receive approval from the regional FCO.

In instances where deficiencies are identified that may pose an imminent danger to the building, its contents, or persons therein, the FCO must be notified as soon as possible.

2.17.3 Preoccupancy and Annual Residential Inspections

2.17.3.1 Preoccupancy Housing Fire Safety Inspections

The housing manager must ensure that all NPS housing, including seasonal housing, is inspected prior to being occupied. Each occupant shall be briefed on emergency procedures to include instruction on smoke alarms, fire extinguishers, automatic sprinklers, CO detection, and home fire drills. Identified deficiencies are to be corrected before the occupant sleeps in the structure.

2.17.3.2 Annual Inspections of Housing

Reference Manual 36: *National Park Service Housing Management* requires annual inspections of housing units that focus on health and safety issues. The PSFC should work closely with the park housing manager and the facility manager to ensure each housing unit is inspected at least once annually. It is recommended that these inspections occur concurrently with the housing Condition Assessment Annual (CAA) to lessen the burden on the tenant.

Annual and preoccupancy inspection checklists can be found on the Structural Fire Program site.

2.18 Control of Hazardous Operations

2.18.1 Aircraft

Aircraft present several fire and safety issues. IFC, Chapter 20, *Aviation Facilities* has specific regulations on fueling and storage of aircraft. Additionally, RM-60: *Aviation Managemen*t should be referenced and regional aviation managers and RSFMs should be consulted if an aircraft-related fire or safety concern is recognized by park personnel.

2.18.2 Compressed Gases

Refer to IFC, Chapter 53, *Compressed Gases*, for detailed requirements on compressed gases. The storage and handling of compressed gasses shall comply with the requirements of 29 CFR 1910 Subpart H - Hazardous Materials. Keep in mind the following for the safe storage and use of compressed gases in buildings:

- All compressed gas containers, cylinders, and tanks must be secured to a fixed object with one or more restraints.
- Compressed gas containers, cylinder, and tank valves, when not in use, shall be protected from physical damage by a protective cap, collar, or similar device.
- Acetylene and oxygen hoses must be equipped with flash back arrestors and the equipment must be turned off when not in use. All cylinders must always be stored in the upright position and be properly secured.

- Liquefied Petroleum Gas (LPG) storage is subject to IFC, Chapter 61, *Liquefied Petroleum Gases*, and referenced NFPA codes and standards. Equipment, LP-gas containers, installation, and piping must meet the requirements of IFC.

2.18.3 Energy Storage Systems (ESS) and Solar Photovoltaic (PV) Power Systems

Energy storage systems (ESS) are defined by the IFC as "one or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time." These systems may include a solar photovoltaic (PV) power system, which is a system that uses solar components and other auxiliary equipment to convert solar energy into electrical energy. PV power systems can be either ground- or rooftop- mounted to produce electricity and may use an ESS to store the electricity for future use. Some common ESS batteries are lead-acid and lithium-ion.

ESS and PV power systems shall be designed and installed in accordance with the IFC and referenced standards from the National Fire Protection Association (NFPA). All proposed ESS locations must be reviewed and approved by the FCO. Installation of ESS in historic buildings is not recommended.

2.18.4 Explosives

An explosive material is any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion. The term includes, but is not limited to, dynamite and other high explosives, black powder, pellet powder, initiating explosive, detonators, safety fuses, squibs, detonating cords, igniter cords, and igniters. These substances contain a great amount of energy that can produce an explosion, which is a sudden expansion of the material after initiation, usually accompanied by the production of light, heat, and pressure.

Using, possessing, storing, or transporting explosives, blasting agents, or explosive materials is prohibited, except pursuant to the terms and conditions of DO-65: *Explosives Use and Blasting Safety*, 36 CFR, 29 CFR 1910.109- *Explosives and Blasting Agents,* applicable federal and state laws, IFC Chapter 56, *Explosives and Fireworks* and referenced NFPA standards. PSFCs should contact the service or regional blasting officer for advice, regarding issues with explosive material.

Many parks utilize black powder in historic weapons demonstrations. These programs are exempt from DO-65 for the use of black powder, but not storage requirements. Park sites must follow the NPS *Historic Weapons Safety Manual* in accordance with RM-6: *Interpretation and Education*.

The conditions and requirements regarding the storage, transportation, and disposal of any explosives, as well as fireworks and pyrotechnics must be clearly defined in the park's SFMP. Refer to IFC, Chapter 56, *Explosives and Fireworks*, for the storage and handling of explosive materials.

Safety, health, and storage issues associated with historic firearms, small arms ammunition, and ordnance found in park collections are addressed in the *Museum Handbook, Part I, Museum Collections.*

2.18.5 Fireworks and Pyrotechnics

Fireworks include any composition or devices used for the purpose of producing a visible or an audio effect for entertainment purposes by combustion, deflagration, or detonation that meets the definition of 1.3G display fireworks or 1.4G consumer fireworks by the U.S. Code of Federal Regulations: 49 CFR 173.56, 27 CFR 55, and 16 CFR 1507.

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

Using or possessing fireworks and firecrackers is prohibited, except pursuant to the terms and conditions of a permit or in designated areas under such conditions as the superintendent may establish in accordance with the following:

- Code of Federal Regulations (CFR): Title 36
- DO-53 and RM-53: *Special Park Uses*
- International Fire Code, Chapter 56
- The most current version of the following NFPA codes and standards, including annex provisions as referenced in IFC:
    - NFPA 160: Standard for the Use of Flame Effects Before an Audience
    - NFPA 1123: Code for Fireworks Display
    - NFPA 1124: Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles
    - NFPA 1126: Standard for the Use of Pyrotechnics Before a Proximate Audience

The superintendent, following consultation with the regional safety manager and regional wildland fire manager, and with written concurrence of the FCO, may approve such displays. Violation of the conditions established by the superintendent or of the terms and conditions of a permit issued in accordance with this section is prohibited and may result in the suspension or revocation of the permit. Where these operations are permitted, the park must reference IFC, Chapter 56, *Explosives and Fireworks*, to ensure all fire and safety hazard mitigations are in place.

RM-53: *Special Park Uses* establishes specific requirements for fireworks permits.

2.18.6 Flammable and Combustible Liquids

Flammable and combustible liquids are covered in IFC, Chapter 57, *Flammable and Combustible Liquids*. The storage and handling of flammable and combustible liquids shall be in compliance with the requirements of 29 CFR 1910.106 Flammable liquids. FCOs should be consulted to ensure safe operations with these substances. Storing, dispensing, or handling any type of flammable or combustible liquid is considered a high-risk activity. Flammable and combustible liquids can be highly reactive with other substances, are subject to explosive decomposition, or have other properties that dictate extra safeguards. Safety

data sheets can provide important information about these substances. Of special note, water-reactive materials shall not be stored where fire protection sprinklers are in place. These materials shall not be stored with flammable or combustible liquids

Flammable and combustible liquids always require careful handling. Many of these liquids are used by the NPS daily, and mishandling may cause injury, illness, or death. Hazards associated with the use of flammable or combustible liquids include explosions, burns from fire, chemical burns, asphyxiation, inhalation of vapors, absorption through the skin, skin irritation and eye damage from direct contact or exposure. The volatility of flammable or combustible liquids is increased by exposure to temperatures higher than the flashpoint. The best means of employee protection is the use of proper PPE and engineering hazards out of the job, so employees are not exposed.

2.18.7 Food Truck Safety

Mobile food preparation vehicles contain equipment and supplies with inherent fire risks, such as propane cylinders, gas-powered generators, and cooking oils. To ensure the safety of vendors and their customers, follow the requirements covered in IFC, Chapter 41, *Mobile Food Preparation Vehicles.*

2.18.8 Hot Work

A hot work permit program is required in parks with hot work activities. Details of the program must be outlined in the park's SFMP. Hot work is addressed in IFC, Chapter 35, *Welding and Other Hot Work,* and will comply with the requirements of 29 CFR 1910 Subpart Q Welding, Cutting, and Brazing and 29 CFR 1926 Subpart J Welding and Cutting. Hot work is defined as operations including cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems, or any other similar activity. Hot work can be performed in a designated area and a permit required area. These requirements apply to NPS personnel, contractors, commercial service personnel, and partners. Hot work completed in a residence (i.e., garages) as a "hobby" must be performed safely and with all the precautions noted here; it does not require a permit.

2.18.8.1 Designated Areas

Designated areas are places that are noncombustible or made of fire resistive construction, such as maintenance shops or detached outside locations. Designated areas are essentially free of combustible and flammable contents and are suitably segregated from areas that have combustible or flammable contents. Park maintenance personnel should strive to conduct any hot work operation in one of these designated areas whenever possible. A shop foreperson is responsible for ensuring these areas are kept free of combustible and flammable contents and that welding gasses are stored properly, and their quantity is kept to only what is needed for efficient operations.

2.18.8.2 Permit Required Area

Any hot work outside of a designated area requires a hot work permit to be issued by a permit authorizing individual (PAI). For permits to be issued, the area must be

clear of all combustible materials. Sheet metal guards or similar protection is required to prevent hot metal and sparks from falling on wooden floors, partitions, or combustible materials, which cannot be removed. In all cases, the hot work environment will be free of flammable liquids and vapors.

Fire extinguishers are to be provided at the work location. At no time shall a fire extinguisher be taken from a designated spot in a building to be used for hot work purposes. Combustible materials within a 35 feet radius will be protected or removed. Fire watch procedures are necessary when hot work is conducted within 35 feet of combustible materials. Hot work will cease at least 30 minutes prior to leaving the work site. This time frame will be noted on the permit and may be altered by the PAI should conditions warrant. Permits are generally written for only one day at a time. Projects requiring multiday permits, such as those which occur in remote areas making a daily permit issuance impracticable, requires the approval of the FCO or designee. The PAI may download the Hot Work Permit from the Structural Fire Program site.

2.18.8.3 Non-permissible Areas

Hot work shall never be allowed in any of the following areas:

- Areas not authorized by management. Collections management plans and historical building plans may designate areas or buildings where hot work is restricted.
- In sprinklered buildings where the sprinklers are impaired, unless authorized by the FCO.
- In the presence of explosive atmospheres (flammable gases, vapors, liquids, or dusts).
- In the presence of unclean or improperly prepared equipment, drums, tanks, or other containers that previously contained materials that could develop explosive atmospheres.

2.18.8.4 Permit Authorizing Individual (PAI)

The permit authorizing individual (PAI) is a person designated by park management to authorize hot work activity. This individual can be a supervisor, foreperson, FCO, or PSFC and must be familiar with IFC, Chapter 35, *Welding and Other Hot Work.*,

Under no circumstances will the PAI be the same person performing the hot work. The PAI will always be an NPS or commercial services employee and should be identified in the park SFMP. If hot work is being performed under contract, then an NPS employee will be designated as a PAI for the contract. Hot work accomplished by commercial service operators may have a PAI who works for the commercial services operator. All requirements of this section apply to both the NPS and a commercial services PAI. The PAI ensures safe operations in all permit-required hot work.

Prior to issuing a hot work permit, the PAI needs to consider:

- Alternatives to conducting hot work
    - Mechanical removal and relocation of frozen piping to a heated area
    - Manual hydraulic shears
    - Mechanical bolting
    - Screwed, flanged, or clamped pipe
    - Reciprocating saw
    - Mechanical pipe cutter
    - Approved self-drilling or compressed air-actuated fasteners
- Performing the hot work in a designated area

If hot work must be performed, the PAI must ensure, prior to issuing the permit, that:

- Safety of the hot work operator and fire watch with respect to personal protective equipment used for the protection of any special hazards, such as asbestos, lead, or radiation, beyond the hot work.
- The exemption of flammable atmospheres, such as vapors, gasses, liquids, or dust in the hot work area.
- The removal or protection of combustible contents within 35 feet of the hot work area.
- The need for a fire watch, while hot work is being performed, is considered.
- A fire extinguisher is present and appropriate for the hazards present.

2.18.8.5 Fire Watch

A fire watch, separate from the hot work operator, will be designated in any area where hot work is being performed near unremovable combustibles or, in the determination of the PAI, not properly protected. The fire watch must remain on-site for at least 30 minutes after the conclusion of work or longer if authorized by the FCO.

2.18.9 Open Flame

Consult the IFC before considering the use of open flames in park buildings and consider the use of alternative non-flame devices first. Examples of open flame devices include lit candles, oil lamps, fuel-fired equipment, sky lanterns, fireplaces, open hearths, ceremonial fires, and smoldering of dry materials.

2.18.9.1 Museum Collections

Open flames used immediately adjacent to structures or spaces housing collections must follow all fire code requirements, as well as the standards and guidance in NPS *Museum Handbook, Part I, Chapter 9, Museum Fire Protection*. In accordance with the *Museum Handbook*, do not use open flames in structures housing collections.

2.18.9.2 Smudging

Smudging requests from tribal representatives require consultation with the PFSC and regional curator and includes a discussion of firesafe alternatives. Smudging presents a major fire risk to collections and structures housing them. Conduct all smudging activities in a designated space outside of and away from structures housing collections to avoid the risk of fire.

2.18.9.3 Assembly Occupancies

The FCO must be consulted to determine the requirements of the use of open flame devices in assembly occupancies. The PFSC or designee will inspect the area prior to approval. Some exceptions are allowed in restaurants and for ceremonial purposes, based upon fire code requirements.

2.18.10 Rechargeable Consumer Devices with Lithium-ion Batteries

Many consumer devices are powered with rechargeable lithium-ion batteries. Fires can occur if a battery is physically damaged or improperly charged. The following safety measures shall be used for purchasing, using, and charging lithium-ion batteries:

- Charge or store batteries outside of the egress path of a building.
- Purchase and use batteries that have been certified by a nationally recognized testing lab.
- Use proper batteries in a device as listed in the manufacturer's instructions. Just because the battery fits in the device doesn't mean it is the appropriate battery.
- Charge batteries in accordance with the manufacturer's instructions.
- Use the original manufacturer's charger for the battery. Don't use generic or aftermarket chargers or a charger from a different device.
- Charge the battery on a fire-resistant surface, away from combustible material.
- Store batteries away from direct sunlight, hot vehicles, or combustible material.

2.18.11 Roofing Operations - Tar Kettles

When tar kettles are used, at least one 40-B:C dry chemical fire extinguisher needs to be located within 25 feet of the kettle. Additionally, there shall be one portable fire extinguisher with a minimum 3-A:40-B:C rating on the roof being covered. The use of any solid fuel or flammable liquid with a flashpoint under 100 degrees Fahrenheit is prohibited. Tar kettles are not to be transported with the heat source operating. Tar kettles used in roofing are not

permitted on the roofs of buildings and shall not be located within 20 feet of combustible materials, combustible building surfaces, or any building openings.

2.18.12 Vehicle Parking

Vehicle parking is regulated to ensure emergency vehicle access during incidents.

- Vehicles and/or trailers may not be parked in fire lanes, within 15 feet of fire hydrants and sprinkler/standpipe connections, or in any manner that would preclude access by fire apparatus to all sides of buildings.
- Vehicles may not be parked within 50 feet of any fuel storage area, except in designated parking spaces or for the purpose of loading and unloading.

2.18.13 Vehicle Storage

Vehicle storage is regulated to provide for the safe storage of flammable materials contained in vehicles and powered equipment.

- Fuel powered equipment, such as lawn mowers, snow blowers, and other devices should be stored in buildings designated for storage in accordance with IFC.

2.19 Watercraft and Marinas

Watercraft and marinas present several complicated fire and safety issues (e.g., flammable liquids, electrical considerations). The IFC has specific regulations on fueling and storage of watercraft in marinas. If a park has these types of operations, they are to contact the RSFM to ensure fire safe operations are taking place.

2.20 Emergency Plans, Building Evacuation Drills, and Crowd Management

2.20.1 Building Specific Emergency Plans

Building-specific emergency plans and fire prevention plans will be developed for each facility or group of facilities in compliance with 29 CFR, Sections 1910.38 - 1910.39, and IFC, Chapter 4, *Emergency Planning and Preparedness*. In the event of a fire or any indication of fire, such as smoke, odor, or unusual heat conditions, the individual who discovers the fire (or potential fire) must initiate a general alarm in the facility. The building is to be evacuated immediately. OSHA provides an Evacuation Plans and Procedures eTool to aid in writing these plans.

Each employee, volunteer or concessioner needs to know the emergency notification procedures and numbers. When reporting a fire, someone should be assigned to wait outside to direct the responding firefighters to the location of the fire.

2.20.2 Emergency Evacuation Drills

The purpose of emergency evacuation drills is to educate the participants of a building's fire safety features, the egress facilities available, and the procedures to be followed in the event of an emergency. Instruction and practice should be provided prior to conducting an emergency evacuation drill. Emergency evacuation drills are to be conducted periodically

for certain occupancy types as required in IFC, Chapter 4, *Emergency Planning and Preparedness*.

2.20.3 Crowd Management

Assembly buildings are places where people gather for the purpose of recreation, religious worship, entertainment, or dining. Employees must be trained in crowd management techniques and the facility must have a plan to handle large evacuations. Crowd management is required when the gathering exceeds 500 people. One crowd manager or crowd manager supervisor is required for every 250 people at a gathering. Crowd management requirements, training, and duties are listed in IFC, Chapter 4, *Emergency Planning and Preparedness*. The FCO shall be consulted on plans for large events. Online crowd manager training is offered through various sources, such as the International Association of Fire Chiefs (IAFC).

2.21 Portable Fire Extinguishers

Portable fire extinguishers (PFEs) shall be selected, installed, and maintained in accordance with IFC, Chapter 9, *Fire Protection and Life Safety Systems*, Section 906 and through consultation with the FCO. In addition, the *Museum Handbook, Part I, Chapter 9, Museum Fire Protection* provides information on the types of portable fire extinguishers to be used in and around collections (Section F-13). The FCO will review the plans for acceptable fire extinguisher type and placement during the construction plan review. OSHA requires all employees designated to use portable fire extinguishers in their worksite to receive fire extinguisher education. Live fire training is the preferred method of education, though it is often difficult to accomplish. A web based PFE education program has been developed by the NPS Structural Fire Program and is available on DOI Talent. After logging in, search for "NPS Fire Extinguisher Training."

2.21.1 Inspection, Testing, and Maintenance (ITM) of Portable Fire Extinguishers

ITM for portable fire extinguishers are covered in NFPA 10: *Standard for Portable Fire Extinguishers*. PSFCs should ensure monthly inspections of fire extinguishers are carried out by designated employees. Annual maintenance and periodic internal maintenance and hydrostatic testing shall be performed by trained individuals. The NPS Structural Fire Program has approved annual external maintenance for multipurpose (ABC) dry chemical, portable fire extinguishers for employees who receive training as outlined in the Portable Fire Extinguisher Maintenance standard operating procedure (SOP). Refer to the SOP and Chapter 5 Training and Certification for additional information.

2.22 Fire Protection for Historic Structures & Buildings Storing/Exhibiting Museum Collections

The NPS mission requires providing for fire protection to all structures and their occupants while protecting lives, property, the environment, and our cultural heritage from the effects of fire. In addition to the authorities outlined in Chapter 1, *Governance and Administration*, Congress has delegated the NPS with the responsibility to preserve, protect, maintain, and provide public access to the cultural resources of the United States through the laws, regulations, and conventions outlined in the NPS *Museum Handbook*, Part I, Appendix A: Mandates and Standards for NPS Museum Collections Management.

The Secretary of the Interior's Standards for the Treatment of Historic Properties (Title 36 CFR, Part 68) is the standard against which all federal, state, and local agencies, historic districts, and planners evaluate their efforts for appropriate treatment. Finding the correct fire protection solution to suit a particular property typically requires the knowledge of historic preservationist and structural fire professionals to work together in the initial planning stages and throughout the entire project. Such professionals may include fire protection engineers, qualified fire and life safety professionals, historical architects, architectural historians, historians, historical engineers, archeologists, and others who have experience in working with historic buildings.

2.22.1 Protection and Stewardship of Cultural Resources from the Effects of Structural Fire

NPS compliance with applicable fire codes requires awareness of two primary components.

The first is awareness that prevailing fire codes are typically based on the general prescriptive requirements that have been established for new construction. These codes often make it difficult to concurrently address fire and life safety and historic preservation. Attempting to bring historic structures into compliance with fire and life safety and historic preservation codes requires collaboration and creative solutions to satisfactorily meet codes. **These solutions shall remain in NPS's sole discretion.**

Second is to understand the concepts of minimum life safety and property protection. Most contemporary building and fire codes are developed to provide a minimum level of life safety protection to the occupants of the structures. When designing fire protection for all structures storing and/or exhibiting museum collections, which include historic structures, it is often necessary to go beyond the scope of prescriptive codes to achieve minimum life safety and property protection. Additional information can be found in the *Museum Handbook, Part I, Chapter 9, Museum Fire Protection*.

2.22.2 Fire and Life Safety Code Compliance for Historic Structures and Structures with Museum Collections

The NPS mission requires providing for fire protection to all structures and their occupants while protecting lives, property, the environment, and our cultural heritage from the effects of fire. Specifically, the NPS has two goals relative to the stewardship of historic structures and museum collections:

- Life Safety: Provide protection and life safety from the effects of fire by providing an environment that is reasonably safe from the effects of fire.
- Historic Preservation and Collection Stewardship: Provide protection against damage to and loss of museum collections and historic structures, including:
    - Removing or reducing the threats and vulnerabilities to historic structures and museum collections from fire through the installation of fire detection and suppression systems.
    - Maintaining and preserving original space configurations of historic structures when possible.

- Minimizing alterations, destruction, or loss of historic fabric or design for historic structures and all structures storing and/or exhibiting museum collections.

Modifying a historic building to meet these responsibilities may be necessary. As stewards, each manager must consider the impacts that full code compliance will have on the collections and historic structure's character - defining spaces, view-sheds, features, and finishes against the loss of, or damage to the structure and collections housed in the structure due to fire.

Close coordination between cultural resource managers, including historic preservationists, historic architect advisors, park and regional curators, and the regional FCO is imperative. It is often necessary to look beyond the "letter" of code requirements to their underlying purpose; most modern codes allow for alternative approaches to achieve compliance. It is important to provide for fire protection, while preserving the historic fabric and character of historic structures.

Due to the difficulties of integrating fire protection systems with historic preservation goals, most building and fire safety codes have provided special exceptions for heritage resources. NFPA 914 and NFPA 909 provide a process to help resolve these conflicts, using a logical and well-documented approach.

Additionally, see Section 2.11 for information on fire protection systems and considerations for installing systems in park buildings, including those that are historic.

2.23 Structural Fire Management Plans

The Structural Fire Management Plan (SFMP) is considered an essential park planning document. *National Park Service Management Policies* (2006) require that an SFMP be completed for all parks with buildings or manmade resources having the potential for damage or loss from fire. The collaboration between park divisions and the clarity of responsibilities is paramount to an effective SFMP.

A required template with directions for creating the park SFMP has been developed to assist parks and is available on the Structural Fire Program InsideNPS site..

The SFMP is required to be:

- Reviewed and updated annually
- Reviewed after a significant structure fire incident
- Revised every five years

2.24 SFMP Requirements

The development of SFMPs should be coordinated, where available, with park management, concessions, partners, and neighboring fire response agencies and reflect the park's existing planning documents, such as the General Management Plan (GMP) and Museum Collections Emergency Operations Plan (MCEOP). Implement *Museum Handbook, Part I, Chapter 9:* Museum Fire Protection Requirements by including the Museum Fire Section (Chapter 9, Figure 9.4) as the last chapter of the SFMP.

Tracking of SFMP updates is required. Additional signatures, such as those of the curator and regional curator, are required once the Museum Fire section is added to the SFMP. The documentation will at a minimum contain a signature page signed and dated by the superintendent and reviewed and signed by the RSFM. The annual plan updates are to be incorporated into copies of the park's SFMP, with records kept in the park files. An electronic copy of the plan shall be made available upon request.