National Park Service
Structural Fire Program
RM-58 Structural Fire Management

September 2023

Reference Manual Development Process:

The development of this reference manual was completed over a one-year period with the incorporated comments and input from all programs, park units and regional offices. Over 800 comments and multiple reviews were completed for this process. Specific credit to the National Structure Fire Program Office and the Structural Fire Leadership council for the dedicated focus needed to complete this effort.

The information within this document incorporates and supersedes all previous policies and policy memorandums. It supports industry standards and the adoption of the International Fire Code, updates to existing NFPA codes and standards, and National Park Service policy. The feedback provided helped to create a functional manual for the National Parks Service. Standard Operating Procedures (SOP) have been developed to better address operational related functions. These functions are related to engine company management, fire extinguishers, International Code Council approval process, and others. The SOPs are updated by the National Structural Fire Program Office. This document and associated SOPs have been solicitor and tort reviewed by the Department of the Interior Office of the Solicitor. This document will be under regular review to ensure compliance with industry standards and changes in the Fire Code. This document has been reviewed and updated for 508 compliance. Future updates will be completed and approved by chapter as needed, following a similar process.

Your input and assistance in the creation of this manual has been greatly appreciated.

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NPS Fire Chief

Approved by the Associate Director, Visitor and Resource Protection

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Reference Manual 58: Structural Fire Management

Acronyms

ADVRP	associate director of visitor and resource protection
AHJ	authority having jurisdiction
CO	carbon monoxide
DO-58	Director's Order 58
EICC	Emergency Incident Coordination Center
ECP	engine company park
FADO	fire apparatus driver/operator
FCO	fire code official
IBC	International Building Code
ICC	International Code Council
IDLH	immediately dangerous to life or health
IDT	interdisciplinary team
IEBC	International Existing Building Code
IFC	International Fire Code
IRC	International Residential Code
ITM	inspection, testing, and maintenance
LEO	law enforcement officer
NFPA	National Fire Protection Association
NICET	National Institute for Certification in Engineering Technologies
NPS-FC	National Park Service structural fire chief
PAI	permit authorizing individual
PAT	physical ability test
PEL	permissible exposure limit
PPE	personal protective equipment
PSFC	park structural fire coordinator
PSFPM	park structural fire program manager
RCR	regional chief ranger
RFPS	regional fire protection specialist
RM-58	Reference Manual 58
RSFM	regional structural fire marshal
SFMP	structural fire management plan
SF-OPM	structural fire operations program manager
SF-TPM	structural fire training program manager
SME	subject matter expert
WASO	Washington Support Office
WFF	wildland firefighter

Definitions

Acquired Prop - A piece of equipment such as an automobile that was not designed for burning though it is used for live fire training evolutions.

Addition - An extension or increase in floor area, number of stories, or height of a building or structure.

Alteration - Any construction, retrofit, or renovation to an existing structure other than repair or addition that requires a permit by code. Also, a change in a building, electrical, gas, mechanical, or plumbing system that involves an extension, addition, or change to the arrangement, type, or purpose of the original installation that requires a permit.

Authority Having Jurisdiction - The authority having jurisdiction (AHJ) is a National Fire Protection Association (NFPA) term defined as an organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, installations, or procedures. The terms FCO and AHJ have the same meaning.

Contracts - Arrangements between two entities. These entities may include other federal agencies, private companies, or partners. Arrangements include agreements, partnerships, and contracts. Throughout RM-58, the term "contract" is used to define these arrangements.

Director's Order 58 - Director's Order 58 (DO-58) supplements the NPS *Management Policies* (2006) by setting forth the operational policies necessary to establish and implement structural fire management programs throughout the NPS.

Fire Code Official - The fire code official (FCO) is defined in the International Fire Code (IFC) as the designated authority charged with the administration and enforcement of the code or a duly authorized representative. The terms FCO and AHJ have the same meaning.

Fireground - The operational area at the scene of a fire. The area at which the incident commander is in control.

Hot Work - Operations including cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems, or any other similar activity.

Instrument - An instrument is a written legal document that records the formal execution of legally enforceable acts or agreements, and secures their associated legal rights, obligations, and duties.

International Building Code – The IBC is a model code that provides minimum requirements to safeguard the public health, safety and general welfare of the occupants of new and existing buildings and structures. The IBC is fully compatible with the ICC family of codes.

International Code Council - The ICC is a nonprofit association that provides a wide range of building safety solutions, including product evaluation, accreditation, certification, codification, and training. It develops model codes and standards used worldwide to construct safe, sustainable, affordable, and resilient structures.

International Existing Building Code – The IEBC covers repair, alteration, addition and change of occupancy for existing buildings and historic buildings, while achieving appropriate levels of safety without requiring full compliance with the new construction requirements contained in the other I-Codes.

International Fire Code – The IFC is a model code that regulates minimum fire safety requirements for new and existing buildings, facilities, storage and processes. The IFC addresses fire prevention, fire protection, life safety and the safe storage and use of hazardous materials in new and existing buildings, facilities and processes. The IFC provides a total approach of controlling hazards in all buildings and sites, regardless of the hazard being indoors or outdoors.

National Fire Protection Association – The NFPA is a global self-funded nonprofit organization, established in 1896, devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards.

National Institute for Certification in Engineering Technologies - NICET provides rigorous certification standards and recognition of qualified technology professionals who reliably apply engineering principles and practices for the benefit and safety of the public.

NPS Prospectus Development Team - This is the team responsible for preparing prospectuses to solicit offerors for concession contracts by accurately assessing the risk and feasibility of the business opportunity to attract high-quality bids.

Park Structural Fire Program Manager - Individual with the primary duties and responsibility for oversight, management, and supervision of the park structural fire program with clearly defined succession of command responsibilities (e.g., park fire chief, PSFC, emergency services coordinator).

Pro Board - The National Board on Fire Service Professional Qualifications is an internationally recognized organization that accredits agencies to certify emergency responders to NFPA Professional Qualification.

Recapitalization - Replacement of critical component/system that extends the useful life of a capital asset, and major renovations without a significant change in function or capacity. In this definition, the word *Critical* includes all components/systems that extend the useful life of the capital asset, this is not tied to the previous NPS critical systems assets.

Residential Group R-1: Occupancies containing sleeping units where the occupants are primarily transient in nature, such as hotels.

Residential Group R-2: Occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, such as apartments or dormitories with more than 16 occupants.

Residential Group R-3: Occupancies where the occupants are primarily permanent in nature, such as dormitories with 16 or less occupants.

Real Property - Real property means the land plus anything growing on it, attached to it, or erected on it, including man-made objects, such as structures, roads, sewers, and fences.

Rehabilitation - Any repair, renovation, alteration, or reconstruction work undertaken in an existing building.

Repair - The reconstruction, replacement, or renewal of any part of an existing building for the purpose of its maintenance or to correct damage.

Smudging - Smudging is the ceremonial burning of sacred herbs or resins.

Structure - Something built or constructed, as a building or picnic shelter.

Structure Fire Incident - A structure fire incident is a fire that involves man-made structures, such as dumpsters, boardwalks, vehicles, boats, aircraft, buildings, and/or alarm activations (except for alarm problems transmitting a 'trouble' alarm). This excludes any fires that burn only wildland fuels.

Structural Fire Management Plan - The SFMP sets forth the operational policies and procedures necessary to establish and implement a structural fire protection program in a park to reduce losses from structure fires. It provides guidance to assist superintendents, park staff, and contract holders with protecting people, property, and resources.

Subject Matter Expert - An individual who by education, training, and/or experience is a recognized expert on a particular subject, topic, or system.

Reference Manual 58: Introduction

Reference Manual 58: Structural Fire Management (RM-58) provides guidance on implementing a servicewide structural fire management program for the National Park Service (NPS). The National Park Service's policy on structural fire is expressed in the NPS *Management Policies* and in Director's Order 58: Structural Fire Management (DO-58).

RM-58 provides NPS employees with references, operating policies, standards, procedures, general information, recommendations, and examples to assist them in carrying out the NPS *Management Policies* and DO-58.

This reference manual supersedes all previous NPS instructions, requirements, interim policies, policy memorandums, and statements of policy relating to structural fire management.

The reference manual contains links to other pertinent information that will be valuable to personnel with structural fire responsibilities. This manual will be maintained as a living document and revisions will be made as necessary.

The objectives of RM-58 are as follows:

- Establish a framework through which the NPS institutionalizes and implements principles, codes, standards, policies, guidance, and reporting requirements related to structural fire.
- Identify the fire codes and standards that have been adopted by the NPS.
- Provide a framework for communicating the objectives and standards of the NPS structural fire management program to internal and external audiences.
- Re-emphasize that it is essential that structural fires be prevented and suppressed to protect life and property.
- Identify clear guidelines for preparing, responding, and recovering from structural fire incidents.
- Provide a consistent approach for addressing structural fire effectively and efficiently with servicewide programs such as Facility Management, Cultural Resource Management, Museum Management Program, Wildland Fire Management, Commercial Services Management, Law Enforcement, and Emergency Medical Services.

1 Governance and Administration

1.1 Organization

The work of preventing and suppressing fires is focused on park employees. In most cases, the employee charged with the oversight of park structural fire management, the park structural fire coordinator (PSFC), has the duties assigned as collateral. It is recommended that complex parks should pursue the hiring of a park fire inspector to manage the park's program with a dedicated focus. Park-level facility managers, cultural resource specialists, commercial services managers, chief rangers, housing managers, and others have specific responsibilities for preventing and suppressing structure fires. To ensure a successful structural fire program, superintendents must ensure that a structural fire management plan (SFMP) is developed as outlined in Chapter 2, *Community Risk, Reduction, and Code Compliance*, which clearly defines responsibilities and commits resources to the program. Once appointed, the PSFC must receive training as detailed in Chapter 5, *Training and Certification.*

Regions have distinct authority for the structural fire program defined in Director's Order 58 (DO-58). The National Park Service (NPS) director has assigned each regional director as the structural fire program's fire code official (FCO). The FCO is defined in the International Fire Code (IFC) as the designated authority charged with the administration and enforcement of the code or a duly authorized representative. The FCO is responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. Throughout RM-58, the FCO will be used to reference the IFC's definition of an FCO as "whoever holds the statutory power to enforce the fire code" and the National Fire Protection Association's (NFPA) definition of an authority having jurisdiction (AHJ). The terms FCO and AHJ have the same meaning.

Within the National Park Service, the regional directors are hereby designated as the FCOs, as defined by IFC within their respective regions. The regional directors may delegate the authority of the FCO in writing to the regional structural fire marshal (RSFM) or other qualified individuals within their region as necessary for the administration of all structural fire safety and enforcement.

Regions are responsible for ensuring that park structural fire programs meet the requirements of DO-58, RM-58, and adopted codes and standards. All employees with structural fire responsibilities, must be adequately trained and certified, as outlined in Chapter 5, *Training and Certification.* Structural

firefighters are required to maintain qualifications, and regions must ensure that employees engaged in structural firefighting are properly qualified and compliant.

The Washington Support Office (WASO), or national office, provides program direction and oversight of the Structural Fire Program through the associate director of visitor and resource protection (ADVRP). Specific responsibility is assigned to the structural fire branch chief, who works for the division chief of fire and aviation management.

The Structural Fire Program develops policy, training, and certification programs for the NPS, including structural firefighter training and certification requirements as outlined in Chapter 5, *Training and Certification.* All firefighters must meet the program's requirements and ensure compliance is tracked in the approved format. Any training, certification, or compliance lapse will result in firefighters not being allowed to respond to structure fire incidents. The national office will also provide oversight of the regional inspection and compliance programs to help ensure all parks are operating safely.

1.2 Structural Fire Program Objectives

Structural fire management activities are essential to the accomplishment of the NPS mission. The NPS manages a structural fire program to protect people, building contents, structures, and resources from the effects of fire. Parks will ensure that structural fire management is fully integrated into all related program management and planning.

Structural fire management policy and procedures reflect the considerations, capabilities, and program direction while being responsive to related management objectives. Park superintendents will ensure these policies are incorporated into all structural fire management actions. All personnel must actively embrace and ensure the requirements are fully implemented.

1.3 Structural Fire Program Requirements

Structural fire protection and suppression capabilities will be maintained in accordance with the SFMP as outlined in Chapter 2, *Community Risk, Reduction, and Code Compliance.* Priorities will focus on structures and cultural resources with emphasis on the following:

- Life safety
- Code compliance
- Early warning detection
- Suppression systems
- Employee training and awareness

Refer to the structural fire program requirements within each chapter of this RM for guidance.

1.4 Authorities

Authorities for the management of structural fire within the NPS include the latest versions, editions, and appendices of the following:

- Code of Federal Regulations (CFR)
- United States Department of the Interior (DOI), Departmental Manual (DM)

- National Park Service *Management Policies* 2006
- Director's Order 58: *Structural Fire Management* (DO-58)
- Reference Manual 58: *Structural Fire Management* (RM-58)
- International Fire Code (IFC), as adopted and modified in Appendix A
- International Wildland-Urban Interface Code (IWUIC)
- National Fire Protection Association (NFPA) codes and standards, where referenced in IFC
- Occupational Safety and Health Administration (OSHA)
- Director's Order 50B (DO-50B) and Reference Manual 50B (RM-50B*): Occupational Safety and Health Program*
- NFPA 914: *Code for Fire Protection of Historic Structures*
- NFPA 909: *Code for the Protection of Cultural Resource Properties – Museums, Libraries and Places of Worship*
- Public Buildings Amendment Act of 1988
- *Museum Handbook*

1.5 Program Audits, Assessments, and Reviews

DO-58 states, "Regional and park structural fire programs will be periodically reviewed for quality and effectiveness as required in RM-58," thereby establishing the authority for audits, assessments, and reviews. Additional authority can be found in Departmental Manual 485, Chapter 6, Director's Order 50B: *Occupational Safety and Health Program*, and OMB Circular A-123.

1.6 Responsibilities

1.6.1 Park Level- Superintendent or Designee

- Implementation of policies related to structural fire management. These policies may sometimes originate from other approved policies or practices, as noted throughout this reference manual.

1.6.2 Regional Level- RSFM or Designee

- Primary oversight of park structural fire programs.
- Ensure regional director awareness of park compliance levels using available data, park reviews, and other methods.
- Regions with engine company parks must oversee those programs and their structural firefighters to ensure compliance with laws, policies, and standards. This needs to be completed on a routine basis and during formal park audits and reviews.

1.6.3 National Level- NPS Fire Chief or Designee

- Develop policy and strategic plan for the program.
- Develop and conduct national-level audits.

- Review individual regional programs to ensure adequate regional controls are in place and to help regions understand their role in ensuring compliance.
- Routinely review compliance-related data systems designed to ensure structural fire operations programs and firefighters are being reviewed at the regional level and that corrective actions are taken when needed.
- Ensure all employees attending or instructing structural fire classes comply with laws, policies, and standards.
- Ensure all fires are investigated timely by trained personnel.
- Coordinate reviews and audits with regions to ensure the programs are assessed consistently and meet higher-level requirements.

1.7 Park and Regional Structural Fire Program Reviews

Structural fire program performance should be reviewed on a continual basis. Evaluations should address whether quantity, quality, effectiveness, and efficiency are satisfactory based on adopted codes, standards, laws, and NPS and DOI policies. Suggestions for improvement include alternative processes, new approaches or strategies, workforce adjustments, funding strategies, and/or changes in information technology. During all interviews, the review team should attempt to identify solutions to potential problems.

1.7.1 Authority

Program reviews will be conducted in accordance with Departmental Manual 485, Chapter 6, and DO/RM-58. The authority to conduct program reviews stems from 16 U.S.C. and DO/RM-58. The regional director will convene review teams to review park structural fire programs on a regularly scheduled basis or after the occurrence of any significant, controversial, or unusual structural fire activities. The national office also has the authority to perform evaluations.

1.7.2 Objectives

Structural fire program reviews provide comprehensive program management and operational evaluations. The involvement of line management and cooperators, where applicable, is critical. The objectives of these park fire program reviews are to:

- Ensure prevention and suppression operations comply with codes, standards, and departmental and NPS policies.
- Compile consistent and complete information to improve or refine the park's structural fire management program.
- Produce a written report that contains an executive summary, findings, recommendations, and action plans in all areas of fire prevention, fire response, and, if applicable, park structural fire operations.

All reviews will be conducted as constructive critiques to determine the facts related to the specific program. They will identify commendable actions, techniques, decisions, and areas needing improvement. The regional director or their designee will forward the written report developed by the review team to the park superintendent.

1.7.3 Types of Reviews

1.7.3.1 Site visit

A site visit can be initiated by the park, region, or national office. This is an informal visit to provide a cursory review of the program. A simple observation of strengths or weaknesses within the program is conducted. Comments may be in written form to support future park efforts.

1.7.3.2 Staff Assistance Visit

A staff assisted visit can be initiated by the park, region, or national office to review programmatic strengths or weaknesses. The visit can focus on the program or on a specific area of the program. A written report will be prepared that will support the park's efforts to complete a corrective action plan from the observations.

1.7.3.3 Program Audit

A program audit can be initiated by the park, region, or national office. An audit can pertain to the program or to a specific area of the program. An official report will be generated which includes a corrective action plan to ensure parks are able to meet compliance in accordance with policy and applicable codes. It is encouraged that regions conduct three to five park program audits each year. The cumulative data from these audits should provide the regions with a snapshot of the structural fire management within their regions. The regional director or their designee will forward the written report developed by the review team to the park superintendent.

1.7.3.4 Engine Company Compliance Review

Engine company parks are responsible for maintaining firefighter compliance data, documents, and accuracy within the NPS structural fire program's approved data system(s). Parks shall upload supporting documentation on all firefighters to reflect all NPS Structural Fire Program and industry standards/policies including but not limited to:

- Firefighter certifications.
- Medical determinations for arduous duty structural firefighters or NPS policy accepted alternatives.
- Physical fitness assessments **PASSING** Physical Ability Test (PAT).
- Self-contained breathing apparatus (SCBA) fit tests.
- Structural firefighter refresher certificates.

Regional structural fire programs shall oversee parks in maintaining firefighter compliance data. Regional program managers may establish controls exceeding the NPS minimum policy to ensure the compliance of all firefighters within their program. The cumulative data from these compliance reviews should provide the regions with a snapshot of the program compliance within their regions. The

regional director or their designee will forward the written report developed by the review team to the park superintendent.

1.7.3.5 A-123 Audit

The Federal Managers' Financial Integrity Act of 1982 (FMFIA) requires federal entities to perform annual internal reviews and provide annual assurances regarding all programs' management, accounting, and administrative controls. Office of Management and Budget (OMB) Circular A-123, Management's Responsibility for Internal Control, provides guidance on implementing internal controls in federal agencies. NPS structural fire management programs will comply with this requirement.

In the broadest sense, internal controls are necessary to achieve the objectives of effective and efficient operations, reliable financial reporting, and compliance with applicable laws and regulations. To comply with this process, structural fire managers must take systematic and proactive measures to:

- Develop and implement appropriate, cost-effective internal controls for results-oriented management.
- Assess the adequacy of internal control in federal programs and operations, including financial and internal controls.
- Identify needed improvements.
- Take corresponding corrective action.
- Assess compliance with governing fire safety codes and standards.
- Report as required on internal controls through management assurance statements.

While the testing and assurance effort will provide input regarding whether the agency's internal controls within these cycles are correctly designed and operating effectively, it is also essential to develop a risk assessment process to self-identify changes needed for internal controls and subsequent improvement of programs.

1.8 Essential Elements of Structural Fire Management

The responsibility for structural fire within the NPS is the same for all regions, parks, and management levels and, with few exceptions, is accomplished through collateral duties. While there may be some differences within each region, the essential elements do not change.

A list identifying the essential elements for each position is provided. These lists are quick reference tools to be used in identifying the minimum essential elements for each position. Due to the uniqueness and complexity of structural fire management programs, other elements may be added.

Minimum required competencies are required by the Fire Protection and Prevention Series, 0081. These certifications can be found in Chapter 5, *Training and Certification.* The 0081-job series refers to the approved classification series from the Office of Personnel Management (OPM) that covers fire protection and prevention positions in both the primary and secondary coverage for special or hazardous duty retirement. This standard was published in 2004 by OPM.

Essential Elements by Position

1.8.1 Director

- The director of the NPS is responsible for assuring every park of the NPS meets its fire and life safety responsibilities.

1.8.2 Associate Director

- The associate director of visitor and resource protection (ADVRP) is responsible for defining all federal requirements pertaining to fire and life safety in the NPS.
- Assures agency policies are clear and meet fire and life safety requirements across the service.
- Provides policy development guidance on the implementation of new requirements within the program.

1.8.3 Division Chief Fire and Aviation Management

- Assures fire and life safety requirements are communicated properly to responsible agency managers.
- Assists branch chief with tactics and methods to effectively communicate fire and life safety requirements to senior agency managers and servicewide.
- Support and advocate for the RSFM's availability and involvement with various work groups, meetings, and committees.
- Promote and provide resources, funding, and support to the RSFM.

1.8.4 Structural Fire Branch Chief (NPS Fire Chief)

- Develops agency policy to ensure the agency meets its structural fire responsibilities.
- Serves as the agency's senior subject matter expert for structural fire.
- Assures agency policies meet all federal requirements as they apply to fire and life safety and emergency response to structure fires.
- Assures that all structural fire position descriptions meet the responsibilities, training, and certifications needs of the program.
- Communicates and educates policies and directives to the field to ensure that policies are understood and implemented.
- Ensures all fire are properly investigated.
- Develops audit processes to evaluate region and park compliance with policies.

1.8.5 Regional Director

The regional director is accountable to the director for the region's structural fire management programs and activities.

- Remains current and knowledgeable of the goals and objectives of the structural fire management program.

- Becomes knowledgeable of the responsibilities associated with the designation of the fire code official (FCO) for matters pertaining to fire safety.
- Retains or delegates to a qualified person the administration and enforcement of the fire code as identified in the IFC as the FCO for the region. It is recommended that the responsibility be delegated to the RSFM.
- Assures that appropriate funding is available to ensure that the regional program is effective.
- Incorporates current and future structural fire management goals in all applicable regional planning and program development.

1.8.6 Regional Chief Ranger (RCR)

The regional chief ranger, or appropriate regional manager, directly supervises the RSFM.

- Remains knowledgeable of the current structural fire management program strategic plan.
- Remains knowledgeable of DO-58 and RM-58.
- Assures appropriate reviews and oversight of park programs is occurring.

1.8.7 Regional Structural Fire Marshal (0081)

The regional structural fire marshal (RSFM) is accountable for region wide program implementation, leadership, coordination, and management.

- The RSFM is the regional subject matter expert (SME) for all matters relating to structural fire. The regional director may delegate the authority of the FCO in writing to the RSFM or other qualified individual(s) within their region for the administration and enforcement of the fire code.
- Remains actively involved and engaged with the national program office regarding the goals and objectives of the structural fire management program for the service.
- Maintains an intimate knowledge of DO-58 and RM-58, and the strategic plan for structural fire.
- Reviews and approves park SFMPs and works to assure parks are complying with all elements of the plan.
- Ensures new information or information regarding the modification of structural fire program standards are distributed to all parks within the region.
- Provides technical support for parks within the region.
- Notifies the national office of regional structural fire related incidents, problems, conflicts, or deficiencies.
- Assures proper reporting of structural fire incidents.

1.8.8 Park Superintendent

The park superintendent is responsible for the park's structure fire program and must take appropriate actions necessary to ensure life safety and do all that is possible and reasonable to prevent fires.

- Remains knowledgeable of DO-58 and RM-58.
- Appoints in writing a park structural fire coordinator (PSFC) and makes the individual known to the RSFM.
- Ensures that an SFMP is developed, current, and implemented in accordance with RM-58.
- Ensures life safety and fire risk assessments in all park structures that pose a fire and life safety, or resource threat have been completed and projects developed and funded to address identified deficiencies.
- Ensures all fixed fire protection systems are inspected and tested annually and invoice and inspection reports are kept on file.
- Ensures approved agreements are in place, if the park relies on local agencies to provide fire suppression or fire protection services.
- Ensures a qualified person conducts fire and life safety inspections in all NPS and commercial services managed facilities annually. Inspection results are filed with the PSFC and/or the park commercial services office.
- Convenes and participates in an annual structural fire meeting that focuses on the state of structure fire in the park. This is an opportunity to check compliance with the A-123 internal control assessment, DO-58 and RM-58, and safe engine company operations, if applicable, and, most importantly, to understand and make priorities for known structural fire deficiencies and tasks.
- Ensure that employees, interns, volunteers, and partners have received an appropriate level of training in structural fire prevention and the proper response to fires and related events
- Conducts an annual review of the SFMP.
- Assures the PSFC is meeting their responsibilities.
- Ensures that positions within the program are filled by qualified personnel to meet the needs of the program.
- Assures that appropriate funding is available to ensure that the park program is effective.

1.8.9 Park Facility Maintenance Chief

- Ensures all fire detection and suppression systems are inspected, tested, and maintained (ITM) in accordance with RM-58, applicable codes and standards, and industry requirements/guidelines by personnel who are properly trained and certified. Park facility maintenance chiefs should consider resource pooling with other parks and the region to accomplish these requirements.

1.8.10 Park Structural Fire Coordinator

The park structural fire coordinator (PSFC) is designated by park superintendent and serves as the primary point of contact within the park for structural fire issues.

- Implements a parkwide structural fire management program in accordance with DO-58 and RM-58.
- Ensures the park's SFMP is developed, approved, and implemented in accordance with guidance provided by the RSFM and RM-58.
- Ensures the structural fire program is integrated with other park programs and divisions as appropriate.
- Ensures that information and issues regarding the park structural fire program are coordinated with the RSFM.
- Attends and completes approved PSFC training within one year of being designated.
- Coordinates with responding agencies to gain access and develop pre-incident plans for all structures.
- Ensures agreement(s) are in place and that responding forces are familiar with hydrant systems, building construction, collections within, historic status, and/or historic fabrics of the structure.
- Ensures there is a hot work permitting process in place in the park and it is followed.
- Confirms that all park fire protection systems are inspected, tested, and are functional.
- Confirms that all park staff have received periodic training in fire prevention and the proper response to fires.

1.9 Structural Fire Program Job Descriptions

This overview provides a general description of the NPS structural fire program organization and job responsibilities.

1.9.1 National Level Positions and Responsibilities

The National Structural Fire Management Office provides overall direction and coordination for the NPS Structural Fire Program.

1.9.1.1 Structural Fire Branch Chief (NPS Fire Chief)

The NPS fire chief is responsible for setting overall program goals and standards and for providing oversight of the national program. The chief serves as the agency's senior subject matter expert (SME) for all areas pertaining to structural fire. This position also assures coordination with regional offices, ensuring that NPS policies and procedures address the unique and specific needs of each region to the extent possible. Ensures that all fires are investigated, and fire trends are shared agencywide. Provides annual state of the structural fire service report to the Director on the current readiness of responders, protection of our structures, and how well we are meeting compliance of agency policy.

1.9.1.2 National Structural Fire Prevention Officer (0081)

This position reports directly to the NPS fire chief and is responsible for setting servicewide fire prevention policies and goals. Responsibilities include developing policies for the inspection, testing, and maintenance of fire detection and suppression systems; developing policies for annual fire inspections; and developing strategies to protect resources, while maintaining the historic integrity of structures and developing servicewide structural fire prevention and education plans.

1.9.1.3 National Structural Fire Operations Officer (0081)

This position reports directly to the NPS fire chief and is responsible for setting servicewide structural fire operations and readiness policies and goals. Responsibilities include establishing policies for parks with structural fire response capabilities that meet or exceed the requirements of NFPA and OSHA for emergency first responders. This position also identifies needed training and certification criteria for all parks that maintain response capabilities. Develops organization charts for the staffing guide for structural fire. Creates and maintains position descriptions for all structural fire related positions in the NPS. Maintains fire response data for the agency directly supports to investigation of all fires in the NPS.

1.9.1.4 National Structural Fire Training Officer (0081)

This position reports directly to the NPS fire chief and is responsible for setting servicewide structural fire training, and certification policies and goals. Responsibilities include establishing policies for training requirements, identifying curriculum, managing the agency accreditation program, and overseeing the agency training and certification for the structural fire program. This position also establishes training and certification criteria for all parks that maintain response capabilities.

1.9.1.5 Denver Service Center Positions and Responsibilities

Fire Protection Engineer (FPE)
The FPE is a licensed professional engineer who demonstrates sound knowledge and judgment in the application of science and engineering to protect the health, safety, and welfare of the public, resource and property protection from the impacts of fire. The FPE provides technical guidance and oversight regarding fire protection issues to the RSFM and the national office.

1.9.2 Regional Level Positions and Responsibilities

1.9.2.1 Regional Director

The regional director is the FCO for all matters pertaining to structural fire safety in their region. The regional director may delegate the FCO duties to the RSFM.

1.9.2.2 Regional Structural Fire Marshal (RSFM) (0081)

Each region will have a RSFM assigned to carry out the day-to-day duties of overseeing the regional structural fire protection programs. As the delegated

FCO, they are the regional SME and they have oversight and responsibility for all structural fire matters within the region.

1.9.2.3 Regional Fire Protection Specialist (RFPS) (0081)

This position reports directly to the RSFM. This position serves as a deputy fire marshal in direct support of the RSFM. The RFPS can be appointed FCO responsibilities to support the fulfillment of assigned duties. Provides technical assistance to park management for project reviews, fire and life safety building inspections, fire protection systems, engine company operations, firefighter training, and final acceptance testing of new systems.

1.9.2.4 Regional Fire Protection Engineer (RFPE)

The RFPE is a licensed professional engineer who demonstrates sound knowledge and judgment in the application of science and engineering to protect the health, safety, and welfare of the public, resource, and property protection, from the impacts of fire. The RFPE provides technical guidance and oversight regarding fire protection issues to the RSFM and regional director.

1.9.3 Park Level Positions and Responsibilities

1.9.3.1 Park Superintendent

The park superintendent is responsible for the park's structural fire program, the creation and upkeep of the park's SFMP and park compliance with NPS policy on structural fire management. The superintendent will appoint in writing a park structural fire coordinator. Should the superintendent desire the PSFC to have FCO authority, they will request this from the regional FCO.

In Level Three Engine Company Parks (ECPs), the park superintendent shall hire an 0081 park structural fire chief appropriately graded based on the program complexity identified by the NPS Structural Fire Program and RSFMs. The superintendent of an existing ECP, without an 0081 park structural fire chief, shall hire an appropriate 0081 no later than September 30, 2024.

1.9.3.2 Park Structural Fire Chief (0081)

This position is only found in parks that maintain structural fire engine companies as first responders. This position must have experience in structural fire and program management sufficient to allow the development of structural fire programs that comply with applicable guidelines. They are responsible for ensuring the safety of firefighters and the effectiveness of the response. This position can oversee other all-hazard or emergency response programs as part of their regular duty. This person must be familiar with budget procedures, revenue sources, and funding mechanisms of the agency and be capable of creating program budgets that reflect the park's need, organizational goals, and budget guidelines.

The park structural fire chief must accurately evaluate park fire protection systems and equipment provided for each of the park's structures and facilities and determine whether they are appropriate and installed in compliance with

applicable codes and standards. This evaluation should include ongoing observation of the structures, potential hazards, and fire protection systems. The evaluation must also identify and document deficiencies and report them according to NPS policies. The fire chief must be able to perform code compliance evaluations for issues like emergency vehicle access, required fire flows, and hydrant location and spacing. This position must meet the minimum required competencies identified in validated position descriptions.

1.9.3.3 Park Structural Fire Coordinator (PSFC)

Each park is required to have a PFSC who is designated by the park superintendent. The PSFC serves as the primary point of contact within the park and ensures the park is meeting its structural fire management responsibilities. Additional responsibilities may be delegated to the PSFC by the park superintendent. This position is mandatory for each park regardless of size or function.

Larger parks may need other positions in fire prevention or emergency response. These positions are listed in detail below.

1.9.3.4 Park Fire Inspector (0081)

This position may reside in any park or a region, regardless of whether the park maintains a structural fire response capability. Responsibilities include reviewing new and proposed fire codes and policies, implementing a public education campaign for visitors, park employees, and other park partners to help prevent fires, and evaluating inspection reports, forms and checklists related to structural fire for completeness and accuracy. Ensure life safety and preservation of structures through a thorough inspection and code enforcement process. This person must be able to research codes, apply them to real life situations, document findings, and communicate the findings to appropriate personnel. The fire inspector must be familiar with applicable codes, agency standards, policies, and procedures, and must be able to ensure that information contained in forms and checklists is concise, correct, and addresses all pertinent issues. They must also be able to implement a hot work permit process and evaluate consequences of improper enforcement. This position can fulfill the duties as a PSFC as a normal job function. This position must meet the minimum required competencies identified in validated position descriptions.

1.9.3.5 Park Chief Fire Officer (0081)

This position is only found in parks that maintain structural fire engine companies as first responders. Park chief fire officers may act as the fire chief in his/her absence. Park chief fire officers should have some of the same skills as the park fire chief but may have less experience in some areas. While the park fire chief will focus mainly on budget and policy issues, park fire officers will be the primary on scene incident commanders for most major emergencies in the park. Fire officers may function at the assistant fire chief level with emphasis on managing programs such as training, operations, or prevention, or as battalion chief's level in charge of emergency response and structural fire programs in a

park division or area. This position must meet the minimum required competencies identified in validated position descriptions.

1.9.3.6 Engine Company Officer (0081)

This position is only found in parks that maintain structural fire engine companies as first responders. Engine company officers are often the first fire officers on the scene of any emergency. Proper training and experience for these personnel will ensure an effective response that applies best practices and ensures crew safety at the emergency. The company officer is responsible for quickly sizing up the emergency, making personnel assignments, requesting resources, and taking direct action to mitigate the emergency. Engine company officers may also be qualified to conduct live fire training in accordance with NFPA 1403. This position must meet the minimum required competencies identified in validated position descriptions.

1.9.3.7 Fire Apparatus Driver/Operator (FADO) (0081)

This position is only found in parks that maintain structural fire engine companies as first responders. The FADO must get the crew and apparatus to the scene of an emergency safely and in a timely manner. The FADO must maintain appropriate licenses as required by their state licensing authority for the type(s) of vehicles(s) they operate.

Once on scene, the FADO must be able to determine proper water flow using friction loss formulas. The FADO must be able to determine the amount and the availability of water supply and how that will affect overall fire operations. The FADO must be familiar with the fire apparatus, pump, and the tools and equipment carried on the apparatus.

The FADO is responsible for the maintenance of these items and ensuring their ability to operate in an emergency. This position must meet the minimum required competencies identified in validated position descriptions.

1.9.3.8 Structural Firefighter (0081)

This position is only found in parks that maintain structural fire engine companies as first responders. A structural firefighter responds as a member of the fire crew to assist in fire and emergency operations. The firefighter may be responsible for handling fire streams, operating fire hydrants and fire department connections, forcible entry, ventilation, search and rescue, and other emergency operations as required. All structural firefighters must meet the training and certification requirements. They will assist in the maintenance of the tools and equipment on the fire apparatus. They will attend drills and training as required by this manual and park policy. This position must meet the minimum required competencies identified in validated position descriptions.

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 AQ. 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 in the Division of Fire and Aviation (DFAM) on behalf of the

Associate Director of Visitor Resource & Protection (ADVRP). 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 Management* 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 3, *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 and user guide for creating the park SFMP has been developed to assist parks. Not all elements in the template may pertain to all parks.

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, including appending the Museum Fire Section (Chapter 9, Figure 9.4).

Tracking of SFMP updates is required. 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.

3 Fire and Explosion Reporting and Investigation

3.1 Structural Fire Incident Notification

Parks shall provide notification of all structural fire incidents once the incident has been stabilized. That notification will be made through the Leadership Notification Tool and contain the following information:

- Date and time of the incident
- Who was involved in the incident
- What caught fire or exploded that lead to the incident
- Where did the incident occur
- Were there any injuries because of the incident regardless of seriousness
- A brief account of the incident that should include who responded. Include the presence of a suppression system and if smoke detection was present
- Photos of the scene

The RSFM will notify the national office of the above listed information and provide additional information on the structure. This could include the size of the structure involved, who operates the structure, and what fire investigation capabilities are available.

3.1.1 Additional Notification

Additional notification is to be made to the Emergency Incident Coordination Center (EICC) in accordance with established timelines. Reference Manual 50B, *Occupational Safety and Health Program*, provides comprehensive information regarding procedures and required actions to be taken after accidents/incidents.

3.2 Structural Fire and Explosion Investigations

All fires and explosions that occur on NPS property, including inholdings, private property used in/or at an NPS site, and leased facilities, will be investigated and entered into the DOI Safety Management Information System. These fires and explosions include, though not limited to, buildings, boats, vehicles, dumpsters, boardwalks, and docks. Immediately reporting and thoroughly investigating structure fires are agency requirements that are essential in preventing future fires.

The purpose of the investigation is to determine:

- The origin and cause of the fire
- The actions that led to the fire and future preventative measures to be taken
- Lapses in policies or the failure to adhere to them
- Faulty equipment or practices that can be shared servicewide
- Lessons learned
- Fire protection system success or failure
- Identify trends and patterns of fire losses

As a caution, the post fire environment may be contaminated with asbestos, lead, and combustion byproducts which may be hazardous to employees. It is likely that personal protective equipment (PPE) will be necessary for those entering the burned area to investigate. Sampling and analysis may be required to identify hazardous materials present in the burned area.

3.3 Responsibilities

3.3.1 Park Level

- The incident commander and law enforcement personnel should focus on securing and preserving the scene and surrounding area of any fire or explosion. The structure and surrounding areas must be secured until the investigation team arrives to ensure potential evidence is not compromised.
- No one, including park employees, shall enter the fire/explosion scene, unless authorized by the incident commander.
- Notification of all structure fire incidents will be made to the Leadership Notification Tool. Incidents will also be reported through the Emergency Incident Coordination Center (EICC) Serious Accident Report portal.
- Assigning a park employee, as requested by the region, to act as the liaison between the fire investigation team and the national structural fire program office.
- If local first responders cannot perform the investigation, the superintendent will request assistance through the national structural fire program office to determine who will conduct the investigation.
- Overhaul and salvage procedures should be postponed, if possible, but if required, they should be performed with care and effort not to destroy potential evidence.
- Participate in a post incident call with park, regional, and national program staff.
- Input the incident report into the NPS law enforcement records management system and provide the incident number to the RSFM and the national office. Parks without LE should coordinate with regional LE to input the incident into the records management system.

- Ensure that all investigation protocols and procedures within this chapter are followed and met.

3.3.2 Regional Level

- The RSFM will coordinate with the national office to support the fire investigation and to mobilize the needed resources.
- Ensure the NPS fire chief is notified of all structure fires as soon as possible.
- The RSFM shall establish contact with the primary point of contact (park liaison). Ensure a post incident call takes place with park, regional, and national office.
- If needed, the RSFM will work in conjunction with the national office and other regions to establish an origin and cause investigation team. Logistical support for team deployment will be the responsibility of the region.
- Ensure the fire incident report has been entered into the NPS law enforcement records management system and if required, a structural fire investigation report is completed and sent to the national office.

3.3.3 National Level

- Ensure that RSFM is notified of all structure fire incidents within their region. This ensures that structure fire incident information reported directly to the national office is forwarded promptly to the regions.
- Facilitate an incident collaboration call with park, regional, and national offices to validate incident facts and notify the park of the type of investigation required.
- Maintain a national roster of qualified fire investigators for the immediate response to investigate fire. Determine notification process for response to investigate fires.
- Support fire investigation training to ensure fire investigators are current with certification requirements.
- Maintain fire investigation equipment for deployment to fire incidents.
- Maintain user database and access to the Bomb Arson Tracking System (BATS) to capture all fire investigations for the NPS.
- Ensure that all fire investigation reports are completed timely and provided as a supplemental to the law enforcement reporting system.
- Ensure that all structure fires are properly investigated in accordance with standards and agency policy.
- Ensure that procedures related to accident investigations and Structure Fire Serious Accident Investigations (SF-SAIs) are followed and coordinated.
- Coordination with other appropriate WASO offices.

3.4 Initiation of an Investigation

This section provides specific guidance related to investigations of structure fires not covered in Reference Manual 50B: *Occupational Safety and Health Program*, Chapter 1 and RM-50B Chapter 7, Safety Program Leadership and Management and Employee Involvement.

All fires will have an origin and cause investigation. At a minimum, the origin and cause investigation determine the general location of a fire or explosion and the circumstances, conditions, or agencies that brought about or resulted in the incident.

Structure fires often exceed the threshold that requires a Serious Accident Investigation (SAI) per current policy. Notification and engagement with regional and national office contacts will ensure the appropriate investigation is conducted.

The table below identifies the requirements for initiating an SAI response for structure fires. In addition, the table defines other investigations that may be used for structure fire events and the management level that owns the investigative process. If at any time an accident investigation team discovers the need to raise an existing investigation to the level of an SAI, they will immediately notify their regional director. A detailed explanation of each investigation type follows the table.

Structure Fire Event	Investigation Type	Notification Requirement	Management Level that Determines Review Type and Authorizes Review
Structure Fire Incident (All Fires) Any fire/explosion incident that is not wildland in nature, regardless of the magnitude. Significant loss of operational capabilities in any structure not meeting SAI criteria.	Origin and Cause and/or SFII Investigation and/or Law Enforcement/Criminal Investigation	Park Superintendent, Regional Director, or designee regional reporting process, NPS Structural Fire Program Office, and the EICC	NPS Fire Chief
Structure Fire Serious Accident Investigation (SAI) One or more of the following: • Fatalities • Hospitalization of NPS firefighters • Hospitalization of one or more persons • Loss of significant cultural resources • Loss in excess of $750,000	Serious Accident Investigation (SAI) and Origin and Cause Investigation	Park Superintendent, Regional Director or designee regional reporting process, NPS Structural Fire Program Office, and the Emergency Information and Coordination Center (EICC)	Designated Agency Safety and Health Official (DASHO)

3.5 Investigation Type Descriptions

3.5.1 Origin and Cause Investigation (All Fires)

Regardless of the size of the fire, all structure fire events require an origin and cause investigation. Origin and cause investigations should be coordinated with local and/or state fire law enforcement resources, if available. The park, RSFM, and national office must coordinate investigative efforts. Origin and cause investigations can be conducted by the responding fire departments, local or state entities responsible for fire investigations, or by NPS fire investigators.

Parks should secure the incident scene and take general scene pictures of the location as soon as possible. If law enforcement is available, the investigative process can begin by gathering statements, collecting photographs, and documenting weather conditions at the time of the fire.

3.5.2 Structure Fire Incident Investigation (SFII)

Any incident with significant loss of operational capabilities in any structure not meeting SAI criteria or an incident that leads to an injury will require a Structure Fire Incident Investigation (SFII). The investigation will consist of a team of trained personnel identified by the national structural fire program office. The team will have a team leader, fire investigator(s), and law enforcement representative. The team lead shall contact regional leadership to recommend the use of an SAI if, during the initial phases of the investigation, any of the following are determined:

- There is a potential for litigation against an employee or the agency.
- The incident was caused by an act of reckless and willful disregard for human safety.
- The financial loss threshold is determined to exceed $750,000.
- There were multiple and/or serious failures to follow established policies.

The NPS fire chief will be responsible for staffing a structure fire incident investigation team (SFIIT). This team may need personnel proficient in origin and cause investigations to oversee the local responder's investigation or conduct their own in the absence of local resources. The use of other SMEs may be needed based on the type and use of the structure. The SFIIT will focus on fire origin and cause and produce a comprehensive report that will include specific information relating to the factors that caused and contributed to the fire.

The SFIIT will generate a factual report using the BATS system, that report will include:

- Executive summary
- Acknowledgments
- Table of abbreviations
- Overview of the park
- Property description

- Events prior to the incident
- Weather
- Report of fire
- Fire department actions
- Local fire investigation
- Structure fire accident investigation
- Follow up investigations
- Determination of cause process
- Potential, likely and/or known ignition sources
- Potential, likely and/or known first fuel ignited
- Findings

The fire investigator will present a final report to park leadership, regional director, and the NPS Structural Fire Program Office. In some instances, corrective actions of a servicewide nature will be found. These will be forwarded to the division chief, fire and aviation management for resolution. The final SFII report will be forwarded to the division chief, fire and aviation management for archive and use as a lesson learned tool. A regional director may determine that the incident requires a Facilitated Learning Analysis (FLA). This will be coordinated by the region using the FLA model. The NPS Structural Fire Program Office will coordinate SME support the FLA and a copy of the report provided to the ADVRP.

3.5.3 Structure Fire Serious Accident Investigation (SAI)

Any incident meeting the description of a structure fire serious accident will require a SAI. The designation of a Structure Fire SAI will be done at the direction of the DASHO with support provided by the NPS fire chief. While the criteria for initiating a Structure Fire SAI have been clarified in RM-58, the SAI will be performed in accordance with the SAI protocols in Reference Manual 50B: *Occupational Safety and Health Program*.

3.5.4 Criminal Structure Fire Event

Law enforcement officials shall be notified immediately if a fire appears to be intentional or suspicious in nature. A fire that was caused intentionally or may have resulted from criminal activity will be investigated by a law enforcement official. Fire investigators will support the law enforcement investigation with origin and cause findings and any additional fire related support. Scene security shall be required continuously, until the scene is released by the fire investigator and law enforcement.

4 Structural Fire Operations

All NPS units shall address fire protection suppression operations in their SFMP. The park structural fire program manager (PSFPM) is required to identify and assess risk, weight options, develop and *implement structural fire operations programs to protect individuals and resources from the effects of fire* within the designated areas of responsibility within the unit.

This chapter initially defines the program requirements of parks that have Agreements, Partnerships, and Engine Company Operations with potential Wildland Urban Interface (WUI). The chapter fully develops to incorporate Engine Company requirements during response, fireground operations with the addition of Special Operations. Engine Company Program requirements, Firefighting Apparatus and Equipment inspection, testing and maintenance culminate the chapter.

4.1 Responsibilities

4.1.1 Park Level

Superintendents

- Determine the fire suppression operation level for the park and reflect that decision in the park's SFMP.
- Ensure that park structural fire suppression operations follow Director's Order and Reference Manual 58.
- Support operational reviews. Address deficiencies identified during these reviews in a timely manner and report their progress with addressing the deficiencies to the RSFM.
- Comply with nationally issued Standard Operating Procedures (SOPs) and develop and implement park specific SOPs to cover park specific areas, strengthen national and industry standards, promote efficiency, safety and fireground effectiveness.
- Ensure that all structure fire related incidents and agency response outside NPS designated boundaries by NPS personnel and/or apparatus are properly reported according to agency policies.

- Responsible for pre-incident coordination or agreements with response agencies if not an engine company park.

4.1.2 Regional Level

Regional Structural Fire Marshal (RSFM)

- Ensure fire suppression operations in the parks meet the requirements set forth in RM-58.
- Identify region-wide fire suppression training needs and relay this information to the national office.
- Support superintendents with technical expertise regarding the identified service level the park has chosen.
- Ensure that all Level Three suppression operations are thoroughly reviewed on a routine basis. Common deficiencies identified during the review process are used to assist with prioritization of structural fire operations program goals and funding.
- Ensure that all parks within their region are reporting structure fire events and incidents, including alarm activations into an approved incident reporting system.

4.1.3 National Level

- Establish servicewide suppression operations guidelines and requirements for NPS parks, which participate in fire suppression activities or respond to all hazard incidents.
- Work to ensure the availability of servicewide technical expertise to assist the regional offices and parks in maintaining their fire suppression capabilities.
- Identify training needs and develop an annual training schedule.
- Provide structural fire training that meets the standards necessary to support NPS fire suppression operations.
- Establish SOPs that provide consistency between the parks.
- Administer and maintain structural fire training and certification data systems.

4.2 Determining Structure Fire Operations Levels of Service

Park Managers must actively assess and consider the requirements for structure fire incident response and the resources that are available to mitigate these incidents safely and efficiently.
When determining the park's structure fire operations, Park Managers shall:

- Assess Risk
- Reduce/Mitigate Risk
- Determine Levels of Service

These decisions and procedures shall be documented in the parks SFMP.

4.2.1 Assessing Risk

The first step in determining the Levels of Service is to assess the risks at the park

4.2.1.1 Risk to visitors and employees (Life Safety)

Fire loss statistics identify people are most at risk in buildings with sleeping quarters or assembly occupancies such as a park with a hotel or a lodge, drinking and dining facilities, and large visitor center theaters.

4.2.1.2 Available resources for firefighting operations (Incident Stabilization)

Park Managers must determine the availability of park and local first responders to respond to structure fire incidents within designated park boundaries. Time of day, levels of training and certifications along with equipment and apparatus shall be considered. Reliability of adequate water supply and availability should be determined with the appropriate park staff. A comprehensive risk-based assessment from the RSFM can help determine if water supplies are adequate to park risks.

4.2.1.3 Protecting Resources (Property Conservation)

Park staff must consider the protection of our resources from fires when determining how fires are going to be suppressed. Historic architects, cultural resource specialists, and your RSFM can all help assess the risk to your protected resources.

4.2.2 Reduce/Mitigate Risk

All park managers need to consider reducing the risk of a fire to ensure that employees are provided training, education and awareness on suppression of and early detection of incipient stage fires. Portable fire extinguisher training is available on DOI Talent, park resources (e.g., Safety Office) or may be offered through local fire departments and vendors. Park Standard Operating Procedures (SOPs) shall be developed, trained, and implemented for these types of incidents (OSHA).

4.3 Levels of Service

Fire protection suppression operations for all NPS units will be identified by one of three, or a combination thereof, Levels of Service and detailed in the park SFMP. Integration of the Level of Service shall be fully and clearly understood and incorporated by the park management team.

4.3.1 Level One: Service by Agreement and/or Fee

Level One is met through Memorandums of Understanding (MOU) or Memorandums of Agreement (MOA) with local first responder services. A properly executed and vetted aid agreement is the preferred method of documentation providing this level of service. The MOU/MOA provides the legal framework that details the service to be provided. Some municipalities may require a fee for service and the agreements should clearly detail the expenses and methods of reimbursement.

Some municipalities may not require agreements as fire protection is automatically provided through local or state legislation, policies, or local government agreements. Parks may encounter local fire departments of governments that decline to sign agreements. If an agreement is declined, or there exists legislation already providing response, parks shall document this in a memorandum for record. When the municipality declines to sign an agreement, the memorandum shall clearly document the attempt to establish a formal agreement, the reasons for signing the memorandum, and any verbal agreements to provide service.

Parks utilizing Level One should provide annual orientation (e.g., walk-throughs of facilities, pre-incident planning) to emergency response personnel and ensure an understanding of the importance of park structures, historic facilities, park infrastructure (e.g., water supply, accessibility), special handling and protection of cultural resources contained within the park.

4.3.2 Level Two: Partnership

Level Two, parks may decide to train employees as structural firefighters and make them available to the local fire department. NPS employees engaged in structural firefighting must meet training and certification requirements as detailed by NPS policy (RM-58) and meet all compliance with medical requirements, physical fitness, self-contained breathing apparatus (SCBA) fit testing. In addition to training employees, parks may need to commit resources to purchase required equipment and personal protective equipment (PPE) if not provided through the partnership.

Park managers are responsible for ensuring NPS employees engaged in structural firefighting are using tools, equipment and PPE that meets all NFPA standards even if those items are provided by the local fire department

Parks utilizing Level Two shall enter into a formal agreement with the fire department prior to committing employees to the rigorous training that is required.

Park managers will need to determine the status of these employees during response to fire events. Some options may include:

- Employees are in pay status any time they respond to incidents on or off duty.
- Employees are in pay status when they respond only during normal work hours.
- Employees are in pay status only when responding to the park.

4.3.3 Level Three: Engine Company Park (ECP)

Level Three Engine Company Park operations shall only be considered when parks have the available staffing, funding, and resources to provide a full ECP level of response. Park management must be fully committed to a safe and effective program.

When a park has an established Wildland Fire Program with available trained and certified structural firefighter personnel, apparatus, and resources to conduct WUI operations; the Level Three's objective is to allow properly trained individuals to contain, control and possibly extinguish fires until fire department responders can arrive on scene to mitigate the incident.

Level Three ECP's shall meet all NPS policies and NFPA standards to meet and be in full compliance for fire department response operations. WUI operations shall also follow all DO/RM-18: *Wildland Fire Management* and *Interagency Standards for Fire & Aviation Operations* in the potential control and extinguishment of structure fires (e.g., exterior only). A NWCG Type III fire apparatus shall be utilized as equipped with a rated pump approved for wildland and structural firefighting.

Level Three ECPs, the park superintendent shall hire an appropriately graded 0081 park structural fire chief based on the complexity identified by the NPS Structural Fire Program and RSFMs. The superintendent of an existing ECP, without an 0081 park structural fire chief, shall hire an appropriate 0081 no later than September 30, 2024.

Superintendents failing to hire/fill the appropriate 0081 park structural fire chief shall stand down all structural fire suppression operations immediately. See Section 4.5.1.2.

4.4 Structural Fire Operations

Life safety is the primary responsibility of NPS structural firefighters and incident commanders (ICs). The following structural fire objectives have been adopted to provide appropriate structural fire planning, training, and response:

- **Life Safety** – Prevent injury and the loss of human life.
- **Incident Stabilization** – Prevent or reduce damage and destruction of real property and cultural and natural resources.
- **Property Conservation** – To the extent possible and with all means necessary without putting firefighters in danger, fire operations are committed to minimizing the damage to property. This requires firefighters to consider the resources and the environment that are at risk and, when safe to do so, take all required actions to protect them.

The National Fire Protection Association (NFPA) 1720: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, identifies the operation for NPS structural fire engine companies and will be used as the guiding document when conducting fire suppression operations within the NPS. NPS structural fire response functions are very similar to volunteer fire departments in local communities.

4.5 Engine Company Park Program Requirements

Operating an engine company safely and within the requirements identified by the NPS requires establishing and maintaining a complex program.

4.5.1 Initiation (Stand Up) and Suspension (Stand Down) of ECPs

4.5.1.1 Engine Company Park Stand Up

- The superintendent must request in writing the desire to establish or re-establish an engine company for the identified park.
- This request will be sent to the regional and national offices.

- The Structural Fire Program will conduct a park review to ensure that all considerations have been identified and the park is prepared to stand up. Once the review is complete a letter of concurrence will be issued.

The need to stand up an engine company can also be provided to a superintendent as a result of a park review from the region or national structure fire branch office.

4.5.1.2 Engine Company Park Stand Down

Stand down of a program can be initiated from several different areas:

- **Park:** The superintendent can request in writing to the regional and national structure fire branch office the desire to stand down their engine company. The superintendent will need to provide reasons for requesting the stand down.
- **Regional Structural Fire Marshal:** The RSFM may conduct a review of engine company operations within their region. The review may result in the recommendation to shut down engine company operations. The RSFM will provide in writing to the park superintendent and the national structure fire branch office the reason for the recommended action. The national structure fire branch office will review the reasons and may conduct a separate review of the engine company to validate the concerns. The national structure fire branch office will provide a written response to the request.
- **National Office:** The Structural Fire Program may recommend the standing down of engine company parks if after conducting a review the identifies an engine company is not meeting compliance, operating in an unsafe manner, or fails to comply with standards.

The appeals process for the above listed actions related to standing up or down of an engine company will follow the same process identified *in Chapter 2, Community Risk, Reduction, and Code Compliance.*

4.5.1.3 Safety Stand Down

The Department of Labor describes a Safety Stand Down as a voluntary event for employers and employees to engage in open, honest, objective, poignant dialogue about safety in the workplace. According to the Occupational Safety and Health Administration (OSHA), different companies conduct safety stand downs in different ways, so they work best for their individual workplace concerns.

Engine company parks are encouraged to participate in self-identified, agency and national recognized Safety Stand Down events. During these events, highlights should focus on critical safety, health, training, education and survival issues for fire and emergency services personnel.

During Safety Stand Down Events, ECPs are encouraged to suspend all non-emergency activities and focus attention on safety, health, and education efforts.

The annual nationally recognized Firefighter Safety Stand Down event takes place during the third full week of June.

4.5.2 Organization and Operation

Fire suppression operations shall be organized to ensure that suppression capabilities include sufficient personnel, equipment, and resources to efficiently, effectively, and safely perform at the types of incidents and hazards found in the park. Engine company operations must be clearly identified as an essential function within the park's SFMP. It is also critical that parks with ECPs meet the following:

- Establish a dedicated financial account to provide annual program support for suppression operations. Cyclic replacement programs for tools, hose, PPE, and fire apparatus must be addressed.
- Identified in writing a qualified individual as identified in Chapter 5, *Training and Certification* who has the primary duty (e.g., PSFPM) of oversight and supervision of the park ECP program with clearly defined succession of command responsibilities.
- Defined response area (Standard of Coverage) for each engine company.

4.5.3 Staffing

4.5.3.1 Optimal Staffing Requirements for Operating an Engine Company

Engine companies shall ensure that sufficient staffing of personnel within their defined response area are available to respond to all hazard incidents safely, efficiently, and effectively. Employees who are on leave, out of the area on an off-duty basis or on limited duty should be considered.

Parks may augment overall staffing needs by integrating with local community resources and adjacent districts within the park to ensure that the minimum staffing requirements for incident response are met (e.g., NPS fire apparatus arrives on scene with three NPS firefighters and is met on scene by two local volunteer firefighters). Two qualified and certified firefighters are preferred (Driver and a Firefighter) in an apparatus prior to responding to an incident to ensure safe operation.

Available staffing due to leave or seasonal employment may require the park to establish different strategies and tactics for response and fireground operations. A fully staffed structural fire program during the summer season may allow for multiple responding apparatus with full crews while "Off Season" operations may be at a reduced capability. Should staffing be reduced in the off season the park may need to reduce their response posture and only work in an exterior offensive fire attack until help from surrounding districts or local communities arrive.

4.5.3.2 Minimum Staffing Requirements for Incidents

Engine company staffing requirements are dictated by the type of incident involved. For example, a successful response to a reported dumpster fire may be

accomplished with a two-person engine company while a structure fire might require several fire apparatus and multiple firefighters.

NFPA 1720 establishes ideal staffing and response times. Minimum engine company staffing levels can include NPS firefighters on scene, responding to the designated response area, and personnel responding to the incident through mutual aid. Exterior operations may involve a crew of less than four firefighters.

Response should begin once a firefighter and a FADO arrive at the fire station. In some circumstances, the fire apparatus may leave the station with only the fire apparatus driver operator. Additional firefighters or mutual aid companies may meet the fire apparatus at the scene.

Firefighting suppression operations are limited to exterior **ONLY** until at least four qualified and certified firefighters are on scene to establish mandatory 2-In/2-Out safety protocols. FADOs not certified to Firefighter I do not meet 2-In/2-Out. OSHA 29 CFR 1910.134 (g)(4) states that once firefighters begin interior attack on a structure fire, the atmosphere is assumed to be Immediately Dangerous to Life or Health (IDLH).

Standard Exceptions to 2-In/2-Out requirements are:

- When there is a reported or suspected life hazard where immediate action could prevent the loss of life.
    - Known rescue and the IC feels it is safe to attempt the rescue
- When the fire is in an incipient stage
    - OSHA defines an incipient stage fire in 29 CFR 1910.155 (g)(26) as a "fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus."

4.5.3.3 Positions Required to Staff a Response

There are a minimum of four roles that must be assigned during any incident:

- Incident Commander (IC)
- Safety Officer
- Engine Company Officer/Lead Firefighter
- Fire Apparatus Driver Operator

All structure fire incidents require a minimum of two firefighters to engage a fire of any type. A minimal number of firefighters may assume multiple roles (e.g., FADO/Safety Officer or Engine Company Officer/IC). Larger complex incidents will require dedicated staffed and assigned positions (e.g., IC and a Safety Officer) as well as multiple firefighters performing specific duties.

4.5.3.3.1 Incident Commander (IC)

One **on-scene** individual shall be assigned as the IC. The assumption and identification of this command shall be communicated to all units responding to or involved in the incident. The responsibility for assigning fire companies at an emergency belongs to the IC, who establishes priorities and assigns units based on identified objectives. Once the initial command responsibilities are completed, the IC should begin to obtain progress reports from operating units and evaluate efforts. The initial action plan should then be revised or refined as necessary.

The IC shall remain in command, until command is transferred, or the incident is terminated. If the IC is not familiar with structural fire suppression strategy and tactics and does not have a clear understanding of fireground priorities, an Operations Officer shall be assigned to an Engine Company Officer or the most experienced lead firefighter on-scene.

The IC shall be responsible for the overall safety, coordination, and direction of all activities for the duration of the incident. The IC will ensure that a personnel accountability system is utilized to rapidly account for all personnel at the incident scene.

4.5.3.3.2 Safety Officer

A dedicated safety officer should be appointed when staffing permits. The safety officer should be an experienced firefighter or a person with significant knowledge of the type of incident being handled by the emergency providers. The safety officer has the authority to stop any unsafe activities without consulting the IC. The safety officer shall report any stoppage of unsafe activity to the IC immediately following the action.

The IC is responsible for the functions of the safety officer until one is assigned. The safety officer is appointed only by the IC and should not only be knowledgeable of the functions assigned with that position, but also have the experience and training to recognize unsafe conditions and practices during a fire event or an emergency incident. The safety officer shall be responsible for monitoring conditions throughout the incident, actively engaged with an ongoing risk assessment, and ensuring that personnel adhere to contemporary firefighting safety practices

4.5.3.3.3 Engine Company Officer / Lead Firefighter

The company officer shall be certified to the level of firefighter II per NFPA 1001: *Standard for Fire Fighter Professional Qualifications* as a minimum. The company officer shall always be responsible for the identity, location, and activity of each member of their assigned

engine company. In turn, each member of the engine company shall be aware of the identity of the Engine Company Officer / Lead Firefighter.

4.5.3.3.4 Fire Apparatus Driver Operator (FADO)

The FADO of any fire apparatus (e.g., Pumper, Aerial, Mobile Water Supply) shall be trained and certified to the level of operation for the type of apparatus per NFPA 1002: *Standard for Fire Apparatus Driver Operator Professional Qualifications*.

4.5.4 Standard Operating Procedures (SOPs) / Standard Operating Guidelines (SOGs)

The NPS Structural Fire Program has developed written **SOPs** that will serve as a foundation to ensure consistent and safe practices and procedures for engine company operations. SOPs will target specific subjects in detail to provide park program managers and firefighters clear critical fireground procedures designed to enhance operational safety, address common questions and provide clarification.

Individual parks or ECPs may develop more stringent procedures that work in conjunction with these SOPs, but they cannot develop or operate from procedures which are less stringent than those developed by the national office. Variance from the minimum established requirements by the national office SOPs is **NOT** allowed and park structural fire programs would be considered operating outside of agency policy and standards.

Nationally issued SOPs can be accessed on the Structural Fire Program site for quick and immediate access to all NPS employees.

SOGs are recommended to be created by fire chief's or PSFPM when specific policy, standards or procedures do not apply. SOGs are designed to streamline processes accordingly to what the program best practices and industry business practices are. SOGs, by nature, are guidelines and should be open to interpretation allowing flexibility for unforeseen circumstance potentially encountered on the fireground, emergency circumstances and structural fire program operations. SOGs are more general versus specific rules and should **NOT** be confused with formal policy, standards, and procedures to include SOPs.

It is the responsibility of every individual in the park structural fire program to be familiar with all established SOPs / SOGs and any updates that have been issued. It is the responsibility of the park fire chief to ensure that the park developed SOP's meet the intent of the nationally developed procedures and, along with SOG's, are reviewed/updated on a regular basis.

4.5.5 Drug and Alcohol Policy

The NPS Structural Fire Program has a **ZERO TOLERANCE** policy towards the consumption of, or being under the influence of, drugs or alcohol when performing the duties, training, responding to or from and/or operating on the fireground of a structural

fire or emergency incident. This is to include prescribed and/or over-the-counter medications with performance restrictions. Individuals performing acts, suspected of, displaying signs of and/or behavior believed to be under the influence of drugs or alcohol will be immediately relieved of their assigned duties, prevented from participating and removed from the fireground or park structural fire program designated areas. Individuals shall be referred to the proper authorities, supervision, and park management teams (e.g., LE, HR) for potential administrative and legal action.

4.5.6 Pre-incident Plans

Pre-incident plans are written (or electronic) documents that are designed to provide responders with information that might affect future emergency operations in a building. Information gathered in pre-incident plans allows firefighters and emergency response personnel to develop operational plans to mitigate the incident. Parks must have pre-incident plans developed and available for all structures and priority facilities previously identified through risk assessments. Pre-incident plans should be made available in all fire apparatus and shared with aid agreement partners. Annual walk-throughs of pre-incident identified hazards and facilities should be conducted to update plans and include aid agreement partners.

Jurisdictions and resources required/requested to respond to an incident shall be determined by a risk analysis assessment and documented on pre-incident plans.

4.5.7 Personal Protective Equipment (PPE)

Firefighters shall be provided with custom fit structural fire PPE. The PPE is issued to and remains with the individual as long as it is serviceable and the employee remains in an engine company park. At a minimum, PPE issued shall include NFPA approved:

- Structural fire helmet
- Structural fire jacket
- Structural fire pants
- Suspenders (if applicable)
- Protective particulate hood
- SCBA mask (stays with the park)
- Eye and hearing protection
- Structural safety toe boots
- Structural fire gloves

Additional recommended PPE may include, but is not limited to:

- 2nd protective particulate hood
- 2nd pair structural fire gloves
- Extrication gloves

- Leather work or similar style gloves (e.g., Mechanix)

Applicable firefighter PPE shall comply with NFPA 1971: *Standard on Protective Ensembles for Structural Firefighting and Proximity Fire Fighting*. Firefighter NFPA PPE shall be:

- <10 years' service life from date of manufacture
- NFPA compliant tagged (attached, legible)
- Same manufacturer, model, style (no mixing/mismatch PPE)
- Properly fitted to the individual issued
- Annual inspected in accordance with NFPA 1851: *Selection, Care and maintenance of Protective Ensembles for Structural and Proximity Firefighting*.

Park structural fire programs should project firefighter PPE purchases on a cyclical basis. This is to ensure that all firefighters have ensembles readily available and spread PPE expiration dates and budget expenses over a multi-year span. Programs should budget for a second set of PPE (jacket, pants, suspenders, hoods, gloves and boots) for all assigned firefighters as recommended by NFPA and industry business practices.

New purchased/acquired structural fire PPE shall meet the most current editions of applicable NFPA standards. Under no circumstances shall NFPA structural firefighter PPE be used if exceeding 10 years from date of manufacture or NFPA approved tags are not attached. Out-of-Service PPE shall be removed from service and disposed of properly to ensure it cannot be used for structural firefighting operations.

4.5.7.1 Eye Protection

Personnel shall be provided NFPA/ANSI approved eye protection (e.g., goggles, safety glasses). Fire helmet face shields are not approved as primary eye protection. Properly worn SCBA facepiece/masks meet approved eye protection requirements.

4.5.7.2 Hearing Protection

Personnel shall be provided hearing protection when exposure to noise levels in excess of 90dBA. Noise sources considered include, but not limited to:

- Fire apparatus
- Fire pumps and generators
- Power tools
- Vehicle extrication equipment
- OSHA identified permissible exposure levels (PEL) (e.g., continuous, prolonged exposure over a designated time)

4.5.7.3 Helmets

Structural fire program personnel shall be provided NFPA approved fire helmets. Helmets issued shall be:

- Fire Chief / Chief Officers – White
- Fire Officers – Red
- Firefighters / FADO – Yellow

Park structural fire programs should also include additional identification to fire helmets in the form of rockers, crescents and/or front shields (e.g., Firefighter I, Firefighter II, FADO, Fire Officer, Fire Investigator).

Fire helmets shall be secured in the apparatus and not worn by firefighters while the vehicle is in motion.

4.5.7.4 SCBA

All existing and new SCBA shall meet the current requirements of NFPA 1981: *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Service*s and NFPA 1852: *Standard on Selection, Care and Maintenance of Open-Circuit Self-Contained Breathing Apparatus.* Inspections of SCBA and all related accessories shall be documented and kept on record.

4.5.7.4.1 SCBA Facepiece/Mask

All firefighters shall be personally issued a SCBA facepiece/mask properly sized and FIT tested.

- Masks shall be inspected on a weekly basis to include:
- Facepiece seal for damage, wear, deformation, and cracks
- Lens for cracks, gouges, scratches or any condition that could impair the user's vision
- Lens frame
- Harness
- Nose cup
- Attachment points

4.5.7.4.2 SCBA Pack Frame, Hoses, Harness and Regulator

Components shall be inspected weekly for damage and serviceable condition:

- Heads-up display
- Regulator operation
- Hoses and hose attachments

- Pack frame
- Batteries (replace as needed)
- Harness and connections
- Operational check of all assembled components

SCBA operation and visual inspections shall be conducted by firefighters prior to entering IDLH environments and immediately after each use.

All SCBA packs/regulators shall be annually flow tested. Flow tests are to be performed by properly trained and manufacturer service care certified technicians.

4.5.7.4.3 SCBA Cylinders

SCBA cylinders in-service on apparatus for fireground operations may be inspected concurrent with SCBA inspections.

SCBA cylinders shall be of the correct operating pressures as designed for the SCBA utilized by the park Structural Fire Program.

SCBA cylinders kept on apparatus (e.g., SCBA packs or spare cylinders) shall be inspected on a weekly basis. Cylinders found below 90% of rated capacity should be refilled/topped off.

SCBA cylinders shall be current on hydrostatic testing and be labeled accordingly. Service life and hydrostatic testing shall be conducted according to manufacturer guidelines.

SCBA Cylinders outside their designated service life shall be retired and disposed of according to manufacturer guidelines. Service life for cylinders is based on cylinder components and year of manufacture vs NFPA applicable standards (e.g., 15-year service life w/ hydrostatic testing required every 5 years)

4.5.7.4.4 Personal Alert Safety Systems (PASS) Devices

PASS devices shall meet the requirements of NFPA 1982: *Standard on Personal Alert Safety Systems*.

PASS devices shall be inspected weekly and may be performed concurrently with SCBA inspections.

PASS devices may be integrated into SCBA pack assemblies.

All personnel operating on a structural fireground operation shall be equipped with a NFPA approved PASS device and in the operational "On" condition. Individuals not wearing SCBA shall have individual PASS devices attached to their PPE/person while operating on the fireground area.

4.5.8 Personal Accountability System

All NPS Park Structural Fire Programs / ECPs shall have an accountability system in place. The accountability system shall be documented in program SOPs and all personnel trained and evaluated on its use on a recurring basis.

Personal Accountability will be used on all incidents regardless of the level of complexity.

Established accountability systems shall allow for the quick identification of all individuals on an incident to include but not limited to:

- Firefighter Identification (e.g., Name, FF ID, Position Designation)
- Primary Assignment (e.g., Apparatus, Function, Status)
- Location (e.g., Interior, Exterior, Rehab)

Overall responsibility for managing firefighter accountability during an incident belongs to the IC. These duties may be delegated to the incident safety officer or an accountability officer.

4.5.8.1 Personnel Accountability Report (PAR)

Personnel accountability reports (aka PAR checks) are radio reports that are periodically requested by the IC, or their designated accountability officers, to ensure that each crew is whole, and all firefighters are accounted for. During a structural fire incident or fireground operations, PAR checks are requested at pre-determined benchmarks identified in the ECPs SOPs on Personal Accountability System. Benchmarks may include but are not limited to:

- Every 10 minutes of elapsed time crews are on SCBA “breathing air”
- Firefighters/Crews exiting a IDLH environment
- Change in strategy and tactics (e.g., Offensive to Defensive)
- Hazardous Event (e.g., collapse, explosion, back draft)
- Building evacuation
- Report of a missing or trapped firefighter
- Every 30 to 60 minutes of elapsed time of fireground operations
- When the fire is declared under control.
- Prior to release of firefighters from the fireground
- Termination of Command

4.6 Fire Apparatus/Equipment Inspection, Testing, and Maintenance

Structural fire program apparatus, electronic devices, tools, and equipment shall be maintained in accordance with program policies, NFPA standards, applicable regulations, and manufacturers

recommendation/guidelines. All inspection, testing, and maintenance shall be recorded, documented, and maintained on file by the park and readily provided upon request.

4.6.1 Fire Apparatus

It shall be the responsibility of every NPS ECP program that has fire apparatus to establish a preventative maintenance program and plan for their apparatus. Records shall be maintained by the park and be kept readily available for program audits or site visits. Each vehicle shall have documents on file to reflect FADO inspections, maintenance, and repairs. All structural fire apparatus will be compliant NFPA 1901: *Standard for Automotive Fire Apparatus* and maintained in accordance with NFPA 1911: *Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Fire Apparatus*.

Fire apparatus not in compliance with NFPA 1901 and/or 1911 shall be taken immediately out of service until compliance is met, repair rendered, and written documentation of the apparatus's readiness can be provided upon request.

4.6.1.1 Inspection

Fire apparatus shall be inspected on a weekly basis. Fire apparatus shall be maintained and available in a 24/7 emergency response ready posture.

4.6.1.2 Annual Pump Test

All fire apparatus equipped with a rated fire pump ≥750gpm shall be annually pump tested in accordance with NFPA 1911. Records of annual fire apparatus pump tests shall be maintained by the park.

4.6.1.3 Purchase

Fire apparatus and all associated equipment shall be purchased, operated, equipped, and maintained in accordance with NFPA 1901 and this reference manual.

Fire apparatus purchased through either a park or regional equipment replacement program are to be used in accordance with agency policies and assigned at the discretion of the RSFM.

Fire apparatus purchased by the NPS Structural Fire Program office shall be placed in service at the needs of the agency. Apparatus may be removed, relocated, and replaced as deemed necessary to best meet the needs of the agency. The park has the responsibility of assuring the apparatus is maintained in safe operating condition and is responsible for all associated costs.

4.6.1.4 Refurbishment

If the park fire chief and RSFM determine that refurbishment of an apparatus is necessary to meet the park's structural fire suppression needs, associated NFPA standards, and it is cost effective, the apparatus may be sent to a manufacturer approved certified vendor to bring the apparatus into compliance with the current edition standard of NFPA 1901.

Due to overall costs associated and NFPA 1901 (<1991 = non-compliant), apparatus manufactured before 1991 shall not be considered for refurbishment

Apparatus older than 15 years old and have been properly maintained and are in good condition may be refurbished in accordance with NFPA 1912: *Standard for Fire Apparatus Refurbishing.* Apparatus that meets this criterion shall be inspected by a certified Emergency Vehicle Technician (EVT), or certified equivalent, to determine the apparatus condition for refurbishment.

4.6.1.5 Retirement & Disposal

NFPA 1911 shall be used to determine if a fire apparatus is to be taken out of service. A EVT will, after thorough inspection and testing, determine if the apparatus meets one of the following criteria:

- Remove from service
- Retain in service with limitations
- Retain in service without limitations

Apparatus shall be retired and disposed of in accordance with all applicable agency policies.

Apparatus more than 25 years old should be inspected by an EVT for serviceability and should be considered for removal and replacement.

Under no circumstance should an apparatus be operated that does not contain properly installed and functioning seat belts/restrains for each seated position.

4.6.2 Fireboats

Any marine vessel whose primary mission is firefighting and pumping operations, including emergency operations, shall be classified as a firefighting vessel. These types of apparatus have unique requirements (e.g., USCG Regulations) and, although components of these operations are similar to fire engines, their operation, associated training, and tactics require specialized skills and standards.

4.6.2.1 Inspection

Fireboats shall be inspected at least weekly, and the vessel and all equipment remain in a full operational ready 24/7 emergency response posture status. During the weekly inspection, the vessel, equipment, and fire pumps shall be operated on the water to ensure operation. All applicable USCG regulations and policies should be met at all times.

Parks operating firefighting vessels shall develop a maintenance schedule which will specify the maintenance or inspection interval and what is to be done to maintain each piece of equipment, including oil and other fluids recommended for use. The inspection, testing, and maintenance of fireboats shall be conducted in accordance with NFPA 1925: *Standard on Marine Firefighting Vessels*.

Parks utilizing fireboats should berth the vessel in such a way that it meets NFPA 303: *Fire Protection Standard for Marinas and Boatyards*. As identified and classified by boat type, NPS fireboats should be equipped with the necessary tools and materials, as outlined by NFPA 1925.

4.6.2.2 Annual Pump Testing

All vessels that are used to suppress structure fires shall have an annual pump performance test. Records of these tests will be maintained by the park.

4.6.2.3 Purchase

Fireboats and associated equipment should be purchased, operated, equipped and maintained in accordance with NFPA 1925.

Fireboats that have been replaced through the regional Equipment Replacement Program are to be disposed of in accordance with agency and the region's policies for excess capital equipment.

Vessels which have purchased by the NPS Structural Fire Program office shall be placed in service at the needs of the agency. Vessels may be removed, relocated, and replaced as deemed necessary to best meet the needs of the agency. The park has the responsibility of assuring the vessel is maintained in safe operating condition and is responsible for all associated costs.

4.6.3 SCBA Breathing Air and Cascade Systems

Compressed air used for filling SCBA cylinders shall be tested quarterly and maintenance completed in accordance with manufacturer guidelines. Testing shall be conducted by an independent third-party testing firm. A certificate shall be issued by the testing firm that certifies that the air quality meets OSHA 29 CFR 1910.134 specifications and grade E breathing air, as described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989. The park shall maintain all testing and maintenance documents and make them readily available upon request.

4.6.4 Fire Hose

Fire hose selection shall comply with NFPA 1961: *Standard on Fire Hose*. Fire hose should not be stored on apparatus in the same compartment as petroleum products or other items that may damage the hose. Hose loaded on apparatus (e.g., pre-connects, supply lines) should be unloaded, rotated, and reloaded at least twice a year to prevent permanent fold in the rubber linings. Fire hose stored in a fire station or support structure should be kept clean, dry, and serviceable on hose racks out of direct sunlight.

Fire hose should be individually and uniquely identified with markings to track testing, repair and ownership. The identification should be marked on the same location for every section of hose for easy reference.

Fire hose shall be annually tested in accordance with NFPA 1962: *Standard for Care, Use and Service Testing of Fire Hose including Couplings, Nozzles and Fire Hose Appliances*.

The park shall maintain test documents and records and make readily available upon request.

4.6.5 Ground Ladders

Ladders shall be visually inspected and cleaned after each use or at least quarterly. Heat sensors must be checked after each use. Ladders which have been found to have defects shall be removed from service for repair or replacement.

Ground ladders shall be tested annually in accordance with NFPA 1932: *Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders*. The park shall maintain test documents and records and make readily available upon request.

4.6.6 Electronic devices

All electronic devices shall be inspected, tested, and maintained in accordance with applicable NFPA standards and manufacturer recommendations. To include, but not limited to:

- Thermal Imaging (TI) devices
- Air monitoring devices
- Gas monitoring devices
- Computers

4.6.7 Tools and Equipment

All power tool and devices shall be inspected, tested, and maintained in accordance with applicable NFPA standards and manufacturer recommendations. To include, but not limited to:

- Vehicle extrication equipment
- Positive-Pressure fans
- Generators
- Scene lighting
- Flashlights

5 Training and Certification

5.1 Overview

This chapter establishes policies and provides guidance to ensure personnel with structural fire responsibilities are properly trained, qualified, and certified as structural firefighters and fire prevention personnel. This chapter clearly spells out what is required in training, certification, and policy level requirements to be recognized and/or certified at various levels within the Structural Fire Program. Chapter 4, *Structural Fire Operations*, should be referenced to understand engine company operations and firefighting equipment.

The NPS provides structural fire and all-hazards response to meet park mission goals and responsibilities. To serve this capability and to provide parks with the necessary skills, the NPS Structural Fire Program has a certification and training system for various levels of fire prevention training and operational response. Many of these levels correspond to national standards of certification, which have been established by the National Fire Protection Association (NFPA).

5.2 Authority Having Jurisdiction

The NPS Structural Fire Chief (NPS-FC) retains Authority Having Jurisdiction (AHJ) authority for certification and training standards.

5.3 Certification

The NPS Structural Fire Training Program is mandatory for all personnel engaged in structural fire suppression and prevention activities (e.g., PSFCs, instructors, firefighters) for the NPS. **All personnel performing structural fire activities shall be recognized and certified through the Structural Fire Training Program, National Board on Fire Service Professional Qualifications (Pro Board), and/or International Fire Service Accreditation Congress (IFSAC).** *IFSAC and Pro Board accredited training programs shall be referred to as recognized accredited agencies throughout this document.*

Beginning January 1, 2023, all NPS Structural Fire Training Program issued certifications shall be Pro Board and/or NPS certified. All future firefighter and FADO courses will be accredited by Pro Board and result in Pro Board certifications.

Previously offered courses by the NPS Structural Fire Training Program may not have resulted in Pro Board certification. For courses that were not Pro Board accredited or students didn't complete Pro Board requirements, NPS certifications were issued.

The NPS Structural Fire Program is the sole structural firefighter certifying entity for the NPS. The NPS certification program is a mandatory program for all employees, partners, and volunteers seeking certification through the NPS. The use of volunteers within the structural fire management program is common. Volunteers may not be used to respond to fire or other hazardous activities without first being selected as an emergency hire in an approved administratively determined (AD) position. AD positions have been developed for all fireground positions, including firefighter, FADO, and fire officer.

Parks are authorized to conduct their own firefighter training but are not authorized to issue their own structural fire training certifications (e.g., Firefighter I/II and FADO).

Previous park-level issued certifications will not be recognized. Structural fire training certifications obtained from other entities must be presented to the NPS Structural Fire Program for validation and reciprocity, if appropriate. Personnel engaged in structural firefighter activities shall meet all the requirements listed in policy. Employees participating in structural fire activities with non-recognized certifications will be considered as operating outside of NPS policy and shall be formally notified by their management to cease responding until they meet all aspects of policy.

- Each park is responsible to ensure compliance with this policy.
- Participants in the NPS Structural Fire Program shall be a minimum of eighteen years of age.
- Personnel engaged in structural fire activities shall be tested on the written and manipulative skill performance objectives, as outlined for each level of certification.
- The NPS Structural Fire Program has an advisory process on certification through the NPS and Pro Board as identified in the Pro Board Procedural Guide.
- Personnel wishing to participate in the suppression of structure fires or respond to all-hazards incidents as a structural firefighter, while an employee, partner, or agent of the NPS, may choose to receive their training through the NPS or through a Pro Board/IFSAC accredited agency.
- The NPS Structural Fire Program may only provide training to NPS employees, partners, volunteers, or other agencies as determined by the Structural Fire Program through agreements. Training shall not be provided to individuals not meeting these criteria.
- NPS employees who have obtained their certification through a state must comply with that state's certification requirements and apply for NPS reciprocity. They are not eligible for Pro Board certification (if non-Pro Board certification was provided by the state) through the NPS, unless they formally challenge the associated certification.
- Personnel who have obtained a non-Pro Board certification from one state and have since moved to another state may not participate in NPS structural fire operations. They shall apply for NPS reciprocity or obtain Pro Board certification (e.g., challenge) from the NPS.

5.3.1 NPS Certifications

Firefighters with NPS certifications issued prior to January 1, 2012, are no longer valid as of January 1, 2024. Firefighters shall apply for reciprocity before the December 31, 2023 deadline and may be considered for issuance of a current NPS certification.

Firefighters shall meet the following requirements to be considered for approval:

- Current/Active Firefighter meeting all requirement benchmarks
    - Physical Ability Test (PAT) (Passing Score)
    - Structural Fire Medical Determination (Qualified)
    - SCBA Fit Test (Pass)
    - Structural Firefighter Refresher (Current)
- Annual/Refresher training documentation for the previous two (2) years
- No lapses in service exceeding reinstatement requirements

5.3.2 Pro Board Certification

The NPS Structural Fire Program is accredited by Pro Board. All certification levels are tested to ensure that they meet or exceed the minimum standards. This shall not preclude the NPS Structural Fire Program from issuing fire certifications for courses not certified by Pro Board.

All personnel seeking Pro Board certification must successfully complete and pass the associated program requirements.

NPS Pro Board certifications may only be issued by the NPS Structural Fire Program and will only be issued to candidates who have successfully passed all assessments and meet all requirements using the Pro Board approved processes.

For a detailed review of agency policy and procedures about Pro Board accreditation and certification, contact the national office.

5.3.3 State Issued Certification

Employees, partners, or volunteers who have obtained their certification through a state NFPA accredited agency shall apply for NPS certification. These personnel may temporarily perform firefighting for the NPS until December 31, 2023, in their current state of certification. Employees, partners, or volunteers of the NPS who have only been issued state certifications (non-Pro Board or non-IFSAC) and are conducting firefighting activities in a state other than the issuing state shall immediately submit their supporting documentation to receive a NPS (non-Pro Board) certificate. An NPS non-Pro Board certificate allows an NPS firefighter to only operate within the boundaries of the park. The NPS no longer honors those certifications and employees participating in structural fire suppression activities are operating outside NPS policy.

5.4 Responsibility and Positions

5.4.1 NPS Structural Fire Chief (NPS-FC)

The NPS-FC has direct oversight and responsibility for the training and certification program for the NPS and retains AHJ as defined in NFPA 1001: *Standard for Fire Fighter Professional Qualifications*. This authority may be delegated.

5.4.2 Structural Fire Training Program Manager (SF-TPM)

- Provides support and technical guidance for structural fire training and certification servicewide.
- Retains authority in all matters pertaining to the governing of the fire suppression certification program and in all appeals.
- Works with the park structural fire programs and regional structural fire marshals (RSFMs) to develop training curricula and policies that comply with national standards, agency initiatives, and this chapter.
- Develops an annual training calendar.
- Oversees fire instructor cadre.
- Maintains agency certification records.

5.4.3 Structural Fire Certification Advisory Group

The Structural Fire Certification Advisory Group is made up of the three program managers of the NPS Structural Fire Program Office. The group establishes the administrative authority, responsibility, roles, and procedures as it pertains to the certification program for structural fire training and certification. The role of the group is to:

- Advise and assist with establishing minimum standards for fire suppression and prevention training and certification.
- Advise and assist in establishing procedures for determining if employees and partners of the service meet those minimum standards.
- Advise and assist certifying applicants who meet the established minimum standards.
- Make rulings, issue approvals, and conduct evaluations of documentation submitted by employees seeking NPS certification or Pro Board certification.
- Verify and approve certification of NPS fire service members.
- Review appeals, reciprocity, and reinstatement applications.
- Revoke, suspend, or deny certification.
- Audit testing processes conducted by agency-approved personnel.

5.4.4 Regional Structural Fire Marshals (RSFMs)

The RSFMs are responsible for the following:

- Ensure that personnel with structural fire responsibilities are compliant with this chapter.

- Monitor and convey regional structural fire training needs to the Structural Fire Program annually as input to the Structural Fire Certification Advisory Group.
- Ensure that training records identified in this chapter are maintained locally by the parks and in national data management systems. The records shall be readily available for program audits.

5.4.5 Park Superintendents

Park superintendents are responsible for the following:

- Overseeing that all personnel for whom the park superintendent has direct authority responding as structural firefighters to all-hazards incidents in or outside of the park boundaries are compliant with this chapter.
- Ensuring that training records identified in this chapter are maintained locally by the parks and in national data management systems. The records shall be readily available for program audits.

5.5 Firefighter Certifications

NFPA position standards identify prerequisites, which shall be met for certification in that position. Firefighters are required to meet standard prerequisites for agency and/or Pro Board certification.

5.5.1 Firefighter I – (Structural Firefighter I SFF1) (NFPA 1001)

A person operating as an SFF1 is at the first level of progression in their firefighter certifications as defined in NFPA 1001.

5.5.1.1 Required Experience and Certification

To perform as an SFF1, the firefighter must have obtained certification through a Pro Board or IFSAC accredited agency or through the NPS Structural Fire Training Program. In all cases, the certification shall comply with NFPA 1001.

5.5.1.2 Required Training

See Table 1, Certification Requirements.

5.5.1.3 Physical Fitness/Medical Requirements

- Firefighters are required to meet the agencies medical and fitness standards outlined in Chapter 6, *Health and Safety Standards.*

5.5.1.4 Currency Requirements

- Every two years, successful completion of a 24-hour NPS Structural Firefighter Refresher course.
- Complete annual training listed in Table 2.

5.5.2 Firefighter II – (Structural Firefighter II SFF2) (NFPA 1001)

A person operating as an SFF2 is at a higher level of progression in their firefighter certifications as defined in NFPA 1001. The SFF2 may operate under general supervision

and may be expected to lead a group of equal or lesser trained personnel through the performance of specific tasks, as defined in NFPA 1001.

5.5.2.1 Required Experience and Certification

To perform as an SFF2, the firefighter must have obtained certification through a recognized accredited agency or through the NPS Structural Fire Training Program. In all cases, the certification must comply with NFPA 1001.

5.5.2.2 Required Training

See Table 1, Certification Requirements.

5.5.2.3 Physical Fitness/Medical Requirements

- Firefighters are required to meet the agencies medical and fitness standards outlined in Chapter 6, *Health and Safety Standards*.

5.5.2.4 Currency Requirements

- Every two years, successful completion of a 24-hour NPS Structural Firefighter Refresher course.
- Complete annual training listed in Table 2.

5.5.3 Fire Apparatus Driver Operator (FADO) (NFPA 1002)

A person operating as an FADO must be able to safely transport firefighters to the scene of an emergency and be capable of operating the apparatus with adequate water flows to firefighters on the fireground.

5.5.3.1 Required Experience and Certification

To perform as a FADO, the driver operator must have obtained certification through a recognized accredited agency or through the NPS Structural Fire Training Program. In all cases, the certification must comply with NFPA 1002

5.5.3.2 Required Training

See Table 1, Certification Requirements.

5.5.3.3 Physical Fitness/ Medical Requirements

FADOs are required to meet the agency medical and fitness standards outlined in Chapter 6, H*ealth and Safety Standards.*

5.5.3.4 Currency Requirements

- Every two years, successful completion of a 24-hour NPS Structural Firefighter Refresher course as an FADO student.
- Complete required annual training listed in Table 2 for Firefighter I/II and/or FADO.

5.5.4 Fire Service Instructor I (NFPA 1041)

A Fire Service Instructor I is a person who has demonstrated the knowledge and ability to deliver instruction effectively from prepared lesson plans, including aids and evaluation instruments. This position is limited to classroom instruction and delivering hands-on skill evolutions. Fire Service Instructors are not authorized to perform live fire training exercises, unless approved through the NPS Structural Fire Program as a Live Fire Instructor.

5.5.4.1 Required Experience and Certification

To perform as Fire Service Instructor, the instructor must have obtained certification through a recognized accredited agency or through the NPS Structural Fire Training Program. In all cases, the certification must comply with NFPA 1041: *Standard for Fire Service Instructor Professional Qualifications.* **Fire Instructors may only instruct up to the level of fire certification they currently possess.**

5.5.4.2 Required Training

See Table 1, Certification Requirements.

5.5.5 NPS Instructor Cadre

The SF-TPM shall be responsible for assuring that NPS Instructor Cadre are certified and approved to teach NPS sponsored courses. The SF-TPM shall maintain training records for each instructor, including training experience and roles served.

State, interagency, local fire department, or contract instructors utilized for fire training shall meet the same standards set forth for the NPS Fire Service Instructors and shall provide the following requirements and qualifications:

- Certification as a Fire Instructor I NFPA 1041: Standard for Fire Service Instructor Professional Qualifications.
- Memorandum/letter, on department letterhead, from their fire chief or structural fire program manager that shows they have been assigned instructor responsibilities within their organization.

All instructors, regardless of origin of certification, must comply with NPS requirements for medical, fitness, and SCBA fit test if they are involved with live fire training.

Instructors shall supervise, instruct, or co-instruct no less than one fire training event every two years to maintain their instructor status with the NPS. If an instructor has failed to meet requirements, they may reapply for instructor status by submitting their application to the SF-TPM.

5.5.6 Fire Officer I - (NFPA 1021)

The Fire Officer I level of certification by the NPS is not currently required to perform the duties of the engine company officer but is highly recommended. This level of certification requires the person to rapidly assess an emergency situation, quickly develop a safe tactical

plan, deploy qualified resources to mitigate the incident and maintain operational responsibility for the incident, until the incident is safely and completely mitigated.

5.5.6.1 Required Experience and Certification

To perform as a Fire Officer I, the Firefighter II must have obtained certification through a recognized accredited agency or through the NPS Structural Fire Program. In all cases, the certification must comply with NFPA 1021: *Standard for Fire Officer Professional Qualifications.*

5.5.6.2 Required Training

See Table 1, *Certification Requirements*

5.5.7 Fire Instructor - Live Fire Instructor (LIFI) (NFPA 1403)

The Live Fire Instructor can conduct live fire training evolutions in compliance with NFPA 1403: *Standard for Live Fire Training Evolutions*. The live fire instructor ensures that all training is conducted in compliance with agency policies and national standards. Ensures that all trainees are qualified and certified to safely participate in the training being conducted. Additionally, live fire instructors are to verify that all participants in the training are medically and physically fit and cleared to participate in all training sessions before the training exercises commence. This position can also assist the engine company parks in conducting live fire training to support their training programs, comply with refresher requirements, and develop personnel to become instructors.

5.5.7.1 Required Experience and Certification

Instructor candidates are required to submit a letter of intent, with supervisory signature approvals, to be recognized as an NPS live fire instructor. To perform as a live fire instructor, the instructor candidate must have obtained certification through the NPS by completing the NFPA 1403: *Standard for Live Fire Training Evolutions* course. In addition, the live fire instructor must instruct under the guidance of a recognized live fire instructor in each position required for live fire training. The recognized instructor(s) must certify that the live fire instructor candidate successfully completed the evolution. Once all positions are certified by a recognized instructor, the SF-TPM will formally recognize the candidate as a live fire instructor.

5.5.7.2 Required Training

See Table 1, Certification Requirements

5.5.7.3 Currency Requirements

- In addition to the currency requirements stated in SFF2, live fire instructors must supervise, instruct/co-instruct, or direct a minimum of one live fire-training event every two years.
- All NPS live fire instructors must attend an NPS 1403 approved refresher every four years following initial certification.

5.5.8 Marine Firefighter (MAFF) (NFPA 1005)

A person operating as a MAFF has a special understanding of the complications experienced combating small boat and marina fires utilizing land and water-based operations. Due to special and unique suppression operations challenges, and the dangers associated with marine-based fires, this position requires a Firefighter II certification, according to NFPA 1005: *Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters*.

5.5.8.1 Required Experience and Certification

To perform as a MAFF, the firefighter must have obtained certification through a recognized Pro Board and/or IFSAC accredited agency or through the NPS Structural Fire Program as a Firefighter II.

5.5.8.2 Required Training

See Table 1, Certification Requirements

Table 1: Certification Requirements

Duty Position	Requirements	Recommended training to support associated knowledge and skills
Firefighter I/II	• Completion of NFPA 1001 (FF I/II) compliant course through NPS or other Pro Board/IFSAC accredited agency • Hazardous Materials Awareness (NFPA 1072/470) • Hazardous Materials Operations (NFPA 1072/472) • FEMA IS-100/200/700 • Emergency Medical Care (CPR/First Aid for the First Responder) • S-130 Firefighter Training • S-190 Introduction to Wildland Fire Behavior	• S-215 Fire Operations in the Wildland/Urban Interface • G-131 Wildland Training (FFT1) for Structural Firefighters • IS-800
Fire Apparatus Driver Operator (FADO)	• Fire Apparatus Driver Operator • FEMA IS-100/200/700 • Emergency Vehicle Operators Course (EVOC) • Structural Fire PPE **Park Specific Required Training:** • Mobile Water Supply (MWS) Driver Operator • Aerial Driver Operator • IS-800 National Response Framework	
Fire Service Instructor	• NFPA 1041 Fire Instructor I Pro Board/IFSAC • Firefighter I/II	• Apparatus Driver Operator • Fire Officer I • Fire Service Instructor II & III • IS-800
Fire Officer	• NFPA 1021 Fire Officer I Pro Board/IFSAC • Firefighter II • Fire Service Instructor I	• Fire Apparatus Driver Operator • Fire Officer II • Fire Inspector I • FEAM ICS-300 Intermediate ICS • G330 Wildland Training (STEN) for Structural Firefighters • FEAM F0610 Wildland Urban Interface Firefighting for Structural Company Officer
Live Fire Instructor	• NFPA 1041 Fire Instructor I (Instructor II for Live Fire Instructor-in-Charge) • Firefighter I/II • NFPA 1403 Live Fire Instructor	• Fire Instructor II & III • Fire Officer II • NWCG M-410 Facilitative Instructor
Marine Firefighter (as park requires)	• Firefighter I/II • DOI Motorboat Operator Certification Course (DOIMOCC) for operators	

5.6 Fire Protection Training

5.6.1 Park Structural Fire Coordinator (PSFC)

To perform as a PSFC, the employee must obtain certification through the NPS Structural Fire Program. The PSFC needs to complete this basic training course within one year of being designated.

5.6.1.1 Recommended Training to Support Associated Knowledge and Skills:

- Fire Inspector I (NFPA 1030: Standard for Professional Qualifications for Fire Prevention Program Positions)
- HazMat Awareness (NFPA 1072/470)
- International Fire Code (IFC)

5.6.2 Portable Fire Extinguisher

5.6.2.1 Required Experience and Certification

Whenever the employer has provided portable fire extinguishers, OSHA 1910.157 requires that the employer provide an education program to the employee upon initial employment and annually thereafter. Training is required annually.

5.6.2.2 Methods for Obtaining Required Experience and Certification

- DOI Talent – NPS Fire Extinguisher Training
- Other online training resources
- Live simulators, following manufacturer's instructions
- Local fire departments

5.6.3 Portable Fire Extinguisher Maintenance

Annual external maintenance of multipurpose (ABC), dry chemical, portable fire extinguishers is allowed by employees who have completed this training. The Portable Fire Extinguisher Maintenance standard operating procedure (SOP) provides information by which employees can be trained, certified, and approved to conduct annual external maintenance on these types of extinguishers.

5.7 Certification Administration

The NPS currently maintains a two-track certification system, Pro Board and NPS. Personnel who have met all requirements for either certification will be recognized. NPS certifications issued and/or recognized by the Structural Fire Program will be honored by all NPS sites. See Certification Administration SOP.

5.8 Annual Training Plan

The annual training plan listed below helps to ensure the same training is accomplished agency-wide providing firefighter interoperability capabilities.

5.8.1 Training Hours

The training hours will be completed throughout the calendar year. All training will be documented to ensure compliance with this standard. Firefighter annual training shall be comprised of the hours needed for the assigned duty position. Annual training hours shall be no less than 36 total hours per individual.

5.8.2 Non-interactive Training

No more than eight hours of non-interactive training utilizing distance learning media (video, trade publications, and internet) may be credited toward annual training requirements.

5.8.3 Training Preparation and Instruction

Annual training topics may be prepared and instructed by firefighters certified at the certification level being taught or higher.

Table 2: Annual Training Plan

Subject	**CEU Hours per Subject Based on position certification**			
	FF I	FADO	FF II (Lead FF)	Fire Officer
Building Construction	1	1	1	1
Firefighter Safety and Survival	2	2	2	2
Company Field Inspections			1	1
Fire Alarm/Suppression Systems	1	1	1	1
Fire Behavior	2		2	2
Fire Control (Fire Hose and Fire Streams)	2		1	1
Fire Instructor Principles			1	1
Fireground Hydraulics		4*		
Fireground Search and Rescue	2		1	1
Forcible Entry	2			
HazMat	1	1	1	1
Incident Action Plan			1	1
Incident Command System (Local Plans)	1	1	1	1
Accountability System (Park Specific)	1	2	2	2
Ladders	2	2	1	1
SCBA	2	2	2	2
Personal Protective Equipment	2	2	2	2
Planning for Resource Allocation			1	1
Pump Operations		4*		
Risk Management				1
Ropes and Knots	1		1	1
Salvage and Overhaul	2		1	1
Standard Operating Procedures	1	1	1	1
Reference Manual 58 Review	1	1	1	1
Strategies, Tactics, and Operations	1	1	3	3
Vehicle Extrication	2		2	2
Vehicle Safety/Emergency Vehicle Operations	1	3	2	
Ventilation	2		2	2
Water Supplies, Fire Hose and Fire Streams	2	4	2	2
Structural Vehicle Familiarization	2	4		
Total	36	36	36	36

*** Note**: If a firefighter is a FADO, they must also complete the specific FADO subject hours.

5.8.4 Annual Training Record Management

Training conducted to meet annual training requirements shall be documented and maintained by each park structural fire program manager, utilizing record keeping/tracking systems appropriate for their program.

5.8.4.1 Training Documentation Requirements

Training documentation shall include the following information:

- Date
- Location
- Time
- Topic of training
- Type of training (e.g., classroom, skills, non-interactive)
- Instructor(s) names
- Brief explanation of the training conducted
- Attending individuals' names/roster

5.8.4.2 Document Availability

Training documents, records, and reports shall be made readily available upon request from the firefighter, park structural fire program manager, park management, regional structural fire marshals, and the NPS Structural Fire Program.

5.8.4.3 Structural Firefighter Refresher

Every NPS firefighter, FADO, and fire officer shall attend a 24-hour structural firefighter refresher at least once every two years that includes live fire training. See Structural Firefighter Refresher SOP.

5.8.4.4 Live Fire Training

All live fire training shall comply with NFPA 1403 and the NPS Live Fire Training SOP.

Park structural fire programs are not permitted to perform live fire training evolutions in acquired structures or acquired props without prior approval from the NPS Structural Fire Program

*****NO PERSON(S) SHALL PLAY THE ROLE OF A VICTIM INSIDE ANY LIVE FIRE TRAINING STRUCTURE, PROP, OR ACQUIRED STRUCTURE.*****

*****FLAMMABLE OR COMBUSTIBLE LIQUIDS, AS DEFINED IN NFPA 30, FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE, SHALL NOT BE USED IN LIVE FIRE TRAINING EVOLUTIONS.*****

6 Health and Safety Standards

6.1 Responsibilities

The following positions are responsible for administering the health and physical fitness standards for the Structural Fire Program:

6.1.1 Superintendent/Park Level

- Ensure all members performing structural firefighting duties are medically qualified.
- Provide review and, if warranted, approve risk mitigations for employees.
- Ensure that current and accurate information regarding structural fire physical fitness requirements is communicated to all trained and qualified employees involved with structural firefighting.
- Ensure that all park personnel that are assigned structural firefighting responsibilities comply with policies and directives regarding physical fitness standards and that they are met.
- Prohibit engine company members who do not meet the medical and physical fitness requirements from participating in structural fire activities, until compliance can be obtained.
- Ensure that issues regarding firefighter physical fitness standards are communicated to park management, the RSFM, and the Structural Fire Operations Program Manager (SF-OPM) in a timely manner.

6.1.2 Regional Level

- Provide oversight for their parks ensuring compliance with this policy.
- The RSFM may serve as a member of an appeals team, if required.
- Ensure that information regarding structure fire physical fitness issues is clearly communicated to parks and the NPS Structural Fire Program Office.

- Monitor and ensure that parks are adhering to policies and procedures regarding structural firefighter physical fitness standards.
- Provide clear agency and program policy guidance to parks on NPS structural firefighter physical fitness standards.

6.1.3 National Level

- Oversee and manage the agency's structural fire medical and physical fitness standards.
- The NPS Structural Fire Program is the primary point of contact between the park and the DOI Medical Standards Program.
- Establish and maintain a structural firefighter fitness standard program.
- Ensure fitness requirements are compliant with federal laws and department and agency requirements and applied equitably and with utmost confidentiality.
- Inform RSFMs about the requirement to assess structural firefighter physical fitness levels for them to be able to better enforce these standards.
- Maintain and monitor physical fitness compliance for structural firefighters.
- Coordinate structural firefighter fitness processes and standards with other NPS programs as needed.

6.2 Medical Standards

All firefighters and individuals participating in structural fire suppression training and operations must:

- Adhere to the NPS structural firefighter medical standards.
- Report for medical examinations as directed.
- Notify their park structural fire program manager (PSFPM) of any significant health changes that may affect their ability to safely perform the essential duties of an NPS structural firefighter.

All employees assigned with structural firefighting duties in the NPS shall follow NFPA 1582: *Standard on Comprehensive Occupational Medical Program for Fire Departments*. Application of the standard is the responsibility of all employees. This includes legal considerations protections for individuals who are members of protected classes. These protections can be found in the NFPA 1582 Annex B. This includes respect to The Pregnancy and Reproduction Act. Employees and supervisors should reference NPS and DOI human resource policies for specific guidance. NPS employees who respond to structural fire incidents as a member of a local fire department and are paid by the NPS (salary and/or benefit status) shall comply with the standards outlined in this policy.

Concession contract employees with structural firefighting duties, shall adhere to their employer's medical standards program.

6.2.1 Medical Standards by Primary Occupations

Regardless of their primary duties, all employees shall select structural fire determination on their medical exam request to participate in structural firefighting. Employees will use

the process defined by the DOI Medical Standards Program to request their examination and submit their Health Screening Questionnaire (HSQ). NPS employees performing structural firefighting can be categorized by their primary occupations.

6.2.1.1 Law Enforcement Officer (LEO)

A LEO determination of 'qualified' for an employee's primary duty, along with the structural fire determination, serves as being medically qualified as a structural firefighter. A determination of 'not qualified' will trigger the risk mitigation waiver process used for LEOs.

If the employee is granted a medical waiver or variance, or if special mitigations have been established to help the employee meet the medical standards for their position, those waivers, variances, or mitigations must be submitted to the DOI Medical Standards Office for review by the Medical Review Officer (MRO). The MRO will review the special accommodations and determine if they have an adverse impact on the employee's ability to perform structural firefighter duties.

6.2.1.2 Wildland Firefighter (WFF)

A WFF determination of 'qualified' for an employee's primary duty, along with the structural fire determination, serves as being medically qualified as a structural firefighter. A determination of 'not qualified' will trigger the risk mitigation waiver process used for WFF.

6.2.1.3 Structural Firefighter (SFF)

An employee with primary duties as a structural firefighter shall request a structural fire determination through the park's medical exam point of contact or the NPS Structural Fire Program prior to participating in any structural fire activities. A structural fire determination of 'qualified' shall be required to perform structural firefighting duties. A structural fire determination of 'not qualified' will trigger the risk mitigation waiver process used for structural firefighters.

6.2.1.4 Other

Employees in positions not requiring participation in the medical standards program and performing structural fire duties shall request a medical with a structural fire determination through the NPS Structural Fire Program. A structural fire determination of 'qualified' shall be required to perform structural firefighting duties. A structural fire determination of 'not qualified' will trigger the risk mitigation waiver process used for structural firefighters.

6.3 Periodic Medical Exam and Self-Certification

All employees participating in the DOI Medical Standards Program will submit to a physical examination once every three years. In the years in between examinations, all employees are required to submit an HSQ.

- HSQs for LEOs are not altered for structural firefighting activities.
- HSQs for all other programs will include a respiratory HSQ.

6.3.1 Cost of Medical Examinations

- NPS employees whose primary duty is a WFF or LEO will have their examinations paid through their primary duty program. All other NPS structural firefighter examination costs will be funded by the NPS Structural Fire Program.
- Exam costs for concessioners or other non-NPS employees are the responsibility of the park, the individual, or the individual's employer. For all other NPS firefighters, such as administratively determined (AD) employees, contact the Structural Fire Program for guidance.
- The costs associated with any waivers, variances, mitigations, corrective actions, or follow-up treatments identified or determined necessary as a result of the medical exams or the HSQ is the responsibility of the individual or the park.

6.4 Risk Mitigation Waiver Process

Structural firefighters who are in the risk mitigation waiver process are prohibited from performing structural firefighting duties and training until a formal decision has been determined by the MRO.

The NPS Structural Fire Program Risk Mitigation Waiver Process has been established to provide the employee with the opportunity to request a secondary review if the employee does not agree with the findings of the medical determination.

To initiate the risk mitigation waiver process, the employee is responsible for contacting the DOI Medical Standards Program. The NPS Structural Fire Program may provide guidance to the employee on the risk mitigation waiver process.

6.4.1 Risk Mitigation Waiver Review

A review will be conducted by the:

- Park Structural Fire Program Manager (an individual in charge of the park structural fire operations program, such as the fire chief, fire management officer (FMO), chief ranger, or designated employee)
- Servicing Human Resources Office (SHRO) representative
- Employee

6.4.2 Risk Mitigation Assessment Factors

During the risk assessment, the following factors will be reviewed:

- Medical Condition and Ability to Safely and Efficiently Perform the Tasks Required of a Structural Firefighter
    - Given the medical condition or physical limitation which does not meet medical standards, describe with convincing evidence how the individual can perform the essential functions of the job efficiently and safely, without hazard to themselves or others.
- Qualifications, Experience, and Training
    - Describe the individual's relevant employment history, qualifications, experience, and training in structural firefighting. Include all satisfactory performance indicators in the same/similar type of job tasks with similar physical and environmental demands.
- Significant Threshold Shifts
    - If known, describe any changes in the individual's health status, since any medical conditions/physical impairments were last assessed.
- Medical Condition is Static and Stable
    - If known, describe whether the medical condition is static and stable or has stabilized with or without medication. Include any known:
        - drug side effects
        - drug reactions
        - drug interactions
        - medical complications associated with long term drug use and/or any problems with patient compliance.
- Work Conditions
    - Describe whether the work conditions (e.g., working alone; 24-hour on call; remote, desolate geographic and rural locations; no ready access to food, water, shelter, or medical facilities; irregular, protracted, and extended hours of work; exposure to extreme heat and environmental contaminants; inhalation exposures to smoke and the products of combustion; carrying heavy equipment and life-threatening situations that require maximum physical exertion without warning) are –
        - Likely to aggravate, accelerate, exacerbate, or permanently worsen the pre-existing medical condition and/or
        - Exceed the limitations of any medical or assistive device (e.g., insulin pump).
- Body Stature and Personal Protective Equipment

    - Describe whether an individual's stature or body symmetry exceeds the limitations of any personal protective equipment (e.g., turnouts, SCBA, helmet, boots, handlines and nozzles) that they are required to use or wear.
- Physical Limitations
    - Describe whether any physical defect, physical limitation, or physical abnormality materially interferes with the individual's ability to perform the full range of structural firefighting tasks safely and efficiently.

6.4.3 Risk Mitigation Waiver Submission

Following the review of the risk mitigation assessment factors, the findings and recommendations will be forwarded in a formatted memorandum to a park level line officer (superintendent or approved designee) for final approval at the park level with the following recommendations:

- Waiver – the medical condition/physical impairment presents an acceptable risk without conditions or mitigation.
- Acceptable Risk with Conditions – the medical condition/physical impairment presents an acceptable risk when specific conditions are established to mitigate the risk.
- Unacceptable Risk – the medical condition/physical impairment presents an unacceptable risk and is therefore disqualifying.

The Risk Mitigation Waiver memorandum shall then be submitted to the DOI Medical Standards Program Office for review by the MRO. The MRO will accept/deny the final determination based on the assessment factors and the essential functions of the structural firefighter position.

6.4.4 Risk Mitigation Waiver Appeals

Employees in disagreement with the risk mitigation waiver review and/or MRO's final decision in the risk mitigation waiver process may appeal through their SHRO.

6.5 Fitness Standards

The NPS has recognized the need for a physical fitness standard and requirement for structural firefighters, so firefighters can safely and efficiently perform the rigorous duties associated with this profession. Individuals conducting structural firefighting duties within the NPS shall follow Director's Order 57 and Reference Manual 57: *Occupational Medical Standards, Health, and Fitness*.

All employees who perform rigorous and/or hazardous duties are required to participate in the NPS physical fitness program and any associated fitness testing programs. Mandatory participation positions identified in DO/RM-57 include structural firefighters.

CFR 339.203 authorizes agencies to establish physical requirements for positions with physically rigorous duties. The NPS has established the following criteria for its mandatory participation fitness program and fitness testing for all emergency service personnel:

- The continual maintenance of the physical fitness level required to safely perform rigorous duties is a responsibility of the individual employee.
- All employees who are assigned rigorous duties are required to participate in an individual fitness program.
- Prior to beginning a physical fitness program and prior to any physical fitness testing, employees must be cleared to participate by the MRO via the medical examination program.

All parks employing park rangers or other employees assigned to firefighting duties may provide each employee up to three hours of mandatory participation physical fitness exercise time per workweek.

An applicant who does not meet the OPM or departmental medical standards established for such work may not be appointed to a position designated for enhanced firefighter retirement. This applies to career, career-conditional, term, and temporary appointments.

Employees may not be admitted to firefighting training as a student or an instructor that requires the regular or frequent performance of rigorous duties, unless they meet the physical fitness standards established for persons performing such duties.

6.5.1 Fitness Standards Requirements

The Structural Firefighter Physical Ability Test (PAT) is the baseline fitness assessment for the NPS Structural Fire Program. As such, the NPS will not place persons failing to pass either the PAT in firefighter positions or training that requires the regular performance of arduous duties.

6.5.2 Fitness Standards for Fireground Positions

Employees actively engaged in structural firefighting must annually pass the PAT**.** These positions include:

- Firefighter I
- Firefighter II
- Fire Officers
- FADO
- Live Fire Instructors

6.5.2.1 Structural Firefighter Physical Ability Test (PAT)

The PAT consists of structural firefighter related tasks over a multiple station timed course. The PAT is a validated assessment test to test firefighters' ability to meet the physical demands of the structural firefighter. The PAT is a PASS / FAIL assessment.

6.5.2.2 Fire Command Staff

Fire command positions that work primarily outside the hot zone, or the IDLH environment, and do not engage in fire suppression activities or work within the

IDLH, may pass a modified PAT. All other fire positions, regardless of their official position description or title, who actively perform any of the assignments noted above, shall comply with the physical fitness standards for that position (e.g., A fire chief is required to don an SCBA and lead or direct crew members on a structure fire or an all-hazard incident. They must meet the medical and fitness standards of the role they are serving.

6.5.3 Fitness Standards (Non-Compliant)

Firefighter fitness is essential as structural firefighting is one of the most physically demanding and dangerous occupations. Not only is the employee's safety at risk, but also the safety of fellow firefighters.

- If the fitness examination is for an employee seeking their initial appointment (or baseline) to a structural firefighter position and that employee fails the PAT, they are not permitted to begin serving as a firefighter, until they pass the PAT.
- If the employee taking the PAT fails, they are granted a two-month grace period to retake the exam. During the grace period, the employee may continue to perform as a firefighter. If at the end of the grace period, the employee still cannot pass the PAT they are no longer permitted to serve as a firefighter.
- Personnel who have failed to comply with the physical fitness standards, but still have certifications for any of the designated fireground positions, can again perform in those positions once they have successfully met the physical fitness standards. Employees working toward complying with the standard, but have not yet met the standard, may request to have their certifications placed into Inactive Status. Employees can continue to work toward meeting their continuing education and live fire training requirement, but only if they are medically qualified.

6.6 Record Management

The NPS Structural Fire Program Office has created a servicewide compliance tracking system to maintain medical and fitness records; parks are required to use this system for firefighter compliance, medical and fitness records management. Individuals are ultimately responsible for maintaining their certifications and compliance to include data uploaded to the tracking system.

6.7 Mental Health and Awareness

The mental health and awareness for first responders presents a unique set of stressors encountered on the job and creates challenges for them and their families. To address this reality, first responders can learn how to take care of their mental health and the awareness of resources available to their needs. Each and every employee deserves and is responsible for ensuring a supportive, safe, and inclusive workplace. If approaching a supervisor, manager or peer is not feasible or effective, there are other options for assistance, counseling, and support.

Firefighter mental health and suicide prevention awareness shall be incorporated into NPS Structural Fire Program training and certification courses. Park structural fire programs shall incorporate and schedule annual training to educate firefighters in the signs and symptoms of behavioral and emotional distress, and aspects of the agency and industry member assistance programs available.

6.7.1 Employee Assistance Program (NPS)

The Employee Assistance Program (EAP) is available 24 hours a day / 7 days a week to all NPS employees. This program is free, provides confidential counseling and support on mental health, financial, professional, and personal management assistance and many other services to include video-enabled counseling. The service is strictly confidential.

- 24/7 Hotline for counseling and support: **1-800-869-0276**
- Department of the Interior Employee Assistance Program: Employee Assistance Program | U.S. Department of the Interior (doi.gov)

6.7.2 Federal Emergency Management Agency (FEMA)

- FEMA/US Fire Administration Mental Health Awareness for First Responders: Mental Health Awareness for First Responders (fema.gov)

6.7.3 Other Resource Agencies

- International Association of Firefighters: Supporting Fire Fighter Mental Health - IAFF
- Mental Health America: Mental Health America | Homepage | Mental Health America (mhanational.org)
- Fallen Firefighters Foundation: Stress First Aid (SFA) - Everyone Goes Home
- Firefighter Behavioral Alliance: Firefighter Behavioral Health Alliance (ffbha.org)
- Suicide Prevention Lifeline: (24/7) **1-800-273-8255**

If you or someone else is at immediate risk of harming yourself or another person, CALL 911.

7 Concessioners, Lease Holders, Permittees, Partners, and Others

The purpose of this chapter is to provide information for parks that have concession contracts, leases, permits, agreements, or other instruments[1] where a non-NPS person or entity is assigned federal real property responsibilities or may construct real property on behalf of the NPS. These persons or entities may include other federal agencies, private companies, or partners. Many of these persons or entities provide services such as lodging, retail, and restaurants while also supporting the stewardship of these structures. These persons or entities share with the NPS the responsibility of supporting health, life and safety, and property protection, which includes implementation of DO-58. A fully documented and implemented structural fire prevention program is an effective way to achieve this goal.

This chapter is intended to guide structural fire management representatives at all levels of the NPS on how to apply applicable structural fire management policy to these persons or entities in support of DO-58 and RM-58. This chapter also provides context and information for NPS programs that develop and manage these types of arrangements. These persons or entities play an important role in meeting the goals of a park's structural fire prevention plan. The reader of this chapter should understand that the information provided is intended to meet the structural fire management requirements outlined in RM-58 and does not limit the ability of parks and regions to apply additional requirements as they may deem appropriate.

This chapter references existing policy and codes and explains how parks can apply them to these instruments. When references in this chapter are cited, the reader can refer to those specific sections of RM-58 to find more information.

For the purpose of this chapter, the term "contract" is used to reference all of the types of instruments where a non-NPS person or entity is assigned federal real property responsibilities or may construct real property on behalf of the NPS. The type of instrument used depends on the applicable authority and program that administers them.

The policy compliance process begins by ensuring that the correct personnel are included on the NPS team early on during the planning and development of these contracts.

7.1 Contract Development and Management

7.1.1 Contracts

The NPS awards contracts through several processes and programs. During the planning and development of these contracts, the NPS team outlines the requirements that will be

[1] An instrument is a written legal document that records the formal execution of legally enforceable acts or agreements, and secures their associated legal rights, obligations, and duties.

the responsibility of each of the parties identified in the contract. Many of these contracts undergo a feasibility analysis of the business opportunity. Any structural fire management requirements that may have a financial impact on the operator, such as conducting structural fire management system operation and maintenance, project work (new construction, system upgrades, rehabilitation) that may trigger code compliance, or additional resources or staffing needs, will need to be identified early so that they can be included in the financial analysis of the overall contract.

7.1.2 Consultation with the FCO

The NPS team will need to consult with the FCO to ensure the contract follows all structural fire management codes and standards adopted by the NPS. The FCO can also provide insight to the team regarding the status of structural fire management systems and help identify any potential issues that should be addressed in a contract. As inspections and condition assessments of the facilities are completed, deficiencies identified that could not be corrected under the current contract may need to be included as part of the new contract. The NPS team's consultation with the FCO should also include any review of the contract's maintenance requirements, such as replacing components at the end of their life cycle, reoccurring maintenance, and preventive maintenance. If the expectation is to have the contract holder perform structural fire management requirements or projects for the NPS, it is paramount that the FCO be part of the NPS team.

7.1.3 Structural Fire Management Plan

Often, contracts require the contract holder to prepare a structural fire management plan specific to their operation. The holders develop these plans at the beginning of the contract based on the unique requirements for a specific park or operation and must be approved by the FCO. Every contract needs to reference the FCO and the title of the person responsible for the Structural Fire Management Program at the park, as well as the contact information for the person responsible for overseeing the contract holder's structural fire management plan.

7.2 Reporting, Oversight and Accountability (Compliance)

Each of the instruments that are contemplated within this section, whether it is a concession contract, lease, permit, agreement, or other instrument are all written documents that define the requirements for the contract holder and the NPS. Therefore, any compliance requirements must be based on the underlying document (contract) on which the use or occupancy of the building or structure is based.

7.2.1 Compliance and Accountability

The contract holder's structural fire management plan will need to address how the contract holder will comply with the adopted code and policy requirements for the facilities and services that will be provided. It is critical that these plans identify who is responsible for the contract holder's compliance with code and policy requirements. The approved plan should identify who will be responsible for inspecting and certifying that these requirements have been met.

Enforcement actions for a contract holder should be coordinated with the park division that is responsible for managing the contract. These actions may require a corrective action plan

and follow-up. Some programs may also have an annual rating program to reflect the contract holder's compliance with contract obligations; incorporating the contract's structural fire management requirements into the annual rating program is recommended.

The reporting, oversight, and accountability provisions of this manual shall not be read to require NPS to perform obligations delegated to the contract holder, nor shall NPS's oversight extend to the day-to-day operations of the contract holder.

7.2.2 ITM Responsibility

Any contract with real property assigned should clearly define which party is responsible for the ITM of fire protection and life safety systems. In addition to ITM required by code or regulation, further requirements may be included within the contract concerning maintenance and operations of these systems. The responsible party can vary depending on the type of instrument and the structures or spaces involved. The contract must address structural fire management responsibilities of the contract holder and the NPS.
Listed below are some examples of where this information would be specified in these contracts.

- **Concession contracts** – The Maintenance or Operating Plan exhibits to the contract. The contract also specifies that the concessioner must comply with applicable laws and policy, which would include the International Code Council (ICC) family of codes and NFPA standards referenced in the contract, DO-58, and RM-58. The park should conduct a performance review and document the concessioner's compliance with these requirements (e.g., Annual Overall Rating (AOR) and annual inspection reports).
- **Leases** – The Maintenance Plan includes an annual inspection provision. Lessees are required to comply with all applicable laws which would include applicable building and fire code requirements.
- **Partnership agreements** – In many cases, partners are located within NPS-managed facilities and thus the NPS may be responsible for maintaining and inspecting those assigned buildings or spaces within buildings. Responsibilities may vary so verification of actual assignments is encouraged.
- **Permits** – Structural fire management requirements are typically found in the body of the signed permit.

7.2.2.1 Submission of ITM Documentation

Upon completion of any required ITM, the contract holder must provide signed inspection documents to the park structural fire management coordinator, the park commercial services office, or other program official responsible for overseeing the contract holder's activities. Individual parks should provide a timeline to contract holders in their contracts for ITM completion and correction of identified deficiencies.

7.3 Additional Assessments

During the contract there can also be three additional types of assessments that include fire protection and life safety evaluations that aren't required by the NFPA or applicable code. These assessments are used in

preparation for contract development, mid-contract assessment, or planning for specific projects. These include:

- **Comprehensive Condition Assessments**

  The Commercial Services Program conducts a condition assessment for concession contracts. The results are used in prospectus development for a new concession contract. Part of the condition assessment includes a life safety and fire assessment overview to identify deficiencies.

- **Project-Specific Fire Protection Assessments**

  Project-specific assessments are typically conducted for an overall structure or related structures to specific fire protection systems, or to study potential concerns to look at fire protection status and potential deficiencies and corrective measures.

- **Lease Annual Inspections**

  Most leases have an annual inspection that is intended to identify the maintenance, life safety, and fire protection requirements for the upcoming lease year, as well as identify and validate capital improvements or component renewal schedules.

7.4 Contract Holder Participation in NPS Structural Fire Management Programs

Adequate provision of structural fire management services for NPS facilities is ultimately the responsibility of the NPS. Remote NPS parks with limited resources often rely on volunteers to support their structural fire management needs. At some parks, contract holder employees participate as structural fire response personnel and may serve a critical staffing role.

- Programs should discuss staff participation with their park commercial services team and the Office of the Solicitor (SOL) prior to including these requirements in new contracts.
- Since parks with cannot delegate the NPS's ultimate responsibility for ensuring the provision of structural fire management services, the NPS must take steps to ensure that the service levels provided by contract holders with structural fire management requirements in their contracts meet all requirements for training and equipping personnel volunteering to participate. Training requirements are outlined in Chapter 5, *Governance and Administration* of this document.
- Parks with non-NPS structural fire management services that do not have contractual requirements with contract holders may extend an invitation to contract holder employees to participate as they would with any individual wishing to volunteer. In these instances, the park should be prepared to bear the cost of training, equipping, and compensating contract holder employees in support of their participation in the program.
- Regardless of whether it is a contractual requirement or an individual volunteering to participate in the park's structural fire management program, all NPS standards, policies, and code requirements for structural fire response personnel must be met.

Appendix A: National Park Service Fire Code

1 Definitions

The following words, terms, and phrases, when used in this section, shall have these meanings ascribed to them, except where the context clearly indicates a different meaning.

IFC: *International Fire Code*, 2021 edition, International Code Council, Inc.

NPS: National Park Service

RSFM*:* Regional Structural Fire Marshal

2 Adoption of the International Fire Code

Except as otherwise provided in this appendix, the 2021 *International Fire Code* (IFC) is adopted and incorporated as the National Park Service (NPS) Fire Code.

Any structure existing on January 5, 2022, and complying with NFPA 101, *Life Safety Code*, shall be permitted to continue without change, except as otherwise specifically provided for in the *International Fire Code*.

3 Modifications to the International Fire Code

a. Section 101, Scope and General Requirements: Changed "[NAME OF JURISDICTION]" to *"National Park Service Structural Fire Program."*

b. Section 102.5. Appendix AQ Tiny Houses is adopted.

c. Section 103.1, Creation of Agency: Changed to "The National Park Service (NPS) Structural Fire Program is the fire code compliance department."

d. Section 103.2: Changed to "Regional directors are designated as the fire code official (FCO) within their respective regions. The regional directors may delegate FCO authority in writing to other qualified individuals as necessary for the administration of all structural fire safety and enforcement.

e. Section 901.2. Add the following: "Construction documents for fire protection and life safety systems shall be produced by a licensed fire protection engineer or a NICET certified technician (minimum Level III) for the type of system designed, or as approved by the FCO."

f. Section 914.12. Add the following: "Install automatic fire detection systems and automatic fire sprinkler or suppression systems in all purpose-built and adapted structures and spaces housing or exhibiting museum collections as approved by the FCO or RSFM in consultation with the park or regional museum curator and interdisciplinary team. In furnished historic structures, install automatic fire detection systems and automatic fire sprinkler or suppression systems as approved by the FCO or RSFM in consultation with park and regional facilities management staff, the historical architect advisor, and the park or regional museum curator.

g. Section 1103.5. Change to "An automatic sprinkler system shall be provided in existing buildings in accordance with Sections 1103.5.1 through 1103.5.6."

h. Section 1103.5.6. Add the following: "Sprinkler systems shall be required in existing R-3 occupancies used as congregate living facilities, unless the following conditions are met: a.) Interior stairways shall be enclosed by fire barriers having a minimum 1⁄2-hour fire resistance rating. b.) Where an interior stair connects the street floor with the story next above or below only, but not with both, the interior stair shall be required to be enclosed only on the street floor."

i. Section 1103.1.1, Historic Buildings: Changed to read, *"Facilities designated as historic buildings shall meet the requirements of* NFPA 909, *Code for the Protection of Cultural Resource Properties – Museums, Libraries, and Places of Worship,* and NFPA 914, *Code for the Protection of Historic Structures."* The remainder of the section stays the same.

j. Section 3601.1, Scope: Changed to read, "Marina facilities shall be in accordance with this chapter and NFPA 303, *Fire Protection Standard for Marinas and Boatyards*."

k. Chapter 80, Referenced Standards: NFPA is modified to include *"909-21: Code for the Protection of Cultural Resource Properties – Museums, Libraries, and Places of Worship, 1103.1.1."*

l. Chapter 80, Referenced Standards: NFPA is modified to include "303-21: *Fire Protection Standard for Marinas and Boatyards*, 3601.1."

m. Chapter 80, Referenced Standards: The IRC-21: *International Residential Code* is modified to include Appendix AQ Tiny Houses.

Appendix B: Historic Structure Fire Protection System and Museum Collections Assessment Matrices, and Fire Protection Systems Information

HISTORIC STRUCTURE FIRE PROTECTION SYSTEM ASSESSMENT MATRIX		
Not all NPS structures require the same level of fire protection. Use this chart to help establish criteria for selecting the level of protection appropriate to the significance and integrity of historic structures **not housing collections**. This chart serves as a reference guide only; it does not establish design criteria for historic structures. **Note:** Determining the proper fire protection for each specific application should be a collaboration between the park IDT, resource manager, and the regional FCO. Depending on the complexity of the resource, the services of a fire protection engineer may be required by the team. All final plans must be reviewed and approved by the regional FCO. For structures housing collections, follow the guidance and requirements in the *Museum Handbook*, Part I, Chapter 9, Museum Fire Protection. Also refer to NFPA 914, Code for the Protection of Historic Structures, for additional information and guidance.		
HOW TO USE THIS MATRIX Rate each historic structure according to the 7 elements below, using a score of 1-5 (Levels 1-5).		
For a total score of:	**Scoring Recommendations**	
1 – 14	Fire alarm system should be considered; however, a fire suppression system may not be needed for this structure.	
15 – 21	Fire alarm system required; park may want to install a fire suppression system in this structure.	
22 – 28	Fire alarm system required; park should install a fire suppression system in this structure.	
29 – 35	Fire alarm system required; suppression system required.	

HISTORIC STRUCTURE FIRE PROTECTION SYSTEM ASSESSMENT MATRIX					
	LEVEL 5 (Five Points)	**LEVEL 4 (Four Points)**	**LEVEL 3 (Three Points)**	**LEVEL 2 (Two Points)**	**LEVEL 1 (One Point)**
1. Significance	National Register Eligible or part of park's enabling legislation	Nationally Significant	Regionally Significant and/or a primary park theme	Locally Significant	Common; little or no local significance, associative, design, construction, or information value.
2. Integrity	Good	Fair	Poor	Reconstruction	Little remaining historic fabric
3. Use	Exhibit Building open to the public: Self-guided tours only; may include assembly, overnight accommodation, cooking facility	Open to the public: Staff-guided tours only; controlled access; storage	Mixed Use: Public access and offices, retail, and/or storage	NPS or partner offices	Storage only
4. Location: Response	No fire department response available. No road access. Access difficulties. High visitation: large crowds may impede responders	Fire Department response > 30 minutes. Rural road; reasonable topo. Access without developed utility services. Seasonal road access difficulties	Rural road access with developed utility services	Fire Department response < 20 minutes. Urban access with minor vegetative or physical constraints	Fire Department response <10 minute. Urban access, no vegetative or physical constraints
5. Location: Accessibility	High crime area: Perimeter easily accessible after-hours	High crime area: Perimeter not easily accessible after-hours	Low crime area: Perimeter easily accessible	Low crime area: not easily accessible	Low crime area: Secured Perimeter 24/7 or difficult to access
6. Construction Type (See *International Building Code (IBC)*, for additional information)	Type V: Wood Frame (Light Combustible Construction)	Type III: Masonry walls, wood floors (partial Combustible Construction)	Type IV: Heavy Timber (Heavy Combustible Construction, Non-combustible exterior walls)	Type II: Non-combustible (Non-combustible Construction)	Type I: Fire Resistive (Non-combustible Construction).
7. Fuel Load: Proximity	High: Adjacent, attached buildings not owned by NPS; Forest/ grasslands in fire-prone area	High: Adjacent, attached buildings owned by NPS; OR Forest/grasslands in fire-prone area	High: Adjacent, attached buildings not owned by NPS, OR Forest/ grasslands in fire-prone area	Adequate: Defensible space based on historic models	Not prone to fires
SCORE					

MUSEUM COLLECTIONS ASSESSMENT MATRIX

Not all NPS museum collections require the same level of fire protection. Use this chart to help establish criteria for selecting the level of protection appropriate to the significance, integrity, and physical durability of the collections, location of the facility, building use, etc. This chart serves as a reference guide only; it does not establish design criteria for historic structures or museum facilities.

Note: Determining the proper fire protection for each specific application should be a collaboration between the park Interdisciplinary Team (IDT), resource manager, and the regional FCO. Depending on the complexity of the resource, the services of a fire protection engineer may be required by the team. All final plans must be reviewed and approved by the regional FCO. For structures housing collections, follow the guidance and requirements in the *Museum Handbook*, Part I, Chapter 9, Museum Fire Protection. Also refer to NFPA 914: *Code for the Protection of Historic Structures*, for additional information and guidance.

HOW TO USE THIS MATRIX

Rate each collections facility according to the 8 elements below, using a score of 1-5 (Levels 1-5).

For a total score of:	**Scoring Recommendations**	
1 – 14	Fire alarm system should be considered; however, Fire Suppression System May Not Be Needed for this Structure *(Record of the Superintendent's Decision Regarding Installation of Automatic Fire Protection Systems and Consolidation of Collection would be required if no system installed).*	
15 – 21	Fire alarm system required; Park may Want to Install a Fire Suppression System in this Structure *(Record of the Superintendent's Decision Regarding Installation of Automatic Fire Protection Systems and Consolidation of Collection would be required if no system installed).*	
22 – 28	Fire alarm system required; Park should Install a Fire Suppression System in this Structure *(Record of the Superintendent's Decision Regarding Installation of Automatic Fire Protection Systems and Consolidation of Collection would be required if no system installed).*	
29 – 35	Fire alarm system required; Suppression System Required *(Record of the Superintendent's Decision Regarding Installation of Automatic Fire Protection Systems and Consolidation of Collection would be required if no system installed).*	

Record of the Superintendent's Decision Regarding Installation of Automatic Fire Protection Systems and Consolidation of Collection is available in the *Museum Handbook, Part I, Chapter 9, Museum Fire Protection, Figure 9.3a*

MUSEUM COLLECTIONS ASSESSMENT MATRIX					
	LEVEL 5 (Five Points)	**LEVEL 4 (Four Points)**	**LEVEL 3 (Three Points)**	**LEVEL 2 (Two Points)**	**LEVEL 1 (One Point)**
1. Significance	Scientific Type Specimen, Threatened or Endangered Species, related to a World Heritage Site, National Historic Landmark, or part of park's enabling legislation	Nationally Significant	Regionally Significant and/or a primary park theme	Locally Significant	Common; little or no local significance, associative, scientific, or information value
2. Condition	Excellent	Good	Fair	Poor	Little or no remaining historic fabric or scientific integrity
3. Physical Properties/ Durability of Item/Specimen	Fragile, water-soluble, low-temperature items and/or flammable	Combustible and/or extremely sensitive to heat, smoke and water	Sensitive to smoke, heat and water	Highly Durable and relatively unaffected by limited exposure to smoke, heat and water	Fire-Resistant or contained within a fire-resistant cabinet, exhibit case, vault, etc.
4. Use of Building	Exhibit Building open to the public: limited staff supervision	Open to the public: guided tours only or sizable staff presence	Mixed Use: Public access and offices, retail, and/or storage	NPS or partner offices	Storage only
5. Building Location: Response	No brigade response available. No road access; developed utility service w/ topo. Access difficulties. High visitation: large crowds may impede responders.	Brigade response > 30 minutes. Rural road; reasonable topo. Access without developed utility services. Seasonal road access difficulties	Rural road access with developed utility services	Brigade response < 20 minutes. Urban access with minor vegetative or physical constraints	Brigade response <10 minute. Urban access, no vegetative or physical constraints
7. Location: Accessibility	High crime area: Perimeter easily accessible after-hours	High crime area: Perimeter not easily accessible after-hours	Low crime area: Perimeter easily accessible	Low crime area: not easily accessible	Low crime area: Secured Perimeter 24/7 or difficult to access
7. Construction Type of Building and/or room that Houses the Collection (See *International Building Code (IBC)*, for additional information)	Type V: Wood Frame (Light Combustible Construction)	Type IV: Heavy Timber (Heavy Combustible Construction)	Type III: Masonry walls, wood floors (partial Combustible Construction)	Type II: Non-combustible (Non-combustible Construction)	Type I: Fire Resistive (Non-combustible Construction)
8. Fuel Load: Proximity	High: Adjacent, attached buildings not-owned by NPS; Forest/ grasslands in fire-prone area	High: Adjacent, attached buildings owned by NPS; OR Forest/grasslands in fire-prone area	High: Adjacent, attached buildings not-owned by NPS, OR Forest/ grasslands in fire-prone area	Adequate: Defensible space based on historic models	Not prone to fires
SCORE					

FIRE PROTECTION SYSTEMS

This document is developed to act as a quick reference guide only, and not to establish design criteria for historic structures. Rather each building will be evaluated on its own merit. It is assumed that all structures have changed their usage from originally designed, and changes to fire protection systems are necessary to ensure safe public access and resource protection. The proper fire protection for specific application must be designed by a fire protection engineer or others as approved by the regional FCO. All final plans must be reviewed and approved by the regional FCO. ***(For a comprehensive description of the system types, reference NFPA 914: Code for the Protection of Historic Structures)***.

FIRE PROTECTION SYSTEM COMPARISONS (Systems 1-3)

	System 1	**System 2**	**System 3**
FIRE PROTECTION SYSTEMS	**No Fire Suppression System** Relies on Fire Brigade/Public Fire Department response	**Passive Fire Protection** (controlling doors through fire alarm system for smoke and fire containment)	**Fuel Reduction,** such as a change in approach to building usage: increase use of flame-retardant material; minimize use of heating or cooking sources; reduce ignition sources and use of electricity; and implement a WUI plan
DESCRIPTION	ALL	Typically fire walls, doors	Good housekeeping practices. Removing transient combustibles.
PROTECTION ADVANTAGE	Suppression to minimize exposure to surrounding environment	Life Safety and Resource Protection	Minimizing risk
PROTECTION DISADVANTAGE	Dependent on response time, equipment, training, and if mutual aid agreements are in place with local jurisdiction	May require additional equipment (door closures) and construction features	Dependent on occupants' vigilance and does not provide protection or notification
DISADVANTAGE	Firefighting techniques are not sensitive to historic fabric and may create a considerable amount of collateral damage to the resource during firefighting process	More equipment to install and maintain with associated costs	Impact to facility operations and possibly interpretation
RESOURCE ADVANTAGE	Short response time by an appropriately equipped and properly trained brigade may allow for the structure and/or collections to be saved from major damage or total loss	Limits the size of the fire and the effects of a fire	Potential to reduce threats from wildfires, lightning, accidents, and inappropriate activities
RESOURCE DISADVANTAGE *See Notes #1 and #2 Below	Damage to historic fabric from entry, attack, force of water, soaking of items, etc. Slow brigade response may result in a total loss	Not applicable for most historic structures; can disrupt historic fabric; increased ITM costs	May not be feasible in some historic structures
TYPICAL APPLICATION	ALL	ALL	Can and should be used anywhere
WATERFLOW RATES (Collateral Water Damage)	VERY HIGH	May be very high. Relies on Fire Department response	May be very high. Relies on Fire Department response

FIRE PROTECTION SYSTEM COMPARISONS (Systems 4-6)			
	System 4	**System 5**	**System 6**
FIRE PROTECTION SYSTEMS	**Wet Pipe** *ITM – Annually; Visual inspection requirements weekly/monthly/ quarterly*	**Dry Pipe** *ITM – Annually; Visual inspection requirements weekly/monthly/ quarterly (Slight increase in costs due to additional equipment associated with dry system*	**Antifreeze System** *ITM – Annually; Visual inspection requirements weekly/monthly/quarterly (Slight increase in costs due to additional equipment associated with antifreeze system.)*
DESCRIPTION	Closed heads; piping is filled with water	Closed heads; piping is filled with compressed air, which holds back water.	Closed heads. Piping is filled with a glycol/water solution.
PROTECTION ADVANTAGE	Life Safety and Resource Protection	Life Safety/building protection	Life Safety/building protection
PROTECTION DISADVANTAGE	Must be installed in climate-controlled space above 40 degrees Fahrenheit	Delay in initial response in dry system (code allows up to 60 seconds)	None
DISADVANTAGE	Staining, black steel pipe deteriorates more quickly than other pipe materials (such as copper, stainless galvanized)	Staining, Increased installation and ITM costs. Susceptible to inline corrosion; design requires adequate drainage of in-pipe condensation to prevent corrosion and low point drains. Is susceptible to MIC. Requires reliable power to maintain inline pressure	Cost of antifreeze; increased costs of ITM; specialized components
RESOURCE ADVANTAGE	Relatively easy and economical to maintain; ITM more likely to be carried out	Can be used to protect historic structures and museum buildings lacking HVAC and/or utilities	Can be used to protect historic structures and museum buildings lacking HVAC and/or utilities
RESOURCE DISADVANTAGE *See Notes #1 and #2 Below	Water may damage fragile historic fabric or collections. Some installations have been unsightly and insensitive to historic/interpretive setting due to poor design and construction oversight. See note 2 below	Water may damage fragile historic fabric or collections. Some installations have been unsightly and insensitive to historic/interpretive setting due to poor design. See note 2 below	Water and antifreeze discharge damage to fragile historic buildings, fabrics, or collections
TYPICAL APPLICATION	ALL	Northern climates, historic buildings, unheated attics and concealed spaces, outbuildings, Pole building, storage buildings, and other non-climate controlled buildings	Northern climates, historic buildings, unheated attics and concealed spaces, outbuildings, Pole building, storage buildings, and other non-climate controlled buildings, where electricity for air compressor is not available
WATERFLOW RATES (Collateral Water Damage)	Low to moderate	Moderate/ high	Moderate

FIRE PROTECTION SYSTEM COMPARISONS (Systems 7-9)			
	System 7	**System 8**	**System 9**
FIRE PROTECTION SYSTEMS	**Preaction** *ITM – Annually; Visual inspection requirements weekly/monthly/ quarterly (*potential 100% increase in costs due to the maintenance requirements of the required fire alarm system)*	**Performance Based** *ITM will be based on the proposed design*	**Deluge** *ITM – Annually; Visual inspection requirements weekly/monthly/quarterly (*potential 100% increase costs due to the maintenance requirements of the required fire alarm system)*
DESCRIPTION	Closed heads; no water is in the piping; Detection system opens a valve to allow water in the pipe	Any type of system which is based on the unique situation and requires the services of a fire protection engineer	Same as pre-action, but with open heads
PROTECTION ADVANTAGE	Life Safety/building protection	Designed to meet the intended needs	Special application system
PROTECTION DISADVANTAGE	None	Protection based on specific use. Requires specific FCO approval.	All sprinklers operate at once, resulting in considerable water damage. Special purpose only
DISADVANTAGE	Cost of antifreeze; increased costs of ITM; specialized components	Deviates from prescriptive code	Loss of fire alarm system will compromise all protection
RESOURCE ADVANTAGE	Can be used to protect historic structures and museum buildings lacking HVAC and/or utilities	System specifically tailored to the preservation needs of the collection and/or historic structure	Special, specific circumstances, such as to minimize damage to historic fabric while still protecting visitors and staff
RESOURCE DISADVANTAGE ***See Notes #1 and #2 Below**	Water and antifreeze discharge damage to fragile historic buildings, fabrics, or collections		Extensive water damage to collections and/or historic fabric, including items not directly affected by flames and smoke
TYPICAL APPLICATION	Northern climates, historic buildings, unheated attics and concealed spaces, outbuildings, Pole building, storage buildings, and other non-climate controlled buildings, where electricity for air compressor is not available	Protection of the historic building where utilities are available	Extremely fast burning fires and exposure protection
WATERFLOW RATES (Collateral Water Damage)	Moderate	Varies based on proposed design	Moderate/high

	System 10	System 11
FIRE PROTECTION SYSTEMS	**Residential** *ITM – Annually; Visual inspection requirements weekly/monthly/ quarterly (Slight increase in costs if supported by a pressure tank; significant if using a pump)*	**Water Mist System** ITM – Quarterly & Annually; *Visual inspection requirements each shift (valves, controllers) weekly/monthly/ quarterly (potential 100% increase in costs due to available qualified service contractors)*
DESCRIPTION	Closed head wet pipe or antifreeze system	A higher pressure, low water system that discharges extremely small water particles
PROTECTION ADVANTAGE	Provide safe egress path from residence	Protects resource with minimum wetting of resource. Self-contained suppression system that can provide suppression for a designed period of response time. Low water requirement can be serviced with water storage tank
PROTECTION DISADVANTAGE	Primarily a life safety system	Currently only tested (FM) for light hazard application. Expanded applications require services of Fire Protection Engineer
DISADVANTAGE	System is based on small fire of short duration	Requires specialized installers, new technology in US = high installation costs due to lack of certified installers. Systems require intensive design and installation oversight to limit impact to historic resources
RESOURCE ADVANTAGE	Relatively inexpensive to install and maintain	Reduces potential for water damage to collections and historic fabric, as less water used than a typical wet or dry pipe system. Can be used to protect structures which lack water and reliable utility service
RESOURCE DISADVANTAGE *See Notes #1 and #2 Below	May not be adequate to thoroughly protect the resources	Expensive new technology; ITM minimum once installed
TYPICAL APPLICATION	Residential using domestic water or pressurized storage tank	Special application system; Special applications where water damage or lack of reliable power and/or water pressure and supply are issues
WATERFLOW RATES (Collateral Water Damage)		Low

	System 12	System 13
FIRE PROTECTION SYSTEMS	**Gaseous (Clean) Agent Systems**	**High Expansion Foam Suppression** *ITM quarterly, semi- annual, and annual; visual inspection requirements weekly/monthly/quarterly (considerable increase in costs due to additional equipment associated with foam system*
DESCRIPTION	A "deluge-type" system that discharges a fire extinguishing gas rather than water	A fixed extinguishing system that generates a foam agent for total flooding
PROTECTION ADVANTAGE	Protects contents and resources, and doesn't not drench the resource	Special application system for confined spaces
PROTECTION DISADVANTAGE	Generally, not applicable for deep seated fires	When properly designed, used in conjunction with water sprinklers, will provide more positive control and extinguishment than either extinguishment system used independently. Use to extend water sources
DISADVANTAGE	Some gases require tightly sealed compartments for effective operation. Gas discharges with high pressure and can disturb fragile artifacts. High associated costs with ITM and replacement	The discharge of large amounts of high-expansion foam can inundate personnel, blocking vision, making hearing difficult, and creating some discomfort in breathing
RESOURCE ADVANTAGE	Eliminates potential for smoke, flame and water damage to collections and historic fabric.	Foam used to extinguish alcohol fires in collections rooms with fluid-preserved scientific specimens (primarily in ethanol)
RESOURCE DISADVANTAGE *See Notes #1 and #2 Below	Some clean agents may compromise research value of certain scientific specimens.	Foam ingredients may damage collections not stored within closed cabinets and historic fabric.
TYPICAL APPLICATION	Collection rooms, computer rooms, telephone rooms. Etc.	Collections rooms housing specimens in alcohol, computer, telephone, archival rooms, compact storage shelves, exhibit cases, etc.
WATERFLOW RATES (Collateral Water Damage)	NA	

AUTOMATIC FIRE DETECTION SYSTEMS Systems 14-16			
	System 14	**System 15**	**System 16**
FIRE PROTECTION SYSTEMS	***Monitored Automatic Fire Alarm System** *ITM – Monthly, Quarterly, Annually; Visual inspection requirements monthly/quarterly and semiannually*	**Incipient Sampling Detectors (Air Aspiration or Air Sampling)** *ITM – Annually; Visual inspection requirements semiannually (slight increase in cost due to operating characteristics)*	**Single Station Smoke Detection** *Test monthly; 9vdc battery replacement semiannually*
DESCRIPTION	Smoke detectors, manual pulls, and horn/strobes in all areas, remotely monitored. -May include heat detectors in some areas (attic, dusty locations).	A piping network that is connected to a high efficiency aspirator.	Residential
PROTECTION ADVANTAGE	Early warning and Life Safety	Life Safety and resource protection with a Fire Protection System. Very early detection of smoke and fire	Life Safety/occupant warning
PROTECTION DISADVANTAGE	Provides early warning; however, does not offer suppression	Very sensitive and may be subject to nuisance signals if not properly installed and maintained	Provides early warning to residents at specific location; however, does not offer suppression or building notification
DISADVANTAGE	Requires 110 vac for operation	More equipment to install and maintain with associated costs	Reoccurring costs of 9vdc batteries
RESOURCE ADVANTAGE	Can quickly alert brigade and park staff during a fire's incipient stage	Early warning system for specialized applications, such as a sterilized environment for extremely sensitive collections	Inexpensive means of alerting staff while on duty
RESOURCE DISADVANTAGE *See Notes #1 and #2 Below	Must be integrated into a suppression system to help provide the most effective resource protection	System acclimation may result in equipment nuisance alarms during initial installation.	Not applicable for buildings without staff; no protection possible during non-staffed hours
TYPICAL APPLICATION	ALL	Special applications	Residential
WATERFLOW RATES (Collateral Water Damage)	May be very high. -Relies on Fire Department response	May be very high. -Relies on Fire Department response	May be very high. -Relies on Fire Department response
Additional cost estimate is based on a fire alarm system being installed for the sole purpose of preaction/deluge system control.			

DETECTORS	
The fire alarm industry provides a wide variety of options to provide adequate protection with minimum impact to the historic fabric and facilitates any design operating criteria through systems programming.	
Projected Beam Detectors	Beam detectors consist of a transmitter and receiver which are connected to the fire alarm circuit and are a type of photoelectric light obscuration smoke detector wherein the beam spans the protected area. Typically, these are used for open space protection (e.g., open atriums, large assembly halls).
Laser Detectors	Spot type wired detectors which utilize laser technology to provide very early warning to an incipient fire condition.
Line Type Heat Detection	A linear cable (approximately 1/8" thickness) that is routed through attics, crawl spaces, etc., and initiates an alarm condition upon a thermal activation within the protected environment.
Ionization Smoke Detector	Spot type wired smoke detectors that use ionization technology to detect incipient smoke in the early stages of a fire event. Ionization detectors are more responsive to invisible particles produced by most flaming fires. It is less responsive to larger particles typical of most smoldering fires.
Photoelectric Smoke Detector	Spot type wired smoke detectors that use photoelectric technology to detect incipient smoke in the early stages of a fire event. Photoelectric detectors are more responsive to larger particles typical of most smoldering fires.
Single Station Smoke Detector	Typically approved for residential environments. It is a detector comprising an assembly that incorporates a sensor, control components, and an alarm notification appliance in one unit operated from a power supply (9vdc battery).
Multiple-Station Alarm Device	Typically, these are approved for residential environments. Two or more single station alarm devices that can be interconnected so that actuation of one causes all integral or separate audible alarms to operate.
Comments: **Note #1:** All fire suppression technologies and systems can adversely impact historic fabric, historic landscapes, or collections. All work should proceed in close collaboration between park maintenance, cultural resources, and protection (fire and LE) staff to minimize impacts while still ensuring life safety, resource protection, and code equivalency. **Note 2:** Visual impact is always an important consideration. Concealed installations, while not visually intrusive, typically and irreversibly damage historic fabric. Periodic repairs or system replacement further damages historic fabric. Exposed systems, while visually unattractive, are more reversible and have less physical impact on a historic structure. Planning for fire detection and suppression on a case-by-case basis needs to address this issue.	

Appendix C: Standard Operating Procedures

Standard Operating Procedures

- Cancer Awareness and Prevention (PPE)
- Certification Administration
- Structural Fire Badge and Credentials
- Service Testing of Fire Department Ground Ladders
- Fire Suppression and Operations
- Fire Hose Care, Inspection, Testing and Maintenance
- Injury Reporting
- International Code Council (ICC) Voting Privileges
- Live Fire Training
- Mental Health and Awareness
- Portable Fire Extinguisher Maintenance
- Safe Fire Apparatus / Vehicle Operations
- Structural Fire Physical Ability Test
- Structural Firefighter Refresher

Note: Additional SOPs may be available on the Structural Fire Program site.