GRAND CANYON – PARASHANT NATIONAL MONUMENT
MOHAVE COUNTY, ARIZONA

INSTALL FIRE SUPPRESSION AT DELLENBAUGH CABIN ADMIN SITE

PARA – 209050

PROJECT SPECIFICATIONS

NATIONAL PARK SERVICE

May 21, 2026

DIVISION 1 GENERAL REQUIREMENTS

SECTION 01110 SUMMARY OF WORK

1.1 EXISTING CONDITIONS

The Project location is the Grand Canyon Parashant National Monument in Arizona. The project is located at the Dellenbaugh Cabins Admin Site.

This project will bring structural fire protection to two National Park Service log cabins located at the Dellenbaugh Admin Site at Grand Canyon-Parashant National Monument. The cabins have changed National Fire Protection Code (NFPA) occupancy codes from residential to lodging. Therefore, additional fire suppression components are required to bring the facility into compliance with applicable NFPA codes. This facility provides lodging and research, fire and law enforcement support facilities in a very remote location, 90 miles away from the closest firefighting facility, and will provide structure protection to the two cabins at the only National Park Service administrative facility in the monument.

The Dellenbaugh Admin Site is an isolated, remote location requiring all food and fuel to be transported to the site and satellite phone or messenger is required. Sections of walls, flooring, and ceiling tile will be demoed and replaced to install systems. New wiring will be installed in ¾-inch conduit minimum, and in an effort to reuse existing wall and floor penetrations. New smoke sensors and heat sensors will be placed in proper spacing and fire alarm manual pull stations will be placed at door openings. New fire alarm control panel will be installed in a lockable steel enclosure. A complete and operational fire sprinkler system will be laid out, fabricated, installed, coordinated, tested, and placed into service with all piping, conduit, equipment, and related appurtenances.

1.2 GENERAL PROJECT STATEMENT

A. The project requires construction services of installing a fire suppression system, fire alarm system, installing submersible pump in existing tank, installing a generator, wet pipe system, valves, piping, electrical control system, trenching, excavation and site restoration to original conditions.

B. Upon completion of work, a commissioning system test will be scheduled with the NPS Pacific West Region Fire Marshal onsite. See attached test schedules and reports.

C. Project is located at a remote location.

D. A site visit will be scheduled for a pre-bid visit with the interested respondents.

E. Contractor will provide their own equipment and transportation to and from the construction site.

1.3 SCOPE OF WORK

The scope of work for this contract consists of:

A. See Attached plan sheets for proposed work and location.

1. Site coordinates are 36.135679, -113.531176

B. Site Conditions:

1. No cellular, landline, cable, or public internet service is available at the site.

2. No medical facilities are located within the immediate area. The nearest medical facilities are approximately 90 miles away by road.

3. No vehicle maintenance services, fuel stations, grocery stores, restaurants, lodging, entertainment, or similar amenities are available within the vicinity of the site.

4. Contractor shall furnish and transport all food, fuel, potable water, supplies, tools, equipment, and incidentals necessary to complete the Work.

5. Contractor shall be solely responsible for planning and maintaining sufficient fuel, food, medical supplies, and emergency provisions for the duration of the Project.

6. Daily commuting from St. George, Utah, is not recommended due to travel distance and road conditions.

C. See attached plan sheets for general notes, specific notes and specifications related to the project.

D. See pictures at the end of these specifications for existing site conditions.

E. The cabins and admin site will remain open to the NPS staff during construction.

F. Facility testing and commissioning of the Fire suppression equipment is required.

1. The PWR Fire Marshall requires a 30-calendar day notice for the date of the testing sequence. The PWR Fire Marshall will travel to the site to witness the testing and commissioning.

2. See additional testing documents attached.

G. NPS Structural Fire Design Guide:

1. All projects require a Fire and Life Safety Certificate of Compliance issued by the FCO upon:
   a. Substantial completion of construction
   b. Successful acceptance testing of all fire and life safety systems
2. Project Closeout: It is the responsibility of the construction contractor to coordinate all inspection and testing with the FCO, providing adequate notice. A representative of the installation company who possesses one of the qualifications listed must be present at acceptance testing to perform all the required tests to demonstrate the new system's performance.
   a. All documentation listed below, but not limited to, shall be available to the FCO during inspection and acceptance testing.

b. Above ground test certificate (automatic sprinkle)
c. Underground test certificate (fire hydrant and sprinkler system water supply)
d. Backflow prevention device certificate
e. Fire alarm record of completion (fire alarm system acceptance document)
f. Fire Pump Acceptance Test Form if testing while on site - Fire Pump Test Report and certified pump curve if witnessed by the contracting officer in advance.

3. Qualifications:
   a. SPRINKLER SYSTEM DESIGNER
      1. A licensed fire protection engineer
      2. NICET Level III (or higher) Technician in water-based systems layout
   b. SPRINKLER SYSTEM INSTALLER
      1. State or municipal certified/licensed sprinkler contractor
      2. NICET Level II (or higher)
   c. FIRE ALARM DESIGNER QUALIFICATIONS
      Fire alarm designers shall meet one or more of the following qualifications:
      1. A licensed fire protection engineer
      2. A National Institute for Certification in Engineering Technologies (NICET) Level III (or higher) Technician for the type of system designed
   d. FIRE ALARM INSTALLER
      The fire alarm installer shall meet one or more of the following qualifications:
      1. State or municipal certified/licensed fire alarm contractor
      2. Qualified by the manufacturer
      3. NICET Level II (or higher).

H. Laydown and storage areas will be coordinated with the COR and Facility Manager on site.

I. Erosion control measures are not required to be used.

J. Water for compaction is available from a standpipe located near the water tanks. It has a ¾" hose connection.

K. Camping Requirements. Camping is allowed onsite at the Admin Site. This varies from the statement on FP1. Contractors shall provide all lodging accommodations, including but not limited to trailers, motorhomes, recreational vehicles (RVs), or tents.

1. The admin site has 2 full hookup sites with water, sewer and power. 30- and 50-amp connections are available. Site size is 12 x 40 feet each. Use is subject to availability and approval by the Contracting Officer's Representative (COR).

2. Power hookups are provided from an off-grid solar battery system. Limited power is available. Minimizing the use of power at the camp sites is recommended. Use of air conditioning units in a RV or camper would be restricted. Contractors shall manage electrical consumption to avoid overloading the system.

3. Non-potable water is available. Water is provided from an on-site well.

4. Sewer connection is a 4-inch connection.

5. The sites are located on geogrid stabilized gravel pads.

6. Additional camping sites would need to be located on BLM land outside of the admin site.

    a. Dispersed recreation camping may be permitted on nearby public lands as approved by the COR.

    b. Camping shall be limited to existing disturbed areas identified by the COR.

    c. Contractor shall comply with Leave No Trace principles and all applicable federal land management regulations.

    d. No utilities or services are provided at dispersed camping locations, including Water, Electricity, Sewer service, Trash collection Picnic tables or other amenities.

    e. Non-potable water fill-ups for off-site campers may be coordinated through the Facility Manager.

    f. Contractor shall provide and maintain portable toilet facilities at dispersed camping locations unless recreational vehicles used for lodging contain adequate gray water and black water storage capacity.

    g. Discharge of gray water or black water onto the ground is strictly prohibited.

    h. No sanitary dump station exists at the Dellenbaugh Administrative Site. Sewer dumping for off-site campers may be coordinated with the Facility Manager.

7. Water fill-ups and sewer dumping could be arranged with the facility manager for off-site campers.

8. See end of document for representative pictures.

L. Site Access:

1. Access to the Project site is via unimproved roads maintained by federal agencies and Mohave County, Arizona.

2. Road conditions vary seasonally and may range from fair to poor.

3. Contractor is solely responsible for evaluating travel conditions and maintaining safe access to the site.

4. High-clearance four-wheel-drive vehicles are recommended for all site travel.

5. Vehicles should be equipped with Load Range E tires suitable for off-pavement use.

6. Contractor is advised to equip vehicles with:
    a. A minimum of two spare tires,
    b. Tire repair plug kits
    c. Portable air compressors.

7. Flat tires and vehicle damage due to rough road conditions are common occurrences in the region.

M. Weather Impacts:

1. Roads may become impassable during or following rain or snow events.

2. Due to the size and remoteness of the Arizona Strip region, current road condition reports may not be available.

3. During monsoon season (June through September), travel should be planned before 1:00 PM to minimize exposure to thunderstorms and flash flooding.

4. Contractor shall monitor weather conditions and suspend travel operations when conditions are unsafe.

N. Wildlife and Livestock:

1. Contractors shall exercise caution for range cattle and wildlife encountered on roads and within the project area.

O. Communication Equipment:

1. Cellular coverage is extremely limited and intermittent throughout the project area.

2. Cellular signal boosters may improve reception in limited areas but are not guaranteed to provide reliable service.

3. Contractor shall provide reliable satellite-based communication devices for personnel working on-site.

4. At a minimum, Contractor shall maintain one operational:
   a. Satellite phone; or
   b. Satellite messenger device such as Garmin InReach.

5. Communication devices shall remain operational and available at all times during project operations.

6. Contractor shall develop and maintain an emergency response plan addressing:
   a. Medical emergencies.
   b. Vehicle breakdowns.
   c. Severe weather events.
   d. Wildfire or evacuation scenarios.
   e. Communication failures.

7. Contractor shall ensure all personnel are informed of emergency procedures and evacuation routes.

P. All excess construction material that has been removed/demolished or was unused will be disposed of outside of the park boundaries.

Q. Excess spoil material from excavation shall be disposed of onsite per direction of the COR and Facility Manger. Requests for location shall be made to the COR and FM.

R. The site is covered by a washed river stone. The stone shall be carefully removed and stored adjacent to the project site. Upon completion of the project, the site shall be compacted and graded smoothly. The river stone shall be spread over the site and raked smooth. For areas that were not properly removed and stored of the material, the contractor shall have the responsibility of placing additional material to match the original thickness and coverage areas at no additional expense to the NPS. See photos at the end of this document.

S. At completion of the project, a 3-ring binder of products installed, product cut sheets, test results, as-built drawings, product warranties, O&M manual shall be provided. 3 copies of the binder shall be provided.

T. A daily log will be prepared by the contractor representing the work that was performed that day.

1. The log will describe the tasks performed that day and the contractor staff working.

2. 2 or more representative photos of the tasks being performed that day will be included in each daily log.

3. The submitted daily logs will be in a PDF format. Emailing to the CO/COR is acceptable.

4. The daily logs will be sent to the CO/COR once a week. For every week worked in the field, the daily log will be sent to the CO/COR.

U. The Contractor will manage a weekly progress meeting, conference call or Teams meeting between the contractor and the COR or NPS representatives. The need for the meeting will be determined by the CO/COR and the contractor.

1. A weekly schedule update will be presented at the meeting. Schedule will show the previous weeks accomplishments and tasks. The schedule will show the proposed work schedule for the future two (2) weeks of work. Three (3) weeks of work will be shown. It should be updated weekly and sent to the COR in a PDF format.

2. Photographs of the work progress will be taken. Regular submittal of a PDF file showing representative progress photos, or a log of the previous weeks work will be done weekly.

V. Other Items related to the Installation:

1. Items shown on the plans may vary in quantity and location. Field verify all items and underground/underwater components.

2. Notify the COR of construction phasing.

3. Photos taken documenting the progress of the construction.

    a. Photos will be JPG format.

    b. No labels or text will be placed on the photographs.

    c. High resolution photos are preferred.

    d. Name or number the photos to represent the task shown in the photo.

    e. Photo files will be transmitted to the CO/COR at the end of construction as a part of the close out procedures.

1.5 LOCATION

A. Project Location: Dellenbaugh Admin Site, Mohave County, Arizona; within Grand Canyon Parashant National Monument (PARA).

1.6 PERFORMANCE PERIOD: The total period of performance is 300 calendar days from issuance of notice to proceed.

A. Period of performance accounts for material ordering times.

B. Period of performance will not be extended nor will the notice to proceed be delayed to allow for additional time to order materials.

1.7 FIELD VERIFICATION

A. The Contractor will field verify all new and existing dimensions affecting the work in this contract before ordering any materials, equipment, or parts.

1.8 CONTRACTOR'S USE OF PREMISES

A. The site is located in public areas. Security of the equipment will be maintained during construction.

B. Contractor will at all times conduct their operations to ensure the least inconvenience to the recreation area visitors and employees.

C. The contractor will at all times make the job site, laydown area and storage area safe to the public.

D. Preservation of Natural Features: Confine all operations to work limits of the project. Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees and plants, at no additional expense to the Government.

E. Existing Utilities: Notify Contracting Officer and Facility Manager of proposed locations and times for interruption of existing utility service, if appropriate.

    1. Contractor will be responsible for locating and preventing damage to known utilities. If damage occurs, repair the utility at no additional expense to the Government.

2. The NPS can assist with locating utilities. NPS can indicate approximate location of utilities.

3. NPS has as-built drawings of the utilities located at the site.

4. The COR and FM will walk the site with the contractor to identify the location of the utilities and locations of connections.

F. Hauling Restrictions: Comply with all legal load restrictions in the hauling of materials. Load restrictions on park roads are identical to the state load restrictions with such additional regulations as may be imposed by the Park Superintendent.

G. Work Limits: The Contractor will be confined to conduct his work to job site area and work limits as shown on drawings or approved by the Contracting Officer. Contractor will be responsible to pay for rehabilitation work for any resource damage outside authorized work limits.

H. Care will be taken to ensure that fuel, oil and other spills do not occur. If spills occur, cleanup will be completed at no additional expense to the Government.

1.9 HOURS OF OPERATION

A. Hours of operation will be Monday through Friday between the hours of 7:00 AM and 5:00 PM unless alternate hours are approved by the Contracting Officer and the Contracting Officers Representative (COR). Requests for changes will be submitted to the CO/COR for review and approval/denial.

B. The site is remote and alternate work schedules would be considered.

1.10 SPECIAL PROVISIONS

A. Permitting and Fees:

1. The Contractor is responsible for obtaining and paying for all fees and costs for necessary permits and approvals for all construction activities associated with this Project.

2. No permits are expected to be needed.

3. Contractor will provide all needed Professional Engineering and Fire Professional services for inspections, signatures and closures needed to approve or close out any permit.

4. All testing of the product will be included in this proposal.

B. Time Constraints:

1. Quiet Hours in the park are from 10:00 PM until 6:00 AM. The Contractor will not operate equipment or make loud noise between these hours. This includes backup alarms on vehicles.

2. No work will be performed on weekends or on federal holidays without the advanced, written authorization of the CO.

3. Any request to work outside of normal working days and hours will be submitted to the CO and COR at least 3 business days before the requested event for authorization.

C. Park Regulations:

1. Ensure all personnel (contractors, subcontractors, and vendors) entering or working in the park are familiar with and obey all park regulations. Law enforcement rangers will intervene if they perceive any unsafe or unlawful activity.

D. Emergency Medical and Accident Reporting:

1. All accidents and incidents will be reported to the CO and COR.

a. There is no emergency response number for this site.

E. Logistics:

1. The public access in the public areas will always be maintained. NPS Employee access should be maintained to all facilities during construction.

2. The Contractor will be responsible for the security of all materials staged/stored on PARA property.

F. Equipment Washing:

1. Equipment washing is required to preclude the introduction and spread of non-native species into the Park. Therefore, all equipment will be cleaned outside of the Park before entering the Park. Equipment leaving the park for any reason must be re-washed before returning to the job site. Equipment that is moved from the job site, but remains within the original developed area, need not be re-washed prior to returning to the job site. It is also known that there are areas inside the Park that have non-native plants and weed species infestation. Therefore, before equipment can be moved from one developed area to another, it must be washed at the location identified on the Site Plan to ensure weeds are not spread from one developed area to another.

2. The Contractor will clean all equipment prior to the equipment entering. It is recommended that cleaning be accomplished by hot water, pressure washing, using water only. All equipment surfaces will be cleaned, with special emphasis given to the undercarriage. This includes, but is not limited to: wheel wells, bumpers, radiator grills, springs, shock absorbers, wire harnesses, skid plates, oil pans, axles, frame ledges, buckets, tracks, belly pans, etc. Cleaning will also include all dirt and debris inside the cab, or operator area. A Shop-Vac or commercial car wash vacuum system may be used for operator compartments, provided the method used effectively removes all visible debris. Equipment cleaning is for the purpose of removing any seed and soil accumulations to prevent the potential spread of non-native plant and weed species from outside the park to locations inside the park. Cleaning will be performed in a manner that will reasonably remove all visible soil, plant and other foreign material. All

equipment that requires washing will be inspected by government personnel, or contractors/partners assigned to this duty, to ensure compliance.

3. Equipment that requires washing is generally defined as track or rubber-tired machinery intended for use primarily off-road. Examples include backhoes, loaders, earthmovers, graders, rollers, bulldozers, water trucks, etc; or four-wheel drive or passenger vehicles that are driven in off road areas. Equipment may also be stationary, such as a material screening plant, Conex storage containers, or a mobile office (mobile offices may be cleaned in the same manner as operator compartments as outlined in paragraph 2). The equipment is generally under the direct control of the contractor or sub-contractors, is likely to remain on the construction site for an extended period of time and may contain adhered soil and seed from other project sites.

4. Equipment/Vehicles that do not require washing are defined as those normally used for highway driving only, and travel primarily on paved surfaces and well-maintained service roads and parking areas (this includes approved staging areas). Examples include semi-tractor trailers, dump trucks, concrete trucks, pickup trucks, fuel trucks, service trucks, etc. These delivery and passenger vehicles are generally not under the direct control of the contractor, have no earth-moving function, and do not remain on the project site. These vehicles have a low probability of carrying adhered soil and seed from other projects. However, every vehicle and piece of equipment is subject to rejection from entering the park if there are obvious signs (covered in mud, plant material adhered to it, etc.) that it could be transporting non-native species into the Park.

END OF SECTION 01010

SECTION 01310 PROJECT MANAGEMENT AND COORDINATION

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on this project including, but not limited to the following:

1. Supervisory and administrative personnel.

2. Project meetings.

3. Coordination procedures.

1.2 SUPERVISORY AND ADMINISTRATIVE PERSONNEL

A. General: In addition to the project superintendent, the Contractor will provide other supervisory and administrative personnel as required for proper work performance. This may include special personnel required for coordination of operations with subcontractors and material suppliers.

B. Staff roster:

1. Within 14 days after the NTP, the Contractor will submit a list of staff assignments, including subcontractor personnel (if applicable), working at the job site. Identify each individual and their duties and responsibilities.

1.3 NOTICE TO PROCEED

A. The notice to proceed will be issued upon approval of the following submittals which are required within 10 days of the contract award date:

1. Payment Bond

2. Performance Bond

3. Certificate of Insurance

B. The Notice to proceed letter will establish the issuance date as the first day of the period of performance and the end of period of performance as 300 calendar days from the issuance date.

C. The Notice to Proceed allows the contractor to begin work on the division one submittals listed in section 1.4. All division one submittals must be completed before on-site work can begin.

1.4 PROJECT MEETINGS

A. Submittals required prior to the start of On-site work.

1. Letter designating the Project Superintendent.

2. Proposed construction schedule.

3. Schedule of values.

4. Accident prevention plan, Site health & safety plan.

5. A list of Subcontractors for this project.

6. Written statements from subcontractors certifying compliance with applicable labor standard clauses.

7. Satisfactory evidence of liability insurance coverage and workman's compensation for the Contactor and all subcontractors.

B. Preconstruction Conference: Once the contract is awarded, an initial orientation meeting will be scheduled for a time and date that is agreeable to the Government and Contractor and will be conducted in the Lake Mead Maintenance Building. Parashant and Lake Mead personnel will be present to go over park specific requirements of the project with the Contractor and the Contractor's supervisory and administrative team. The Notice to Proceed date will also be established at the Preconstruction Conference.

1. Agenda: Items to be discussed will include but not be limited to:

    1. Park Rules and Regulations.

    2. General correspondence procedures.

    3. Labor standards provisions.

    4. Payroll reports.

    5. Payments to the Contractor.

    6. Acceptance/rejection of work.

    7. Progress Meetings.

    8. Subcontractors.

    9. Documents required under contract.

    10. Local emergency phone number.

    11. Specifications and drawings.

2. Once the Notice to Proceed date has been established, the Contractor will submit the proposed work schedule to the Government for approval.

1.5 COORDINATION PROCEDURES

A. Coordination: Coordinate the construction operations identified in the various Sections of this Specification to ensure the efficient installation of all materials and equipment.

1. Schedule construction operations in the proper sequence required to obtain the best results where installation of one part of the Work depends on installation of other components before or after its own installation.

2. Coordinate installation of different components with subcontractors and Government personnel to ensure maximum accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

1.6 INSTALLATION SCHEDULE REQUIREMENT

A. Installation Baseline Schedule: Prepare Installation Baseline Schedule using computerized scheduling software.

1. Installation Baseline Schedule will show submittal review, installation start date, work activities / staff resources, activity durations, major milestones, inspection dates, closeout activities, and project end date.

2. Establish procedures for updating Installation Baseline Schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.

3. Contracting Officer may request an updated Installation Schedule at any time to confirm progress of the work.

1.7 SCHEDULE OF VALUES

A. Submit a schedule of dollar values based on the Contract Bid Schedule. Include bond costs, mobilization, general condition costs, overhead, and profit in the total dollar value of unit price items and in the component parts of Work for each lump-sum item as described below. Do not include general condition costs, overhead, or profit as separate items; however, payment for bond premiums can be made based upon evidence of payment to the surety. Bond premiums and insurance may be shown as a separate item.

B. Break down each lump sum Bid Item into component parts of Work for which progress payments may be requested. The total costs for the component parts of work will equal the bid amount for the lump-sum item. The Contracting Officer may request data to verify accuracy of dollar values.

C. The total cost of all items will equal the contract total, or 100%. The Schedule of Values will form the basis for progress payments. Each progress payment request will include the overall percentage complete to that date.

END OF SECTION 01310

SECTION 01330 SUBMITTALS

1.1 DESCRIPTION

A. The intent of this section is to explain submittal requirements before and during construction.

B. This section also includes the requirements for properly handling "Substitutions" and "Comparable Products" the Contractor submits as being "equal" to the product that has been specified.

1.2 SUBMITTAL AND APPROVAL PROCEEDURES

A. All submittals will be transmitted to the COR, as original using National Park Service form CM-16, dated 4/00.

1. A copy of the form is included at the end of this Section.

2. No action will be taken on a submittal unless it is accompanied by a transmittal form.

3. All submittals will be carefully reviewed by the Contractor prior to submission to the Government to eliminate errors.

D. Content of the RFI or Submittal: Include a detailed, legible description of item needing information or interpretation and the following:

1. RFI/Submittal number, numbered sequentially.
2. Date.
3. RFI subject.
4. Specification Section number and title and related paragraphs, as appropriate.
5. Drawing number and detail references, as appropriate.
6. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor will state impact in the RFI.
7. Contractor’s signature.
8. Requested date for response.
9. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    a. Include dimensions, thicknesses, and details of affected materials, assemblies, and attachments on attached sketches.

E. Manufactures' Catalog Sheets: Submit only pertinent pages and mark each copy of standard printed data to identify products proposed for use. Submittal forms with attached Manufactures' Catalog Sheets that are not marked to identify products proposed for use will be disapproved by the COR and will be resubmitted by the Contractor.

F. Manufactures' Installation Instructions: Provide one (1) complete set of instructions to the COR and keep another complete set of instructions at the job site until substantial completion.

G. The Contractor will forward submittals to the COR in accordance with the milestones.

H. Parashant and Lake Mead personnel will review and approve or disapprove and provide comment to submittals in as short a timeframe as possible, but not to exceed 7 calendar days.

I. Contracting Officer will not respond to RFIs submitted by other entities controlled by Contractor.

J. Coordinate and submit RFIs in a prompt manner to avoid delays in the work.

1.3 REQUIREMENTS FOR APPROVED EQUALS

A. For each "Substitution" or "Comparable Product" the Contractor submits as being "equal" to the product that has been specified, the Contractor will submit supporting documentation that includes:

1. Statement indicating why specified material or product cannot be provided.

2. Detailed comparison of the characteristics of the proposed item with that specified.

3. Changes required in other elements of the work because of the substitution.

4. Name, address, and telephone number of vendors.

5. Product data, including drawings, descriptions, fabrication, and samples as appropriate.

6. Manufacturer's literature regarding installation, operation and maintenance, schematics for electrical systems, and parts lists.

a. Describe availability of maintenance service and state a source of replacement parts and materials.

B. A request for approval constitutes a representation that the Contractor:

1. Has investigated the proposed item and determined that it is equal to or superior in all respects to that specified.

2. Will provide the same warranties for the proposed item as for the item specified.

3. Has determined the proposed item is compatible with interfacing items.

4. Will coordinate the installation of the alternate item and make all changes required in other elements of the work because of the substitution.

5. Wavier all claims for additional expenses the may be incurred as a result of the substitution.

C. If all of the requirements listed above are not met by the Contractor, the COR will disapprove the "Substitution" or "Comparable Product" request.

END OF SECTION 01330

TRANSMITTAL - NATIONAL PARK SERVICE

Transmittal No.:
Sheet: 1 of:

Park:	Project:	Contract No.:	Pkg. No.:	Date:
Contractor:	Subcontractor/Supplier:			

Item No.	Specification Section No.	Paragraph No.	Description of Item (Size, Type, Name, Manufacturer, Use, Etc.)	No. of Copies Submitted	NPS ACTION: No. of Copies Returned	NPS ACTION: Approved	NPS ACTION: Approved with Notations	NPS ACTION: Disapproved - Resubmit

Contractor Signature		Recommended By	
Title	Date	Title	Date
I hereby certify that this submittal has been reviewed for accuracy, completeness, and compliance with contract requirements (FAR 52.236-21)			
Review Comments		Action By	Date
		Contracting Officer's Representative	
		Approval of this submittal is subject to the provisions of the contract drawings and specifications. This action is for general concurrence only and the Government is not responsible for errors or omission.	

SUBMITTAL LOG DATES: From Contractor [_____], To Reviewer [_____], From Reviewer [_____], To Contractor [_____]
Distribution: ( ) Contractor ( ) DSC File ( ) COR ( ) A/E ( ) DSC Interim ( ) COR Interim ( ) Contractor Interim

CM-16Rev. 4/00 (Formerly DSC-1)

TRANSMITTAL CONTINUATION - NATIONAL PARK SERVICE

Transmittal No.:
Sheet: 2 of:

Park:	Project:	Contract No.:	Pkg. No.:	Date:
Contractor:	Subcontractor/Supplier:			

Item No.	Specification Section No.	Paragraph No.	Description of Item (Size, Type, Name, Manufacturer, Use, Etc.)	No. of Copies Submitted	NPS ACTION: No. of Copies Returned	NPS ACTION: Approved	NPS ACTION: Approved with Notations	NPS ACTION: Disapproved - Resubmit

Review Comments

CM-16Rev. 4/00 (Formerly DSC-1)

SECTION 01360 ACCIDENT PREVENTION

1.1 DESCRIPTION

A. After contract award and before the Pre-Construction conference, submit for review an Accident Prevention Plan. The Contracting Officer will review the proposed Plan. If the plan requires any revisions or corrections, the Contractor will resubmit the Plan within ten (10) days. No progress payments will be made until the Plan is accepted.

1.2 SUBMITTALS

A. Accident Prevention Plan - The Plan will be written to comply with OSHA and project requirements including but not limited to the following information/topics:

1. The name of the responsible supervisor who will carry out the program.

2. Documentation of the personnel training program; both initial and continuing.

3. Weekly and monthly safety meetings.

4. First aid procedures.

5. Outline the work, associated hazards, protective measures, and the methods proposed to ensure property protection, safety of the public, National Park Service personnel, and Contractor's employees.

6. Planning and checklists for possible emergency situations.

7. A fire protection plan.

8. And a fall protection plan.

B. Daily Submittals: Submit Daily Quality Control Report showing all inspections and tests on the first workday following the date covered by the report.

C. Tests: Submit triplicate copies of complete test results not later than three calendar days after the test was performed. Submit failing test results and proposed remedial actions within four hours of noted deficiency.

D. Off Site Inspection Reports: Submit prior to shipment.

E. Progress Payments: If the CQC plan and Daily Quality Control Reports are not submitted in a timely manner, the Contracting Officer may retain an appropriate amount of the applicable progress payment.

1.3 QUALIFICATION OF EMPLOYEES

A. Ensure that employees are physically qualified to perform assigned duties in a safe manner.

B. Do not allow employees to work whose ability or alertness is impaired because of drugs, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury.

C. Operators of vehicles, mobile equipment, hoisting equipment, and hazardous plant equipment will be able to understand signs, signals, and operating instructions, and be capable of operating such equipment. Provide operating instructions for all equipment.

1.4 ACCIDENT REPORTING

A. Reportable Accidents: A reportable accident is defined as death, occupational disease, traumatic injury to employees or the public, fires, and property damage by accident in excess of $100. Notify Contracting Officer immediately in the event of a reportable accident. Within 7 days of a reportable accident, fill out and forward to Contracting Officer an Accident/Property Damage Report (Form CM-22). Form may be obtained from the Contracting Officer.

B. All Other Accidents: The Contractor will report all other accidents to the Contracting Officer as soon as possible and assist the Contracting Officer and other officials as required in the investigation of the accident.

1.5 PERSONNEL PROTECTIVE EQUIPMENT

A. Meet requirements of National Institute for Occupational Safety and Health (NIOSH) and OSHA.

B. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair, as appropriate, personal items before issuing them to another individual.

C. Inspect and maintain other protective equipment and devices before use and on a periodic basis to ensure safe operation.

D. It is the Contractor's responsibility to require all those working on or visiting the site to wear necessary protective equipment at all times.

1.6 EMERGENCY INSTRUCTIONS

A. Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at the work site.

1.7 FIRST AID FACILITIES

A. Provide adequate facilities for the number of employees and the hazards associated with the types of ongoing construction work at the site.

1.7 SAFETY MEETINGS

A. As a minimum, conduct weekly 15-minute "toolbox" safety meetings. These meetings will be conducted by a foreman and attended by all construction personnel at the worksite.

B. Conduct monthly safety meetings for all levels of supervision. Notify the COR of meeting dates and times. These meetings will be used to review the effectiveness of the Contractor's safety effort, to resolve current health and safety problems, to provide a forum for planning safe construction activities, and for updating the accident prevention program.

END OF SECTION 01360

SECTION 01400 QUALITY REQUIREMENTS

1.1 DESCRIPTION

A. The intent of this section is to explain the requirements for preparing and executing a Quality Control Program.

1.2 SUBMITTALS

A. Quality Control Plan: At the time of the Pre-Construction Conference the Contractor will submit for approval a written Contractor Quality Control (CQC) plan to the Government. If the plan requires any revisions or corrections, the Contractor will resubmit the plan within 10 days. The Government reserves the right to require changes to the plan during the contract period as necessary to obtain the quality specified. No change in the approved plan may be made without written concurrence by the Contracting Officer. The plan will include:

1. A list of personnel responsible for quality control. Include each person's qualifications.

2. A copy of a letter of direction to the Contractor's quality control supervisor outlining assigned duties.

3. Names and descriptions of laboratories to perform sampling and testing, and samples of proposed report forms.

4. Methods of monitoring and controlling environmental pollution and contamination as required by regulations and laws.

5. Methods of performing, documenting, and enforcing quality control of all work.

B. Daily Submittals: Submit Daily Quality Control Report showing all inspections and tests on the first workday following the date covered by the report.

C. Tests: Submit triplicate copies of complete test results not later than three calendar days after the test was performed. Submit failing test results and proposed remedial actions within four hours of noted deficiency.

D. Off Site Inspection Reports: Submit prior to shipment.

E. Progress Payments: If the CQC plan and Daily Quality Control Reports are not submitted in a timely manner, the Contracting Officer may retain an appropriate amount of the applicable progress payment.

1.3 QUALITY ASSURANCE

A. General: Except for tests or other items of work specified to be performed by the Government, the quality of all work will be the responsibility of the Contractor. Inspect and test all work often enough to ensure that the quality of materials, workmanship, construction, finish, and functional performance is in compliance with applicable specifications and drawings.

B. Quality Control Staff: The Contractor's job supervisory staff may be used for quality control, supplemented as necessary by additional technicians. The Contractor's designated Quality Control Supervisor will be employed full time at the project site whenever contract work is in progress.

C. Testing Laboratory and Equipment: Employ certified independent laboratory to perform sampling and testing.

1. All measuring devices, laboratory equipment, and instruments will be calibrated at established intervals against certified standards. Upon request, measuring and testing devices will be made available for use by the Government for verification tests.

2. The testing laboratory organization will be experienced in the type of testing work to be done.

1.4 OFF-SITE CONTROL

A. Items that are fabricated or assembled off-site will be inspected for quality control at the place of fabrication.

1.5 ON-SITE CONTROL

A. Notify the COR at least 48 hours in advance of the initial and follow-up phases.

B. Preparatory: Perform before beginning each feature of work.

1. Review control submittal requirements with personnel directly responsible for the quality control work.

2. Ensure that provisions have been made for field control testing.

3. Examine the work area to ensure that all preliminary work has been completed.

4. Verify all field dimensions and advise the COR of discrepancies.

5. Ensure that necessary equipment and materials are at the project site and that they comply with approved shop drawings and submittals.

C. Initial: As soon as work begins, inspect and test a representative portion of a particular feature of work for quality of workmanship. Review control testing procedures to ensure compliance with contract requirements.

D. Follow-Up: Inspect and test as work progresses to ensure compliance with contract requirements until completion of work.

1.6 DOCUMENTATION

A. Maintain Daily Quality Control Reports of quality control activities and tests. Daily Quality Control Reports may not be substituted for other written reports required under the General Provisions, such as Disputes, Differing Site Conditions, or Changes.

1.7 ENFORCEMENT

A. The Contractor will stop work on any item or feature pending satisfactory correction of any deficiency noted by the quality control staff or the COR. Construction will not proceed on any feature of work containing uncorrected work.

END OF SECTION 01400

SECTION 01510 TEMPORARY SERVICES

1.1 DESCRIPTION

A. The work of this section consists of providing temporary services required for Contractor's performance of the work of this contract.

1.2 GENERAL REQUIREMENTS

A. Temporary materials may be new or used but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

1.3 SANITARY FACILITES

A. Provide and maintain temporary toilet facilities in accordance with State Health Department and National Park Service requirements.

B. Sufficiently lighted and ventilated toilet facilities in weatherproof, sight-proof, handicap accessible, sturdy enclosures with privacy locks.

1.4 FIRE PROTECTION EQUIPMENT

A. Extinguisher will have a minimum UL rating of 2-A: 10-B:C.

1.5 SANITARY FACILITIES

A. Place portable toilets in approved locations secluded from public observation and convenient to the work site. Relocate as work progress requires.

B. Maintain and clean toilet facilities at least weekly.

C. Completely remove sanitary facilities on completion of work.

1.6 FIRE PREVENTION AND PROTECTION

A. Responsible person: A capable and qualified person will be placed in charge of fire protection. The responsibilities will include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.

B. Hazard Control: Take all necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in existing buildings. Provide adequate ventilation during use of volatile or noxious substances.

C. Spark Arresters:

1. Written determinations of periods and areas of potential fire hazard will be issued by Contracting Officer.

2. Equip all gasoline or diesel-powered equipment used during periods of potential fire hazards or in potential forest and grass fire locations with spark arresters approved by the U. S. Forest Service.

D. Service and Refueling Areas: Locate areas a minimum of 50 feet from buildings. Shut down equipment before refueling.

E. Welding: Cutting by torch or welding will be performed only when adequate fire protection is provided.

1.11 PROTECTION EQUIPMENT REQUIRED

A. Buildings:

1. Furnish a minimum of one extinguisher for each 1,500 square feet of area or major fraction thereof.

2. Travel distance from any work station to the nearest extinguisher will not exceed 75 feet.

B. Vehicles and Equipment: Provide one extinguisher on each vehicle or piece of equipment.

1.12 TRAFFIC CONTROLS

A. The contractor will erect and maintain barricades, danger signals, and warning signs in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), 2023 edition. The contractor will provide adequate traffic control, including flaggers or either side of any work performed in the road. Any workers on or near the road must wear highly visible, bright clothing.

END OF SECTION 01510

SECTION 01570 TEMPORARY CONTROLS

1.1 DESCRIPTION

A. This Section includes administrative and procedural requirements for providing temporary controls.

1.2 HOUSEKEEPING

A. Keep project site neat, orderly, and in a safe condition at all times.

B. Provide enough containers for collecting construction debris and construction materials to be recycled.

C. Keep volatile wastes in covered containers.

1.3 DISPOSAL

A. Unless otherwise specified, all removed material becomes the property of the Contractor and will be disposed of outside the park.

B. Immediately remove hazardous rubbish from project site. Place other construction debris in refuse containers at least daily. Dispose of refuse at least weekly, in a legal manner, at public or private dumping areas outside the park. Do not burn or bury refuse inside the park.

1.4 FIRE PROTECTION EQUIPMENT

A. Extinguisher will have a minimum UL rating of 2-A: 10-B: C.

1.5 AIR AND WATER POLLUTION CONTROL

A. Take all necessary reasonable measures to reduce air and water pollution by any material or equipment used during construction.

B. Do not dispose of volatile wastes or oils in storm or sanitary drains.

C. Do not allow waste materials to be washed into streams or bodies of water.

1.6 WATER

A. Non-potable water for construction is available from the lake. Install pumps, piping and connections as required. Coordinate with COR for locations.

B. Toilets: Use of existing park toilet facilities will not be permitted.

1.7 TRAFFIC CONTROLS

A. Traffic Controls: Erect and maintain barricades, lights, danger signals, and warning signs in accordance with Manual on Uniform Traffic Control Devices (MUTCD) latest edition.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

3. Illuminate barricades and obstructions at night, if working nighttime hours.
4. Protect pedestrian traffic by guardrails or fences.
5. Install Barrier Tape where directed by Contracting Officer. Keep a minimum of two rolls on site at all times.
6. Fence, barricade, or otherwise block off the immediate work area to prevent unauthorized entry.

1.8 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Cleaning of Equipment: The Contractor will ensure that prior to moving on to the Project Area, all equipment, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Ensure that all equipment has been pressure washed and is free of exotic species prior to start-up of operations and moving of equipment to Project Area. Equipment will be considered free of soil, seeds, and other debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools are not required.

END OF SECTION 01570

SECTION 01600 PRODUCT REQUIREMENTS

1.1 DESCRIPTION

A. This Section includes administrative and procedural requirements for selection of products for use in this Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

1.2 DEFINITIONS

A. Products: are items purchased for incorporating into the Work, whether purchased for this Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: are items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.

2. New Products: are items that have not previously been incorporated into another project or facility**,** except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.

3. Comparable Products: are a product that is demonstrated and approved through the submittal process outlined in Section 01330 and have been proven to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of the specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor that have been approved through the submittal process outlined in Section 01330.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers that have been approved through the submittal process outlined in Section 01330.

D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to the Government.

E. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for the Government.

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure.

3. Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.

4. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

6. Protect stored products from damage and liquids from freezing.

1.4 PRODUCT WARRANTIES

A. Warranties specified in other Sections will be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

END OF SECTION 01600

SECTION 01770 CLOSEOUT PROCEDURES

1.1 DESCRIPTION

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.

2. Project Record Documents.

3. Operation and maintenance manuals.

4. Warranties.

5. Instruction of Government's personnel.

6. Final cleaning.

B. Related Sections include the following:

1. Division 1, Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

2. Division 1, Section "Construction Progress Documentation" for submitting Final Completion construction photographs and negatives.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

2. Advise Government of pending insurance changeover requirements.

3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Obtain and submit releases permitting Government unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

5. Prepare and submit Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Government. Label with manufacturer's name and model number where applicable.

7. Make final changeover of permanent locks and deliver keys to Government. Advise Government's personnel of changeover in security provisions.

8. Submit test/adjust/balance records.

9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

10. Complete final cleaning requirements, including touchup painting.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Contracting Officer's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Contracting Officer's Representative will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Contracting Officer's Representative that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1, Section "Payment Procedures."

2. Submit certified copy of Contracting Officer's Representative's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Contracting Officer's Representative. The certified copy of the list will state that each item has been completed or otherwise resolved for acceptance.

3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Contracting Officer's Representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Contracting Officer's Representative will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

3. Include the following information at the top of each page:

    a. Project name.

    b. Date.

    c. Name of Contracting Officer's Representative and Construction Manager.

    d. Name of Contractor.

    e. Page number.

1.5 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Contracting Officer's Representative's reference during normal working hours.

B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

    a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.

    b. Accurately record information in an understandable drawing technique.

    c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

    d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

3. Mark important additional information that was either shown schematically or omitted from original Drawings.

4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.

5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

3. Note related Change Orders, Record Drawings, and Product Data, where applicable.

D. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.

3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.

E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Contracting Officer's Representative for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Government during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product

or installation, including the name of the product and the name, address, and telephone number of Installer.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.7 FINAL CLEANING

A. General: Provide final job site cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Clean equipment surfaces to comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

2. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

3. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

4. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

5. Remove tools, construction equipment, machinery, and surplus material from Project site.

6. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

7. Leave Project clean and ready for use.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Government’s property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770

SECTION 01781 PROJECT RECORD DOCUMENTS

1.1 DESCRIPTION

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. As-Built drawings.

2. Product data sheets.

1.2 SUBMITTALS

A. As-Built Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

b. Accurately record information in an understandable drawing technique.

c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.

b. Revisions to details shown on Drawings.

c. Locations and depths of underground utilities.

d. Revisions to routing of piping and conduits.

e. Revisions to electrical circuitry.

f. Actual equipment locations.

g. Locations of concealed internal utilities.

h. Changes made by Change Order or Work Change Directive.

i. Changes made following Architect's written orders.

j. Details not on the original Contract Drawings.

k. Field records for variable and concealed conditions.

l. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Product Data Sheets: Submit one copy of each Product Data submittal.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure.

3. Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.

4. Store cementitious products and materials on elevated platforms.

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

6. Protect stored products from damage and liquids from freezing.

1.4 PRODUCT WARRANTIES

A. Warranties specified in other Sections will be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to the Government.

2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for the Government.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.

3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 1, Section "Closeout Procedures."

END OF SECTION 01781

DESCRIPTION OF SITE

1. Water tank location.

2. Yard in front of Cabin. Connection line from tank to cabin.

3. Gas line connection

4. Generator location.

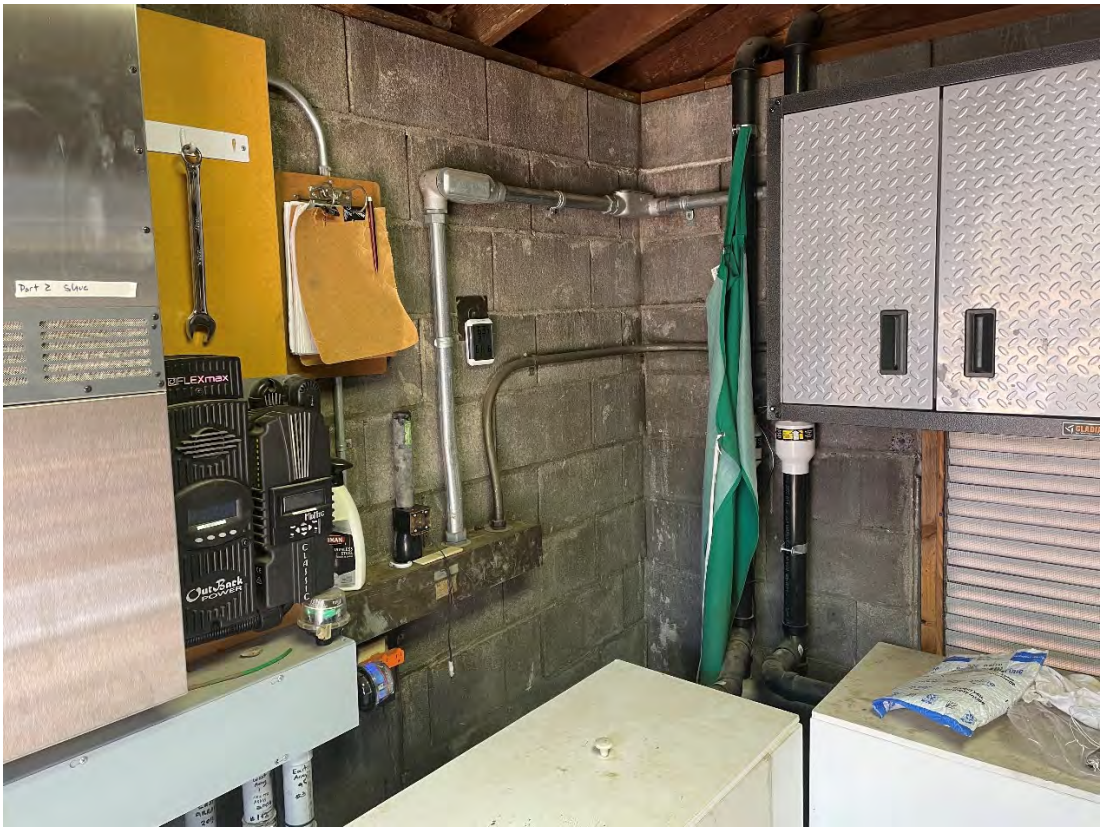
5. Electrical conduit path

6. Camp sites. Full hookups. Gravel on geogrid base.

7. Typical exterior of the cabins.

8. Typical interiors of the cabins.

9. Interior of Generator building. Mounting locations for equipment.



10. Storage closet for the riser equipment.

11. Base rock material covering the site. It needs to be removed, stored, protected and respread out over the disturbed area.

END OF SECTION

Contractor's Material and Test Certificate for Underground Piping (Form AS-4)

PROCDURE

Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by the Contracting Officer or his/her designee representative. All defects shall be corrected and the system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both a Contractor's representative and the Contracting Officer or his/her designee. Copies shall be prepared for the authority having jurisdiction, owners, and contractors. It is understood that the signature of the Contracting Officer or his/her designee in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving requirements of the authority having jurisdiction or local ordinances.

PLANS

Accepted by [Contracting Officer or his/her designee]: _____
(print) (signature)

Address: _____

Installation conforms to accepted plans? ☐ Yes ☐ No

Equipment used is approved? ☐ Yes ☐ No

If no, explain deviations. _____

INSTRUCTIONS

Has person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this new equipment? ☐ Yes ☐ No

If no, explain. _____

Have copies of appropriate instructions and care and maintenance charts been left on premises? ☐ Yes ☐ No

If no, explain. _____

LOCATION OF WATER MAIN

Piping Supplies building(s): _____ FMSS Asset ID Number: _____

UNDERGROUND PIPES AND JOINTS clamped, strapped, or blocked in accordance with standard

Pipe conforms to _____ standard ☐ Yes ☐ No

(If no, explain) _____

Fittings conform to _____ standard ☐ Yes ☐ No

(If no, explain) _____

Joints needing anchorage clamped, strapped, or blocked in accordance with _____ standard? ☐ Yes ☐ No

(If no, explain) _____

TEST DESCRIPTION

Flushing: Flow the required rate until water is clear as indicated by no collection of foreign material in burlap bags at outlets such as hydrants and blow-offs. Flush at flows not less than 400 gpm (1514 L/min) for 4-in. (102-mm) pipe, 600 gpm (2271 L/min) for 5-in. (127-mm) pipe, 750 gpm (2839 L/min) for 6-in. (152-mm) pipe, 1000 gpm (3785 L/min) for 8-in. (203-mm) pipe, 1500 gpm (5678 L/min) for 10-in. (254-mm) pipe and 2000 gpm (7570 L/min) for 12-in. (305-mm) pipe. When supply cannot produce stipulated flow rates, obtain maximum available.

Hydrostatic: Hydrostatic tests shall be made at not less than 200 psi (13.6 bar) for two hours or 50 psi (3.4 bar) above static pressure in excess of 150 psi (10.2 bar) for two hours.

Leakage: New pipe laid with rubber gasketed joints shall, if the workmanship is satisfactory, have little or no leakage at the joints. The amount of leakage at the joints shall not exceed 2 qts per hr. (1.89 L/h) per 100 joints irrespective of pipe diameter. The leakage shall be distributed over all joints. If such leakage occurs at a few joints the installation shall be considered unsatisfactory and necessary repairs made. The amount of allowable leakage specified above may be increased by 1 fl oz per in. valve diameter per hour (30 mL/25 mm/h) for each metal-seated valve isolating the test section. If dry barrel hydrants are tested with the main valve open, so the hydrants are under pressure, an additional 5 oz per minute (150 mL/min) leakage is permitted for each hydrant.

TESTING DATA

Flushing Tests

New underground piping flushed according to _____ standard. ☐ Yes ☐ No

By (company) _____

If no, explain. _____

How flushing flow was obtained: ☐ Public water ☐ Tank or reservoir ☐ Fire pump

Through what type opening ☐ Hydrant butt ☐ Open pipe

Lead-ins flushed according to _____ standard ☐ Yes ☐ No

By (company) _____

If no, explain. _____

How flushing flow was obtained ☐ Public water ☐ Tank or reservoir ☐ Fire pump

Through what type opening ☐ Y connection to flange and spigot ☐ Open pipe

Hydrostatic Test

All new underground piping hydrostatically tested at _____ psi (bar) for _____ hours

Joints covered? ☐ Yes ☐ No

Leakage Test

Total amount of leakage measured: _____ gals (L) _____ hours

Allowable leakage: _____ gals (L) _____ hours

HYDRANTS

Number installed: _____ Type and make: _____

All operate satisfactorily? ☐ Yes ☐ No

CONTROL VALVES

Water control valves left wide open? ☐ Yes No

If no, state reason. _____

Hose threads of fire department connections and hydrants interchangeable with those of fire department answering alarm? ☐ Yes ☐ No

Date left in service with all control valves open: _____

Remarks: _____

SIGNATURES

Sprinkler Contractor Business Name: _____

Address: _____

Phone No.: _____ License or Certificate Number: _____

Name of Technician: _____ Signature: _____

Regional Structural Fire Management Officer (of his designee): _____

Date: _____

Contractor's Material and Test Certificate for Aboveground Piping
(Form AS-5)

PROCEDURE

Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by the Contracting Officer or his/her designee. All defects shall be corrected and the system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both a contractor's representative and the Contracting Officer or his/her designee. Copies shall be prepared for the authority having jurisdiction, the park unit, and contractors. It is understood that the signature of the Contracting Officer or his/her designee in no way prejudices any claim against the contractor for faulty material, poor workmanship, or failure to comply with the requirements of the authority having jurisdiction or local ordinances.

GENERAL

Date:

Asset ID No.: Asset Description:

Park: Site No. and Name:

Location No.: Location Description:

PLANS

Accepted by [Contracting Officer or his/her designee]:

(print) (signature)

Park/Office:

Phone No.:

Installation conforms to accepted plans? Yes: ☐ No: ☐

Equipment used is approved? Yes: ☐ No: ☐

If no, explain deviations.

INSTRUCTIONS

Has person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this new equipment? Yes: ☐ No: ☐

If no, explain.

Have copies of appropriate instructions and care and maintenance charts been left on premises? Yes: ☐ No: ☐

If no, explain.

LOCATION OF SYSTEM RISER

Riser location:

Piping supplies building(s):

SPRINKLERS

Make	Model	Year of Manufacturer	Orifice Size	Quantity	Temperature Rating

PIPE FITTINGS

Pipe conforms to standard

(If no, explain):

Fittings conform to standard

(If no, explain):

ALARM VALVE OR FLOW INDICATOR

Alarm Device			Maximum Time to Operate Through Test Pipe	
Type	Make	Model	Minutes	Seconds

DRY PIPE OPERATING TEST

Dry Valve			Quick Opening Device (Q.O.D)		
Make	Model	Serial No.	Make	Model	Serial No.

	Time to Trip Through Test Pipe*		Water Pressure	Air Pressure	Trip Point Air Pressure	Time Water Reached Test Outlet*		Alarm Operated Properly	
	Min.	Sec.	Psi (Bar)	Psi (Bar)	Psi (Bar	Min.	Sec.	Yes	No
Without Q.O.D								☐	☐
With Q.O.D								☐	☐

Comments:

BACKFLOW PREVENTION DEVICE (Forward Flow Test)

Method of Flow: ☐ Main Drain ☐ Fire Department Connection ☐ Fire Department Connection By-pass

*** Test shall deliver designed flow rate for system, including hose stream, where hydrants or inside hose stations are located downstream of the backflow preventer.**

DELUGE AND PRE-ACTION VALVES

Operation: ☐ Pneumatic ☐ Electric ☐ Hydraulic

Piping supervised: Yes: ☐ No: ☐

Detecting media supervised: Yes: ☐ No: ☐

Is there an accessible facility in each circuit for testing: Yes: ☐ No: ☐

If no, explain.

Make	Model	Does each circuit operate supervision loss alarm?		Does each circuit operate valve release?		Maximum Time to operate release	
		Yes	No	Yes	No	Min.	Sec.
		☐	☐	☐	☐		

TEST (description)

HYDROSTATIC: Hydrostatic tests shall be made at not less than 200 psi (13.6 bar) for two hours or 50 psi (3.4 bar) above static pressure in excess of 150 psi (10.2 bar) for two hours. Differential dry pipe valve clappers shall be left open during test to prevent damage. All aboveground piping leakage shall be stopped.

PNEUMATIC: Establish 40 psi (2.7 bar) air pressure and measure drop, which shall not exceed 11/2 psi (0.1 bar) in 24 hours. Test pressure tanks at normal water level and air pressure and measure air pressure drop, which shall not exceed 11/2 psi (0.1 bar) in 24 hours.

***Measure from time inspector's test pipe is opened**

TEST

All piping hydrostatically tested at psi (bar) for hrs.

Dry piping pneumatically tested: Yes: ☐ No: ☐

Equipment operates properly: Yes: ☐ No: ☐

If no, state reason.

Drain test—Reading of gauge located near water supply test pipe: Static pressure: psi (bar)

Drain test—Residual pressure with valve in test pipe open wide: psi (bar)

Underground mains and lead-in connections to system risers flushed before connections made to sprinkler piping (verified by review of completed copy of NPS Form AS-4?): Yes: ☐ No: ☐ Other: ☐

Flushed by installer of underground sprinkler piping: Yes: ☐ No: ☐ Other: ☐

If other, explain.

BLANK TESTING GASKETS

Number used: Locations: Number removed:

CUTOUTS (discs)

Do you certify that you have a control feature to ensure that all cutouts (discs) are retrieved? Yes: No: ☐

Welding

Welded piping: Yes: No: ☐

If yes,

	Yes	**No**
Do you certify as the sprinkler contractor that welding procedures comply with the requirements of at least AWS D10.9, Level AR-3?		
Do you certify that the welding was performed by welders qualified and in compliance with the requirements of at least AWS D10.9, Level AR-3?		
Do you certify that welding was carried out in compliance with a documented quality control procedure to insure that all discs are retrieved, that openings in piping are smooth, that slag and other welding residue are removed, and that the internal diameters of piping are not penetrated?		

HYDRAULIC DATA NAMEPLATE

Nameplate provided? Yes: No: ☐

If no, explain.

Date system left in service with all control valves open:

Remarks:

SIGNATURES

Sprinkler Contractor Business Name:

Address:

Phone No.: License or Certificate Number:

Name of Technician:

Signature:

Regional Structural Fire Management Officer (of his designee):

(print) (signature)

Date:

Backflow Prevention Assembly Test And Maintenance Record (Form BF-1)

I. GENERAL INFORMATION

Address: _____ FMSS Asset ID Number: _____

Location of Assembly: _____

Date of Installation: _____ Incoming Line Pressure: _____

Manufacturer: _____ Model No. _____

Serial No.: _____ Size: _____

Assembly Type: ☐ RP ☐ RP Detector ☐ DC Detector ☐ PVB

II. TESTS AND REPAIRS INFORMATION

	Check Valve No. 1	Check Valve No. 2	Differential Pressure Relief Valve
Initial Test:	☐ Leaked ☐ Closed Tight Pressure drop across the first check valve is _____ psid	☐ Leaked ☐ Closed Tight Pressure drop across the second check valve _____ psid	☐ Opened at _____ psid ☐ Did not Open
Repairs:	List Repairs and Corrections	List Repairs and Corrections	List Repairs and Corrections
Final Test	☐ Closed Tight	☐ Closed Tight	☐ Opened at _____ psid

Condition of No. 1 Control Valve: ☐ Closed Tight ☐ Leaked

Condition of No. 2 Control Valve: ☐ Closed Tight ☐ Leaked

Remarks: ☐ Assembly Failed ☐ Assembly Passed

III. APPROVALS

Name of Technician _____ Company Name: _____

Address: _____

Phone No.: _____ Certificate Number: _____ Gauge Number: _____

Signature of Technician:

Date:

Regional Structural Fire Management Officer (or his designee):

Date: _____

Contractor's Material and Test Fire Alarm Record of Completion and Acceptance Form (Form FA-2)

PROCEDURE

Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by the Contracting Officer or his/her designee. All defects shall be corrected and the system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both a contractor's representative and the Contracting Officer or his/her designee. Copies shall be prepared for the authority having jurisdiction, the park unit, and contractors. It is understood that the signature of the Contracting Officer or his/her designee in no way prejudices any claim against the contractor for faulty material, poor workmanship, or failure to comply with the requirements of the authority having jurisdiction or local ordinances.

GENERAL

Date:

Asset ID No.: Asset Description:

Park: Site No. and Name:

Location No.: Location Description:

Time:

INSTALLING CONTRACTOR

Business Name:

Address:

Representative's/Technician's Name:

License No.:

Telephone:

PARK INFORMATION

Park Contact:

Position/Title:

Contact Phone No.:

ALARM MONITORING ENTITY

Contact:

Telephone:

Monitoring Account Ref. No.:

1. TYPE(S) OF SYSTEM OR SERVICE

NFPA 72, Chapter 3 – Local

If alarm is transmitted to locations (s) off premises, list where received:

NFPA 72, Chapter 3 – Emergency Voice/Alarm Service

Quantity of voice/alarm channels: Single: Multiple:

Quantity of speakers installed: Quantity of speakers zones:

Quantity of telephones or telephone jacks included in system:

NFPA 72, Chapter 6 – Auxiliary

Indicate type of connection:

Local energy: Shunt: Parallel telephone:

Location of telephone number for receipt of signals:

NFPA 72, Chapter 5 – Remote Station

Alarm:

Supervisory:

NFPA 72, Chapter 3 – Proprietary

If alarms are retransmitted to public fire service communications centers or others, indicate location and telephone numbers of the organization receiving alarm:

Indicate how alarm is transmitted:

NFPA 72, Chapter 5 – Central Station

Prime Contractor:

Central Station Location:

Means of transmission of signals from the protected premises to the central station:

☐ McCulloh ☐ Multiplex ☐ Digital Alarm Communicator ☐ One-way Radio

☐ Two-way Radio

☐ Other means of transmission alarms to the public fire service communications center:

(a)

(b)

Location of Record (as-built) Drawings:

Location of Owner's Manual:

Location of test reports:

A contract, dated , for test and inspection in accordance with NFPA standards(s) No(s). , dated , is in effect.

2. RECORD OF SYSTEM INSTALLATION

(Fill out after installation is complete and wiring checked for opens, shorts, ground faults, and improper branching, but prior to conducting operational acceptance tests.)

This system has been installed in accordance with the NFPA standards as shown below, was inspected by _____ on _____, includes the devices shown below, and has been in service since _____.

NFPA 72, Chapters 1 2 3 4 5 6 7 (*circle all the apply*)

NFPA 70, *National Electrical Code,* Article 760: Yes ☐ No ☐

Manufacturer's instructions: Yes ☐ No ☐

Other (specify): _____

Signed: _____ Date: _____

Organization: _____

3. RECORD OF SYSTEM OPERATION

All operational features and functions of this system were tested by _____ on _____, and found to be operating properly in accordance with the requirements of:

NFPA 72, Chapters 1 2 3 4 5 6 7 (circle all the apply)

NFPA 70, *National Electrical Code,* Article 760: Yes ☐ No ☐

Manufacturer's instructions: Yes ☐ No ☐

Other (specify): _____

Signed: _____ Date: _____

Organization: _____

4. FIRE ALARM CONTROL PANEL

Manufacturer: _____ Model: _____ Serial No.: _____

Configuration: _____ Access Code(s): _____

Location of Control Panel and Remote Annunciator(s): _____

5. ALARM-INITIATING DEVICES AND CIRCUITS

Quantity and class of initiating device circuits (*see* NFPA 72, *Table* 3-5) Quantity: _____ Style: _____ Class: _____

MANUAL

(a) Manual Stations: _____ Non-coded, Activating: _____ Transmitters: _____ Coded: _____

(b) Combination manual fire alarm and guard's tour coded stations: _____

AUTOMATIC

Coverage: Complete: ☐ Partial: ☐

(a) Smoke detectors: ☐ Ion: ☐ Photo: ☐
(b) Duct detectors: ☐ Ion: ☐ Photo: ☐
(c) Heat detectors: ☐ FT: ☐ RR: ☐ FT/RR: ☐ RC: ☐
(d) Sprinkler water flow switches: ☐ Transmitters: ☐ Non-coded, Activating: ☐ Coded: ☐
(e) Other (list): ☐

GUARD'S TOUR

(a) Coded stations
(b) Non-coded stations, activating: ☐ Transmitters: ☐
(c) Compulsory guard tour system comprised of ☐ transmitter stations and ☐ intermediate stations

Note: Combination devices are recorded under 4(b) and 5(a)

SPRINKLER SYSTEM

(a) Coded valve supervisory signaling attachments: ☐
(b) Value supervisory switches, activating ☐ transmitters
(c) Building temperature points: ☐
(d) Site water temperature points: ☐
(e) Site water supply level points: ☐

ELECTRIC-DRIVEN FIRE PUMP

(e) Fire pump power: ☐
(f) Fire pump running: ☐
(g) Phase reversal: ☐

ENGINE-DRIVEN FIRE PUMP (*Diesel, Propane, Other*)

(h) Selector in auto position: ☐
(i) Engine or control panel trouble: ☐
(j) Fire pump running: ☐

Engine-driven generator:

(k) Selector in auto position: ☐
(l) Control panel trouble: ☐
(m) Transfer switches: ☐
(n) Engine running: ☐

Other supervisory functions(s) (specify): ☐

7. ALARM-INITIATING DEVICES AND CIRCUITS

Quantity and class (*see* NFPA 72, *Table 3-7*) of notification appliance circuits connected to the system:

Types and quantities of notification appliances installed: Quantity: ☐ Style: ☐ Class: ☐

(a) Bells: ☐

(b) Speakers: ☐

(c) Horns: ☐

(d) Chimes: ☐

(e) Other: ☐ Type: ☐

(f) Visual Signals: with audible ☐ w/o audible ☐

(g) Local annunciator: ☐

8. SIGNALING LINE CIRCUITS

Quantity and class (*see* NFPA 72, *Table 3-6*) of signaling line circuits connected to system:

Quantity: ☐ Style: ☐ Class: ☐

9. SYSTEM POWER SUPPLIES

(a) Primary (main):

Nominal voltage: ☐ Current rating: ☐

Overcurrent protection: Type: ☐ Current rating: ☐

Location: ☐

(b) Secondary (standby):

Storage battery: Amp-hour rating: ☐

Calculated capacity to drive system, in hours: ☐ 24 ☐ 60

Engine-driven generator dedicated to fire alarm system: ☐

Location of fuel storage: ☐

(c) Emergency or standby system used as backup to primary power supply, instead of using a secondary power supply:

Emergency system described in NFPA 70, Article 700: Yes ☐ No ☐

Legally required standby system described in NFPA 70, Article 701: Yes ☐ No ☐

Optional standby system described in NFPA 70, Article 702, which also meets the performance requirements of Article 700 or 701: Yes ☐ No ☐

10. SYSTEM SOFTWARE

(a) Operating system software revision level (s):

(b) Application software revision level(s):

(c) Revision completed by:

(name) (firm)

11. COMMENTS

System deviations from the referenced NFPA standard(s) are:

No deviation noted: ☐

Upon successful completion of the system(s) acceptance test(s), witnessed, by the Authority Having Jurisdiction or his/her designee, the contractor's representative and the Authority Having Jurisdiction shall sign below.

12. SIGNATURES

Contractor Representative/Technician:

(*signature*)

Date:

Authority Having Jurisdiction (or his designee):

(signature)

Date:

NPS Pacific West Region

Fire Alarm Acceptance Checklist

Park: APIS	Building Name:	FMSS Location ID:
Date:	Inspector:	FMSS Asset ID:
		PMIS:

OK	N	NA	[OK = No Problems, N = Need to fix and retest, NA = Not applicable]
			1. Documentation Available
			1.1. Approved plans and as-built record drawings
			1.2. Fire Alarm Record of Completion and Acceptance (Form FA-2)
			1.3. Device Point List
			1.4. Documentation Cabinet (72: 7.7.2.1 – 7.7.2.8)
			2. Test Notifications.
			2.1. *Central Monitoring Service*
			2.2. *Local Fire Department*
			2.3. *Building Occupants (as needed)* 2.4. *Recommend ear protection*
			3. Verify all components are in conditioned spaces.
			4. FACP Visual Inspection
			4.1. FACP, Remote Annunciator, and NAC Expanders maximum height of 6 feet A.F.F. (NEC. 110-26) readily accessible.
			4.2. Verify phone lines are installed and connected to the fire alarm control panel
			4.3. Proper phone number is labeled on each jack.
			4.4. Verify FACP and all appliances are listed for the intended use (UL).
			4.5. Verify monitoring company is UL listed if not a NPS Dispatch Center, and contact # is on inside front cover of panel.
			4.6. Prime contractor contact # to be on inside front cover of FACP.
			4.7. Label for A/C feed to be on inside front cover of FACP: Panel: _____ circuit breaker # :_____.
			4.8. Verify Smoke Detection or Heat Detection protection within 15 feet of FACP and any remote power supplies (72, A17.4.10)
			4.9. FACP is in normal condition.
			4.10. FACP indicator lamps are functioning properly. (Audible and visual for troubles and supervisory functions).
			5. Electrical Panel
			5.1. The branch circuit supplying the fire alarm equipment or emergency communication system(s) supplies no other loads. (72: 10.6.5.1.2)
			5.2. Assure AC feed has approved breaker lock out.
			5.3. Assure AC circuit breaker is labeled in red. Fire Alarm Control Circuit.
			6. Visual Device Inspection

OK	N	NA	[OK = No Problems, N = Need to fix and retest, NA = Not applicable]
			Remote annunciators, installed per approved drawings and readily accessible to responding personnel (72: 10.17.3.1)
			6.1. Device layout is in accordance with approved shop drawings
			6.2. Smoke detectors should be no closer than 36" to air diffuser or return air intake (72: A17.7.4.1)
			7. Check wiring for opens, shorts, ground faults
			8. Functional Tests
			8.1. Notify all building occupants of fire alarm test
			8.2. Verify that disconnection of each telephone line sends a trouble signal to FACP or dialer within 4 minutes. Audible and visual signal required at FACP.
			8.3. Have technician disconnect battery lead and verify trouble signal at FACP within 200 sec.
			8.4. Batteries to be dated.
			8.5. Reconnect batteries and then turn off 120vac. Batteries should measure approximately 13v and differ no more than 0.4V (also check batteries in any booster power supplies).
			8.6. Assure a Trouble Signal for AC loss is received at FACP within 200 sec.
			8.7. While on battery power initiate alarm. Batteries should remain at 12V each, but slowly dropping.
			8.8. All Booster Panels supplying any other areas or floors shall also be operated under battery power.
			8.9. It may be necessary to conduct the test several times for each different NAC Zone (ie: each booster panel).
			8.10. It may be necessary to test battery loss on the Digital Alarm Communicator Transmitter (DACT), if it is independent of the FACP.
			8.11. While on Battery Power the alarm should run for 5 min. (or 15 min. For voice evacuation alarms).
			8.12. Verify the Notification Appliance Circuit (NAC) circuit End of the Line (EOL) voltage drop is no less than 3V. (This will verify the batteries are not overloaded).
			8.13. End of line (EOL) on all circuits to be labeled at all devices (initiating and notification).
			8.14. Label all devices with address, or circuit number.
			8.15. Verify the devices operate within the listed performance range.
			8.16. During the 5 minute alarm DC run verify synchronization of strobes, where more than two are in the same field of view. (72: 18.5.5.4.2 / 18.5.5.5.7)
			8.17. Indoor STROBES shall flash 60 to 120 times per minute.
			8.18. Verify candela rating markings agree with approved drawings per (72: Table 14.3.1, Item 22(c)(2))
			8.19. Assure temporal 3-tone on horns.
			8.20. Assure decibel readings 8.20.1. 15dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater, measured 5 ft above the floor. Sound level shall not exceed 110 dBA

OK	N	NA	[OK = No Problems, N = Need to fix and retest, NA = Not applicable]
			8.20.2. Sleeping areas: 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds or a sound level of at least 75 dBA, whichever is greater, measured at the pillow level in the area required to be served by the system using the A-weighted scale (dBA)
			8.21. Voice EVAC tones to be 15 decibels above ambient sound levels. (Refer to IBC or IFC for minimum levels) voice message to provide clarity.
			8.22. Verify clarity of live voice messages on voice / alarm systems.
			8.23. Reconnect AC power and have a ground fault initiated on any appliance circuit. FACP to receive trouble in 200 sec. (also test any NAC panels for ground fault verification).
			8.24. Verify wire type and gauge was followed. (Compare wire in FACP and EOL to approved plans).
			8.25. All wiring has markers where landed in the FACP and terminal cabinets on multi-story buildings.
			8.26. There are no splices in the system other than terminal blocks and junction boxes. Wire nuts and butt splices are not permitted.
			9. Testing the devices
			9.1. Verify proper placement of all notification devices and initiation devices according to approved plans and NFPA standards.
			9.2. Wall mount visual notification devices to be 80-96 inches above finished floor (where low ceiling heights to not permit wall mounting at a minimum of 80, wall mounted visible appliances shall be within 6” of the ceiling. Ceiling mounted visual devices to be no higher than 30 feet AFF (unless performance based per 18.5.5.6).
			9.3. Any devices exposed to ambient conditions other than their design parameters are to be weatherproof or properly protected. (Outside; showers; heat detectors in kitchens etc…).
			9.4. Initiate alarms on 100% of all initiating devices and verify proper placement of same according to approved plans.
			9.5. Alarms to activate within 10 sec.
			9.6. Activate all manual fire alarms.
			9.7. Manual fire alarms to be labeled by device #.
			9.8. Manual pull stations to be within 5 feet of required exits and mounted 42 to 48 inches AFF to the activation lever.
			9.9. The top of Wall mounted smoke detectors are no lower than 12 inches from ceiling. NFPA 72 17.7.3.2.1
			9.10. Test smoke detectors with approved methods. (No magnets tests allowed for acceptance testing).
			9.11. Smoke detector bases to be labeled by loop # and device #.
			9.12. Smoke detectors to be no closer than 3 feet from HVAC supply and return.
			9.13. Smoke detectors for HVAC control shall be within 3 feet of return.
			9.14. Do not test non restorable heat detectors with heat (short wire or magnet to initiate alarm).
			9.15. Verify all alarms and device locations are reported to panel. (Keep log sheet of alarm test).

OK	N	NA	[OK = No Problems, N = Need to fix and retest, NA = Not applicable]
			9.16. Verify HVAC shutdowns. By approved methods. (smoke return air with smoke machine)(Theatrical fog) shutdown to occur within 20 sec. (some gas packs take up to 60 seconds).
			9.17. Duct smoke detector intake tubes has its holes facing into the air stream and a plug in the far end. If over 36 inches long it has to have a rear support.
			9.18. Verify each duct smoke detector has a remote alarm indicator light if located in a concealed space.
			9.19. Assure all smoke and fire doors close upon alarm (per NFPA 80 requirements).
			9.20. Assure all fire protection systems report to FACP such as sprinkler, kitchen hood suppression, clean agent
			9.21. Conduct trouble signals on horn strobe and initiation circuits (EOL minimum) usually 20% of devices are checked or to the discretion of the inspector.
			9.22. Class a circuits: disconnect incoming wires (2) there are 4 on class a. (audible and visual trouble within 200 sec.).
			9.23. Actuate a device (alarm to sound).
			9.24. Replace those two wires and disconnect the two outgoing wires.
			9.25. (Audible and visual trouble within 200 sec.).
			9.26. Actuate an alarm. (Alarm sounds).
			9.27. Class b circuits: disconnect wire to device. 4 wires except 2 w/resistor on EOL. (Audible and visual trouble within 200 sec.).
			9.28. Water flow alarms: to sound within 90 sec. On wet systems recommended no less than 45 sec. To prevent false alarms due to surges.
			9.29. High /low pressure supervisory alarms: increase or decrease of 10 psi. Restores when pressure is back within 10 psi of required pressure.
			9.30. Sprinkler system control valves and other supervisory alarms to be manually tested. Supervisory signals shall be received within 2 rotations.
			10. Monitoring report
			10.1. Verify building address is correct (street # and address).
			10.2. Correct times are indicated.
			10.3. Correct device address is verified. If capable of doing so.
			10.4. Correct transmissions of signals are verified. (Alarm, supervisory, trouble).

Item #	Comments

NPS Pacific West Region

Fire Sprinkler Acceptance Checklist

Park:	Building Name:	FMSS Location ID:
Date:	Inspector:	FMSS Asset ID:
		PMIS:

OK	N	NA	[OK = No Problems, N = Need to fix and retest, NA = Not applicable]
			1. Stamped, approved plans on job site
			2. Sprinkler contractor required to be licensed
			3. Heads match SIN number listed on plans
			4. Riser/manifold per plans
			5. Piping installed per plans
			6. Prior to system being hooked up, perform an underground flush.
			6.1. Documentation of underground flush provided
			7. Hangers and end of line restraints per plans
			8. Inspector's test valve at end of line
			9. FDC shall be installed 18" – 48" above exterior grade
			10. FDC must be visible, accessible, couplings swivel, caps in place, ID signs in place, check valve not leaking
			11. Standard spacing from the wall for upright and pendent sprinkler should be 4" Max space of heads=15', unless otherwise specified.
			12. Standard spacing from the ceiling for side wall sprinkler should be 4-6"
			13. Pressure water gauges should be provided on each side of the water supply when an alarm check valve is installed
			14. Caution signs shall be attached to all valves controlling sprinklers. Control, drain, test connection valves shall also be identified
			15. 2" main drain must be opened until system pressure stabilizes.
			15.1. **Static Pressure:** **Residual Pressure:**
			16. All exposed sprinkler system piping shall be protected against freezing (40°F)
			17. System valves and gauges shall be accessible for operation, inspection, tests, and maintenance
			18. **WET SPRINKLER SYSTEM**
			18.1. Modifications affecting more than 20 sprinklers will require testing. (20 or fewer sprinklers shall not require testing in excess of system working pressure)
			18.2. All piping and attached accessories subjected to system working pressure up to 150psi shall be hydrostatically tested at 200 psi and shall maintain that pressure without loss for 2 hours. System working pressure above 150psi requires hydrostatic test at system working pressure + 50psi for 2 hours with no loss of pressure.

OK	N	NA	[OK = No Problems, N = Need to fix and retest, NA = Not applicable]
			18.3. Test pressure read from gauge located at the low elevation point of the system or portion being tested
			18.4. Record Initial Pressure: **Time:** **Date:**
			18.5. Return in 2 hours; determine if there is any gauge pressure loss or visual leakage
			18.6. Record Final Pressure: **Time:** **Date:**
			18.7. Witness system drain/Gauge must drop as system drains
			19. **DRY SPRINKLER SYSTEM**
			19.1. Hydro Test Performed
			19.1.1. Initial Pressure: Time:
			19.1.2. Final Pressure: Time:
			19.2. 24 hour Air Test Performed; system is not to lose more than 1.5 psi over the 24 hour period.
			19.2.1. Initial Pressure: Date/Time:
			19.2.2. Final Pressure: Date/Time:
			19.3. Trip Test - Quickly open the inspectors test valve. Dry pipe system must get a solid sustained stream of water in 60 seconds or less. **Time water reached test outlet:**
			19.4. Open main water valves.
			20. SPRINKLER FINAL
			20.1. Are all of the valves open to allow water to flow into system?
			20.2. Is there pressure on the gauges?
			20.3. There should be spare sprinkler heads on the premises, as well as a sprinkler wrench.
			20.4. Inspect sprinkler heads for dirt, damage, paint, and obstruction.
			20.5. Sprinkler heads that are damaged or painted over must be replaced.
			20.6. Sprinklers shall be installed under fixed obstruction over 4 ft. wide such as ducts, decks, open grate flooring, cutting tables, and overhead doors.
			20.7. Check that sprinkler head and location match the type indicated on the plans
			20.8. Hydraulic plates (calc plates) shall identify location of design area(s), discharge densities over design area(s), required flow & residual pressure demand at base of riser, occupancy or commodity classification & max permitted storage height, hose stream demand in addition to sprinkler demand
			21. MAIN DRAIN TEST
			21.1. Is the system being monitored for fire alarms? Check that flowing water will alert the fire department and alarm company.
			21.2. Is there a calc plate? (Note the pressure on the plate.)
			21.3. The main drain should be able to be fully opened without causing water damage
			21.4. Open the drain valve and let it run. When the pressure stabilizes, note whether the pressure dropped and stayed below the residual pressure on the calc plate. If it does, there is a problem with the system
			22. FLOW TEST

OK	N	NA	[OK = No Problems, N = Need to fix and retest, NA = Not applicable]
			22.1. Is the system being monitored for fire alarms? Check that flowing water will alert the fire department and alarm company
			22.2. Open the inspectors test valve at the end of the system or the alarm valve at the system riser. Did some type of alarm go off when the system flowed?

Item #	Comment

National Park Service

Structural Fire Design Guide

A Supplemental Guide to Reference Manual 58

August 2024

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1. GOALS AND OBJECTIVES

The goal of the National Park Service (NPS) Structural Fire Design Guide is to provide designers with a stand-alone document that outlines NPS special and unique requirements. This document is not intended to create new policy requirements, only to centralize existing policy requirements and best practices or guidelines. This document should be an easy-to-use summary for designers.

1.1 SCOPE

The scope of this design guide is to highlight all the design and construction requirements of Reference Manual 58 (RM-58): Structural Fire Management and other applicable authorities referenced in Section 2. This design guide may not include all national and regional requirements for design and construction.

1.2 APPLICABILITY

This design guide applies to all NPS owned buildings, including those managed by concessions. Consider following this design guide for buildings planned to be donated to the NPS.

1.3 RESPONSIBILITIES

1.3.1 FIRE CODE OFFICIAL (FCO)

The regional structural fire marshal is the fire code official (FCO). This person is also considered the authority having jurisdiction (AHJ) under National Fire Protection Association (NFPA) codes and standards. The FCO may delegate certain responsibilities (e.g., acceptance testing) to other individuals.

1.3.2 DESIGNERS

The designers include, but are not limited to, architects, engineers, and contractors/subcontractors developing shop drawings. All designers are responsible for ensuring their design complies with RM-58 and all applicable codes and standards. The designer is responsible for having open dialogue with the FCO and park interdisciplinary team (IDT) and incorporating their review comments.

1.3.3 INTERDISCIPLINARY TEAM (IDT)

An IDT may be composed of any combination of the following:

- Designers (e.g., architects, engineers, landscape architects)
- Planners
- Resource/compliance specialists
- Park, regional, Washington Support Office (WASO), Denver Service Center (DSC), and concessions employees
- Individuals from other federal, state, tribal, and local government agencies

The IDT is responsible for professional collaboration with the common goal of ensuring a safe and successful project.

1.3.4 DENVER SERVICE CENTER FIRE PROTECTION ENGINEER (DSC FPE)

For Denver Service Center (DSC) managed projects, the DSC FPE shall be part of the IDT.

1.3.5 PUBLIC UTILITY COORDINATION

Designers and installers are responsible for coordination with all public utilities, including but not limited to, water and electric providers.

2. AUTHORITIES

Authorities for the management of structural fire within the NPS include the latest adopted 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 (DO-58): Structural Fire Management
- Reference Manual 58 (RM-58): Structural Fire Management
- International Fire Code (IFC), as adopted and modified in RM-58, 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): Occupational Safety and Health Program
- 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*

2.1 MODIFICATIONS AND ALTERNATIVE MATERIALS, DESIGN, AND METHODS OF CONSTRUCTION AND EQUIPMENT

Occasionally, there are practical difficulties involved in carrying out the provisions of the IFC. The FCO shall have the authority to grant modifications or approve an alternative material, design, or method of construction and equipment provided 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 of construction and equipment 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 or alternative materials, design, and methods of construction and equipment shall be recorded and entered in the Facility Management Software System (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 of construction and equipment are covered in IFC, Chapter 1, Scope and Administration.

2.2 CODE ANALYSIS

A code analysis is required to be included in design packages and shall be based on NPS adopted codes. The code analysis shall include, but is not limited to, the following elements:

- Project description narrative
- Occupancy classification
- Decorative structures
- Design - unique aspects
- Doors
- Egress
- Elevators
- Finishes
- Ceiling

- Floor
- Interior Wall
- Fire Alarm
- Communication System
- Detection
- Fire Department Access
- Fire Resistive Separations
- Power
    - Emergency
    - Standby
- Smoke Management Description
- Suppression Systems
- Windows
- Wildland-urban interface (WUI)

Code analyses are generally seen on a general page in the drawings, usually in a table format with four columns. Column one includes the topics referenced above. Column two includes what is required by applicable codes with citations. Column three is what is required by RM-58 or any other NPS specific requirement with citations. Column four outlines what is being provided under the current project's scope.

2.3 DSC FPE WORKFLOWS SITE
The DSC has a website outlining specific requirements for DSC managed projects. These requirements may be utilized on all NPS projects. See site link below.

DSC Fire Protection Engineering Workflows

3. FIRE ALARM SYSTEMS
Fire alarm systems must be installed in accordance with the requirements in the IFC, and where referenced NFPA 72: *National Fire Alarm and Signaling Code*. All documentation requirements in NFPA 72 are required to be submitted for review and approval by the FCO.

3.1 SPECIAL REQUIREMENTS
The following requirements take precedence over the requirements in NFPA 72 and the IFC:
1. Qualifications for installers and designers (see Section 3.1.1, 3.1.2, and 3.1.3 below)
2. *Museum Handbook, Part I, Chapter 9* requirements
3. Where voice evacuation systems are used, prerecorded messages shall be approved by the FCO and park.

3.1.1 FIRE ALARM DESIGNER QUALIFICATIONS
Fire alarm designers shall meet one or more of the following qualifications:
1. A licensed fire protection engineer
2. A National Institute for Certification in Engineering Technologies (NICET) Level III (or higher) Technician for the type of system designed
3. As approved by the FCO

3.1.2 FIRE ALARM INSTALLER
The fire alarm installer shall meet one or more of the following qualifications:
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

3.1.3 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

3.2 FIRE ALARM COMMUNICATION

Fire alarm communication methods shall meet the requirements of NPFA 72 as referenced by the IFC. Fire alarm communication methods should be discussed early in the design process.

4. WATER SUPPLY FOR FIRE PROTECTION

Water supplies for fire protection shall meet the requirements of the IFC.

4.1 FIRE HYDRANTS

Designers and installers must coordinate the location of fire hydrants and thread types for hydrant outlets with responding fire department(s) in concurrence with the FCO.

5. FIRE SUPPRESSION SYSTEMS

Fire suppression systems must be installed in accordance with the requirements in the IFC and other codes or standards referenced therein. All documentation requirements in the IFC and applicable NFPA codes or standards regarding suppression systems are required to be submitted for review and approval by the FCO.

5.1 QUALIFICATIONS

Designers and installers shall meet the following qualifications.

5.1.1 SPRINKLER SYSTEM DESIGNER

1. A licensed fire protection engineer
2. NICET Level III (or higher) Technician in water-based systems layout
3. As approved by the FCO

5.1.2 SPRINKLER SYSTEM INSTALLER

1. State or municipal certified/licensed sprinkler contractor
2. NICET Level II (or higher)
3. As approved by the FCO

5.1.3 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

5.1.4 SPECIAL HAZARD SYSTEMS

1. State or municipal certified/licensed contractor
2. NICET Level II (or higher)
3. As approved by the FCO

5.1.5 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

5.2 SPRINKLER PIPING
Pipe used for sprinkler systems should be Schedule 40 black steel, up to and including 4-inch diameter, unless otherwise approved by the FCO. All other pipe specifications shall comply with NFPA 13: *Standard for the Installation of Sprinkler Systems*.

Dry pipe and pre-action systems should incorporate corrosion protection.

Main drain piping discharge shall be to the exterior of all structures, unless otherwise approved by the FCO.

5.3 FIRE DEPARTMENT CONNECTIONS AND STANDPIPES
Designers and installers must coordinate location, type, and signage with the responding fire department(s), pending FCO approval.

6. NON-WATER-BASED FIRE SUPPRESSION SYSTEMS
Non-water-based fire suppression systems may be considered for use in the NPS when water-based systems are not preferred. These types of systems require consultation with the FCO and park staff early in the design process due to higher life-cycle costs and appropriateness for use.

7. PORTABLE FIRE EXTINGUISHERS
Portable fire extinguishers in historic structures require discussion with the FCO to determine appropriate agent type, location, and mounting method. Fire extinguishers should be considered in R-3 occupancies and structures that are governed by the International Residential Code (IRC).

8. ELEVATOR SYSTEMS
All new and replacement elevator systems should consider ambulance cot sizing for maneuverability. Traction elevators reduce the amount of fire protection equipment in elevator hoistways.

9. SPECIAL FIRE PROTECTION REQUIREMENTS
This section highlights special requirements for fire protection systems that exceed typical code requirements.

9.1 SLEEPING ACCOMMODATIONS
Smoke alarms (hardwired or wireless) shall be installed to meet the requirements of the IFC and where referenced NFPA 72. This requires smoke alarms in each sleeping room, outside each sleeping area, and on every level of a structure.

Carbon monoxide (CO) alarm/detection shall be installed in new and existing sleeping accommodations in accordance with the requirements of the IFC.

An automatic sprinkler system shall be installed in all new sleeping accommodations in accordance with IFC requirements for residential occupancies.

9.2 FIRE PROTECTION FOR HISTORIC STRUCTURES AND BUILDINGS STORING/EXHIBITING MUSEUM COLLECTIONS
The NPS *Museum Handbook*, Part I, Chapter 9 contains specific fire protection requirements for occupancies with museums and museum collections, which include the following:

- Install automatic fire detection and suppression systems in all structures housing or exhibiting museum collections as approved by the FCO in consultation with the park or regional museum curator and interdisciplinary team.
- For historic structures, design and install automatic fire protection systems with minimum impact to the historic fabric and character in consultation with the historical architect advisor and interdisciplinary team.
- Make spaces that house museum collections fire-resistant to the extent possible.
- Spaces specifically designed to house collections shall be separated from all other spaces, including work and break rooms.

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*.

All historic structures shall be protected with arc fault circuit interrupters (AFCIs) as required by NFPA 914 and installed per NFPA 70: *National Electrical Code*.

Location of lock boxes on historic structures shall be coordinated with the FCO and appropriate park staff.

9.3 ENERGY STORAGE SYSTEMS (ESS) AND PHOTOVOLTAIC (PV) SYSTEMS

All proposed ESS and PV locations must be reviewed and approved by the FCO. Installation of ESS and PV in historic buildings shall follow applicable IFC, and where referenced, NFPA requirements. Installation of ESS in historic buildings is not recommended.

9.3.1 LITHIUM-ION BATTERY CHARGING AND STORAGE AREAS

Lithium-ion battery charging and storage areas in historic structures shall comply with NFPA 914.

10. FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

All projects within the NPS shall consider fire safety during construction and demolition. Site safety plans shall be developed in accordance with the IFC, Chapter 33, Fire Safety During Construction and Demolition.

11. PROJECT CLOSEOUT

All projects require a Fire and Life Safety Certificate of Compliance issued by the FCO upon:

- Substantial completion of construction
- Successful acceptance testing of all fire and life safety systems

It is the responsibility of the construction contractor to coordinate all inspection and testing with the FCO, providing adequate notice. A representative of the installation company who possesses one of the qualifications listed in Section 5.1 must be present at acceptance testing to perform all the required tests to demonstrate the new system's performance.

All documentation listed below, but not limited to, shall be available to the FCO during inspection and acceptance testing.

- 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)

11.1 TEMPORARY FIRE AND LIFE SAFETY CERTIFICATE OF COMPLIANCE

The FCO may issue a temporary fire and life safety certificate of compliance prior to project closeout, provided that such portion or portions of an affected area can be occupied safely. The FCO shall set a time during which the temporary fire and life safety certificate of compliance is valid.

11.2 CERTIFICATE OF OCCUPANCY

Certificates of occupancy are under the authority of the NPS Building Code Program.

12. REGION SPECIFIC REQUIREMENTS

The regions within the NPS may have different priorities and concerns. Each FCO may have special requirements or preferences that should be incorporated into designs. Open and regular conversations should happen between the FCO, or their designee, to ensure all fire protection concerns are addressed.

12.1 NATIONAL CAPITAL REGION (NCR) REQUIREMENTS

All projects within the NCR shall incorporate requirements of the "NCR Fire Protection Systems Policy and Scope of Works" document. This document can be obtained through the NCR FCO.

13. WILDLAND-URBAN INTERFACE (WUI)

All projects in the wildland-urban interface shall comply with the International Wildland-Urban Interface Code (IWUIC). Projects in the WUI will involve consultation with the FCO.