

**National Institute of Standards and Technology (NIST)/Gaithersburg
Fire Protection Systems Inspection, Testing, Maintenance, Repair & Impairment Coordinator
(FPS-ITMR & IC) Services
Performance Work
Statement**

I. BACKGROUND

It is the National Institute of Standards and Technology (NIST) mission to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve the quality of life. This mission is pursued by staff housed at two main campuses in Gaithersburg, MD and Boulder, CO. One of NIST's goals is to develop world class operations and support to help strengthen their laboratories and facilities to ensure U.S. leadership in measurement science. Individual and organizational excellence is enhanced via strategies that promote safe working environments through compliance with regulation and policy. The inspection, testing, maintenance, and associated repair of fire protection systems along with the management of change associated with these systems as directed by regulation and policy is critical to established safe working environments here at NIST. This is a statement of work of the regulation and policy driven inspection, testing, maintenance, and repair services and management of system impairments for the NIST/Gaithersburg, MD campus fire protection systems.

The Gaithersburg campus is comprised of more than 50 buildings spread across approximate 578-acre has been recognized for its association with both significant advances in the history of science and technology as well as for its acclaimed mid-century modern architectural design and the embodiment of post WWII Suburban campus planning principles. With 58 buildings of varying size. The Gaithersburg campus was born around 1961 with the construction completed in 1971. Fire protection systems vary by building depending on time of construction and code required fire protection features at the time of construction or the time that renovation may have taken place.

The NIST Office of Safety, Health, and Environment (OSHE) policy for fire and life safety requires the adoption of codes and standards, within fire and life safety suborders, as minimum requirements for fire and life safety on all sites owned and operated by NIST. These codes and standards are referenced herein for identification of performance of services in this work statement. OSHE's Fire, Facilities and Safety Group (FFSG) has been tasked with ensuring the integrities of the fire and life safety systems on the Gaithersburg campus through implementation of inspection, testing, and maintenance requirements set forth in the system specific National Fire Protection Association (NFPA) standards. The NIST fire alarm system on the Gaithersburg campus is composed of four (4) Simplex True Site graphical command centers (GCCs), 147 building fire alarm control panels (FACPs, also known as nodes), and points associated with single line circuits (SLC), indicating detection circuits (IDC), and notification appliance circuits (NAC). NIST has several styles of Simplex fire alarm control panels, e.g., 4100+, 4100U, and 4100ES. All nodes are connected by fiber. The NIST fire alarm system is a fully self-contained network with its own physical wiring; there is no access to the Internet or to the NIST network. A total of 17 buildings on the campus are either partially or fully sprinklered with wet, dry, or pre-action systems. The campus also houses a state-of-the-art semiconductor facility with various specialty detection and suppression systems.

II. Objective

NIST is a dynamic campus with some research activities occur 24 hours a day, 7 days a week. Due to this reason, it is imperative to maintain fire suppression and alarm systems to protect life, property, and mission critical activities. This agreement will serve to obtain inspection, testing, and emergency repair services for fire suppression and alarm systems for the NIST Gaithersburg campus.

III. Scope

The scope of this solicitation includes (See attached table for number of systems and devices):

1. Inspection & testing of the Simplex Fire Alarm system per NFPA 72 latest edition.
2. Inspection & testing of the Aspirating Smoke Detection systems per NFPA 72 latest edition.
3. Inspection & testing of the Fire Suppression systems (including wet, dry, and pre-action) per NFPA 25 latest edition.
4. Inspection & testing of the Fire Pumps per NFPA 25 latest edition.

5. Inspection & testing of the Clean Agent systems per NFPA 2001 latest edition.
6. Inspection & testing of the Carbon Dioxide systems per NFPA 12 latest edition.
7. Inspection & testing of Explosion Prevention and Control systems per NFPA 68 and NFPA 69 latest edition.
8. Inspection & Testing of releasing panels per NFPA 72 latest edition.
9. Repair and troubleshooting services.
10. Purchase New and/or Refurbished Fire Alarm Parts (Base Year Only). See base year CLIN0004 for reference.

Note: All corrective services that entail circuit board repair/or replacement, and design modifications, shall be performed by OEM factory trained personnel.

The NIST campus in Gaithersburg, MD is equipped with fire protection systems consisting of the following:

- A. Fire alarm equipment and associated devices listed in Appendix A.
- B. Automatic Gas Fire Suppression Systems.
- C. Wet Chemical Extinguishing Systems.
- D. Water Based Suppression Systems.

NIST/Gaithersburg in general and central utility plant in specific is amidst major renovations that cause introduction of new fire protection systems, relocation of fire protection systems, and deletion of fire protection systems (namely deletion of fire alarm systems and introduction of automatic sprinkler systems). It is also not uncommon for new fire protection systems to be introduced as a result of expansion of areas or changing occupancy roles. When fire protection systems get added or deleted from NIST and this contract, a contract modification will be necessary to account for the change(s). The cost for the new additions or modifications shall be evaluated for price reasonableness in accordance with FAR 13.106-3. The price evaluation will determine whether the quoted prices are complete and fair and reasonable in accordance with solicitation requirements.

Scheduling of site visits to perform required activities shall be coordinated and schedule in accordance with research plans, Office of Facilities and Property Management's (OFPM) outage schedule, and any construction activities. Inspection and testing activities may be required to occur outside of normal business hours.

Fire Alarm Systems

Fire alarm systems at these locations must be inspected, tested, and maintained in accordance with the 2022 edition of NFPA 72, *Fire Alarm and Signaling Code*, specific requirements. Table 14.3.1 (Visual Inspections) and Table 14.4.3.2 (Testing) periodic frequency and method shall be adhered to in their entirety through the inspection and testing services of this work statement.

Fire alarm system maintenance (preventative maintenance) shall be performed in accordance (frequency and method) with the manufacturer's published instructions.

Inspection personnel are individuals who conduct a visual examination of a system or portion thereof to verify that it appears to be in operating condition, in proper location, and is free of physical damage or conditions that impair operation (NFPA 72, Section 3.3.200.1).

Testing personnel are individuals who perform procedures used to determine that status of a system as intended by conducting acceptance, reacceptance, or periodic physical checks on systems (NFPA 72, Section 3.3.200.5).

Service personnel are individuals who perform those procedures, adjustments, replacement of components, system programming, and maintenance as described in the manufacturer's service instructions that can affect any aspect of the performance of the system (NFPA 72, Section 3.3.200.2). The term *service personnel* indicate that, in addition to providing what some may refer to as "maintenance" on a system, such as changing batteries, a broader meaning of the scope of work is intended.

Inspection, testing, and service personnel are required to be competent through training and experience for the specific type and brand of fire alarm system (Simplex). Manufacturer requirements of equipment and intended use are critical to successful service and maintaining equipment warranties and guarantees.

Water-Based Fire Protection Systems

Water-based systems at these locations must be inspected, tested, and maintained in accordance with the 2023 edition of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, specific requirements.

General requirements shall be met in accordance with Chapter 4.

Automatic sprinkler system requirements shall be met in accordance with Chapter 5.

Standpipe system requirements shall be met in accordance with Chapter 6.

Underground fire service mains and hydrant requirements shall be met in accordance with Chapter 7.

Fire pump requirements shall be met in accordance with Chapter 8.

Common components and valves requirements shall be met in accordance with Chapter 13.

Inspection, testing, and maintenance service shall be provided by qualified personnel (NFPA 25, Section 3.3.25, A3.3.25, and 4.1.1.2). Qualified personnel shall be competent and capable persons shown to have met the requirements and training for this field and area of inspection, testing, and maintenance (NFPA 25, Section 3.3.36).

Automatic Gas Fire Suppression Systems

Automatic gas suppression systems at each of these locations must be inspected, tested, and maintained in accordance with the 2022 or latest edition of NFPA 2001 whichever more stringent, *Standard on Clean Agent Fire Extinguishing Systems*, specific requirements. Chapter 8 of NFPA 2001 addresses the monthly inspection (Section 8.2), semiannual service and inspection (Section 8.3), annual inspection and service (Section 8.4), maintenance (Section 8.5), container test (Section 8.6), and hose test (Section 8.7).

Carbon Dioxide suppression systems at each of these locations must be inspected, tested, and maintained in accordance with the 2022 or latest edition of NFPA 12 whichever more stringent, *Standard on Clean Agent Fire Extinguishing Systems*, specific requirements. Chapter 4 of NFPA 12 addresses the monthly inspection (Section 4.8), 5-year service and inspection (Section 4.8.2), maintenance (Section 4.8.3),

Personnel that inspect, service, test, and maintain clean agent and carbon dioxide fire extinguishing systems shall have knowledge and experience of the maintenance and servicing requirements in NFPA 12 & NFPA 2001, of the equipment being serviced or maintained, and of the servicing or maintenance methods and requirements contained in the manufacturer's design, installation, and maintenance manual and any applicable bulletins (NFPA 2001, Section 8.1.2, Fire Protection Service Technician). All persons who could be expected to inspect, service, test, or maintain automatic gas fire suppression systems shall be trained and kept trained in the functions they are expected to perform (NFPA 12, Section 4.7.4 & NFPA 2001, Section 8.8, Training).

Wet Chemical Extinguishing Systems

Wet chemical extinguishing systems at these locations must be inspected, tested, and maintained in accordance with the 2024 or latest edition of NFPA 17A whichever more stringent, *Standard for Wet Chemical Extinguishing Systems*, specific requirements. Chapter 7 of NFPA 17A addresses the inspection (Section 7.2) and maintenance (Section 7.3) for these systems.

The service technician(s) performing maintenance on wet chemical extinguishing systems shall have the applicable manufacturer's design, installation, and maintenance manual and service bulletins in accordance with Section 7.3.2.

Fire Protection Systems Impairment Coordinator

Fire alarm systems, water-based fire protection systems, automatic gas fire suppression systems, and fire extinguishers, as well as building egress systems, shall be managed as part of the fire protection system impairment program.

Work involving open flames or heat as well as work that creates a dusty environment can cause the fire alarm detection system to initiate detection and subsequent evacuation of the applicable building(s). To avoid unwanted fire alarm system detection and subsequent building evacuation a Fire System Impairment Permit Procedure has been established to disable applicable fire alarm system devices for each activity where the potential exists for unwanted detection and subsequent evacuation. This procedure also expedites getting fire protection systems back in service as soon as the cause for impairing the system is no longer present.

Water-based fire protection system impairments shall comply with NFPA 25, Chapter 15, and the Fire System Impairment Permit Procedure.

Changes to building egress systems that warrant exits to be unavailable or temporarily closed are an impairment to the building egress system which is considered a life safety system necessary during a fire scenario. Building egress system impairments shall comply with the 2024 or latest edition of NFPA 101 whichever more stringent, *Life Safety Code*.

Fire protection system impairment permits are managed by the impairment coordinator. All requests for fire protection system impairment permits are made through the impairment coordinator and the NIST Authority Having Jurisdiction (AHJ). The impairment coordinator investigates each fire system impairment permit request and verifies the magnitude and applicability of each request.

It is the role and purpose of the impairment coordinator to use the fire system impairment permit system to manage necessary fire system impairments to avoid unwanted fire detections and subsequent evacuations and to make sure that fire protection systems are returned to operation as soon as possible after completion of the fire system impairment.

IV. PERSONNEL REQUIREMENTS

A. Fire Alarm Systems

The following qualifications and requirements must be fulfilled by the person(s) performing inspection, testing, and service on fire alarm systems:

1. One person in the inspection, testing, and service group of personnel must be Simplex trained within 3-months of contract award or current (within previous 5-years) with certification as Basic Training.
2. Must be certified as a National Institute for Certification in Engineering Technologies (NICET) Level I for Fire Alarm Systems (FAS).
3. One person in the inspection, testing and service group of personnel must be certified as NICET Level II for Inspection and Testing of Fire Alarm Systems (I&TFAS). NICET Level III for FAS is an acceptable alternative to having the NICET Level II I&TFAS certification.
4. Must have a good understanding of mechanical and electrical building systems associated with fire alarm systems and their integration.
5. Cybersecurity requirements for the fire alarm systems shall always be followed and adhered to here at NIST. These requirements include the following:
 - a. All necessary laptop connections to the NIST fire alarm dedicated network shall be performed only by use of NIST dedicated laptops provided by the fire alarm vendor.

B. Water-Based Fire Protection Systems

The following qualifications and requirements must be fulfilled by person(s) performing inspection, testing, and maintenance service on water-based fire protection systems:

1. One person in the inspection, testing, and maintenance service group of personnel must be certified as a National Institute for Certification in Engineering Technologies (NICET) Level III for Inspection and Testing of Water-Based Systems.
2. Must be certified as NICET Level I for Inspection and Testing of Water-Based Systems.

Person(s) performing repair services on automatic sprinkler systems must be licensed as an automatic sprinkler contractor in the State of Maryland. If water-based fire protection systems services are subcontracted and the subcontractor is not a licensed automatic sprinkler contractor, a separate subcontractor shall be named for automatic sprinkler system repair services.

C. Automatic Gas Fire Suppression Systems

The following qualifications and requirements must be fulfilled by person(s) performing inspection, testing, and maintenance service on automatic gas fire suppression systems:

1. One person in the inspection, testing, and maintenance service group of personnel must be certified as a National Institute for Certification in Engineering Technologies (NICET) Level II for Special Hazard Systems.
2. Must be certified as a NICET Level I for Special Hazard Systems.

D. Wet Chemical Extinguishing Systems

Service technicians performing maintenance on wet chemical extinguishing systems shall be trained and shall have passed a written or online test that is acceptable to the authority having jurisdiction. The service technician shall possess a certification document confirming this testing that is issued by the manufacturer or testing organization that is acceptable to the authority having jurisdiction. All of this in accordance with the 2024 or latest edition of NFPA 17A whichever more stringent, *Standard for Wet Chemical Extinguishing Systems*, Section 7.3.1.

E. Impairment Coordinator (IC)

The following qualifications and requirements must be fulfilled by the person(s) performing as the Fire Protection Systems Impairment Coordinator:

1. Required to have a NIST Information Technology (IT) account to manage and communicate impairment notification and restoration completion to the Fire Impairment electronic mail (e-mail) distribution for each fire impairment system request.
2. Must be certified as a National Institute for Certification in Engineering Technologies (NICET) Level III for Fire Alarm Systems.

V. **SCOPE OF WORK**

The CONTRACTOR shall complete the following services:

- a. A schedule of proposed testing by location must be delivered to the COR within 30 days of the contract start. This calendar will be used for planning and coordination purposes within NIST Gaithersburg facilities.
- b. The contractor shall complete the necessary user access training within 30 days of the contract start for access to Buildings 215 and 235.
- c. The contractor shall perform inspection, testing, and preventative maintenance as needed to fire alarm, suppression, and special hazards systems as required by their respective NFPA codes provided in Section 3.
- d. The contractor shall submit a monthly report of services performed during the month, including all inspections, tests, repairs, and parts that were replaced. Reports shall be submitted to the COR via e-mail not later than the 3rd working day of the succeeding month.
- e. The monthly reports shall also include the system specific inspection and certification reports for the services performed during the month. The COR shall review the format of all inspection, testing and repair reports. The contractor shall make corrections based on the COR's review. The report formats shall be submitted within thirty (30) working days after award of this contract to the COR.
- f. Repair service will be performed during normal working hours. Proposal(s) for repair services to include supervision, labor, material, and/or equipment will be requested by NIST to address some or all identified deficiencies. All services for this task will be approved by the Contracting Officer Representative prior to any notice to proceed or work being charged to this task.
- g. After hours emergency repair service shall be performed on a twenty-four (24) hour, seven (7) days a week basis. Emergency services consist of correcting failures that constitute an immediate danger to personnel, threaten to damage facilities/equipment/environment, and/or threaten to disrupt NIST operations. The contractor shall respond promptly in case of emergency failure of systems when requested to do so at the discretion of NIST.
- h. The contractor shall provide afterhours emergency repair services at any time a call is received from the COR. The contractor's qualified technician(s) shall respond on site to the affected area within two (2) hours from such notification. The contractor's technician(s) shall remain on-site until the emergency has been resolved and the system is back in service, or when advised by the COR that emergency services are no longer needed.
- i. The contractor shall inspect and test all equipment and associated devices listed in Appendix A.
- j. The contractor shall inspect and test all equipment and associated devices using the periodic frequencies designated in Appendix B.
- k. The contractor shall be responsible for labeling/tagging all inspected equipment. The label/tag shall indicate the date of service and initials of the service provider.
- l. The contractor shall schedule inspection, testing, and/or repair activities in batches to minimize disruption to NIST operations.

A. **INSPECTION, TESTING, and PREVENTATIVE MAINTENANCE (CLIN 0001):**

Inspection, Testing, and Preventative Maintenance shall be performed as described below for each fire protection system. These services are performed Monthly, Quarterly, Semi-Annually, and Annually.

Each deficiency, repair, or necessary maintenance (beyond preventative maintenance) identified as a result of inspection, testing, or preventative maintenance and not performed by the CONTRACTOR as described within this SCOPE OF WORK shall initiate a proposal to be provided to NIST by the CONTRACTOR addressing necessary action to eliminate the deficiency, make repair, or perform maintenance in accordance with appropriate code and manufacturer requirements. Known preventative maintenance prescribed by code should not warrant a proposal to NIST but should be performed as part of this contract unless noted otherwise in the scope descriptions below.

1. Fire Alarm Systems

- a. Perform inspection and testing of all fire alarm systems in accordance with the 2022 edition of NFPA 72, *National Fire Alarm and Signaling Code*, Chapter 14.
- b. Records for inspection and testing and maintenance shall be in accordance with Section 14.6.2.4 and Section 7.6.6. Records shall be provided on electronic media in accordance with Section 14.6.2.3.
- c. Visual inspections shall be performed in accordance with Table 14.3.1.
- d. Testing shall be performed in accordance with Table 14.4.3.2. A test plan shall be developed in accordance with Section 14.2.10 (including A.14.2.10) and submitted to NIST prior to the start of testing with enough advance notice to communicate possible disruptions to the NIST occupants.
- e. Some of the known fire alarm system preventative maintenance items are as follows:
 - I. Fire alarm system batteries shall be replaced during the third year from the installation date and prior to the start of the fourth year. Failed batteries on the system and failed batteries as a result of testing shall also be replaced. Battery failure shall be determined by NFPA 72 requirements and as recommended by the battery manufacturer, battery testing equipment manufacturer, and their published instructions.
 - a) Fire alarm system batteries shall have a baseline ohmic value for resistance each battery cell/unit recorded on each battery cell/unit. Replace the battery when the ohmic measurement for resistance of any cell/unit deviates from the established baseline as established by NFPA 72. The Load Test shall be performed before replacement is authorized.
 - II. Photoelectric smoke detectors reporting 70% compensation shall be cleaned prior to reaching 100% compensation and causing trouble condition maintenance system alert. Cleaning shall be performed in accordance with the manufacturer recommended method.
 - III. Multi-criteria smoke detectors with carbon monoxide (CO) elements shall be replaced prior to the CO element expiration and prior to or at time of the receipt of trouble alarm 6-month end of life indication.
 - IV. Air-Sampling Smoke Detection filters shall be replaced based on 5-year filter life for clean environments such as the PML Clean Room or Anechoic Chambers; and 3- year filter life for other business occupancy (office and laboratory) environments. The factory default life of air filters shall be ignored however, manufacturer maximum filter cleanliness count limits shall be observed for environments causing shorter filter life, such as VESDA monitoring outside air that may cause shorter filter life.

Fire alarm system preventative maintenance shall not be performed significantly earlier than necessary just to comply with the maintenance frequency criteria. For instance, replacing an air-sampling smoke detector filter after one-year of life just to meet the requirement of once every 5 years, shall be avoided. However, replacing the same filter after four-years of life because the next inspection will occur after the five-year deadline is prudent.

2. Water-Based Fire Protection Systems

- a. Records for inspection, testing, and preventative maintenance shall be in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Section 4.3 and Annex B. The Inspection and Testing Form shall be in accordance with Section B.2, format option (4). The Inspection and Testing Report shall include the minimum information provided in Section B.4.
- b. Automatic Sprinkler Systems
 - I. Perform inspection, testing, and preventative maintenance of automatic sprinkler systems in accordance with the 2023 edition of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Section 5.1 and 5.2 as well as Table 5.1.1.2 for inspection and testing and Section 5.4 (in entirety) for preventative maintenance of each Building and Automatic Sprinkler System at NIST.
 - II. Perform testing of automatic sprinkler systems in accordance with 2023 edition of NFPA 25, Section 5.3 and Table 5.1.1.2.
 - a) Sprinklers required by Section 5.3.1 to be submitted to a recognized testing laboratory shall initiate a proposal to be provided to NIST by the CONTRACTOR to have a representative number of sprinklers tested as quantified by Section 5.3.1.2 by a testing laboratory acceptable to NIST and the CONTRACTOR. The representative sample locations shall be approved by the NIST AHJ.
 - b) Perform testing of waterflow alarm devices in accordance with Section 5.3.2.
 - III. Provide a proposal (post-award) to NIST that supports compliance with the spare sprinkler requirements of the 2023 edition of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Section 5.4.1.5 (in entirety), for each Building and Automatic Sprinkler System at NIST.
- c. Standpipe Systems
 - I. Perform inspection of standpipe systems in accordance with 2023 edition of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Section 6.1 and 6.2 as well as Table 6.1.1.2.

- II. Perform testing of standpipe systems in accordance with 2023 edition of NFPA 25, Section 6.3 and Table 6.1.1.2.
 - III. Perform preventative maintenance in accordance with NFPA 25, Section 6.4 and Table 6.1.1.2.
- d. Underground Fire Service Mains and Hydrants
- I. Perform inspection of underground fire service mains and hydrants in accordance with 2023 edition of NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Section 7.1 and 7.2 as well as Table 7.1.1.2.
 - II. Perform testing of underground fire service mains and hydrants in accordance with the 2023 edition of NFPA 25, Section 7.3 and Table 7.1.1.2. Approximately 20% of hydrants shall be flow tested each year with verification that each hydrant experiences a full flow test in each 5-year period. Testing shall be performed in accordance with the 2022 edition of NFPA 291, *Recommended Practice for Fire Flow Testing and Marking of Hydrants*. Each hydrant test shall be recorded on a data sheet as described in Section 4.11, Figures 4.11.2 and 4.11.4 of NFPA 291. Recorded test information shall be provided to NIST.
 - III. Perform preventative maintenance of hydrants in accordance with the 2023 edition of NFPA 25, Section 7.4.2.1.
 - IV. Perform hydrant lubrication preventative maintenance annually. Each NIST hydrant shall be lubricated annually with the hydrant manufacturer's recommended lubricating oil.
- e. Fire Pump
- I. Perform inspection of the fire pump in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Section 8.1 and 8.2 as well as Table 8.1.1.2. Weekly frequency items should be performed by the impairment coordinator that is on-site to avoid special trips to NIST. Some initial training given by the fire pump technician may be necessary to prepare the impairment coordinator for these weekly frequency items. It should be verified that even weekly frequency items are documented in the deliverable report(s).
 - II. Perform annual flow testing of the fire pump in accordance with 2023 edition of NFPA 25, Section 8.3 and Table 8.1.1.2. A complete written report of the fire pump test results shall be prepared and provided to NIST in accordance with NFPA 25, Section 8.4. A pump test form like the one shown in NFPA 25, Figure A.8.4.1, shall be provided.
 - III. Establish a written fire pump preventative maintenance program in accordance with NFPA 25, Section 8.5.1. Where manufacturer's preventative maintenance requirements are unknown, refer to Table A.8.1.1.2 in accordance with Section A.8.5.1.
 - IV. NIST Gaithersburg Campus has 2 electric and 1 diesel fire pumps.
- f. Common Components and Valves
- I. Perform inspection and testing of common components and valves in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, Chapter 13, and Table 13.1.1.2. Be sure to perform inspection and testing for the following:
 - a) Main Drain for each water supply lead-in to a building water-based fire protection system.
 - b) Waterflow Alarm Devices inspected quarterly to verify they are free of physical damage and tested semiannually.
 - c) Gauges inspected monthly to verify gauge is operable and not physically damaged and quarterly to verify normal water supply pressure is being maintained.
 - d) Supervisory Signal Devices (except valve supervisory switches) shall be inspected quarterly and tested annually.
 - e) Control Valves in Water-Based Fire Protection Systems:
 - 1) Shall be inspected monthly unless valves are electronically supervised, in which case they can be inspected quarterly.
 - 2) Valve supervisory switches shall be tested semiannually.
 - 3) Each control valve shall be tested annually by being operated through its full range and returned to its normal position.
 - f) System Valves to include:
 - 1) Alarm valves shall be inspected internally every 5 years.
 - 2) Check valves shall be inspected internally every 5 years.
 - 3) Pre-action valves:
 - i. Shall be externally inspected monthly in accordance with Section 13.4.3.1.1,
 - ii. Shall be internally inspected either annually or every 5 years in accordance with Section 13.4.3.1.2,
 - iii. Shall be trip tested with the control valve fully open every 3 years in accordance with Section 13.4.3.2.2, and annually for the other years with the control valve partially open in accordance with Section 13.4.3.2.3.
 - Records of trip tests shall be in accordance with Section 13.4.3.2.10 and documented in testing forms and report.
 - iv. Shall have low air pressure alarms tested quarterly in accordance with Section 13.4.3.2.11,
 - v. Shall have automatic air pressure maintenance devices tested annually in accordance with Section

13.4.3.2.13.

- 4) Dry Pipe Valves:
 - i. Shall be externally inspected monthly in accordance with Section 13.4.5.1.2,
 - ii. Shall be internally inspected annually in accordance with Section 13.4.5.1.3,
 - iii. Shall internally inspect strainers, filters, and restricted orifices every 5 years in accordance with Section 13.4.5.1.4,
 - iv. Shall test the priming water level quarterly in accordance with Section 13.4.5.2.1,
 - v. Shall be trip tested annually in accordance with Section 13.4.5.2.2 and every 3 years with the control valve fully open in accordance with Section 13.4.5.2.2.2, and annually with the test valve partially open for the other years in accordance with Section 13.4.5.2.2.3.
 - Records of trip tests shall be in accordance with Section 13.4.5.2.5 and documented in testing forms and report.
 - Where full flow trip testing system arrangements do not accommodate such test, the CONTRACTOR shall submit a proposal to NIST for modification of the system to accommodate the full flow test.
 - vi. Shall have low air pressure alarms tested annually in accordance with Section 13.4.5.2.6,
 - vii. Shall have automatic air pressure maintenance devices tested annually in accordance with Section 13.4.5.2.8,
 - viii. Shall be tested once every 3 years for gas leakage in accordance with Section 13.4.5.2.9.
- 5) Fire Pump Relief Valves:
 - i. Circulation relief valves shall be inspected during the no-flow (churn) test in accordance with Section 13.5.6.1.
 - ii. Main relief valves shall be inspected during the annual fire pump flow test in accordance with Section 13.5.6.2.
- 6) Hose Valves:
 - i. Hose valves shall be inspected quarterly in accordance with Section 13.6.1.
 - ii. Class I and Class III standpipe system hose valves shall be tested annually by fully opening and closing the valves in accordance with Section 13.6.2.
- 7) Backflow Prevention Assemblies:
 - i. Shall be internally inspected every 5 years in accordance with Section 13.7.1.3.
 - ii. Shall be exercised annually by conducting a forward flow test at a minimum flow rate of the system demand in accordance with Section 13.7.2.1.
 - iii. Where automatic sprinkler system connections and arrangements do not accommodate testing at minimum flow rate, the CONTRACTOR shall submit a proposal to NIST for modification of the system to accommodate a flow at the minimum flow rate. Review of accommodating solutions with the COR or TPOC prior to proposal creation is recommended.
- 8) Fire Department Connections:
 - i. Shall be inspected quarterly in accordance with Section 13.8.1.
 - ii. Shall be internally inspected annually if locking caps or locking plugs are installed, in accordance with Section 13.8.2.
 - iii. Shall hydrostatically test the piping from the fire department connection to the fire department check valve every 5 years in accordance with Section 13.8.5.
- 9) Air Compressors dedicated to water-based fire protection systems:
 - i. Shall be inspected monthly in accordance with Section 13.10.2.
 - ii. Shall be tested annually in accordance with Section 13.10.3.
- II. Perform preventative maintenance of Common Components and Valves in accordance with the 2023 edition of NFPA 25, Table 13.1.1.2. Be sure to perform maintenance on the following:
 - a) Gauges shall be replaced every 5 years or tested every 5 years by comparison with a calibrated gauge. Gauges not accurate to within 3 percent of the full scale shall be recalibrated or replaced. (Sections 13.2.5.2 and 13.2.5.3).
 - b) Control Valves: Perform annual maintenance lubrication on Control Valves of the operating stem of all outside screw and yoke type in accordance with Section 13.3.4.
 - c) System Valves:
 - 1) Alarm Valve internal components shall be cleaned/repared as necessary in accordance with Section 13.4.1.3 and manufacturer's instructions.
 - 2) Check Valves internal components shall be cleaned, repaired, or replaced as necessary in accordance with Section 13.4.2.2 and manufacturer's instructions.
 - 3) Pre-action Valve interior shall be cleaned thoroughly, and parts repaired or replaced as necessary during the

- annual trip test or every 5 years for valves that can be reset without faceplate removal, in accordance with Section 13.4.3.3.2.
- 4) Dry Pipe Valve interior shall be cleaned thoroughly, and parts repaired or replaced as necessary during the annual trip test in accordance with Section 13.4.5.3.1. Repair or replacement costs shall be identified with immediate proposal to NIST of associated costs and handled as a General Repair (see Section C.).
 - i. Auxiliary drains in dry pipe sprinkler systems shall be drained before the onset of freezing weather conditions in accordance with Section 13.4.5.3.2.
 - 5) Hose Valves that do not operate smoothly or open fully shall be lubricated in accordance with Section 13.6.3.
 - d) Backflow Prevention Assemblies shall be maintained in accordance with the manufacturer's instructions and Section 13.7.3.
 - e) Compressors dedicated to water-based fire protection systems shall be maintained in accordance with Section 13.10.4.

Perform Internal Piping Condition and Obstruction Investigation in accordance with the 2023 edition of NFPA 25, Chapter 14. The NIST AHJ shall make the determination if additional internal examinations are required based on the results from the locations specified in NFPA 25 Section 14.3.2.

3. Automatic Gas Fire Suppression Systems

- a. Perform inspection, testing, and preventative maintenance of automatic gas fire suppression systems in accordance with the 2022 edition of NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*. Inspection and testing shall be performed monthly per Section 8.2, semiannually per Section 8.3 and annually per Section 8.4. Preventative maintenance shall be performed in accordance with Sections 8.5 and A.8.5.

Records of monthly inspection shall be provided in accordance with Section 8.2.5. Records of the semiannual inspection shall be provided in accordance with Section 8.3.7. Records of the annual inspection shall be provided in accordance with Section 8.4.2. A certificate of inspection shall be provided in accordance with Section A.8.5(19). All records shall comply with the deliverables schedule.

- b. Perform annual inspection of each protected enclosure in accordance with NFPA 2001, Section 8.4.5. Record of inspection shall be included with the annual inspection report identified in Section 8.4.2.

Any identified enclosure change determined to result in the inability of the enclosure to maintain the clean agent concentration shall result in a proposal provided to NIST for correction of the condition, in accordance with Section 8.4.5.2, to be handled as a General Repair (see Section C.). Proposals shall meet the deliverables schedule.

- c. Perform testing of clean agent containers to establish the new criteria of NFPA 2001, Section 8.6. Be sure to follow the guidance of Section 8.6.2 and A.8.6.2. Be sure to record the results of these inspections as identified in Section 8.6.2.2 and A.8.6.2 as well as the deliverables schedule.
- d. Perform testing of hoses on clean agent systems when due (every 5 years) in accordance with all of NFPA 2001, Section 8.7. Be sure to mark each hose that passes the test with the date of the test in accordance with Section 8.7.5. When a spare hose is necessary to initiate a rotation of hoses for this test to be performed every 5-years, provide a proposal to NIST for procurement of the hose, to be handled as a repair under Section C. General Repair. Proposal due in accordance with the deliverables schedule.
- e. Identified enclosure maintenance as a result of inspection of the enclosure shall initiate a proposal to be provided to NIST by the CONTRACTOR for restoring the enclosure to the original fire resistance rating in accordance with NFPA 2001, Section 8.5.4 and section b. above.
- f. Perform inspection, testing, and preventative maintenance of carbon dioxide (CO₂) extinguishing systems in accordance with the 2022 edition of NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems*. Inspection is performed monthly per Section 4.8.1 and A.4.8.1 and is performed semiannually in accordance with Section 4.8.3.5 for high-pressure cylinders and is performed weekly in accordance with Section 4.8.3.6 for low-pressure cylinders. Hose testing is performed in accordance with Section 4.8.2 and 4.8.2.2 every 5 years as indicated in Section 4.8.2.3. Maintenance shall be performed annually in accordance with Section 4.8.3 and A.4.8.3.
- g. Where a manufacturer's maintenance procedure is not available for CO₂ Extinguishing Systems, one should be created following NFPA 12, Section A.4.8.3 and provided to NIST for use throughout this contract. When a discharge test is determined to be necessary in accordance with Section 4.8.3.2.2, a proposal shall be provided to NIST to provide this service. The proposal shall be provided in accordance with the deliverables schedule.
- h. Provide a maintenance report to NIST for each CO₂ Extinguishing System in accordance with NFPA 12, Section 4.8.3.3 and A.4.8.3.3 as well as the deliverables schedule.

4. Wet Chemical Extinguishing Systems

- a. Perform inspection of the wet chemical extinguishing systems in accordance with the 2024 edition of NFPA 17A, *Standard for Wet Chemical Extinguishing Systems*, Monthly per Section 8.2.

This monthly inspection should be performed by the impairment coordinator that is on-site to avoid special trips to NIST. Some initial training given by the wet chemical extinguishing systems technician may be necessary to prepare the impairment coordinator for the monthly inspections.

Records should be kept of the monthly inspections in accordance with Section 8.2.6. It should be verified that the monthly inspection items are documented in the deliverable report(s).

- b. Perform maintenance of wet chemical extinguishing systems in accordance with the 2024 edition of NFPA 17A, Section 8.3.
- c. Be sure maintenance includes verification that the agent distribution piping is not obstructed in accordance with Section 8.3.3.1 and a nitrogen or dry air pressure test as described in Section 8.3.3.1.1. Any nozzle cleaning or nozzle replacement or even nozzle relocation or adjustment shall be handled as a separate proposal and addressed as a General Repair item (See Section C.).
- d. Maintenance reports of all maintenance shall be provided in accordance with Section 8.3.3.6 and 8.3.3.7 as identified in the deliverables schedule.

B. GENERAL REPAIR (CLIN0002):

General repair shall be performed during normal working hours.

Provide all supervision, labor, material and/or equipment necessary to perform repair and replacement of fire protection system parts as identified in individual task requests for proposals.

Repairs could be a result of the fire protection system inspection, testing, and possibly even preventative maintenance performed as identified above in Section A. Repairs could also be a result of events related to the fire protection system such as extinguishing system discharges, power surges like lightning strikes that cause damage, faulty equipment that needs repaired/replaced, or damage of a fire protection system from exposure to water from roof leaks or humidification systems, etc.

These repair requests will individually be initiated through a request for proposal by the end user from the CONTRACTOR. Proposals for such repairs should be in coordination with this contract relative to labor pricing. In other words, labor pricing should match the labor pricing used for the determination of inspection, testing, and maintenance services of fire alarm systems, water-based fire protection systems, automatic gas fire suppression systems, and portable fire extinguishers, depending on which fire protection system category the work is associated with.

Each repair task (each request) proposal will be reviewed by the Contracting Officer Representative (COR), or Technical Point of Contract (TPOC) and the request shall be approved by the Contracting Officer Representative (COR). The CONTRACTOR should not proceed with work until they are provided written authorization from the COR. The performance of the repair task is coordinated with the COR.

C. EMERGENCY REPAIR (CLIN 0003):

Emergency repair services will be performed as an emergency response during emergency hours (to include afterhours) and shall be available on a twenty-four (24) hour, seven (7) days per week basis.

Provide all supervision, labor, material and/or equipment necessary to perform repair and replacement of fire protection system parts as identified in the communication of the necessary emergency repair(s). When necessary, as requested, provide emergency repair fire watch service to effected area caused by each emergency repair condition.

Emergency repair services consist of correcting failures that constitute an immediate danger to personnel, threaten to damage facilities/equipment/environment, and/or threaten to disrupt NIST operations. The CONTRACTOR shall respond within two (2) hours of being notified in case of emergency failure of systems when requested to do so by the Government (NIST).

The CONTRACTOR shall provide emergency hours to include afterhours emergency repair services at any time a call is received from the

COR or TPOC, requesting such response. The CONTRACTOR'S qualified technician(s) shall respond on site to the affected area within two (2) hours from such notification and request. The CONTRACTOR'S technician(s) shall remain on site until the emergency has been resolved and the system is back in service, or when advised by the COR or TPOC that emergency service is no longer needed. Technicians in addition to repair technicians shall perform fire watch service to the affected area(s) when requested.

Emergency repair requests will individually be initiated through communication from the COR or TPOC. Proposals for such repairs should be written but may be verbal and written simultaneously or subsequently to the service. Such proposals shall be in coordination with this contract relative to emergency hour or after hour labor pricing for emergency repair. In other words, emergency hour or after hour labor pricing should be identified as part of the contract bid and shall match the emergency hour or after hour labor pricing used in the proposal for the fire protection system category the work is associated with.

Each Emergency repair task (each request) proposal will be reviewed by the Contracting Officer Representative (COR), or Technical Point of Contract (TPOC) and the request shall be approved by the Contracting Officer Representative (COR). The CONTRACTOR should not proceed with work until they are provided written authorization from the COR. The performance of the emergency repair task is coordinated with the COR.

V. PLACE OF PERFORMANCE

All work shall be conducted at NIST/Gaithersburg (site-wide) 100 Bureau Drive, Gaithersburg, Maryland, 20899.

Access to site shall be granted to the CONTRACTOR for the entire period of performance of each contract option year.

The day-to-day supervision and direct control over the work performed by the on-site CONTRACTOR personnel will be the sole responsibility of the CONTRACTOR.

VI. GOVERNMENT FURNISHED PROPERTY

NIST will provide the contractor with access to its fire alarm, suppression, and special hazards systems.

VII. STANDARDS FOR ACCEPTANCE OF DELIVERABLES

Deliverables shall be accepted in writing from the COR or the TPOC to the CONTRACTOR within 15 days of receipt of the specific deliverable.

VIII. SPECIAL REQUIREMENTS

- a. The CONTRACTOR shall maintain a list of all personnel provided a badge for access to NIST. This list and any updates shall be provided by copy to the COR or TPOC within 5 business days of any change.
- b. The CONTRACTOR shall communicate in writing to the CO a list of all subcontractors being utilized to fulfill contract services. Any change (addition or deletion) necessary to fulfill these services shall be communicated in writing within 5 business days of any change.

IX. TRAVEL

Travel is to be included in pricing for the services contained herein and will not be separately priced. Travel is considered to include the following:

- a. Travel necessary to service the NIST/Gaithersburg campus.
- b. Travel necessary to Gaithersburg campus to perform the duties of this contract.

X. CONTRACTOR SUPPLIED MATERIAL

All equipment and tools to perform the work herein.

XI. CONTRACTORS MINIMUM QUALIFICATIONS

All technicians working with the NIST fire alarm system, fire suppression system, and/or special hazards systems must have a minimum of a National Institute for Certification in Engineering Technologies (NICET) Level I certification for Inspection and Testing of Fire Alarm Systems, Inspection and Testing of Water-Based Systems, and Special Hazards Systems respectively.

XII. CONFIDENTIALITY

The information developed under this contract is the property of the U.S. Government and shall be kept in strict confidence.

XIII. Security

When designated on individual call orders, contractor personnel will be subject to a security evaluation and badging process prior to entry aboard the NIST campus. The contractor shall ensure that a sufficient number of personnel, as required to complete the contract tasks, have undergone the security evaluation and badging.

XIV. Period of Performance

One (1) year base period followed by four (4) consecutive one-year option periods.

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