Deputy Assistant Secretary – Indian Affairs (Management)
Office of Facilities, Property and Safety Management
Division of Safety and Risk Management

Indian Affairs
Fire Protection and Life Safety Systems
Inspection, Testing, and Maintenance Guidelines

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Indian Affairs

Fire Systems Inspection, Testing, and Maintenance (FPLSSITM) Guidelines

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INTRODUCTION

These guidelines establish Indian Affairs (IA) requirements for performing inspections, operational tests, and preventive maintenance on all fire protection and life safety systems (fire suppression, detection and alarm systems, smoke control systems, emergency and exit lighting, fire, and exit doors), and equipment.

IA relies on fire protection and life safety systems in its facilities to provide protection of life and property and to ensure the continuity of important missions established by IA. In order to sustain this level of protection, all fire and life safety systems must be maintained to ensure high reliability through an effective inspection, testing, and preventive maintenance program.

Fire protection and life safety systems and equipment shall be inspected, tested, and maintained in compliance with the manufacturer's recommendations and the attached appendices.

Roles and Responsibilities

1. **Site Facilities Manager**

    a. The site facilities manager shall ensure all required inspections, operational tests and preventative maintenance are performed in accordance with these guidelines, and all records are maintained on-site and available on request.

    b. Ensure all fire protection and life safety systems protecting leased facilities receive the required inspections, operational tests and preventative maintenance in accordance with these guidelines and all literature and instructions provided by the manufacture describing proper operations and maintenance of equipment and devices either through requirements in the lease agreement, or through contracts under IA control.

2. **Safety Inspector**

    a. Verify that all required inspections, operational tests, and preventive maintenance are performed, and all records are up to date, in accordance with the Fire Protection and Life Safety Systems Inspection, Testing and Maintenance (FPLSSTM) requirements of these guidelines, through annual workplace inspections, periodic inspections, and document review.

    b. Support prompt repair of fire protection and life safety systems and equipment by identifying and tracking deficiencies in the Indian Affairs Facilities Management System (IAFMS), Safety and Condition Assessment Portal (S&CAP) and ensuring required actions are completed in a timely manner.

3. **Site Facilities Management Program Office**

    a. Upon notification of a fire protection/life safety system deficiency, site facilities management program office shall ensure that repairs are made promptly in order to restore the system to proper working order.

    b. The site facilities manager shall retain FPLSSITM records for the facility's fire protection and life safety equipment per the requirements of these guidelines.

    c. Perform the required inspections, testing and maintenance at specified intervals per the requirements of these guidelines, for all fire protection and life safety systems and equipment under their responsibility.

    d. Ensure all fire protection system alterations and additions are properly documented.

    e. Coordinate all FPLSSITM work performed with facility personnel, including scheduling and system impairment.

    f. Collect and retain FPLSSITM information, reports, checklists, and other required records developed during the performance of FPLSSITM work.

g. Maintain a work order program to prioritize, initiate and track the repair or replacement of all malfunctioning fire protection and life safety system components to ensure systems are promptly restored to proper working order in a timely manner.

h. Distribute inspection, testing and maintenance (ITM) information including schedules, inspection reports and deficiencies to the respective regional facilities manager, Bureau of Indian Affairs (BIA) Regional Safety Manager (RSM), Bureau of Indian Education (BIE) Safety Program Manager (SPM), and Division of Safety and Risk Management (DSRM). FPLSSITM records shall be distributed within thirty days of the last recorded FPLSSITM activity for that period.

i. Annually review FPLSSITM records and produce a report per the requirements of these guidelines.

j. Visually inspect portable fire extinguishers each month for proper mounting and charge per Attachment 15 of these guidelines. Initial and date the inspection tag and take corrective action for missing, undercharged, or defective extinguishers.

k. Inspect emergency exit doors weekly per Attachment 12 of these guidelines to ensure proper operation in the event of an emergency. Immediately notify the building user and the respective regional facilities manager, BIA RSM/BIE SPM of problems that could hinder egress and ensure they receive the required inspection reports.

l. Provide inspection, testing, and maintenance for all kitchen exhaust ducts and hoods, and kitchen fire suppression systems, per the requirements of these guidelines. Maintain all records of the FPLSSITM functions performed.

m. Immediately notify the building user of any malfunction or code violation related to fire equipment within their space or affecting their operations.

n. Cease cooking operations while kitchen fire suppression systems are impaired and ensure the impairment process has been initiated.

o. Upon identification and/or notification of a fire protection/life safety system deficiency, ensure repairs are made promptly in order to restore the system to proper working order.

Program Components

1. **Training**. FPLSSITM tasks shall be performed by personnel trained/qualified in the maintenance and repair of the subject fire protection system or equipment. These personnel shall have available the manufacturer's service installation manuals, owner's manual and manufacturer's service bulletins, published literature and instructions describing proper operation and maintenance of equipment and devices installed.

2. **Impairments**. All planned and unplanned impairments of fire protection or life safety systems must be conducted in accordance with NFPA 25 15.1 – 15.6, Impairments.

3. **Required Inspections, Testing and Maintenance**. All fire protection/life safety systems and equipment shall be inspected, tested, and maintained in accordance with the requirements outlined in Attachments 1-17 of these guidelines.

Records and Reports

Two types of records are essential for the long term care of fire protection/life safety systems and equipment: the original records and periodic inspection, testing, and maintenance documentation.

1. **Original Records**. Original records of exiting fire protection/life safety systems where available and upon acceptance for all new systems shall be retained for the life of the system by the site facilities manager. Original records consist of the following:

   a. Date of installation.

   b. As-built drawings.

   c. Operation and maintenance manuals.

   d. Installer information (business address and telephone number).

   e. Designation of equipment types and inventory of devices.

   f. Equipment and system settings.

   g. Equipment data sheets

2. **FPLSSITM Documentation**. FPLSSITM documentation shall be retained for a minimum of 10 years for items that require annual or less frequent FPLSSITM. FPLSSITM documentation for items with frequencies greater than 1 year shall be retained for the life of the system. This documentation shall be retained by the site facility manager. In addition, the
   site facilities manager responsible for FPLSSITM shall retain FPLSSITM records for all systems under its care. These records shall include all of the following information:

   a. Date.

   b. Procedure performed.

   c. Name and signature of the servicing personnel and the organization's name that performed the work.

   d. Test results.

   e. Equipment and system deficiencies

   f. Corrective actions, including parts replaced and settings or programming changes

3. **Indian Affairs Facilities Management System** (IAFMS) shall contain site location asset information and documentation of all fire alarm, detection, suppression, smoke control and fire smoke damper and equipment under their care. The system shall provide the following:

   a. An electronic database with retrievable historical records for each piece of equipment, group of similar pieces of equipment, system or Work Order.

   b. Schedules for the scope and frequency of inspection and service for all equipment preventative maintenance.

   c. Work Orders and preventatives maintenance technologies provide a method of persistent follow-up to ensure that inspection, testing, and maintenance services are being performed according to schedule.

   d. A method of assigning priorities to equipment repair and maintenance tasks

4. **FPLSSITM Report** (fire alarm, detection, suppression, smoke control and fire smoke damper)

   a. Site facilities manager shall annually review the FPLSSITM data collected for facilities and generate a report which examines trends (e.g., failure rates, system aging) and identifies specific problems. The report shall include recommendations for improving system reliability and FPLSSITM efficiency, as well as resolving building coordination issues. The report shall also examine how the previous year's recommendations were addressed.

   b. The report shall be submitted to the respective regional facilities management and BIA Associate Deputy Director (ADD) offices with 30 days of the end of the fiscal year.

References

National Fire Protection Association (NFPA)
http://www.nfpa.org

1. NFPA 10 (2022): Standard for Portable Fire Extinguishers
2. NFPA 12A (2022): Standard on Halon 1301 Fire Extinguishing Systems
3. NFPA 13(2022): Standard for the Installation of Sprinkler Systems
4. NFPA 14 (2019): Standard for the Installation of Standpipe and Hose Systems
5. NFPA 15 (2022): Standard for Water Spray Fixed Systems for Fire Protection
6. NFPA 17 (2021): Standard for Dry Chemical Extinguishing Systems

7. NFPA 17A (2021): Standard for Wet Chemical Extinguishing Systems
8. NFPA 20 (2018): Standard for the Installation of Stationary Pumps for Fire Protection
9. NFPA 22 (2013): Standard for Water Tanks for Private Fire Protection
10. NFPA 24 (2022): Standard for the Installation of Private Fire Service Mains and Their Appurtenances
11. NFPA 25 (2020): Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems
12. NFPA 33 (2021): Standard for Spray Application Using Flammable or Combustible Materials
13. NFPA 72 (2022): National Fire Alarm and Signaling Code
14. NFPA 80 (2022): Standard for Fire Doors and Other Opening Protectives
15. NFPA 90A (2021): Standard for the Installation of Air-Conditioning and Ventilating Systems
16. NFPA 92A (2021): Standard for Smoke Control Systems
17. NFPA 96 (2021): Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
18. NFPA 101 (2021): Life Safety Code
19. NFPA 110 (2022): Standard for Emergency and Standby Power Systems
20. NFPA 780 (2023): Standard for the Installation of Lightning Protection Systems
21. NFPA 1962 (2018): Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances
22. NFPA 2001 (2022): Standard on Clean Agent Fire Extinguishing Systems

Inspection, Test and Maintenance Forms

National Fire Protection Association (NFPA)
http://www.nfpa.org/about-nfpa/landing-pages/fire-protection-systems

These electronic forms will assist in recording the results of the inspection, testing, and maintenance activities.

WARNING: These forms are intended for your use only. You may customize to meet your individual or organization's needs and may make a number of duplicates of any output whether electronic or hard-copy are as reasonable for your purposes. Distribution of these forms or forms you develop or derive from these forms outside of your organization including but not limited to professional reprinting and sale is prohibited.

Attachment 1

AUTOMATIC SPRINKLER SYSTEMS

Inspections, tests, and maintenance of automatic sprinkler systems shall be performed in accordance with the manufacturer's instructions and NFPA 25. The following list highlights minimum requirements for the essential care of automatic sprinkler systems. This list, however, is not meant to replace manufacturer's literature, instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 25
Gauges (dry/preaction systems)	Inspection	Weekly/Monthly	Chapter 13
Control valves	Inspection	Weekly/Monthly	Chapter 13
Waterflow Alarm devices	Inspection	Quarterly	5.2.4
Gauges (wet and deluge systems)	Inspection	Monthly	Chapter 13
Hydraulic design information	Inspection	Annually	5.2.5
Hanger/braces/supports	Inspection	Annually	5.2.3
Pipe and fittings	Inspection	Annually	5.2.2
Sprinklers	Inspection	Annually	5.2.1
Spare sprinklers	Inspection	Annually	5.2.1.4
Fire department connections	Inspection	Quarterly	Chapter 13
Valves (all types)	Inspection	See Table 13.1.1.2	Chapter 13
Alarm devices	Test	Quarterly/Semiannually	5.3.3
Main drain	Test	Annually	Chapter 13
Antifreeze solution	Test	Annually	5.3.4
Gauges	Test	5 years	Chapter 13
Sprinklers (extra high temperature)	Test	5 years	5.3.1.1.1.4
Sprinklers (fast response)	Test	At 20 years and every 10 years thereafter	5.3.1.1.1.3
Sprinklers	Test	50 years and every 10 years thereafter	5.3.1.1.1, 5.3.1.1.1.1, 5.3.1.1.1.2
Valves (all types)	Maintenance	Annually or as needed	Chapter 13
Low point drains (dry pipe systems)	Maintenance	Annually prior to freezing and as needed	Chapter 13
Obstruction	Investigation		Chapter 14

Attachment 2

STANDPIPE AND HOSE SYSTEMS

Inspections, tests, and maintenance on standpipe and hose systems shall be performed in accordance with the manufacturer's instructions and NFPA 25. The following list highlights minimum requirements for the essential care of standpipe and hose systems. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 25
Control valves	Inspection	Weekly/Monthly	Chapter 13
Pressure regulating devices	Inspection	Quarterly	Chapter 13
Piping	Inspection	Annually	6.2.4
Hose connections	Inspection	Annually	6.2.3
Cabinet	Inspection	Annually	6.2.8
Hose	Inspection	Annually	6.2.5
Hose storage device	Inspection	Annually	6.2.7
Hose nozzle	Test	Annually & after each use	6.2.6
Hose storage device:	Test	Annually	6.2.7
Hose	Test	Annually	6.2.5
Pressure control valve	Test	5 years	Chapter 13
Pressure reducing valve	Test	5 years	Chapter 13
Hydrostatic test	Test	5 years	6.3.2
Flow test	Test	5 years	6.3.1
Main drain test	Test	Annually	Chapter 13
Hose connections	Maintenance	Annually	6.2.3
Valves (all types)	Maintenance	Annually/as needed	Chapter 13

Attachment 3

PRIVATE MAINS USED FOR FIRE SERVICE

Inspections, tests, and maintenance on private water supply systems used for fire service shall be performed in accordance with the manufacturer's instructions and NFPA 25. The following list highlights minimum requirements for the essential care of private water supply systems used for fire service. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 25
Hose houses	Inspection	Quarterly	7.2.2.8
Hydrants (dry barrel and wall)	Inspection	Annually and after each operation	7.2.2.4
Monitor nozzles	Inspection	Semiannually	7.2.2.7
Hydrants (wet barrel)	Inspection	Annually and after each operation	7.2.2.5
Mainline strainers	Inspection	Annually and after each significant flow	7.2.2.3
Piping (exposed)	Inspection	Annually	7.2.2.1
Piping (underground)	Inspection	See 7.2.2.2	7.2.2.2
Monitor nozzles	Test	Flow annually (range and operation)	7.3.3
Hydrants	Test	Flow annually	7.3.2
Piping (exposed and underground)	Flow test	5 years	7.3.1
Mainline strainers	Maintenance	Annually and after each operation	7.2.2.3
Hose houses	Maintenance	Quarterly	7.2.2.8
Hydrants	Maintenance	Annually	7.4.2
Monitor nozzles	Maintenance	Annually	7.4.3

Attachment 4

FIRE PUMPS

Inspections, tests, and maintenance of fire pumps and controllers shall be performed in accordance with the manufacturer's instructions and NFPA 25. The following list highlights minimum requirements for the essential care of fire pumps and controllers. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 25
Alignment	Inspection	Annually	Table 8.1.1.2
Cable/wire insulation	Inspection	Annually	Table 8.1.1.2
Diesel engine system	Inspection	Weekly	Table 8.1.1.2
Electric system	Inspection	Weekly	Table 8.1.1.2
Engine crankcase breather	Inspection	Quarterly	Table 8.1.1.2
Exhaust system, drain condensate trap, and silencers	Inspection	Annually	Table 8.1.1.2
Flexible hoses and connections	Inspection	Annually	Table 8.1.1.2
Fuel tank vents and overflow	Inspection	Annually	Table 8.1.1.2
Plumbing parts – inside and outside of panels	Inspection	Annually	Table 8.1.1.2
Printed circuit board (PCB) corrosion	Inspection	Annually	Table 8.1.1.2
Pump	Inspection	Weekly	Table 8.1.1.2
Pump house/room	Inspection	Weekly	Table 8.1.1.2
Shaft movement or endplay while running	Inspection	Annually	Table 8.1.1.2
Steam pump system	Inspection	Weekly	Table 8.1.1.2
Suction screens	Inspection	Annually	Table 8.1.1.2
Automatic transfer switch	Test	Annually	Table 8.1.1.2
Automatic transfer switch and emergency/standby generators	Test	Per NFPA 110	Table 8.1.1.2
Diesel engine-driven fire pump (no flow)	Test	Weekly	Table 8.1.1.2
Diesel fuel testing	Test	Annually	Table 8.1.1.2
Electric motor-driven fire pump (no flow)	Test	Weekly/monthly	Table 8.1.1.2
Electronic control module (ECM)	Test	Annually	Table 8.1.1.2
Fire pump alarm signals	Test	Annually	Table 8.1.1.2
Flow meters	Test	Annually	Table 8.1.1.2
Fuel tank, float switch, and supervisory signal for interstitial space	Test	Quarterly	Table 8.1.1.2
Gauges, transducers, and other devices used for testing	Test	Annually	Table 8.1.1.2
Main pressure relief valve	Test	Annually	Table 8.1.1.2
Pump house/room environmental conditions	Test		Table 8.1.1.2
Pump operations (no flow)	Test	Weekly/monthly	Table 8.1.1.2
Pump performance (flow)	Test	Annually	Table 8.1.1.2
Supervisory signal for high cooling water temperature	Test	Annually	Table 8.1.1.2
Batteries	Maintenance	Annually	Table 8.1.1.2
Circulating water filter	Maintenance	Annually	Table 8.1.1.2
Control and power wiring connections	Maintenance	Annually	Table 8.1.1.2
Controller and all other components of the pump assembly	Maintenance	Per manufacturer	Table 8.1.1.2
Diesel active fuel maintenance system	Maintenance	Annually or per manufacturer	Table 8.1.1.2

Diesel engine system	Maintenance	Per manufacturer	Table 8.1.1.2
Electric motor and power system	Maintenance	Per manufacturer	Table 8.1.1.2
Electric connections	Maintenance	Annually	Table 8.1.1.2
Engine lubricating oil	Maintenance	50 operating hours or annually	Table 8.1.1.2
Engine oil filter	Maintenance	50 operating hours or annually	Table 8.1.1.2
Fuel filter	Maintenance	50 operating hours or annually	Table 8.1.1.2
Fuel tank – check for water and foreign materials	Maintenance	Annually	Table 8.1.1.2
Measure back pressure on engine turbo	Maintenance	Annually	Table 8.1.1.2
Power transmission components with elastomeric materials (including torsional couplings)	Maintenance	5 years or per manufacturer	Table 8.1.1.2
Pressure gauges and sensors	Maintenance	Annually	Table 8.1.1.2
Pump and motor bearings and coupling	Maintenance	Annually or as required	Table 8.1.1.2
Sacrificial anode	Maintenance	Annually	Table 8.1.1.2

Attachment 5

WATER STORAGE TANKS USED FOR FIRE PROTECTION

Inspections, tests, and maintenance of water storage tanks used for fire protection shall be performed in accordance with the manufacturer's instructions and NFPA 25. The following list highlights minimum requirements for the essential care of water storage tanks.
This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 25
Water temperature – low temperature alarms connected to constantly attended tank	Inspection	Monthly	9.2.4.2
Water temperature – low temperature alarms not connected to constantly attended location.	Inspection	Weekly	9.2.4.3
Heating system	Inspection	Daily/weekly	9.2.6.6
Control valves	Inspection	Weekly/monthly	Table 12.1
Water level	Inspection	Monthly/quarterly	9.2.1
Tank – exterior	Inspection	Quarterly	9.2.5.1
Support structure	Inspection	Quarterly	9.2.5.1
Catwalks and ladders	Inspection	Quarterly	9.2.5.1
Hoops and grillage	Inspection	Annually	9.2.5.4
Painted/coated surfaces	Inspection	Annually	9.2.5.5
Expansion joints	Inspection	Annually	9.2.5.3
Interior	Inspection	5 years/3 years	9.2.6
Check-valves	Inspection	5 years	Table 12.1
Temperature alarms	Test	Monthly	9.2.4.2, 9.2.4.3
High temperature limit switches	Test	Monthly	9.3.4
Water level alarms	Test	Semiannually	9.3.5
Level indicators	Test	5 years	9.3.1
Pressure gauges	Test	5 years	9.3.6
Water level	Maintenance	Continuous	9.4.1
Control valves	Maintenance	Annually	Table 12.1
Embankment supported rubberized fabric	Maintenance	2 years	9.4.6
Check valves	Maintenance	Per manufactures instructions	12.4.2.2

Attachment 6

VALVES AND FIRE DEPARTMENT CONNECTIONS

Inspections, tests, and maintenance on valves and fire department connections shall be performed in accordance with the manufacturer's instructions and NFPA 25. The following list highlights minimum requirements for the essential care of valves and fire department connections. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 25
Control Valves			
All valves except locked or supervised	Inspection	Weekly	Table 13.1.1.2
Locked or supervised	Inspection	Monthly	Table 13.1.1.2
Electrically supervised	Inspection	Quarterly	Table 13.1.1.2
Alarm Valves			
Exterior	Inspection	Quarterly	Table 13.1.1.2
Interior	Inspection	5 years	Table 13.1.1.2
Strainers, filters, orifices	Inspection	5 years	Table 13.1.1.2
Check Valves			
Interior	Inspection	5 years	Table 13.1.1.2
Preaction/Deluge Valve			
Enclosure (cold weather)	Inspection	Daily/weekly	Table 13.1.1.2
Exterior	Inspection	Monthly	Table 13.1.1.2
Interior	Inspection	Annually/5 years	Table 13.1.1.2
Strainers, filters, orifices	Inspection	5 years	Table 13.1.1.2
Dry Pipe Valves/Quick Opening Devices			
Enclosure (cold weather)	Inspection	Daily/weekly	Table 13.1.1.2
Exterior	Inspection	Monthly	Table 13.1.1.2
Interior	Inspection	Annually	Table 13.1.1.2
Strainers, filters, orifices	Inspection	5 years	Table 13.1.1.2
Low temperature alarm	Inspection	Annually	Table 13.1.1.2
Pressure Regulating & Relief Valves			
Master pressure-regulating	Inspection	Weekly	Table 13.1.1.2
Sprinkler systems pressure-reducing	Inspection	Quarterly	Table 13.1.1.2
Hose connection pressure-regulating	Inspection	Annually	Table 13.1.1.2
Hose rack pressure-regulating	Inspection	Annually	Table 13.1.1.2
Fire pump circulation relief	Inspection	With no flow test	Table 13.1.1.2
Fire pump main pressure relief	Inspection	With fire pump test	Table 13.1.1.2
Backflow Prevention Assemblies			
Reduced pressure	Inspection	Weekly	Table 13.1.1.2
Reduced pressure detectors	Inspection	Weekly	Table 13.1.1.2
Interior	Inspection	5 years	
Control Valves			
Operation and Position	Test	Annually	Table 13.1.1.2
Valve status test	Test	After the control valve closed and reopened	Table 13.1.1.2
Supervisory	Test	Semiannually	Table 13.1.1.2
Deluge Valves			
Trip test	Test	Annually/3 years	Table 13.1.1.2
Preaction Valves			
Priming water	Test	Quarterly	Table 13.1.1.2
Low air pressure alarm	Test	Quarterly	Table 13.1.1.2
Trip test	Test	Annually/3 years	Table 13.1.1.2
Air leak	Test	3 years	Table 13.1.1.2

Low temperature alarm	Test	Annually	Table 13.1.1.2
Dry Pipe Valves/Quick Opening Devices			
Air leakage	Test	3 years	Table 13.1.1.2
Priming water	Test	Quarterly	Table 13.1.1.2
Low air pressure alarm	Test	Annually	Table 13.1.1.2
Quick opening devices	Test	Quarterly	Table 13.1.1.2
Trip test	Test	Annually	Table 13.1.1.2
Full flow trip test	Test	3 years	Table 13.1.1.2
Pressure Regulating & Relief Valves			
Master pressure-regulating	Test	Quarterly/annually	Table 13.1.1.2
Sprinkler systems pressure reducing	Test	Annually/5 years	Table 13.1.1.2
Hose connections pressure-regulating	Test	Annually/5 years	Table 13.1.1.2
Hose rack pressure-regulating	Test	Annually/5 years	Table 13.1.1.2
Fire pump circulation relief	Test	With churn test	Table 13.1.1.2
Fire pump pressure relief valves	Test	With fire pump test	Table 13.1.1.2
Control Valves (outside screw and yoke)	Maintenance	Annually	Table 13.1.1.2
Preaction/Deluge Valves	Maintenance	Annually/5 years	Table 13.1.1.2
Dry Pipe Valves/Quick Opening Devices	Maintenance	Annually	Table 13.1.1.2

Attachment 7

KITCHEN VENTILATION HOODS AND FIRE SUPPRESSION SYSTEMS

Inspections, tests, and maintenance on kitchen ventilation hoods and fire suppression systems shall be performed in accordance with the manufacturer's instructions, NFPA 17, 17a, 72, and NFPA 96. Regular service contracts with the equipment manufacturer or an authorized installation or maintenance company are required. The following list highlights minimum requirements for the essential care of kitchen ventilation hoods and fire suppression systems. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

Monthly and annual maintenance tags shall be attached to each fire suppression system for recording the inspector's initials, date, and confirmation on maintenance/inspections performed. Where fusible links are used, the manufacture and the installation dates for the links shall be marked on the system inspection tag. In addition, a signed and dated log of maintenance and a certificate showing date of exhaust system inspection or cleaning shall be available in the food service manager's office and the site facility manager's office.

ITEM	ACTIVITY	FREQUENCY	NFPA 17, 17A, 72 and 96
Extinguishing system nozzles are located directly above grease producing equipment	Inspection	Monthly	17A:8.2.1, 17:11.2.1
The manual actuators are unobstructed	Inspection	Monthly	17A:8.2.1, 17:11.2.1
The tamper indicators and seals are intact	Inspection	Monthly	17A:8.2.1, 17:11.2.1
The maintenance tag or certificate in place	Inspection	Monthly	17A:8.2.1, 17:11.2.1
No obvious physical damage or condition exists that might prevent operation	Inspection	Monthly	17A:8.2.1, 17:11.2.1
The pressure gauge(s) are in operable range	Inspection	Monthly	17A:8.2.1, 17:11.2.1
The nozzle blow-off caps are intact and undamaged	Inspection	Monthly	17A:8.2.1, 17:11.2.1
Neither protected equipment nor hazard has been replaced, modified or relocated.	Inspection	Monthly	17A:8.2.1, 17:11.2.1
Gas and electric power shutoff are operational	Test	Semiannually	17:11.3.1
Water-wash hood cleaning systems are operational in conjunction with hoods protected by sprinkler systems	Test	Semiannually	96: 12.6
Remove grease from exhaust system	Maintenance	Quarterly/Semiannually	96:12.2.1, 12.6
Recirculating systems operation and safety interlocks perform in accordance with manufacturer's instructions.	Test	Every 6 months or more frequently if needed	96: 12.6
Recirculating systems. Electrostatic Precipitators cleaned.	Maintenance	Weekly	96: 12.6
Recirculating systems. Clean entire hood Plenum and blower section.	Maintenance	Quarterly	96: 12.6
Fixed temperature sensing elements of the fusible alloy type.	Replace	Semiannually	17:11.3.2
Clean fixed temperature sensing elements other than the fusible metal alloy type	Maintenance	Semiannually	17:11.3.3
Manual actuators are unobstructed	Test	Monthly	17:11.2.1
Examine detectors, expellant gas containers, agent containers, releasing devices, piping, hose assemblies, nozzles, signals, and all auxiliary equipment.	Maintenance	Semiannually	17:11.3.1
Verify that the agent distribution piping is	Maintenance	Semiannually	17:11.3.1

not obstructed.			
Examine dry chemical in stored pressure systems for caking.	Inspection	Every 6 years	17:11.3.1.3
Hydrostatic pressure test on wet and dry chemical extinguishing systems (agent containers, auxiliary pressure containers, hose assemblies).	Test	Every 12 years	17:11.5.1

Attachment 8

HALON SYSTEMS

Inspections, tests, and maintenance on HALON fire suppression systems shall be performed in accordance with the system manufacturer's instructions and NFPA 12A. The following list highlights minimum requirements for the essential care of HALON systems. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 12A
Record pressure of container	Inspection	Semiannually	6.1.1
Check agent quantity	Inspection	Semiannually	6.1.4
Fire detection. Test devices	Test	Semiannually	A.6.1
Actuation. Simulate agent release	Test	Semiannually	A.6.1
Container & bracket	Inspection	Semiannually	A.6.1
Examine piping & nozzles.	Inspection	Semiannually	A.6.1
Auxiliary Equipment. Operate all components such as switches, door releases, HVAC shutdown, power disconnect and alarms.	Test	Semiannually	A.6.1
Container test on refill	Test/inspection	5 years	6.2.2
Hose	Test	Annually	6.3
Room enclosure – ensure penetrations are protected	Inspection	Semiannually	6.4

Coordinate the testing of the following HALON system equipment with the fire alarm system maintenance.

ITEM	ACTIVITY	FREQUENCY	NFPA
Control Equipment	Coordination		
Secondary power supply and UPS is necessary	Coordination		
Batteries	Coordination		
Transient suppressors	Coordination		
Remote annunciators	Coordination		
Initiation devices	Coordination		
Alarm notification appliances	Coordination		
Special hazard equipment (abort switches, cross zone (matrix) detection circuits, release solenoid circuit)	Coordination		
Transmission and receiving equipment – off premises	Coordination		
Interface equipment (HVAC shutdown)	Coordination		
Alarm verification (special procedures)	Coordination		

Attachment 9

CLEAN AGENT FIRE EXTINGUISHING SYSTEMS

Inspections, tests, and maintenance of clean agent fire extinguishing systems shall be performed in accordance with the system manufacturer's instructions and NFPA 2001. The following list highlights minimum requirements for the essential care of gaseous suppression systems. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 2001
Record pressure of container	Inspection	Semiannually	11.3
Check agent quantity	Test	Semiannually	11.3
Container test	Test/inspection	5 years	11.6
Hose	Inspection	Annually	11.4.4
Hose	Test	5 years	11.7.1
Enclosure Inspection	Inspection	Annually	11.5.4.1

Coordinate the testing of the following clean agent system equipment with the fire alarm system maintenance.

ITEM	ACTIVITY	FREQUENCY	NFPA
Control Equipment	Coordination		
Secondary power supply and UPS is necessary	Coordination		
Batteries	Coordination		
Transient suppressors	Coordination		
Remote annunciators	Coordination		
Initiation devices	Coordination		
Alarm notification appliances	Coordination		
Special hazard equipment (abort switches, cross zone (matrix) detection circuits, release solenoid circuit)	Coordination		
Transmission and receiving equipment – off premises	Coordination		
Interface equipment (HVAC shutdown)	Coordination		
Alarm verification (special procedures)	Coordination		

Attachment 10

FIRE DETECTION AND ALARM SYSTEMS

Inspections, tests, and maintenance on fire detection and alarm systems shall be performed in accordance with the manufacturer's instructions and NFPA 72. The following list highlights minimum requirements for the essential care of fire alarm systems. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 72
All equipment	Inspection	Annually	Table 14 3.1
Batteries (Fire Alarm Systems)			
Lead-acid type	Inspection	Semiannually	Table 14 3.1
Primary type (Dry cell)	Inspection	Semiannually	Table 14 3.1
Control Equipment (Fire alarm systems monitored for alarm, supervisory, trouble signals)			
Fuses	Inspection	Annually	Table 14 3.1
Interfaced equipment	Inspection	Annually	Table 14 3.1
Lamps and LEDs	Inspection	Annually	Table 14 3.1
Primary (main) power supply	Inspection	Annually	Table 14 3.1
Control panel trouble signals	Inspection	Semiannually	Table 14 3.1
Emergency voice/alarm communications equipment	Inspection	Semiannually	Table 14 3.1
Fiber optic cable connections	Inspection	Annually	Table 14 3.1
Initiation Devices			
Air sampling	Inspection	Semiannually	Table 14 3.1
Duct detectors	Inspection	Semiannually	Table 14 3.1
Electromechanical releasing devices	Inspection	Semiannually	Table 14 3.1
Extinguishing system switches	Inspection	Semiannually	Table 14 3.1
Manual fire alarm boxes	Inspection	Semiannually	Table 14 3.1
Heat detectors	Inspection	Semiannually	Table 14 3.1
Radiant energy fire detectors	Inspection	Quarterly	Table 14 3.1
Smoke detectors	Inspection	Semiannually	Table 14 3.1
Supervisory signal devices	Inspection	Semiannually	Table 14 3.1
Water flow devices	Inspection	Semiannually	Table 14 3.1
Supervising Station Alarm Systems - Transmitters			
DACT	Inspection	Annually	Table 14 3.1
DART	Inspection	Annually	Table 14 3.1
McCulloh	Inspection	Annually	Table 14 3.1
RAT – signal receipt	Inspection	Annually	Table 14 3.1
Supervising Station Alarm Systems - Receivers			
Signal receipt	Inspection	Daily	Table 14 3.1
Receivers	Inspection	Annually	Table 14 3.1
Alarm Notification Appliances			
Audible devices	Test	Annually	Table 14.4.3.2
Audible textual appliances	Test	Annually	Table 14.4.3.2
Visible devices	Test	Annually	Table 14.4.3.2
VRLA battery and charger			
Temperature test	Test	Semiannually	Table 14.4.3.2
Charger test	Test	Semiannually	Table 14.4.3.2
Cell/Unit voltage test	Test	Semiannually	Table 14.4.3.2
Ohmic test	Test	Semiannually	Table 14.4.3.2

Replacement/Load test	Test	3 years	Table 14.4.3.2
Control Unit			
Functions	Test	Annually	Table 14.4.3.2
Fuses	Test	Annually	Table 14.4.3.2
Interfaced equipment	Test	Annually	Table 14.4.3.2
Lamps and LEDs	Test	Annually	Table 14.4.3.2
Primary (main) power supply	Test	Annually	Table 14.4.3.2
Emergency voice/Alarm communications equipment	Test	Annually	Table 14.4.3.2
Initiation devices			
Duct detectors	Test	Annually	Table 14.4.3.2
Electromechanical releasing devices	Test	Annually	Table 14.4.3.2
Extinguishing systems	Test	Annually	Table 14.4.3.2
Fire-gas and other detectors	Test	Annually	Table 14.4.3.2
Heat detectors	Test	Annually	Table 14.4.3.2
Fire alarm boxes	Test	Annually	Table 14.4.3.2
Radiant energy fire detectors	Test	Semiannually	Table 14.4.3.2
Smoke detectors – functional	Test	Annually	Table 14.4.3.2
Smoke detectors – sensitivity (see 10.4.3.2)	Test	Annually	Table 14.4.3.2
Single & multi-station smoke alarm (also see 10.4.4)	Test	Annually	Table 14.4.3.2
Single and multi-station heat alarms	Test	Annually	Table 14.4.3.2
Supervisory signal devices	Test	Annually	Table 14.4.3.2
Water flow devices	Test	Annually	Table 14.4.3.2
Supervising station alarm systems – transmission equipment			
DACT	Test	Annually	Table 14.4.3.2
DART	Test	Annually	Table 14.4.3.2
McCulloh	Test	Annually	Table 14.4.3.2
RAT	Test	Annually	Table 14.4.3.2
Performance-based technologies	Test	Annually	Table 14.4.3.2
Supervising station alarm systems – Receiving equipment			
DACR	Test	Monthly	Table 14.4.3.2
DARR	Test	Monthly	Table 14.4.3.2
McCulloh	Test	Monthly	Table 14.4.3.2
Two-way RF multiplex	Test	Annually	Table 14.4.3.2
RASSR	Test	Monthly	Table 14.4.3.2
RARSR	Test	Monthly	Table 14.4.3.2
Private microwave	Test	Monthly	Table 14.4.3.2

EMERGENCY GENERATOR AND EMERGENCY LIGHTING

Inspections, tests, and maintenance on the emergency generator and emergency lighting shall be performed in accordance with the manufacturer's instructions, NFPA 101, and NFPA 110. The following list highlights minimum testing requirements for emergency generators and emergency lighting. An emergency power supply system maintenance schedule is also attached. This schedule, however, is not meant to replace manufacturer's instructions and updated code requirements.

The continuing reliability and integrity of emergency electrical service is dependent on an established program of routine maintenance and operational testing. Consideration must be given to providing a temporary alternative source whenever the emergency generator is out of service.

One set of the instruction *Manual*s shall be kept in a secure, convenient location near the equipment. Another set shall be kept at the site facility manager's office.

EMERGENCY POWER SUPPLY SYSTEM TESTING

ITEM	ACTIVITY	FREQUENCY	NFPA 101 and 110
Emergency lighting for 30 second duration. (Lighting on generator circuit and battery powered.)	Test	Monthly	101:7.9.3.1
Emergency lighting for 1 and ½ hour duration (Lighting on generator circuit and battery powered.)	Test	Annual	101:7.9.3.1
Emergency generator. Test under load for 30 minutes (>30% nameplate kW rating or other methods per NFPA 110 8.4.2) Check transfer of emergency power to fire protection/life safety equipment (fire alarm system, fire pump, smoke management systems)	Test	Monthly	110:8.4.1, 8.4.2, 101:7.9.2.4
Transfer switch	Test	Monthly	110:8.4.6
Circuit breakers rated > 600 volts			
Exercised every 6 months	Test	Every 12 months	110:8.4.7.1
Tested under simulated overload	Test	Every 3 years	110:8.4.7.1

Attachment 11

EMERGENCY POWER SUPPLY SYSTEM MAINTENANCE SCHEDULE

ITEM	ACTIVITY	FREQUENCY	NFPA 110
Fuel			
Main supply tank level	Check	Weekly	110:A8.3.1(a)
Day tank level	Inspect/check	Weekly	110:A8.3.1(a)
Day tank float switch	Inspect/test	Weekly	110:A8.3.1(a)
Supply or transfer pump operation	Inspect/test	Weekly	110:A8.3.1(a)
Solenoid valve operation	Inspect/test	Weekly	110:A8.3.1(a)
Strainer, filter and/or dirt leg	Clean	Quarterly	110:A8.3.1(a)
Water in system	Check/clean	Weekly	110:A8.3.1(a)
Flexible hose and connectors	Inspect	Weekly	110:A8.3.1(a)
Tank vents/overflow pipe blocked	Inspect/replace	Annually	110:A8.3.1(a)
Piping	Inspect	Annually	110:A8.3.1(a)
Fuel in main tank (when used)	Filter/Biocide	Annually	110:A8.3.1(a)
Lubrication System			
Oil level	Inspect/check	Weekly	110:A8.3.1(a)
Oil change	Replace	1st of 50 hours run or annually	110:A8.3.1(a)
Oil filter	Change	1st of 50 hours or annually	110:A8.3.1(a)
Lube oil heater	Check	Weekly	110:A8.3.1(a)
Crankcase breather	Inspect/clean/replace	Quarterly	110:A8.3.1(a)
Cooling System			
Level	Inspect/check	Weekly	110:A8.3.1(a)
Antifreeze protection level	Test	Semiannually	110:A8.3.1(a)
Antifreeze	Test PH/contaminates	Annually	110:A8.3.1(a)
Adequate cooling water to heat exchanger	Check	Weekly	110:A8.3.1(a)
Rod out heat exchanger	Clean	Annually	110:A8.3.1(a)
Adequate fresh air through radiator	Check	Weekly	110:A8.3.1(a)
Clean exterior of radiator	Clean	Annually	110:A8.3.1(a)
Fan and alternator belts	Inspect/Check	Monthly	110:A8.3.1(a)
Water pump	Inspect	Weekly	110:A8.3.1(a)
Flexible water hoses and connections	Inspect/check	Weekly	110:A8.3.1(a)
Jacket water heater	Check	Weekly	110:A8.3.1(a)
Inspect ductwork, clean louvers	Inspect/check/change	Annually	110:A8.3.1(a)
Louver motor and controls	Inspect/clean/test	Annually	110:A8.3.1(a)
Exhaust System			
Leakage	Inspect/check	Weekly	110:A8.3.1(a)
Drain condensate trap	Check	Weekly	110:A8.3.1(a)
Insulation and fire hazards	Inspect	Quarterly	110:A8.3.1(a)
Excessive back pressure	Test	Annually	110:A8.3.1(a)
Exhaust system hanger and supports	Inspect	Annually	110:A8.3.1(a)
Flexible exhaust section	Inspect	Semiannually	110:A8.3.1(a)
Battery System			
Electrolyte level	Check	Weekly	110:A8.3.1(a)
Terminal clean and tight	Inspect/check	Quarterly	110:A8.3.1(a)
Remove corrosion/case ext. clean and dry	Inspect/check	Monthly	110:A8.3.1(a)
Specific gravity or state of charge	Test	Monthly	110:A8.3.1(a)

Charger and charge rate	Inspect	Monthly	110:A8.3.1(a)
Equalize charger	Check	Monthly	110:A8.3.1(a)
Electrical System			
General inspection	Inspect	Weekly	110:A8.3.1(a)
Tighten control and power wiring connections	Check	Annually	110:A8.3.1(a)
Wire chafing if subject to movement	Inspect/check	Quarterly	110:A8.3.1(a)
Operation of safeties and alarms	Check/test	Semiannually	110:A8.3.1(a)
Boxes, panels and cabinets	Clean	Semiannually	110:A8.3.1(a)
Circuit breakers, fuses (Do not break manufacture's seals or perform internal inspection)	Inspect/check/clean	Monthly	110:A8.3.1(a)
Transfer switch main contacts	Inspect/clean	Annually	110:A8.3.1(a)
Calibration of voltage-sensing relays/devices	Check/test	Annually	110:A8.3.1(a)
Wire insulation breakdown	Test	Every 5 years/500 hours	110:A8.3.1(a)
Prime Mover			
General inspection	Inspect	Weekly	110:A8.3.1(a)
Service air cleaner	Inspect/vacuum/gauge	Semiannually/as needed	110:A8.3.1(a)
Governor oil level and linkage	Inspect/check	Monthly	110:A8.3.1(a)
Governor oil	Change	Annually	110:A8.3.1(a)
Ignition system – plugs, coil, cap, rotor, secondary wire insulation	Inspect/check/replace/clean/test	Annually	110:A8.3.1(a)
Choke setting and carburetor adjustment	Check	Semiannually	110:A8.3.1(a)
Injector pump and injectors for flow rate, pressure, and/or spray pattern	Test	Annually	110:A8.3.1(a)
Test EPS for 4 hours, at min. 80% of nameplate rating	Test	Every 3 years	110:A8.3.1(a)
Valve clearance	Test	Every 3 years or 500 hours	110:A8.3.1(a)
Torque bolts	Test	Every 3 years or 500 hours	110:A8.3.1(a)
Generator			
Bush length, appearance free to move in holder	Inspect/check/clean	Semiannually	110:A8.3.1(a)
Commutator and slip rings	Inspect/clean	Annually	110:A8.3.1(a)
Rotor and stator	Inspect/clean	Annually	110:A8.3.1(a)
Bearing	Inspect/replace	Annually	110:A8.3.1(a)
Bearing grease	Check/replace	Annually	110:A8.3.1(a)
Exciter	Inspect/check/clean	Annually	110:A8.3.1(a)
Voltage regulator	Inspect/check/clean	Annually	110:A8.3.1(a)
Measure and record resistance readings of windings with insulation tester.	Test	Annually	110:A8.3.1(a)
General condition of EPSS			
Unusual condition of vibration, leakage, noise, temperature or deterioration.	Inspect/clean	Weekly	110:A8.3.1(a)
Service room or housekeeping	Inspect/clean	Weekly	110:A8.3.1(a)

Restore system to automatic operation condition.	Inspect	Weekly	110:A8.3.1(a)

FIRE DOORS AND EMERGENCY EXITS

Inspections, tests, and maintenance shall be performed on fire doors and emergency exits in accordance with the manufacturer's instructions, NFPA 101, and NFPA 80. The following list highlights minimum requirements for the essential care of fire doors and emergency exits. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

Emergency exits must be maintained to avoid the numerous deaths caused in fires where exits were either blocked or the hardware was inoperable. In addition, fire doors have no value unless properly maintained and closed or able to close automatically at the time of a fire.

ITEM	ACTIVITY	FREQUENCY	NFPA 101 and 80
Fire Doors			
Door hardware is operating properly.	Inspection	Annually	80:5.2.4
Door does not have punctures or broken seams.	Inspection	Annually	80:5.2.4
Self-closer is intact and allows door to latch closed.	Inspection	Annually	80:5.2.4
On sliding doors, chains and cables operate smoothly over all pulleys and guides.	Inspection	Annually	80:5.2.4
Doors have not been modified e.g., by the installation of louvers.	Inspection	Annually	80:5.2.4
Coordinators are securely attached and adjusted properly.	Inspection	Annually	80:5.2.4
Door openings are kept clear of obstructions.	Inspection	Annually	80:5.2.4
Clearances around the door do not exceed NFPA 80 requirements.	Inspection	Annually	80:5.2.4
Tinclad and Kalamein doors	Inspection	Annually	80:5.2.4
Doors are kept closed or arranged	Inspection	Annually	80:5.2.4
Confirm proper operation of doors with hold open devices and self-closers (Latches, guides and rollers must be checked.)	Test	Annually	80:5.2.4
Test all horizontal, sliding, and rolling fire doors.	Test	Annually	80:5.2.4
Lubricate guides and bearings.	Maintenance	Annually	80:5.2.4
Emergency exit doors (perimeter exits and doors with delayed egress hardware):			
Not obstructed	Inspect	Weekly	101:4.5.3.2
Hardware operating properly	Test	Weekly	101:7.2.1.4
Measure door opening force. (Force gauge used to ensure door can be opened within NFPA 101 limits.)	Test	Quarterly	101:7.2.1.4
Stairwell doors (interior):			
Not obstructed	Inspect	Quarterly	101:4.5.3.2
Hardware operating properly	Test	Quarterly	101:7.2.1.4
Measure door opening force. (Force gauge used to ensure door can be opened within NFPA 101 limits.)	Test	Annually	101:7.2.1.4

Attachment 13

LIFE SAFETY AND FIREFIGHTERS SERVICE ON ELEVATORS

Elevators shall be subject to routine and periodic tests as specified in ASME/ANSI A17.1, the manufacturer's instructions, and NFPA 101. The following list represents minimum requirements for the safe operation of elevators during a fire. A more complete list is found in ASME/ANSI A17.1, however, this list is not meant to replace manufacturer's instructions.

ITEM	ACTIVITY	FREQUENCY	ASME/ANSI A17.1 and NFPA 101
Phase I recall and a minimum of 1 floor operation on Phase II	Test	Monthly	A17:1206.7
Emergency lighting in the elevator car (In coordination with emergency lighting test)	Test	Monthly	A17.1:2147.1.3
(Elevator power shunt by heat detectors is to be tested in accordance with the interfaced equipment per NFPA 72.)			NFPA 72

HVAC AND SMOKE MANAGEMENT SYSTEMS

Inspections, tests, and maintenance on HVAC and smoke management systems shall be performed in accordance with the manufacturer's instructions, NFPA 101, 90A, and 92A. The following list highlights minimum requirements for the essential care of HVAC and smoke management systems. This list, however, is not meant to replace manufacturer's instructions and updated code requirements.

ITEM	ACTIVITY	FREQUENCY	NFPA 101, 90A and 92A
HVAC General			
Fire dampers, fire/smoke dampers. Operate all dampers to verify they fully close and latch (if provided).	Inspect/test	Every 4 years	90A:B.2
Filters (replace or clean when resistance to airflow increases to no more than two times the original resistance or reaches manufacturer's recommended value for replacement).	Test/maintenance	Semiannually	90A:B.3.1
Electrical equipment of automatic filters (check motors and relays).	Inspect/test	Quarterly	90A:B.8
Examine fan controls and activate to assure operable condition.	Test	Annually	90A:B.9
Clean and lubricate fans and motor	Maintenance	Quarterly	90A:B.8.1
Check belt alignment	Inspect	Quarterly	90A:B.8.2
Determine the amount of dust and waste material in ducts, plenums, ceiling cavities, and raised floors. Clean if necessary.	Inspect/maintenance	Monthly or as required	90A:B.5
Inspect cooling and heating coils. Clean if necessary.	Inspect/maintenance	Quarterly or as required	90AB.4
Inspect apparatus casing and air handling units plenums. Clean is necessary	Inspect/maintenance	Monthly or as required	90A:B.5
Dedicated Smoke Control and Evacuation Systems			
Operate smoke-control system for each control sequence to verify that all system parts and controls are operational.	Test	Semiannually	92A:8.6.4
Operate the smoke-control system to verify airflow quantities and pressure differentials across smoke barriers, at make-up air supplies and at smoke exhaust equipment are within design tolerances. Tests conducted under normal power and standby power, if applicable.	Test	Semiannually	92A:8.6.4
Non-Dedicated Smoke Control and Evacuation Systems			
Operate smoke-control system for each control sequence to verify that all system parts and controls are operational.	Test	Annually	92A:8.6.5
Operate the smoke-control system to verify airflow quantities and pressure differentials across smoke barriers, at make-up air supplies and at smoke exhaust equipment are within design	Test	Annually	92A:4-4.3.1

tolerances. Tests conducted under normal power and standby power, if applicable.			
Stair Pressurization Systems			
Operate the stair pressurization system for each control sequence to verify that all system parts and controls are operational.	Test	Semiannually	92A: 8.4.4
Operate the stair pressurization system to verify pressure differentials and forces to operate stair doors are within design tolerances. Tests conducted under normal power and standby power.	Test	Annually	92A: 5.2

PORTABLE FIRE EXTINGUISHERS

Inspections, tests, and maintenance shall be performed on portable fire extinguishers in accordance with the manufacturer's instructions and NFPA 10. The following list highlights minimum requirements for the essential care of portable fire extinguishers. This list, however, is not meant to replace manufacturer's instructions and updated code requirements. Monthly inspections are to be performed. Maintenance and testing shall be performed under a regular service contract with an authorized portable fire extinguisher maintenance company.

Inspection records shall be kept on a tag or label attached to the fire extinguisher or in an electronic system (e.g., bar coding) that provides a permanent record. Inspections are to be recorded on the tag attached to the portable fire extinguisher. The date the inspection was performed and the initials of the person performing the inspection shall be recorded. Maintenance records shall be kept on a tag or securely attached to the shell of the extinguisher that indicate the month and year the maintenance was performed. The site facility manager shall keep a written inventory of all extinguishers, including the following information: location, type, and last service date.

Extinguishers requiring maintenance are to be replaced immediately with a spare extinguisher of the same type and at least equal rating. Portable extinguishers that require maintenance should first be evaluated for use in training.

ITEM	ACTIVITY	FREQUENCY	NFPA 10
Located in a conspicuous place. (Report out-of-place extinguishers to the building manager.)	Inspection	Monthly	6.1.3.1
No obstruction to access or visibility. (Report obstructions to the building manager.)	Inspection	Monthly	6.1.3.3
Safety seals and tamper indicators not broken or missing. (Replace any extinguisher that has a broken or missing tamper indicator.)	Inspection	Monthly	7.2.2
Fullness determined by weighing for extinguishers without pressure gauge (Replace extinguishers with a weight loss of 10% or more.)	Inspection	Monthly	7.2.2

Pressure gauge reading or indicator in the operable range or position. (Replace any extinguisher on which the gauge indicates "recharge".)	Inspection	Monthly	7.2.2
Examine for obvious physical damage, corrosion, leakage, or clogged nozzle. (Replace if physically damaged.)	Inspection	Monthly	7.2.2
Conductivity test on CO2 extinguisher hose assemblies has been performed within past year by a service company.	Inspection	Annually	7.4
Thorough external examination of the extinguisher's three basic elements: mechanical arts, extinguishing agent, and expelling means.	Inspection	Annually	7.3.2
Remove tamper seal of rechargeable fire extinguishers by operating to pull pin or locking device. Replace seal.	Test	Annually	7.3.2.2
CO2 fire extinguishers to be hydrostatically tested.	Test	Every 5 years	Table 8.3.1
Stored pressure fire extinguishers (dry chemical, halon, water) emptied and subjected to the applicable maintenance procedures. Non-rechargeable extinguishers to replace.	Inspection	Every 6 years	7.8.3
Hydrostatically test dry chemical and HALON extinguishers. (Halon extinguishers requiring maintenance are to be taken to a service company to permit recovery of the Halon. Halon extinguishers are to be replaced with another extinguisher having suitable suppressant.	Test	Every 12 years	Table 8.3.1

LIGHTNING PROTECTION SYSTEMS

Inspections, tests, and maintenance shall be performed in accordance with the manufacturer's instructions and NFPA 780. The following list highlights minimum requirements for the essential care of lightning protection systems, however, this list is not meant to replace manufacturer's instructions and updated code requirements. Many system components tend to lose their effectiveness over the years because of corrosion factors, roof repairs, weather related damage, and damage caused by lightning strikes. The physical, as well as the electrical characteristics, of the lightning protection system must be maintained to prevent building damage.

ITEM	ACTIVITY	FREQUENCY	NFPA 780
Inspection of surge suppression devices on communication and power lines entering the building.	Inspection	Semiannually	Annex D
System is in good repair. Inspection of all conductors and system components	Inspection	Annually, after lightning discharge, after roof repair.	Annex D
No loose connections	Inspection	Annually and after lightning discharge, after roof repair.	Annex D
No part of the system has been weakened by lightning discharge, corrosion or vibration.	Inspection	Annually and after lightning discharge, after roof repair.	Annex D
Down conductors and ground terminals are intact	Inspection	Annually and after lightning discharge, after roof repair.	Annex D
Conductors and system components are securely fastened to their mounting surfaces.	Inspection	Annually and after lightning discharge, after roof repair	Annex D
Additions and alterations are protected.	Inspection	Annually	Annex D
There has been no visual damage to surge suppression devices.	Inspection	Annually and after lightning discharge.	Annex D
Ground resistance test of the ground termination system and its individual ground electrodes if adequate disconnecting means have been provided electrical resistance of ground terminals (5 ohms or less).	Test	Every 3 years	Annex D
Continuity tests to determine if suitable equipotential bonding has been established for any new interior services or construction since last inspection.	Test	Every 3 years	Annex D
Electrical resistance of lightning protection system (5 ohms or less).	Test	Every 3 years	Annex D
Testing of surge suppression devices to determine effectiveness compared with similar new devices.	Maintenance	Every 3 years	Annex D
Refastening and tightening of all components, conductors, clamps, and splicers.	Maintenance	Annually	Annex D

Attachment 17

PAINT SPRAY BOOTHS

Inspections and maintenance of paint spray booth areas shall be performed in accordance with NFPA 33. The following list highlights minimum requirements for safe paint spray operations.

ITEM	ACTIVITY	FREQUENCY	NFPA 33
Keep spray areas free of combustible deposits. Remove accumulation of combustible residue on booths, ducts, duct discharge points, sprinkler heads.	Inspection/maintenance	Varies (dependent on frequency of spraying)	10.2
Inspect overspray collector filters. Replace/clean filters prior to excessive airflow restriction.	Inspection/maintenance	Daily	10.5
Metal waste cans with lids are being used for rags and waste.	Inspection	Monthly	10.6
Electric motors and fan bearing are not overheating.	Inspection/maintenance	Semiannually	7.11
Fan blades are in alignment.	Inspection/maintenance	Semiannually	7.11

NICET Certification

It is recommended that all personnel that are performing ITM on fire alarm and fire suppression systems be certified by the National Institute for Certification in Engineering Technologies (NICET) as follows:

(1) ITM on fire alarm systems is to be performed by technicians NICET certified for fire alarm systems as follows:

(a) NICET Level III or IV - Technicians working independently and lead technician on a working team.

(b) NICET Level II - Technicians working under daily supervision of a technician certified as NICET Level III or higher.

(c) NICET Level I – Technicians working under continuous supervision of a technician certified as NICET Level III or higher.

(2) ITM on water-based fire suppression systems is to be performed by technicians NICET certified for water-based fire suppression systems as follows:

(a) NICET Level III or IV - Technicians working independently and lead technician on a working team.

(b) NICET Level II - Technicians working under daily supervision of a technician certified as NICET Level III or higher.

(c) NICET Level I – Technicians working under continuous supervision of a technician certified as NICET Level III or higher.

(3) ITM on special hazard suppression systems is to be performed by technicians NICET certified for special hazards as follows:

(a) NICET Level III or IV - Technicians working independently and lead technician on a working team.

(b) NICET Level II - Technicians working under daily supervision of a technician certified as NICET Level III or higher.

(c) NICET Level I – Technicians working under continuous supervision of a technician certified as NICET Level III or higher.

It is recommended that all personnel that are performing ITM on pre-engineered suppression systems be certified by the manufacturer of the system. Certified by state or local authority; and trained and qualified personnel employed by an organization listed by a national testing laboratory for the servicing of specific life safety systems.

Certain local jurisdictions may require varying level of continuing education to maintain recognized journeyman/craftsman-level qualifications.