TJC and CMS
NFPA Requirements for Testing Fire Alarm Equipment

<table>
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<tr>
<th>TJC EP</th>
<th>NFPA Requirement</th>
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| 1      | **NFPA 72(1999) Table 7-2.13.h.2-5**  
2. High- or Low-Air Pressure Switch - Switch shall be operated. Receipt of signal obtained where the required pressure is increased or decreased a maximum 10 psi (70 kPa) from the required pressure level shall be verified.  
3. Room Temperature Switch - Switch shall be operated. Receipt of signal to indicate the decrease in room temperature to 40°F (4.4°C) and its restoration to above 40°F (4.4°C) shall be verified.  
4. Water Level Switch - Switch shall be operated. Receipt of signal indicating the water level raised or lowered 3 in. (76.2 mm) from the required level within a pressure tank, or 12 in. (305 mm) from the required pressure level shall be verified.  
5. Water Temperature Switch - Switch shall be operated. Receipt of signal to indicate the decrease in water temperature to 40°F (4.4°C) and its restoration to above 40°F (4.4°C) shall be verified. |
| 2A     | **NFPA 72(1999) Table 7-2.13.h.1**  
1. Control Valve Switch - Valve shall be operated and signal receipt shall be verified to be within the first two revolutions of the hand wheel or within one-fifth of the travel distance, or per the manufacturer’s specifications. |
| 2B     | **NFPA 72(1999) Table 7-2.13.i**  
1. Mechanical, Electrosonic, or Pressure-Type Waterflow Device - Water shall be flowed through an inspector’s test connection indicating the flow of water equal to that from a single sprinkler of the smallest orifice size installed in the system for wet-pipe systems, or an alarm test bypass connection for dry-pipe, pre-action, or deluge systems in accordance with NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*.  
**NFPA 25(1998) 9-2.7 Waterflow Alarm.**  
All waterflow alarms shall be tested quarterly in accordance with the manufacturer’s instructions.  
**NFPA 25(1998) 2-6.2**  
Initiation of the alarm signal shall occur within 90 seconds of waterflow at the alarm-initiating device when flow occurs that is equal to or greater than that from a single sprinkler of the smallest orifice size installed in the system. Movement of water due to waste, surges, or variable pressure shall not be indicated. |
|        | **NFPA 72(1999) Table 7-2.2**  
Duct Det -13.g.4. Duct Type - Air duct detectors shall be tested or inspected to ensure that the device will sample the airstream. The test shall be made in accordance with the manufacturer’s instructions.  
**EMRD - 13.a.1-2a. Electromechanical Releasing Device**  
1. Nonrestorable-Type Link - Correct operation shall be verified by removal of the fusible link and operation of the associated device. Any moving parts shall be lubricated as necessary.  
2. Restorable-Type Link* - Correct operation shall be verified by removal of the fusible link and operation of the associated device. Any moving parts shall be lubricated as necessary.  
1. Fixed-Temperature, Rate-of-Rise, Rate-of Compensation, Restorable Line, Spot Type (excluding Pneumatic Tube Type) - Heat test shall be performed with a heat source per the manufacturer’s recommendations for response within 1 minute. A test method shall be used that is recommended by the manufacturer or other method shall be used that will not damage the nonrestorable fixed-temperature element of a combination rate-of-rise/fixed-temperature element.  
2. Fixed-Temperature, Nonrestorable Line Type - Heat test shall not be performed. Functionality shall be tested mechanically and electrically. Loop resistance shall be measured and recorded. Changes from acceptance test shall be investigated.  
3. Fixed-Temperature, Nonrestorable Spot Type - After 15 years from initial installation, all devices shall be replaced or two detectors per 100 shall be laboratory tested. The two detectors shall be replaced with new devices. If a failure occurs on any of the detectors removed, additional detectors |
shall be removed and tested to determine either a general problem involving faulty detectors or a localized problem involving one or two defective detectors. If detectors are tested instead of replaced, tests shall be repeated at intervals of 5 years.

4. Nonrestorable (General) - Heat tests shall not be performed. Functionality shall be tested mechanically and electrically.

5. Restorable Line Type, Pneumatic Tube Only Heat tests shall be performed (where test chambers are in circuit) or a test with pressure pump shall be conducted.

Pull Stat - 13.e. Fire Alarm Boxes - Manual fire alarm boxes shall be operated per the manufacturer’s instructions. Key-operated presignal and general alarm manual fire alarm boxes shall both be tested.

Smoke Det - 13.g.1-3 & 5-6

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<td><strong>NFPA 72(1999)</strong></td>
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<td>7-2.2.14. Alarm Notification Appliances</td>
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<tr>
<td>a. Audible Sound pressure level shall be measured with sound level meter meeting ANSI S1.4a, <em>Specifications for Sound Level Meters</em>, Type 2 requirements. Levels throughout protected area shall be measured and recorded.</td>
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<tr>
<td>b. Audible Textural Notification Appliances (Speakers and other Appliances to Convey Voice Messages) Sound pressure level shall be measured with sound level meter meeting ANSI S1.4a, <em>Specifications for Sound Level Meters</em>, Type 2 requirements. Levels throughout protected area shall be measured and recorded. Audible information shall be verified to be distinguishable and understandable.</td>
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<tr>
<td>c. Visible Test shall be performed in accordance with the manufacturer’s instructions. Device locations shall be verified to be per approved layout and it shall be confirmed that no floor plan changes affect the approved layout.</td>
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<td><strong>7-2.2.16. Supervising Station Fire Alarm Systems — Transmission Equipment</strong></td>
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<tr>
<td>a. All Equipment Test shall be performed on all system functions and features in accordance with the equipment manufacturer’s instructions for correct operation in conformance with the applicable sections of Chapter 5. Initiating device shall be actuated. Receipt of the correct initiating device signal at the supervising station within 90 seconds shall be verified. Upon completion of the test, the system shall be restored to its functional operating condition. If test jacks are used, the first and last tests shall be made without the use of the test jack.</td>
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<td>b. Digital Alarm Communicator Transmitter (DACT) Connection of the DACT to two separate means of transmission shall be ensured. <em>Exception: DACTs that are connected to a telephone line (number) that is also supervised for adverse conditions by a derived local channel.</em> DACT shall be tested for line seizure capability by initiating a signal while using the primary line for a telephone call. Receipt of the correct signal at the supervising station shall be verified. Completion of the transmission attempt within 90 seconds from going off-hook to on-hook shall be verified. The primary line from the DACT shall be disconnected. Indication of the DACT trouble signal at the premises shall be verified as well as transmission to the supervising station within 4 minutes of detection of the fault. The secondary means of transmission from the DACT shall be disconnected. Indication of the DACT trouble signal at the premises shall be verified as well as transmission to the supervising station within 4 minutes of detection of the fault. The DACT shall be caused to transmit a signal to the DACR while a fault in the primary telephone number is simulated. Utilization of the secondary telephone number by the DACT to complete the transmission to the DACR shall be verified.</td>
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<td>c. Digital Alarm Radio Transmitter (DART) The primary telephone line shall be disconnected. Transmission of a trouble signal to the supervising station by the DART within 4 minutes shall be verified.</td>
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<td>d. McCulloh Transmitter Initiating device shall be actuated. Production of not less than three complete rounds of not less than three signal impulses each by the McCulloh transmitter shall be verified. If end-to-end metallic continuity is present and with a balanced circuit, each of the following four transmission channel fault conditions shall be caused in turn, and receipt of correct signals at the supervising station shall be verified:</td>
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<td>(a) Open</td>
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<td>(b) Ground</td>
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<td>(c) Wire-to-wire short</td>
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If end-to-end metallic continuity is not present and with a properly balanced circuit, each of the following three transmission channel fault conditions shall be caused in turn, and receipt of correct signals at the supervising station shall be verified:
(a) Open
(b) Ground
(c) Wire-to-wire short
e. Radio Alarm Transmitter (RAT) A fault between elements of the transmitting equipment shall be caused. Indication of the fault at the protected premises shall be verified or it shall be verified that a trouble signal is transmitted to the supervising station.

5-2.2* The pertinent visual observations specified in the following checklists shall be performed weekly.

**5-2.2.1 Pump House Conditions.**
(a) Heat is adequate, not less than 40°F (4.4°C) [70°F (21°C) for pump room with diesel pumps without engine heaters].
(b) Ventilating louvers are free to operate.

**5-2.2.2 Pump System Conditions.**
(a) Pump suction and discharge and bypass valves are fully open.
(b) Piping is free of leaks.
(c) Suction line pressure gauge reading is normal.
(d) System line pressure gauge reading is normal.
(e) Suction reservoir is full.

**5-2.2.3 Electrical System Conditions.**
(a) Controller pilot light (power on) is illuminated.
(b) Transfer switch normal pilot light is illuminated.
(c) Isolating switch is closed — standby (emergency) source.
(d) Reverse phase alarm pilot light is off or normal phase rotation pilot light is on.
(e) Oil level in vertical motor sight glass is normal.

**5-2.2.4 Diesel Engine System Conditions.**
(a) Fuel tank is two-thirds full.
(b) Controller selector switch is in AUTO position.
(c) Batteries’ (2) voltage readings are normal.
(d) Batteries’ (2) charging current readings are normal.
(e) Batteries’ (2) pilot lights are on or battery failure (2) pilot lights are off.
(f) All alarm pilot lights are off.
(g) Engine running time meter is reading.
(h) Oil level in right angle gear drive is normal.
(i) Crankcase oil level is normal.
(j) Cooling water level is normal.
(k) Electrolyte level in batteries is normal.
(l) Battery terminals are free from corrosion.
(m) Water-jacket heater is operating.

**5-3.2 Weekly Tests.**
Qualified operating personnel shall be in attendance during the weekly pump operation.

5-3.2.1 A weekly test of electric motor-driven pump assemblies shall be conducted without flowing water. This test shall be conducted by starting the pump automatically. The pump shall run a minimum of 10 minutes.
*Exception: A valve installed to open as a safety feature shall be permitted to discharge water.*

5-3.2.4.1 Pump System Procedure.
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| 1 | (a) Record the system suction and discharge pressure gauge readings.  
(b) Check the pump packing glands for slight discharge.  
(c) Adjust gland nuts if necessary.  
(d) Check for unusual noise or vibration.  
(e) Check packing boxes, bearings, or pump casing for overheating.  
(f) Record the pump starting pressure.  
**5-3.2.4.2 Electrical System Procedure.**  
(a) Observe the time for motor to accelerate to full speed.  
(b) Record the time controller is on first step (for reduced voltage or reduced current starting).  
(c) Record the time pump runs after starting (for automatic stop controllers).  
**5-3.2.4.3 Diesel Engine System Procedure.**  
(a) Observe the time for engine to crank.  
(b) Observe the time for engine to reach running speed.  
(c) Observe the engine oil pressure gauge, speed indicator, water, and oil temperature indicators periodically while engine is running.  
(d) Record any abnormalities.  
(e) Check the heat exchanger for cooling waterflow.  |
| 2 | 7  
NFPA 25(1998) 6-3.5*  
High and low water level alarms shall be tested semiannually.  |
| 3 | 8  
NFPA 15(1998) 6-3.2  
The tank heating system, where provided, shall be tested prior to the heating season to make certain it is in the proper working order.  
**6-3.3**  
Low water temperature alarms, where provided, shall be tested monthly (cold weather only).  |
| 4 | 9  
A main drain test shall be conducted quarterly at each water-based fire protection system riser to determine whether there has been a change in the condition of the water supply piping and control valves.  
The main drain test is conducted in the following manner:  
(a) Record the pressure indicated by the supply water gauge.  
(b) Close the alarm control valve on alarm valves.  
(c) Fully open the main drain valve.  
(d) After the flow has stabilized, record the residual (flowing) pressure indicated by the water supply gauge.  
(e) Close the main drain valve slowly.  
(f) Record the time taken for the supply water pressure to return to the original static (nonflowing) pressure.  
(g) Open the alarm control valve.  |
| 5 | 10  
**9-7.1**  
Fire department connections shall be inspected quarterly. The inspection shall verify the following:  
(a) The fire department connections are visible and accessible.  
(b) Couplings or swivels are not damaged and rotate smoothly.  
(c) Plugs or caps are in place and undamaged.  
(d) Gaskets are in place and in good condition.  
(e) Identification signs are in place.  
(f) The check valve is not leaking.  |
(g) The automatic drain valve is in place and operating properly.

5-3.3 Annual Tests.

5-3.3.1* An annual test of each pump assembly shall be conducted under minimum, rated, and peak flows of the fire pump by controlling the quantity of water discharged through approved test devices. This test shall be conducted as described in 5-3.3.1(a), (b), or (c).

Exception*: If available suction supplies do not allow flowing of 150 percent of the rated pump capacity, the fire pump shall be operated at maximum allowable discharge. This reduced capacity shall not constitute a noncompliant test.

(a) Use of the pump discharge via the hose streams; pump suction and discharge pressures and the flow measurements of each hose stream shall determine the total pump output. Care shall be taken to prevent water damage by verifying there is adequate drainage for the high-pressure water discharge from hoses.

(b) Use of the pump discharge via the bypass flowmeter to drain or suction the reservoir; pump suction and discharge pressures and the flowmeter measurements shall determine the total pump output.

(c) Use of the pump discharge via the bypass flowmeter to pump suction (closed-loop metering); pump suction and discharge pressures and the flowmeter measurements shall determine the total pump output. Where the annual test is conducted periodically in accordance with 5-3.3.1(c), a test shall be conducted every 3 years in accordance with 5-3.3.1(a) or (b) in lieu of the method described in 5-3.3.1(c). Where 5-3.3.1(b) or (c) is used, the flowmeter shall be adjusted immediately prior to conducting the test in accordance with the manufacturer’s instructions. If the test results are not consistent with the previous annual test, 5-3.3.1(a) shall be used. If testing in accordance with 5-3.3.1(a) is not possible, a flowmeter calibration shall be performed and the test shall be repeated.

5-3.3.2 The pertinent visual observations, measurements, and adjustments specified in the following checklist shall be conducted annually while the pump is running and flowing water under the specified output condition.

5-3.3.2.1 At No-Flow Condition (Churn).

(a) Check the circulation relief valve for operation to discharge water. (See 9-5.5.)

(b) Check the pressure relief valve (if installed) for proper operation. (See 9-5.5.)

(c) Continue the test for 1/2 hour.

5-3.3.2.2 At Each Flow Condition.

(a) Record the electric motor voltage and current (all lines).

(b) Record the pump speed in rpm.

(c) Record the simultaneous (approximately) readings of pump suction and discharge pressures and pump discharge flow.

(d) Observe the operation of any alarm indicators or any visible abnormalities. (See 9-5.5.1.1.)

5-3.3.3 For installations having a device installed to control minimum suction pressure by throttling action, low suction pressure on the device (below set minimum value) shall be simulated while pumping at the rated flow. Throttling action shall be observed for any abnormality (e.g., cavitation, pressure surges, failure to throttle). The simulated low suction pressure on the device shall be removed and throttling action again shall be observed for any abnormality as the pump returns to full flow.

5-3.3.4
For installations having an automatic transfer switch, the following test shall be performed to ensure that the overcurrent protective devices (i.e., fuses or circuit breakers) do not open. Normal power failure shall be simulated while the pump is delivering peak power output to cause connection of the pump motor to the alternate power source. The pump’s peak power output shall be restored (if necessary). The simulated normal power failure condition then shall be removed, which, after a time delay, shall cause the reconnection of the pump motor to the normal power source.

**5-3.3.5**

Alarm conditions shall be simulated by activating alarm circuits at alarm sensor locations, and all such local or remote alarm indicating devices (visual and audible) shall be observed for operation.

**5-3.3.6 Safety.**

See 1-12.5 for safety requirements while working near electric motor-driven fire pumps.

**A-5-3.5.2**

Where comparing the test plot with the original acceptance test plot, it should be recognized that the acceptance test plot could exceed the minimum acceptable pump requirements as indicated by the rated characteristics for the pump. While a reduction in output is a matter of concern, this condition should be evaluated in light of meeting the rated characteristics for the pump. *See Figure A-5-3.5.2.*

**3-3.1 Flow Tests.**

3-3.1.1*

A flow test shall be conducted at the hydraulically most remote hose connection of each zone of a standpipe system to verify the water supply still adequately provides the design pressure at the required flow. Where a flow test of the hydraulically most remote outlet(s) is not practical, the authority having jurisdiction shall be consulted for the appropriate location for the test. A flow test shall be conducted every 5 years.


8-2* Inspection.

An inspection and servicing of the fire-extinguishing system and listed exhaust hoods containing a constant or fire-actuated water system shall be made at least every 6 months by properly trained and qualified persons.

A-8-2

It is recommended that such training and qualification be performed by the manufacturer of the equipment being inspected and serviced. The various electrical, mechanical, and filtration components of the systems should be inspected and tested as required to ensure that they continue to function according to original design.


5-2 Owner’s Inspection.

5-2.1

Inspection shall be conducted on a monthly basis in accordance with the manufacturer’s listed installation and maintenance manual or the owner’s manual. As a minimum, this “quick check” or inspection shall include verification of the following:

(a) The extinguishing system is in its proper location.
(b) The manual actuators are unobstructed.
(c) The tamper indicators and seals are intact.
(d) The maintenance tag or certificate is in place.
(e) No obvious physical damage or condition exists that might prevent operation.
The pressure gauge(s), if provided, is in operable range.

The nozzle blowoff caps are intact and undamaged.

The hood, duct, and protected cooking appliances have not been replaced, modified, or relocated.

If any deficiencies are found, appropriate corrective action shall be taken immediately.

Personnel making inspections shall keep records for those extinguishing systems that were found to require corrective actions.

At least monthly, the date the inspection is performed and the initials of the person performing the inspection shall be recorded. The records shall be retained for the period between the semiannual maintenance inspections.

5-3 Maintenance.

A trained person who has undergone the instructions necessary to perform the maintenance and recharge service reliably and has the applicable manufacturer’s listed installation and maintenance manual and service bulletins shall service the wet chemical fire extinguishing system 6 months apart as outlined in 5-3.1.1.

At least semiannually, maintenance shall be conducted in accordance with the manufacturer’s listed installation and maintenance manual. As a minimum, such maintenance shall include the following:

(a) A check to see that the hazard has not changed
(b) An examination of all detectors, the expellant gas container(s), the agent container(s), releasing devices, piping, hose assemblies, nozzles, signals, all auxiliary equipment, and the liquid level of all nonpressurized wet chemical containers
(c) Verification that the agent distribution piping is not obstructed
(d) Where semiannual maintenance of any wet chemical containers or system components reveals conditions such as, but not limited to, corrosion or pitting in excess of the manufacturer’s limits; structural damage or fire damage; or repairs by soldering, welding, or brazing; the affected part(s) shall be replaced or hydrostatically tested in accordance with the recommendations of the manufacturer or the listing agency. The hydrostatic testing of wet chemical containers shall follow the applicable procedures outlined in Section 5-5.
(e) All wet chemical systems shall be tested, which shall include the operation of the detection system signals and releasing devices, including manual stations and other associated equipment. A discharge of the wet chemical normally is not part of this test.
(f) Where the maintenance of the system(s) reveals defective parts that could cause an impairment or failure of proper operation of the system(s), the affected parts shall be replaced or repaired in accordance with the manufacturers’ recommendations.
(g) The maintenance report, with recommendations, if any, shall be filed with the owner or with the designated party responsible for the system.
(h) Each wet chemical system shall have a tag or label securely attached, indicating the month and year the maintenance is performed and identifying the person performing the service. Only the current tag or label shall remain in place.

Fixed temperature-sensing elements of the fusible metal alloy type shall be replaced at least annually from the date of installation. They shall be destroyed when removed.

The year of manufacture and the date of installation of the fixed temperature-sensing element shall be marked on the system inspection tag. The tag shall be signed or initialed by the installer.

Fixed temperature-sensing elements other than the fusible metal alloy type shall be permitted to remain continuously in service, provided they are inspected and cleaned or replaced if necessary in accordance with the manufacturers’ instructions every 12 months or more frequently to ensure proper operation of the system.
1-11 Inspection, Maintenance, and Instruction.
1-11.1* Inspection.
At least every 30 days, an inspection shall be conducted to assess the system's operational condition.
1-11.2 Hose Testing.
All system hose, including those used as flexible connectors, shall be tested at 2500 psi (17,239 kPa) for high-pressure systems, and at 900 psi (6205 kPa) for low-pressure systems. Hose shall be tested as follows:
(1) The hose shall be removed from any attachment.
(2) Hose for hand lines shall be checked for electrical continuity between couplings.
(3) The hose assembly shall then be placed in a protective enclosure designed to permit visual observation of the test.
(4) The hose shall be completely filled with water before testing.
(5) Pressure shall then be applied at a rate-of-pressure rise to reach the test pressure within 1 minute. The test pressure shall be maintained for 1 full minute. Observations shall then be made to note any distortion or leakage.
(6) If the test pressure has not dropped and if the couplings have not moved, the pressure shall be released. The hose assembly shall then be considered to have passed the hydrostatic test if no permanent distortion has taken place.
(7) Hose assembly passing the test shall be completely dried internally. If heat is used for drying, the temperature shall not exceed 150°F (66°C).
(8) Hose assemblies failing this test shall be marked and destroyed. They shall be replaced with new assemblies.
(9) Hose assemblies passing this test shall be suitably marked with the date of the test on the hose.
1-11.2.1 All system hose including those used as flexible connectors shall be tested every 5 years in accordance with
1-11.3* Maintenance.
1-11.3.1 A manufacturer's test and maintenance procedure shall be provided to the owner for testing and maintenance of the system. This procedure shall provide for the initial testing of the equipment as well as for periodic test inspection and maintenance of the system.
1-11.3.2 The following shall be verified by competent personnel at least annually using available documentation required in
1-11.3.3 A maintenance report with recommendations shall be filed with the owner.
1-11.3.4 Between the regular service contract maintenance or tests, the system shall be inspected visually or otherwise by approved or competent personnel who follow an approved schedule.
1-11.3.5 At least semiannually, all high-pressure cylinders shall be weighed and the date of the last hydrostatic test noted (see 1-9.5.1). If, at any time, a container shows a loss in net content of more than 10 percent, it shall be refilled or replaced.
1-11.3.6 At least weekly, the liquid level gauges of low-pressure containers shall be observed. If at any time a container shows a loss of more than 10 percent, it shall be refilled, unless the minimum gas...
requirements are still provided.
1-11.3.7*
Testing of heat, smoke, and flame detectors shall be in accordance with Chapter 7 of NFPA 72, *National Fire Alarm Code*.
1-11.3.8
These systems shall be kept in full operating condition at all times. Use, impairment, and restoration of this protection shall be reported promptly to the authority having jurisdiction. Any troubles or impairments shall be corrected at once by competent personnel.
1-11.4 Instruction.
Persons who inspect, test, maintain, or operate carbon dioxide fire-extinguishing systems shall be thoroughly trained in the functions they perform.

Chapter 4 Inspection, Maintenance, Testing, and Training
4-5 Maintenance.
4-2.1
DOT, CTC, or similar design Halon 1301 cylinders shall not be recharged without a retest if more than five years have elapsed since the date of the last test and inspection. The retest shall be permitted to consist of a complete visual inspection as described in the *Code of Federal Regulations*, Title 49, “Transportation,” Parts 170-190 and Subpart C, Section 173.34(e)(10), and Section 178.36 through 178.68. In Canada, the corresponding information is set forth in the Canadian Transport Commission’s *Regulations for the Transportation of Dangerous Commodities by Rail*.
4-3 Hose Test.
All system hoses shall be examined annually for damage. If visual examination shows any deficiency, the hose shall be immediately replaced or tested as specified in 4-3.1.
4-3.2
All hoses shall be tested every 5 years in accordance with 4-3.1.
4-4 Enclosure Inspection.
At least every 6 months the halon-protected enclosure shall be thoroughly inspected to determine if penetrations or other changes have occurred that could adversely affect halon leakage. Where the inspection indicates that conditions that could result in inability to maintain the halon concentration, they shall be corrected. If uncertainty still exists, the enclosures shall be retested for integrity.
4-5 Maintenance.
4-5.1
These systems shall be maintained in full operating condition at all times. Use, impairment, and restoration of this protection shall be reported promptly to the authority having jurisdiction.
4-5.2
Any troubles or impairments shall be corrected at once by competent personnel.
4-5.3
Any penetrations made through the halon-protected enclosure shall be sealed immediately. The method of sealing shall restore the original fire resistance rating and tightness of the enclosure.

**NFPA 10 (1998) 4-3 Inspection.**
4-3.1* Frequency.*
Fire extinguishers shall be inspected when initially placed in service and thereafter at approximately 30-day intervals. Fire extinguishers shall be inspected at more frequent intervals when circumstances require.
4-3.2* Procedures.*
Periodic inspection of fire extinguishers shall include a check of at least the following items:
(a) Location in designated place
(b) No obstruction to access or visibility
(c) Operating instructions on nameplate legible and facing outward
(d) * Safety seals and tamper indicators not broken or missing
(e) Fullness determined by weighing or “hefting”
(f) Examination for obvious physical damage, corrosion, leakage, or clogged nozzle
(g) Pressure gauge reading or indicator in the operable range or position
(h) Condition of tires, wheels, carriage, hose, and nozzle checked (for wheeled units)
(i) HMIS label in place

4-3.4 Inspection Recordkeeping.

4-3.4.1 Personnel making inspections shall keep records of all fire extinguishers inspected, including those found to require corrective action.

4-3.4.2 At least monthly, the date the inspection was performed and the initials of the person performing the inspection shall be recorded.

4-3.4.3 Records shall be kept on a tag or label attached to the fire extinguisher, on an inspection checklist maintained on file, or in an electronic system (e.g., bar coding) that provides a permanent record.

4-4* Maintenance.
4-4.1 Frequency.
Fire extinguishers shall be subjected to maintenance at intervals of not more than 1 year, at the time of hydrostatic test, or when specifically indicated by an inspection.

4-4.1.1 Stored-pressure types containing a loaded stream agent shall be disassembled on an annual basis and subjected to complete maintenance. Prior to disassembly, the fire extinguisher shall be fully discharged to check the operation of the discharge valve and pressure gauge. The loaded stream charge shall be permitted to be recovered and re-used, provided it is subjected to agent analysis in accordance with manufacturer’s instructions.

4-4.1.2* A conductivity test shall be conducted annually on all carbon dioxide hose assemblies. Hose assemblies found to be nonconductive shall be replaced. Carbon dioxide hose assemblies that pass a conductivity test shall have the test information recorded on a suitable metallic label or equally durable material that has a minimum size of 1/2 in. 3 in. (1.3 cm 7.6 cm). The label shall be affixed to the hose by means of a heatless process. The label shall include the following information:
(a) Month and year the test was performed, indicated by perforation, such as is done by a hand punch
(b) Name or initials of person performing the test, and the name of the agency performing the test

4-4.2* Procedures.
Maintenance procedures shall include a thorough examination of the three basic elements of a fire extinguisher:
(a) Mechanical parts
(b) Extinguishing agent
(c) Expelling means

Exception: During annual maintenance, it is not necessary to internally examine non-rechargeable fire extinguishers, carbon dioxide fire extinguishers, or stored-pressure fire extinguishers, except for those types specified in 4-4.1.1. However, such fire extinguishers shall be thoroughly examined externally in accordance with the applicable items of 4-4.2(a).

4-4.2.1 Seals or Tamper Indicators.
At the time of the maintenance, the tamper seal of rechargeable fire extinguishers shall be removed by operating the pull pin or locking device. After the applicable maintenance procedures are completed, a new tamper seal shall be installed.

4-4.4 Recordkeeping.
In addition to the required tag or label (see 4-4.4), a permanent file record should be kept for each fire extinguisher. This file record should include the following information, as applicable:
(a) The maintenance date and the name of person or agency performing the maintenance
(b) The date when last recharged and the name of person or agency performing the recharge
(c) The hydrostatic retest date and the name of person or agency performing the hydrostatic test
(d) Description of dents remaining after passing a hydrostatic test
(e) The date of the 6-year maintenance for stored-pressure dry chemical and halogenated agent types (See 4-4.3.)

As stated in Section 1-2, “Nothing in this standard shall be construed as a restriction on new technologies or alternative arrangements, provided that the level of protection as herein described is not lowered and is acceptable to the authority having jurisdiction.” It is recognized that an electronic bar coding system is often acceptable to the authority having jurisdiction in lieu of a tag or label for maintenance recordkeeping. Under special circumstances or when local requirements are in effect, additional information can be desirable or required.

A-4-4.4.1
Labels should be printed in black with a light blue background.


4.3* Occupant-Use Hose.

4.3.1 Occupant-use hose shall be inspected in accordance with Section 4.6 when it is placed in service.

4.3.2 In-service hose designed for occupant use only shall be removed and service-tested as specified in Chapter 7 at intervals not exceeding 5 years after the date of manufacturer and every 3 years thereafter.

4.3.3 When hose is taken out of service for testing, replacement hose shall be installed on the rack, reel, or storage area until the tested hose is returned to service.

4.3.4 In-service hose shall be unracked, unreeled, or unrolled and physically inspected as specified in Section 4.6 at least annually. The hose shall be reracked, rereeled, or rerolled so that any folds do not occur at the same position on the hose.

NFPA 25(1998) Table 3-2 and 3-2.3

Table 3-2.3 shall be used for the inspection, testing, and maintenance of all classes of standpipe and hose systems.
Table 3-1: Hose Test - 5 years/3 years - NFPA 1962

NFPA 80(2007) 19.4.1.1

19.4* Periodic Inspection and Testing.

19.4.1 Each damper shall be tested and inspected 1 year after installation.

19.4.1.1 The test and inspection frequency shall then be every 4 years, except in hospitals, where the frequency shall be every 6 years.

19.4.2 All tests shall be completed in a safe manner by personnel wearing personal protective equipment.

19.4.3 Full unobstructed access to the fire or combination fire/smoke damper shall be verified and corrected as required.

19.4.4 If the damper is equipped with a fusible link, the link shall be removed for testing to ensure full closure and lock-in-place if so equipped.

19.4.5 The operational test of the damper shall verify that there is no damper interference due to rusted, bent, misaligned, or damaged frame or blades, or defective hinges or other moving parts.

19.4.6 The damper frame shall not be penetrated by any foreign objects that would affect fire damper operations.
19.4.7 The damper shall not be blocked from closure in any way.
19.4.8 The fusible link shall be reinstalled after testing is complete.
19.4.8.1 If the link is damaged or painted, it shall be replaced with a link of the same size, temperature, and load rating.
19.4.9 All inspections and testing shall be documented indicating the location of the fire damper or combination fire/smoke damper, date of inspection, name of inspector, and deficiencies discovered.
19.4.9.1 The documentation shall have a space to indicate when and how the deficiencies were corrected.
19.4.10 All documentation shall be maintained and made available for review by the AHJ.

**NFPA 105(2007) 6.5.2**

6.5 Periodic Inspection and Testing.

6.5.1 Smoke dampers for dedicated and non-dedicated smoke control systems shall be inspected and tested in accordance with NFPA 92A, Standard for Smoke-Control Systems Utilizing Barriers and Pressure Differences.

6.5.2 Each damper shall be tested and inspected one year after installation. The test and inspection frequency shall then be every 4 years, except in hospitals, where the frequency shall be every 6 years.

6.5.3 Care shall be exercised that all tests are completed in a safe manner wearing the appropriate personal protective equipment.

6.5.4 Full unobstructed access to the damper shall be verified and corrected as required.

6.5.5 The damper shall be actuated and cycled as part of the associated smoke detector testing in accordance with NFPA 72, National Fire Alarm Code. Where a fusible link is installed on a combination fire/smoke damper, the fusible link shall be removed for testing the damper for full closure simulating a fire condition per the requirements and frequencies of 19.5.4 of NFPA 80, Standard for Fire Doors and Other Opening Protectives.

The text of 6.5.2 and 6.5.5 has been revised by a tentative interim amendment (TIA). See page 1.

6.5.6 The test shall be conducted with normal HVAC airflow.

6.5.7 The operation of the damper shall verify that there is no damper interference due to rust or bent, misaligned, or damaged frame or blades, or defective hinges or other moving parts.

6.5.8 The damper frame shall not be penetrated by any foreign objects that would affect proper fire damper operations.

6.5.9 The damper shall be verified to not be blocked from closure in any way.

6.5.10 The fusible link shall be reinstalled after testing is complete. If the link is damaged or painted, it shall be replaced with a link of the same size, temperature rating, and load rating.

6.5.11 All inspections and testing shall be documented indicating the location of the damper, date of inspection, name of inspector, and deficiencies discovered. The documentation shall have a space to indicate when and how the deficiencies were corrected.

6.5.12 All documentation shall be maintained by the property owner and available for review by the authority having jurisdiction.

<table>
<thead>
<tr>
<th>NFPA 90A(1999) 4-4.1 Testing</th>
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<tr>
<td>All automatic shutdown devices shall be tested at least annually.</td>
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<tr>
<th>NFPA 80(1999) 15-3.4.3</th>
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<tbody>
<tr>
<td>All horizontal or vertical sliding and rolling fire doors shall be inspected and tested annually to check for proper operation and full closure. Resetting of the release mechanism shall be done in accordance with the manufacturer’s instructions. A written record shall be maintained and shall be made available to the authority having jurisdiction.</td>
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<th>101(2000) 9.4.6</th>
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<tr>
<td><strong>9.4.6 Elevator Testing.</strong> Elevators shall be subject to routine and periodic inspections and tests as specified in ASME/ANSI A17.1, Safety Code for Elevators and Escalators. All elevators equipped with fire fighter service in accordance with 9.4.4 and 9.4.5 shall be subject to a monthly operation with a written record of the findings made and kept on the premises as required by ASME/ANSI A17.1, Safety Code for Elevators and Escalators.</td>
</tr>
</tbody>
</table>

| 8.11.2.2.6 Firefighters’ Emergency Operation. Firefighters’ emergency operation shall be tested to |
| 101(2000) 7.10.9.1 | 7.10.9.1 Inspection. Exit signs shall be visually inspected for operation of the illumination sources at intervals not to exceed 30 days. |