



**CHIEF'S REGULATION NO.4
Procedures &
Testing of
Fire Protection Equipment**

2014 Edition

LOS ANGELES FIRE DEPARTMENT
CHIEF'S REGULATION NO. 4 PROGRAM
TESTING OF FIRE PROTECTION EQUIPMENT

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SECTION 1 SCOPE

The provisions of this regulation shall govern the minimum requirements for the periodic testing and repair of Fire Protection systems and equipment. The type of systems and equipment addressed by this regulation include, but are not limited to Automatic Fire Sprinkler Systems, Supervising Station Alarm Systems, Elevator Emergency Service, Emergency and Standby Power Systems, Fire Alarm Systems (which includes Emergency Voice Fire Alarm Signaling Systems), Fire Escape Assemblies, Fire Hydrants (Private), Automatic Closing Fire Protection Assemblies, Stationary Fire Pumps, Gas Detection Systems, Pressure Regulating Valves, Refrigerant Discharge Systems, Smoke Management Systems, and Standpipe Systems. The intent is to ensure that this equipment is maintained in proper operating condition as accepted and properly installed, in accordance with the generally accepted practices, and the code in effect at the time of installation.

It is not the intent of this regulation to limit or restrict the use of other testing or maintenance methods that provide an equivalent level of system integrity and performance as detailed in this regulation, nor to require systems to be upgraded to current building codes, or evaluated for building or fire code compliance.

SECTION 2**DEFINITIONS****1. Addressable System:**

A Fire Alarm System with discrete identification that can have its status individually identified, or that is used to individually control other functions.

2. Alarm Signal:

A signal initiated by a fire alarm initiating device indicating an emergency requiring immediate action, such as a signal indicative of fire.

3. Analog System:

A system that transmits and receives signals indicating varying degrees of condition as contrasted with a conventional (basic fire alarm) initiation device, which can only indicate an on/off condition.

4. Annunciator:

A unit containing two or more indicator lamps, alphanumeric displays, or other equivalent means in which each indication provides status information about a circuit, condition, or location.

5. Approved:

A system or procedure acceptable to the "Authority Having Jurisdiction." (AHJ)

6. Authority Having Jurisdiction (AHJ):

The "authority having jurisdiction" is the organization, office, or individual responsible for approving equipment, an installation, or a procedure.

7. Automatic Closing Device (Fire Protective):

A device attached to a fire protection assembly that allows the assembly to close when activated as a result of heat, smoke, or other products of combustion.

8. Automatic Fire Extinguishing System:

An approved self-contained system of devices and equipment, which automatically detects a fire and discharges an approved fire extinguishing agent onto or in the area of a fire. As regulated by Division 5 and 141 of the Los Angeles Fire Code (Except Automatic Sprinkler Systems).

9. Automatic Fire Sprinkler Systems:

An approved integrated system of piping, valves, devices, automatic sprinkler heads and water supply which automatically detects a fire and discharges water in the area of the fire.

Automatic Fire Sprinkler Systems: (continued)

- (a) **Wet Pipe** A Sprinkler system employing automatic sprinklers attached to a piping system containing water and connected to a water supply so that water discharges immediately from sprinklers opened by heat from fire
- (b) **Dry pipe:** A system containing air or nitrogen under pressure, the release of which permits the water pressure to open a valve known as a dry pipe valve. The water then flows into the piping system and out the opened sprinklers.
- (c) **Pre-action:** A system containing air that may or may not be under pressure, with a supplemental detection system installed in the same areas as the sprinklers. Actuation of the detection system opens the valve that allows water to flow into the piping and to be discharged from any sprinklers that are open.
- (d) **Deluge:** A system employing open sprinklers attached to a piping system connected to a water supply through a valve that is opened by the operation of a detection system installed in the same areas as the sprinklers. When the valve opens, water flows into the system and discharges water from all sprinklers attached to the piping.

10. Automatic Initiating Device:

A device designed to detect the presence of fire or smoke and initiate an evacuation alarm.

SECTION 2**DEFINITIONS****11. Basic Fire Alarm:**

A conventional system of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiation devices and can only indicate an on/off condition.

12. Building Code Issues:

Any item outside the scope of the Chief's Regulation No. 4 testing requirements as indicated in Section IV of the F-340R (Fire Protection Equipment Performance Report) that requires follow-up from the Department of Building and Safety or LAFD Construction Services Unit to determine if an item or component was installed correctly or if additional installation is required.

13. Building Description:

Detailed information that is necessary to identify a building's occupancy; size, type, use and construction type.

14. Building Fire Control Room/Station: (FCR)

A specific room or area designated as the principal point of annunciation for the Fire Protective Signaling System and all associated equipment, systems and devices.

15. Certified Tester:

An individual certified by the Los Angeles Fire Department to perform testing of fire protection equipment and systems. The tester must be certified on the individual system for which he/she is testing.

NOTE: Companies are not certified. Only the individual Tester holds the certification.

16. Complex Fire Alarm System:

A system of electrical devices and circuits installed, arranged and maintained to monitor and transmit varying degrees of system status and conditions and is used to control numerous auxiliary fire life safety control functions which are typically found in High-rise and other large buildings

17. Defect: (Fire Protection System/Equipment Defect)

A problem with a fire protection system, equipment, or component that causes it to operate improperly as opposed to an item or condition that is not part of the fire protection system or equipment that may interfere with the intended effect of system.

18. Elevator, Automatic:

Elevators with automatic operation and power-operated hoistway doors and equipped with emergency operations "Phase I" recall and in most cases "Phase II" firefighter (override) emergency service.

19. Elevator Lobby Locking System:

An approved fail-safe method of locking elevator lobby doors that lead out of an elevator lobby.

20. Emergency Communication Systems "Two Way" (Firefighter Phones) and "One Way" Voice Evacuation**(a) Fire Department Communication System:**

A two-way sound-powered or amplified telephone system capable of communicating between the building fire control room/station and all required locations in the building

(b) Emergency Voice Alarm Signaling System:

A one-way system providing communication between the building fire control room/station and all areas of the building where provided.

(c) Required Telephone:

A telephone for fire department use with controlled access to the public telephone system when required. (Verified during fire department fire life/safety inspection).

Note: Emergency Communications Systems are tested during the annual fire alarm test

SECTION 2**DEFINITIONS****21. Emergency and Standby Power Systems:**

Special electrical wiring and equipment, which are required to be operational during interruptions of the normal electrical supply to the building,

22. Emergency Power Systems:

The wiring, fixtures, equipment and luminaries in or on a building, which are required to be automatically energized from an alternate on-site electrical supply within 10 seconds after failure of the normal electrical supply.

- (a) Exit signs and exit illumination
- (b) Elevator car lighting
- (c) Fire protective signaling systems

23. Standby Systems:

The part of the normal electrical system which is required to be automatically transferred to, and energized from, an alternate on-site electrical supply, within 60 seconds after failure of the normal electrical supply.

- (a) Electrically driven fire pumps
- (b) Smoke management systems
- (c) Elevators designated for fire department and emergency use
- (d) Lighting circuits supplying elevator lobbies, Building Fire Control Room/Station, generator, and fire pump rooms
- (e) Exterior window washing equipment, including equipment listed in Emergency Power Systems

NOTE: Not all buildings have the equipment shown in the list above. Check the single line diagram to verify all equipment connected to the emergency standby system

24. Fire Department Connection:

A connection through which the Fire Department can pump water into a Standpipe or Automatic Sprinkler System.

25. Fire Escape Assembly:

A secondary exit attached to the exterior wall of a building that is two or more stories in height and which provides emergency egress from the building. Fire escape assemblies shall include stairs, railings, landings, ladders and all associated safety equipment

26. Fire Hydrant :

A connection to a water main for the purpose of supplying water to fire hoses or other fire protection apparatus.

27. Fire Inspection:

A fire /life safety tour of a building performed by Fire Department personnel to ensure fire/life safety compliance with the fire code which may also reveal non compliance with other codes such as Building and Safety, Health and Safety etc...

28. Fire Protection Assembly, - Automatic Closing:

A rated fire assembly, which is maintained in a normally open position including all required hardware, anchorage, frames, sills, and is equipped with an automatic closing device.

29. Fire Protection Assembly: Self-Closing: (Fire department inspection not reg.4 tested)

A rated fire assembly, which is maintained in a normally closed position and equipped with an approved closing device to ensure closing and latching upon release.

30. Fire Protective Signaling System/ Fire Alarm:

A system of electrical devices and circuits, or mechanical devices, installed, arranged and maintained to monitor, transmit, or emit, an audible and/or visual signal indicating an emergency requiring immediate action to safeguard life and property from fire.

SECTION 2**DEFINITIONS****31. Fire Pump (Stationary):**

An assembly that provides water flows and pressure to fire protection equipment. The fire pump assembly includes; the water supply, suction and discharge piping, valves, pump and pump driver, fire pump controller, and all auxiliary equipment appurtenant thereto.

32. Fire Pump Controller:

The cabinet, motors, starter, circuit breaker and disconnects switch, and other control devices for the control of electric motors and internal combustion engines that drive fire pumps.

33. Foam-Water Sprinkler System:

A foam-water sprinkler system is a special system that is pipe connected to a source of foam concentrate and to a water supply and equipped with appropriate discharge devices for discharging an extinguishing agent over the area to be protected.

34. Gas Detection Systems:

A system with all associated equipment and devices capable of continuous monitoring for the presence of a hazardous gas with an audible visual alarm to alert occupants that a hazardous atmosphere exists.

35. High-Rise Building, Existing:

Buildings more than 75 feet (23m) in height (Except hospitals). Building height shall be measured from the lowest level of Fire Department access to the floor of the highest level used for human occupancy and is subject to the provisions of Title 24 of the California Code of Regulations. [Such building will generally have been constructed prior to July 1, 1974.]

36. High-Rise Building, New:

A building more than 75 feet (23m) in height (Except hospitals). Building height shall be measured from the lowest level of Fire Department access to the floor of the highest level used for human occupancy and is subject to the provisions of Title 24 of the California Code of Regulations and Division 118 of the Los Angeles Fire Code. [Such building will generally have been constructed after July 1, 1974.]

37. Hose Station:

A 1½ inch hose connection supplied from a sprinkler system or Class II Wet Standpipe system.

NOTE: Hose connections supplied from a sprinkler system shall not be required to meet the flow requirements of class II hose systems as defined by NFPA 14.

38. Initial Test (Recurring Test)

The initial Reg.4 test is normally a test of the entire system. This test is recurring test required to be performed on an anniversary test date at one or five year intervals depending on the required testing frequency per system. The test results shall show the overall operational status of the entire system.

39. Inspection:

A visual examination of a system or portion thereof to verify that it appears to be in operating condition and that components are in place and in the proper position, or state.

40. LISTED:

Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and whose listed states either that the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

41. Maintenance:

Repair and service, including periodically recurrent inspections and tests required to keep the Fire Protection Equipment in operative condition at all times.

SECTION 2**DEFINITIONS****42. Manual Pull Station:**

A manually operated device used to initiate an alarm to a fire protective signaling system.

39 Performance Certification:

An approved LAFD testing procedure, which allows the Certified Tester to verify that a fire protection system performs as approved and installed in accordance with the code in effect at the time of installation.

40. Pressure Regulating Device:

A device designed for the purpose of reducing, regulating, controlling, or restricting water pressure. Examples include pressure reducing valves, pressure control valves, and pressure restricting devices.

41. Refrigerant Discharge System:

A system designed for manual discharge of a refrigerant agent into the atmosphere or a sewer system.

42. Re-Test: (Partial test)

F-340RT Fire Protection Equipment Performance Retest Report Coversheet is required to be attached to a copy of Section III "List of Defects" from the initial report

All System defects shall be re-tested by a LAFD Certified Tester and submitted to the fire department on the F-340RT Fire Protection Equipment Performance **Retest** Report after all valid repairs have been made. Only the items in the "List of Defects" in section III of the initial F-340R Fire Protection Equipment Performance Report are required to be re-tested. **The entire system is not required to be retested.** If a new problem is found which is not listed in the "List of Defects" The certified tester is required to contact the fire station or fire prevention unit responsible for the building fire prevention and be guided by their instructions.

New items are not permitted to be added to section III after the initial test has been signed by the initial Tester of the system. Where the Re-tester discovers items in section III that are outside the scope of or not required by the reg. 4 program the Re-tester shall not perform a re-test and shall contact the fire station or fire prevention unit responsible for the building fire prevention to have the initial report amended.

In some cases repairs and retests on defects are not performed within 30 days. The date that the items in the list of defects pass shall not change the "Initial Test" anniversary date. A complete test of the entire system shall be performed on or by the next anniversary date in all cases.

In extreme cases where re-test date is scheduled close to the Initial test date, the Reg. 4 Tester shall contact the Fire Inspector or fire station responsible for compliance and be guided by their instructions

NOTE: All items in Section III are required to be repaired prior to fire department submittal. The Tester that performed the initial test is not required to perform the re-test. Re-tests may be performed by any Certified Tester who holds the appropriate certification for the type system to be tested.

43. Sequence of Operation (Matrix):

An approved series of auxiliary control functions produced by the output of a Fire Alarm Control Unit (FACU) when initiated by of a fire alarm initiating device. (See Appendix)

SECTION 2

DEFINITIONS

44. Shall: A mandatory requirement.

45. Should: A recommendation or that which is advised, but not required.

46. Smoke Management Systems:

- (a) **Airflow Method:** A method of controlling smoke from migrating through fixed openings between smoke control zones using high air velocity through the opening(s) towards the fire zone of origin. The minimum average velocity cannot exceed 200 feet per minute is measured using an anemometer.
- (b) **Building Emergency Smoke Evacuation System:** A ventilation system capable of providing exhaust from specified areas of a building at a rate of not less than six changes of air per hour and releasing directly to the outside atmosphere without re-circulating exhaust to other areas of the building.
- (c) **Exhaust Method:** A method of controlling smoke in large spaces, such as malls and atria through the use of mechanical smoke removal systems. Testing is accomplished with the generally accepted practices to measure air and velocity.
- (d) **Mechanically Ventilated Smoke-proof Enclosure:** An enclosed stairway with vestibules equipped with a ventilation system designed to maintain a smoke-free atmosphere.
- (e) **Pressurization Method:** A method of controlling smoke by containing it within the zone of fire origin by maintaining a minimum 0.05 inch water gauge positive pressure differential between adjacent zones and the zone of fire origin. Testing is accomplished with the use of a magnehelic gauge or incline manometer between adjacent smoke control zones.
- (f) **Pressurized Stair-shaft Ventilation System:** An enclosed stairway equipped with a ventilation system designed to maintain a uniform air velocity discharging to the outside atmosphere while maintaining a positive pressure in the stair-shaft relative to the adjacent areas during fire conditions.

47. Standpipe Systems:

A wet or dry system of piping, valves, hose outlets, and associated equipment installed in a building or structure with outlets located in such a manner that water can be discharged through hose and nozzles. Standpipe systems are classified as follows:

- (a) **Class I:** A standpipe system with or without a direct connection to a water supply equipped with 2½-inch hose outlets for use by Fire Department or trained personnel.
- (b) **Class II:** A standpipe system directly connected to a water supply and equipped with 1½-inch hose outlets with hose and nozzle intended for use by building occupants or by the fire department during initial response.

NOTE: 1½-inch hose connections supplied from a sprinkler system shall not be required to meet the requirements of class II hose systems as defined by NFPA 14.

SECTION 2**DEFINITIONS**

- (c) **Class III Combination:** (A combination of Class I wet and Class II wet systems)
A standpipe system directly connected to a water supply and equipped with 1½-inch hose outlets with hose and nozzle intended for use by trained building occupants or by the fire department during initial response and also equipped with 2½-inch hose outlets for use by Fire Department or trained personnel. Hose connections for Class III systems may be made through 2½-inch hose valves equipped with easily removable 2½-inch by 1½-inch reducers.
 - (d) **Combined Standpipe and Sprinkler :** A system of piping directly connected to a water supply which serves 2½-inch hose outlets equipped with 2½-inch by 1½-inch reducers for use by Fire Department or trained personnel and also supplies water to an Automatic Sprinkler System.
 - (e) **Class H:** A standpipe system directly connected to a water supply equipped with 1½-inch hose outlets with hose and nozzle located on two sides of a helicopter landing site intended for use by Fire Department or trained personnel in fighting fires on helicopter landing sites.
- 48. Supervising Station Alarm System:**
A system consisting electrically operated circuits and equipment, which transmits alarms, trouble and supervisory signals automatically to an approved Supervising Station Service having competent and experienced operators and technicians who, upon receipt of a signal shall take such action as required by the code. Such service is to be controlled and operated by a person, firm, or corporation whose business is to provide, maintain, and monitor supervised fire protection systems.
- 49. Supervisory Signal:**
A signal indicating the need for action in connection with the supervision of guard tours, the fire suppression systems or equipment or the maintenance features of related systems.(AKA tamper or off normal condition or state)
- 50. System Description:**
A concise and approved description of a system, equipment or device as described by the Manufacturer's Operating Manual or designer
- 51. Test:** (Chief's Regulation No. 4 Performance Test)
A procedure used to verify that systems and/or equipment operates as intended, and originally accepted and installed in accordance with the applicable codes and standards at the time of installation.
- 52. Trip Test**
- (a) Partial Flow of a Dry pipe, Pre-action or Deluge Valve with the control valve partially open to ensure the valve will open as designed; .but only allows water to enter the vertical portion of the sprinkler riser piping
 - (b) Full Flow of a Dry pipe, Pre-action or Deluge Valve with the control valve fully open to ensure the valve will open as designed; and may allow water to enter the entire sprinkler system.
- 53. Trouble Signal:**
A signal initiated by the Fire Alarm System, indicative of a fault or abnormal condition of a monitored circuit or component.

SECTION 2**DEFINITIONS****54. Two Way and One Way Emergency Communication System:**

- (a) **Fire Department Communication System:** (Firefighter Phones) A two-way sound-powered or amplified telephone system capable of communicating between the building fire control room/station and all required locations in the building
- (b) **Emergency Voice Alarm Signaling System:** One-way system providing communication between the building fire control room/station and all areas of the building where provided. The alarm override feature briefly silences an alarm in order to communicate to all occupants or selected floors/areas of a building.
- (c) **Required Telephone:** A telephone for fire department use with controlled access to the public telephone system (Verified during LAFD fire inspection).

54. Wet Stacking:

The presence of unburned fuel, carbon, or both in the exhaust system of a diesel engine.

SECTION 3 GENERAL REQUIREMENTS

A. Testing Intervals:

(1) Annual Test (Initial Test): A full and complete test of the entire system is required within the same month each year. Also known as the system anniversary test date.

- [1] **Elevators, Automatic Emergency Operations Phase I and/or Phase II**
- [2] **Emergency and Standby Power Systems**
- [3] **Emergency Voice Alarm Signaling Systems**
- [4] **Fire Department Communication Systems**
- [5] **Fire Escape Assemblies**
- [6] **Fire Hydrants (Private)**
- [7] **Fire Protection Automatic Closing Assemblies, (fire doors)**
- [8] **Fire Alarm Systems (Fire Protective Signaling)**
- [9] **Fire Pumps**
- [10] **Gas Detection Systems.(Methane)**
- [11] **Hose Valve Pressure Reducing Valves (PRV) (Static/Partial Flow Maintenance)**
- [12] **Smoke Management Systems**
- [13] **Supervising Station Alarm Systems**
- [14] **Automatic Sprinkler -Partial Flow Trip Test - Pre-action, Deluge, and Dry Pipe Valves**

(2) Five Year Test: (Initial Test): A full and complete test of the entire system is required within the same month each year. Also known as the system anniversary test date.

- (a) **Automatic Fire Sprinkler System**
- (b) **Automatic Fire Sprinkler - Full Flow Trip Test - Pre-action, Deluge, and Dry Pipe valves**
- (c) **Standpipe Systems.**
- (d) **Hose Valve Pressure Regulating Valves (PRV) (Full Flow Test)**
- (e) **Refrigerant Discharge Systems**

The Chief has the authority to require a test at shorter intervals when an inspection by the Chief indicates there is substantial reason to believe that the equipment, system, or device would fail to operate properly in an emergency.

B. Fire Department Notification:

- (1) The appropriate local Fire Station or Fire Prevention Unit (responsible for compliance and record retention) shall be notified by the Chief's Regulation No.4 Certified Tester at least two complete working days prior to the performance of any required test or retest in order that the Chief or his representative may observe the test.

NOTE: The day of notification and the day of the test are not included in the 2 day minimum.

- (2) On the day of the test, Metro Fire Communications (Fire Dispatch) shall be notified prior to activating any signals that will initiate evacuation or dispatch the Fire Department. The Fire Department shall be notified within 24 hours upon discovery of any fire protection equipment or system that is determined to be inoperable which causes an immediate threat to life and property.

SECTION 3 GENERAL REQUIREMENTS

- (3) When it is determined that the fire protection equipment, system, or device is operable (with or without system defects), the Certified Tester shall attest to its condition to the Chief on approved F-340R Fire Protection Performance Report forms within seven days after initial test or retest.

C. General Test Information:

(1) Notification:

- (a) Notify all concerned agencies i.e. LAFD Metro Fire Communications Dispatch and the Supervising Monitoring Station (prior to and at the conclusion of all testing of fire protection equipment, systems, or devices).
- (b) Notify all building occupants prior to, during and at the conclusion of all testing of all supervised and/or local fire protection equipment, systems, or devices, which may cause concern to such occupants.

- (2) **Fire/Life Safety System Description Procedures:** Used to determine the status of a system as intended according to the approved design standard for a particular system, equipment or device as may be necessary to carry out the purpose and intent of this regulation. The Chief shall be consulted and approval obtained for any alternative programs or procedures.

- (3) **Fan Motors:** When testing systems, equipment, or devices that will activate fans of emergency smoke management systems, determine proper automatic operation by actuation of each type of device in each zone, then disconnect power to fans and continue testing. Constant on/off operation of fans could damage motors. At conclusion of testing, return fan motors to their normal mode.

- (4) **Electrical Thermal Links:** Test electrical thermal links for continuity only.

- (5) **Fire Pumps:** When testing water flow alarms or pressure regulating devices on systems equipped with fire pumps, fire pumps may be placed in the on position to prevent pumps from cycling on and off. At the conclusion of the test, return pumps to the automatic mode.

D. Repairs/Retest:

A permit from the Department of Building and Safety and/or the Fire Department may be required for repairs of equipment, systems or devices in accordance with the Los Angeles Building and Fire Codes. A licensed contractor with the appropriate license shall perform all required work. When required, all permits shall be obtained prior to the start of repairs of Chief's Regulation No. 4 defects.

When any fire protection equipment, system, or device is inoperable or defective, the owner or the owner's agent shall commence repairs of the deficiencies forthwith. Such repair shall be completed as soon as possible, but in every case within 30 days of the initial test. At the completion of repairs, the equipment, system, or device shall be re-tested to determine that it is fully operable.

Fire department personnel shall follow-up on defects that are not repaired within the 30 day time frame.

The Fire Department shall receive the repair and retest report from a Certified Tester within seven days on the approved Fire Department F-340RT Retest Form.

SECTION 3 GENERAL REQUIREMENTS

Re-test: A retest of all the system components shown in the "List of Defects from the Initial Test. Prior to retesting, all items in the list are required to be repaired by a licensed contractor with a valid contractors license under permit from the authority having Jurisdiction for the type of repair (where required) Repairs and re-tests are required to be completed within 30 days of the date of the Initial Test .All re-tests are required to be performed by any Certified Tester. who holds the proper testing certification

NOTE: Only the items in the List of Defects are required to be tested except in extreme cases)

These intervals are the **MAXIMUM** allowable time between tests. It is important to note that at the Fire Departments discretion more frequent testing may be required.

D. Fire Hose Connections:

- (1) All fire hose connections shall be equipped with American National Standard hose coupling screw threads as specified in NFPA - 1963, "**Standard for Screw Threads and Gaskets for Fire Hose Connection,**" unless approved by the Chief.
- (2) All Fire Department inlets and outlets shall be equipped with approved plugs or caps.

NOTE: Plugs or caps shall inspected by Fire Department personnel during the appropriate Fire Department inspection cycle. Certified Testers shall list missing plugs or caps in Section V (Supplemental Information on F-340R Fire Protection Performance Report) for fire inspection follow-up

F. Gauges:

Gauges shall be replaced; when defective, every 5 years, or tested by comparison with a calibrated gauge. Gauges not accurate to within 3 percent of the full scale shall be re-calibrated or replaced.

SECTION 3 GENERAL REQUIREMENTS


G. System Tagging:

System tags shall be placed on all systems tested by the "Certified Tester" and shall bear the following information machine printed on them.

Check F-340R Performance Report to Verify Test Results

- (1) The words "Do not Remove by order of the Fire Chief"
- (2) Concern Name
- (3) Concern Address
- (4) Contractors license number or State Fire Marshals "A" license number
- (5) Certificate of Fitness Number
- (6) Date system passed the certification test
- (7) Signature of Certified Tester
- (8) Seal of the City of Los Angeles
- (9) Type of system tested

The system tags shall be five and one-half inches (5-1/2) in length and two and three-fourths inches (2-3/4) in width. The following sample shall be used for all tags.

Check F-340R Performance Report to Verify Test Results																
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC				
DO NOT REMOVE BY ORDER OF THE FIRE MARSHAL	2013		2014			2015		2016			2017					
	<input type="checkbox"/> Annual <input type="checkbox"/> 5 Year		Company Name _____ Address/Phone # _____ State Lic. # _____													
			<input type="checkbox"/> Auto Sprinklers <input type="checkbox"/> Standpipe Class: _____ <input type="checkbox"/> Comb Standpipe/Sprinkler <input type="checkbox"/> Fire Pump <input type="checkbox"/> Fire Alarm <input type="checkbox"/> Supervising Station <input type="checkbox"/> Emergency Power <input type="checkbox"/> Smoke Evacuation <input type="checkbox"/> Auto Elevators Phase(s): _____ <input type="checkbox"/> Auto Closing Fire Doors <input type="checkbox"/> Fire Escapes <input type="checkbox"/> Methane <input type="checkbox"/> Hose Valve PRV's													
	REG 4 NO.		1.1.1		Signature _____											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

SECTION 4 GENERAL TEST PROCEDURES

A. Automatic Closing Assemblies: Fire Protection/Fire Doors:

NOTE: The following Automatic Closing Fire Assemblies shall be tested by persons qualified to do the work in order to determine their proper operating and reset condition in accordance with NFPA-80. The average closing speed shall be not less than six inches per second, (not including any initial delay time), and not more than twenty-four inches per second.

- (1) **Swinging Fire Door:** Release the hold-open device by unfastening the most distant fusible link or by de-energizing the smoke-actuated hold-open device. The door must close the opening completely and latch.
- (2) **Sliding Doors on an Inclined Track:** Unfasten the most distant fusible link to release the suspended weight to allow the door to travel down the inclined track to the closed position. The door must close completely and be held firmly in place by the binders. Doors in pairs must butt together without gaps or excessive offset from each other.
- (3) **Sliding Doors on a Level Track:** Unfasten the most distant fusible link supporting the closing weight. As the closing weight drops, the door must cover the opening completely.
- (4) **Rolling Steel Doors:** Unfasten the restraining cable or most distant fusible link and drop the restraining trigger quickly. The door must cover the opening completely.
- (5) **Telescoping Vertically Sliding Doors:** Unfasten the small counterweight. The large counterweight must operate the door, covering the opening completely.
- (6) **Vertical Sliding Doors:** Unfasten the most distant fusible link that supports the suspended weight. The door must cover the opening completely.
- (8) **Ventilation and Air Duct Dampers in non-sprinklered buildings:** Disconnect the fusible link or actuating device to the damper control. The damper must automatically travel to a position that closes the opening completely.
- (9) **Ensure** that all assemblies held-open by initiating devices, e.g., smoke detectors and/or manual pull stations close and latch properly.

NOTE: Dampers in sprinklered buildings shall be tested when first installed, or when major improvements to an area are made.

- (10) **Laundry and Rubbish Chute Doors:** Operate the door assemblies. The doors must close and latch either by means of a counterbalance or spring-load mechanism.
- (11) **Dumbwaiter Doors, Access Doors, and Fire Windows:** Determine that the automatic operation of these assemblies will function by releasing the weights or by actuation of any initiating device. Opening or closing the contacts, whichever is applicable, will actuate electrically operated devices. Determine that they close the opening completely when activated.
- (12) **Fire Shutters:** When these assemblies are automatic or self-closing, determine that they close the opening completely when activated. See F-340R Fire Protection Equipment Performance Report Automatic Closing Assemblies for additional procedures

SECTION 4 GENERAL TEST PROCEDURES

B. Automatic Elevators - Emergency Operations- Phase I and II:

Test shall determine that all features of Phases I and Phase II (if provided) of fire emergency service and emergency communications equipment are in proper operating condition in accordance with Title 8, Section 3041 for elevators installed under Group II requirements, Title 8, Section 3121 for elevators installed under Group III requirements, and Title 8, Section 3140 for elevators installed under Group IV requirements of the California Code of Regulations.

NOTE: Certified Testers are required to be certified in one of the following categories:

- **Category 1:** A Chief's Regulation No. 4 Certified Tester who holds a Certified Competent Conveyance Mechanic License from the California Department of Industrial Relations
- **Category 2:** A Chief's Regulation No. 4 Certified Tester, that holds a Reg. 4 "Automatic Elevator Witness Only" certification which allows the Certified Tester to witness a the test performed by a Certified Competent Conveyance Mechanic and submit the report.

(1) Phase I (Recall)

(a) Elevator Lobby Smoke Detectors:

- [1] Determine that all landings served by each elevator or each group of elevators, except the designated main recall floor, are provided with smoke detectors.
- [2] Determine that smoke detectors located in the elevator machine room and at top of elevator shaft recalls elevators in that bank to designated main recall floor.

EXCEPTION:

The main recall floor may be equipped with elevator lobby smoke detectors that recall the elevator car to an alternate floor approved by the Chief.

- [3] Recall function - Actuate the elevator lobby smoke detector on each landing. Check for Phase I activation and interconnection of circuit with the fire alarm system, if provided:
 - [a] Determine that the door retraction safety devices, (except mechanical safety edges) are immediately deactivated.
 - [b] Determine that the "Emergency Stop Switch" is rendered inoperative as soon as the doors are closed and the elevator car starts towards the designated recall level. A moving car, traveling to or away from the designated level shall have its "Emergency Stop Switch" rendered inoperative immediately.
 - [c] Determine that elevator cars are not subject to calls from other sources; i.e., corridor call buttons and car floor selection buttons.
 - [d] Determine that each elevator car returns nonstop to the designated main recall floor and remains there with the doors open.
 - [e] Determine that the elevator shunt trip heat detector operates properly and shuts power to the elevator equipment.

SECTION 4 GENERAL TEST PROCEDURES

Automatic Elevators Emergency Operations Phase I (continued)

(b) Designated Main Recall Floor Switch:

- [1] Determine that the proper designated main floor recall switch is provided for each elevator or each group of elevators. The designated main floor recall switch shall be a three-position key-operated switch ("On," "Off," "Bypass") for Group II, ("Bypass", "On," "Off") for Group III And ("Reset," "On," "Off") for Group IV. The key shall not be removable in the "Bypass" or "Reset" position. Determine that keys to operate the designated main floor recall switch and in-car elevator switch are keyed alike and are readily available for firefighter use. Keys shall be located in the Fire Department lock-box or other location approved by the Chief. Fire Department personnel shall verify keys during routine fire/life safety inspections.
- [2] Turn the designated main floor recall switch to the "on" position. Determine that the recall function is the same as described in Section 4-B-1 Phase I Recall Function, except the alarm system, if provided, shall not activate.

(c) Designated Fire Control Room/Station Key-Switch:

- [1] Turn the designated fire control room/station key-switch to the on position, if provided. Determine that the recall function is the same as described in Section 4-B-1 (Phase I Recall Function), except that the fire alarm system, if provided, shall not activate. This switch shall be a two-position ("on" and "off") key-operated switch.

NOTE: If a three-position switch is installed, in the fire control room ("on" "off" "bypass") the main floor switch shall override the fire control room bypass function.

- (d) **Elevator Status Panel:** Check for proper function of the elevator status panel (usually installed in the fire control room)
See F-340R Fire Protection Equipment Performance Report Automatic Elevators Group II & III and F-340R Fire Protection Equipment Performance Report Automatic Elevators Group IV for additional procedures.

(2) Phase II (Fire Firefighter Override):

- (a) Determine that the proper in-car switch is provided in each elevator car. The in-car switch shall be a key-operated two-position switch "on" and "off", (group II). The switch shall be keyed identically with the "Designate Main Floor Switch". The key shall not be removable in the "on" position.

NOTE: Elevator cars equipped with a three-position "Off, Hold, On," key switch, (**Group III**) shall be removable in any position. **Group IV** Elevator cars equipped with a three-position "Off, Hold, On," key switch, shall only be removable in the "Off" and "Hold" position.

- (b) Determine that keys are readily available for firefighter emergency operation of the Phase II override function. There shall be a separate key for each elevator car in addition to the key for the designated main floor switch. Keys shall be located in the Fire Department lock-box or other location approved by the Chief. Keys shall be confirmed by Fire Department personnel during routine fire inspections.
- (c) Determine that the in-car Phase II switch in each elevator car is operative only when the elevator is in the Phase I recall mode.

SECTION 4 GENERAL TEST PROCEDURES

Phase II (Fire Firefighter Override) Continued:

NOTE: If Phase I is activated by the lobby key switch and then the in-car switch is placed in the "on" position (Phase II), the elevator car shall remain in Phase II. If the lobby switch is then turned to the "off" position the elevator shall remain in phase II until the operator inside the car returns the elevator to the designated recall floor and the doors are in the fully open position.

- (d) Phase II Override/Firefighter Operation Function: Turn the designated main floor switch to the on position, and then turn the in-car switch of each elevator car to the on position. Test the Phase II override function of each car as follows:
- [1] Determine that each elevator car is operable only by a person in that car. The car shall not respond to a call from any other source.
 - [2] Actuate a floor selection button in a normal manner. Close the doors by continuous pressure on the "door close" button. If not provided, close the doors by continuous pressure on the floor selection button. If the button that closes the doors is released prior to the doors reaching the fully closed position, the doors shall automatically reopen.
 - [3] Determine that, if multiple floor selection buttons have been actuated, the elevator car will stop at the first of the selected floors that it reaches. At that time, all other selections shall cancel. The doors shall remain closed.
 - [4] Open the doors by continuous pressure on the "door open" button. If not provided, open door by continuous pressure on floor selection button. If the button is released prior to the doors reaching the fully open position, the doors shall promptly and automatically re-close.
 - [5] Where more than one operating panel is provided in an elevator car, determine that both panels will correctly operate the override function.
 - [6] In elevators where key switches or programming characteristics are provided to prevent the elevator from stopping at one or more landings while in normal service, determine that fire emergency service overrides such features.
 - [7] Determine that the "Emergency Stop Switch" is operative during the time the elevator is in the Phase II override function.
 - [8] Cars equipped with a three position key switch "Off", "Hold", "On" (Group III & Group IV) shall operate in Phase II in the "On" position. Shall stay stopped at their designated landing in the "Hold" position and return to Phase I when placed in the "Off" position and the doors shall completely close causing the car to return non stop to the main recall floor and doors shall open.
 - [9] Return all systems and key switches to their normal positions.

See F-340R Fire Protection Equipment Performance Report Automatic Elevators Group II & III and F-340R Fire Protection Equipment Performance Report Automatic Elevators Group IV for additional procedures

NOTE: Fire alarm control panels only used as elevator recall control and supervisory control panels shall be labeled "**Elevator Recall Control and Supervisory Control Unit**" in accordance with NFPA 72

SECTION 4 GENERAL TEST PROCEDURES

C. Emergency and Standby Power Systems Generator:

- (1) Determine that all equipment is in proper operating condition and well maintained in accordance with NFPA-70 and 110.
- (2) Determine that the generator has not been started within 12 hours to ensure a cold start and that all systems and equipment powered by emergency power are operating prior to load transfer from normal power to emergency power.
- (3) Use the main breaker for load transfer from normal power to emergency power.
- (4) Determine that emergency current supplies power to all required systems and equipment as per building single line diagram.

EXCEPTION:

With the approval of the Chief, other methods of load transfer may be conducted.

- (5) Determine that the load transfers in the required time.
 - (a) Emergency power requirement is 10 seconds.
 - (b) Standby power requirement is 60 seconds.
 - (c) Ensure all required exit path lighting is sufficient enough to find, distinguish and safe to use in accordance approved L.A.F.D. acceptance practices.
 - (d) Exit and directional signs illuminated by internal means shall be visible from 100 feet in any direction
 - (e) Externally lit exit and directional signs shall have a minimum reading of five foot-candle power measured at the sign. A light meter shall be used.
 - (f) The emergency standby system must supply power to all emergency lights and connected equipment for the duration of the test.

See F-340R Fire Protection Equipment Performance Report Emergency Power and Standby Systems-Generator for additional procedures

NOTE: Diesel driven generators shall be exercised under load monthly for a minimum of 30 minutes to prevent wet stacking. Records shall be verified during fire department inspection

D. Emergency and Standby Power-Stored Electrical Energy (Battery Back-Up):

- (1) Determine that all equipment is in proper operating condition and well maintained in accordance with NFPA-70,110 and 111.
- (2) Verify that all fixtures and/or lighting elements are in working order prior to conducting the load test to ensure a load is placed on the battery system
- (3) Conduct a load test on battery systems to ensure proper battery life. Batteries supplying power to unit lighting shall have sufficient power for 90 minutes.
- (4) Determine that all Emergency Lighting has activated within 10 seconds. All areas requiring Emergency Lighting shall be checked for adequate lighting.
- (5) Ensure all required exit path lighting is sufficient enough to find, distinguish and safe to use in accordance approved L.A.F.D acceptance practices.
- (6) Exit and directional signs illuminated by internal means shall be visible from 100 feet in any direction.
- (7) Externally lit exit and directional signs shall have a minimum reading of five foot-candle power measured at the sign. A light meter shall be used.
- (8) The emergency battery system must supply power to all emergency lights for the duration of the test.
- (9) Return all systems and equipment to their normal position.

See F-340R Fire Protection Equipment Performance Report Stored Electrical: Energy for additional procedures

SECTION 4 GENERAL TEST PROCEDURES

Emergency and Standby Power-Stored Electrical Energy (Battery Back-Up) continued

NOTE: A proper test of Battery Backup/stored electrical energy lighting shall be conducted by using the main breaker or the circuit breaker that supplies power to the fixtures and not by pressing the test button. Testing of emergency lighting levels should be conducted in a dark environment (simulating worst case scenario) to accurately measure the required illumination.

E. Fire Escape Assemblies:

- (1) Determine that fire escape stairs, landings, ladders, guards, rails, and safety chains are in good repair.
- (2) Determine that all landings are accessible from inside the building and provided with proper signage. Improper or missing signage and/or storage shall be indicated by the Certified Tester in Section V of the F-340R Fire Escape Assemblies Performance Report for Fire Department follow up inspection.
- (3) Operate the ladder release mechanism. The release mechanism must operate easily. The ladder must travel to the ground without hesitation. It must be stable and firm in its position after reaching the ground. This procedure shall be conducted twice.
- (4) Return ladder to its normal position.

See F-340R Fire Escape Assemblies Fire Protection Equipment Performance Report for additional procedures.

F. Fire Hydrants (Private) – (Currently not enforced by LAFD):

Determine that hydrant is in proper operating condition and well maintained in accordance with Los Angeles Fire Code Division 9, Title 19/NFPA-25 California Edition and NFPA-291.

- (1) Outlets: Determine that outlets are not damaged and are provided with proper caps. Only 1-1/4 or 1-3/4 pentagonal nuts shall be accepted.
- (2) Flow: Hydrant shall be opened fully and water flowed until all foreign material has cleared. Flow shall be maintained for not less than one (1) minute (care should be given to avoid flooding and property damage).
- (3) One hydrant closest to the main is chosen to be the residual hydrant at which the normal static pressure will be observed with the other hydrants in the system closed. The residual pressure will be observed with the other hydrants flowing.
- (4) When the required GPM are flowing, a minimum residual pressure of 20 psi shall be maintained at the residual hydrant. Record the residual pressure with the required GPM'S flowing from the furthest hydrant in the system. The required flow shall be in accordance with Los Angeles Fire Code Division-9

NOTE: To obtain satisfactory test results, sufficient discharge should be achieved to cause a drop in pressure at the residual hydrant of at least 25%. For hydrants with a static pressure of less than 40 psi, hydrants should be rated at one-half the static pressure.

SECTION 4 GENERAL TEST PROCEDURES

G. Fire Alarm Systems, Two Way, & One way Emergency Communication Systems

Determine that all equipment is in proper operating condition and well maintained in accordance with applicable portions of NFPA-72. Check system reliability as follows:

NOTE: Prior to testing any Fire Alarm System, the system shall be clear of all supervision, trouble, tampers, and alarm signals

EXCEPTION:

The test can be performed if the signals are due to minor maintenance and can be cleared if necessary and will not interfere with testing.

- (1) **Operating Instructions:** Approved operating instructions for the Fire Alarm System shall be posted within 3 feet of the building fire control room/station.
- (2) **Sequence of Operation:** An approved accurate matrix sequence of operation shall be posted in or adjacent to the building fire control room/station showing the operation of all auxiliary control functions of the fire alarm system. (See Appendix)
- (3) **Trouble Signal:** Disconnect fire alarm AC power. The audible trouble signal and trouble light or lights must operate. Operate the trouble signal-silencing switch. Restore power and trouble light switch to normal position. If a ring-back system is provided, the trouble light switch must be reset.
- (4) **Supervision of Initiating Device Circuits:** Disconnect a fire alarm initiating device. Audible trouble signal and light or lights on fire alarm annunciator panel must operate.
- (5) **Supervision of Audible Fire Alarm Device Circuits:** Disconnect a notification appliance. At that time, either an audible trouble signal and/or light on fire alarm annunciator panel must operate.
- (6) **Supervision of Control Valve Circuits:** Movement of the valve from its normal position shall initiate a distinctive signal at the fire alarm panel. The off-normal supervision signal (tamper) shall remain until the valve is restored to its normal position. The off-normal supervision signal shall be obtained by two revolutions or 1/5 the travel distance of the control valve apparatus, whichever is less from its normal position.
- (7) **Initiating Device Function Test:** Test all fire alarm initiating devices. Actuation of an initiating device shall indicate a signal on the fire alarm panel and/or the annunciator panel, indicating the type of device, zone or address of actuation if provided.
- (8) **Notification Appliances-Audible:** Actuation of initiating devices shall also sound an audible signal that is a minimum sound pressure level of 15 dBA above the ambient noise level. Sound shall be a minimum of 75 dBA (45 dBA for private mode) and shall not exceed 120 dBA anywhere in the occupiable area. An average ambient sound pressure level greater than 105 dBA shall require the use of visible notification appliances and shall be entered in section V of the F-340R Fire Alarm Fire Protection Equipment Performance Report for Fire Department follow up.
- (9) **Sound pressure levels** shall be obtained by the use of a sound pressure level meter. The speed shall be set to: "FAST" and the weight set to "A" ("A" weighted scale)

NOTE: Systems installed prior to 1993 and appliances intended for operation in the private mode. An audible tone of 10 dBA above normal ambient sound level is acceptable.

SECTION 4 GENERAL TEST PROCEDURES

Fire Alarm Systems, Two Way & One way Emergency Communication Systems (Continued)

- (10) **Notification Appliances-Visual:** Verify that all ADA strobes are activated by an initiating devices and flash at a rate of 60 to 120 per minute and flash in synchronization when more than two strobes are in the field of view.
- (11) Systems equipped with A.D.A. strobes which were installed in accordance with the 1998 California building Code may continue to flash when audible signals are silenced. Strobes installed under NFPA -72 2007 edition shall deactivate when the fire warning system is silenced.

EXCEPTION:

Strobes installed prior to 1998 may not have the capability to be synchronized and are not required to be synched until tenant improvement is performed in the area.

- (12) **Buildings regulated by the provisions of Title 24-California Code of Regulations and Section 4705 of the Los Angeles Fire Code**, shall have all fire alarm, trouble and supervision signals transmitted to a 24-hour continuously supervised Building Fire Control Room/Station or to a UL approved Supervising Station Service.
Fire Alarm Systems with integrated supervising station transmission means shall be tested as part of the fire alarm system (see item 12 of the F340R Fire Alarm Protection Equipment Performance Report).
- (13) **Sprinkler System Flow Switch:** Open the Inspector's test valve(s) for each riser or floor valve, causing the water flow switch to be actuated. This actuation shall indicate an alarm within 20 to 60 seconds. In addition, the outside electric sprinklers alarm bell (if provided) will sound within 90 seconds.
- (14) **Subsequent Alarms:** Determine that subsequent alarms reactivate audible signals; i.e., activates alarms from one floor/zone to the next.
- (15) **Emergency Voice Evacuation Systems: Two Way Communication Systems (Fire Fighter Phones) Sound Powered and Amplified**
 - (a) Test clarity of voice communications between floors, the building fire
 - (b) control room/station and other locations where provided.
 - (c) Determine that a minimum of six approved sound-powered or amplified telephone sets are available at the building fire control room/station.
 - (d) Check telephone jacks for proper type, loose connections, corrosion, and proper installation.

See F-340R Fire Alarm Fire Protection Equipment Performance Report for additional procedures.

- (16) **One Way Building Communication Systems (Fire Alarm Voice Override)**
 - (a) Determine that the voice evacuation panel is operating properly and approved operating instructions are available.
 - (b) **New buildings** (Post July 1974): Determine system reliability by testing clarity of voice communication between the fire control room/station and all areas within the structure include outside patios and balconies above the first floor. Audibility minimum 15 dBA above the average ambient sound level but in no case less than 75 dBA and no more than 120 dBA on systems installed before 2001 and 110dbA after 2001.

SECTION 4 GENERAL TEST PROCEDURES

Fire Alarm Systems, Two Way, & One way Emergency Communication Systems (Continued)

- (c) **Existing buildings:** Determine system reliability by testing clarity of voice communication between fire control room/station and all areas where provided. Audibility shall not be less than 10db above the average ambient sound level.
- (d) **Voice Override:** Determine that the voice override on voice evacuation systems operates properly. With fire alarm audible signals operating, press down on the microphone button and speak into microphone. At that time, fire alarm audible tones shall discontinue sounding and voice sound shall be 15db minimum above average ambient sound level, but in no case less than 75 dBA or more than 120 dBA, or 110dBA after 2001.

NOTE: Systems installed prior to 1993 may have an audible signal a minimum of 10 dBA above the average ambient sound level.

- (e) Systems equipped with A.D.A. strobes which were installed in accordance with the 1998 California building Code may continue to flash when voice evacuation system is activated or audible signals are silenced. A.D.A. strobes installed as per NFPA 2007 and after shall continue to flash when voice evacuation system is activated or audible signals are silenced.

See F-340R Fire Alarm Fire Protection Equipment Performance report for additional procedures.

H. Fire Pumps (Stationary):

- (1) **Associated Components:** Determine that the fire pump, fire pump controller, remote status panel, water supply, fire pump test header, and all other associated components are in proper operating condition and maintained in accordance with NFPA-20 and Title 19/NFPA-25.California Edition

NOTE: Incorrect signage shall be noted by the Certified Tester in Section V of the F-340R for Fire Department follow-up inspection.

- (2) **Rated Capacity (flow), Pressure (head) and Revolutions Per Minute (RPM):** Determine the rated capacity (flow), pressure (head) and revolutions per minute (RPM) of the pump by reading the pump plate attached to the pump. Determine the required flow and the number of test outlets required by dividing the rated capacity of the pump (GPM) by 250. Determine the 50, 100 and 150 percent required flow of the pump. An approved method shall be used to measure GPM, PSI and RPM.
- (3) **Automatic and Manual Starts:** Determine that the fire pump starts automatically and manually in accordance with manufacturer specifications by decreasing system pressure for automatic starts and using the start switch for manual starts.
- (4) **Churn Pressure:** Record churn pressure. Operate the fire pump with all fire department discharge outlets in the closed position (except for a minimum flow of water to ensure proper pump cooling).
- (5) **Discharge Pressures** After the fire pump has been operating for seven minutes, open the correct number of test outlets and record the pump discharge at 50%, 100% (rated capacity), and 150% (peak/overload) of the rated flow. At peak flow the fire pump shall not perform less than 65% percent of its rated pressure/head.
- (6) **Suction Pressure:** If the fire pump is fed directly from city mains, ensure that the residual pressure on the supply side of the pump does not drop below 20 PSI during the flow test. A reading below 20 PSI could damage city mains.

SECTION 4 GENERAL TEST PROCEDURES

Fire Pumps (Stationary) Continued

NOTE: If available suction supplies do not allow flowing 150 percent of the rated pump capacity, the fire pump shall be permitted to operate at maximum allowable discharge. However the Chief's Regulation No. 4 Unit shall be contacted for final approval.

- (7) At the conclusion of the pump test, restore all valves and controls to their normal operating condition.

See F-340R Fire Protection Stationary Fire Pumps Equipment Performance Report for additional procedures.

Weekly and Monthly Fire Pump Tests

Diesel fire Pump- Churn Test (no flow) shall be performed weekly for a minimum of 30 minutes.

Electric Fire Pump - Churn Test (no flow) shall be performed monthly for a minimum of 10 minutes.

NOTE: Weekly and monthly fire pump tests shall be conducted by a company that holds a C-16 Specialty License issued by the Contractors State Licensing Board (CSLB) or an individual who holds an "L" license (Limited) Fire Pump Certificate. NFPA 25 forms shall be used to record these tests and kept onsite for fire department inspection.

I. Gas Detection Systems:

(1) Methane Gas:

- (a) **Associated Components:** Verify that the gas detection system and all associated components are in proper operating condition and maintained in accordance with F.P.B. Requirement No. 71 and Chapter 71 of the Los Angeles Building Code.
- (b) **Control Panel:** Verify that the control panel is in proper operating condition and the approved system description, sequence of operation, operating instructions and emergency telephone number of company responsible for servicing system is posted at or adjacent to the control panel and the annunciator panel.
- (c) **Emergency Power:** Verify that emergency power is capable of supplying power for 24 hours in the standby mode and 5 minutes in full alarm after 24 hours in the standby mode.
- (d) **Sensors:** Test all sensors in the system for proper activation of alarm system and proper annunciation at the status panel.
- (e) **Test Gas:** Use Methane Test gases of 10 to 25% L.E.L. and 50 to 60% L.E.L. Verify that system activates gas evacuation fans between 10% and 24% L.E.L. and goes into full into full alarm at 25% L.E.L. The drift (difference) between the sensor and the test gas shall not exceed + or - 5% LEL when using 50% test gas.
- (f) **Notification Appliances:** Verify that all audible devices sound an alarm a minimum of 15db above the ambient noise level but not less than 75db and a maximum of 120 dBA for systems installed prior to 2001 and 110 dBA after 2001. Visual devices (strobes) shall be clearly visible and shall be synchronized when more than two devices are visible.

SECTION 4 GENERAL TEST PROCEDURES

Gas Detection Systems (continued)

- (g) **Device Identification:** All devices shall be identified with the word "METHANE" written on them.
- (h) **Mechanical Air Ventilation Systems:** Verify that all mechanical air ventilation systems (if applicable) operate properly when system is activated at or below 10% L.E.L. and an exchange of air occurs at a rate of not less than four (4) changes of air per hour and exhausted directly to the outside. Verify that vent risers are not damaged or obstructed and maintain a 10' foot clearance around point of discharge.
- (i) **Signals:** When required, verify that all methane alarm, supervision, and trouble signals are transmitted to a 24-hour continuously supervised location or a UL Laboratory approved supervising station service. Verify for proper type of activation and dispatch.
- (j) **Circuit Breakers:** Verify that the electrical circuit breakers supplying normal electrical power are equipped with a lockout device, or only accessible to authorized personnel
- (k) **Vent Risers:** Verify that sensors located in the vent risers activate a vent blower at 4 %, but does not place the system in alarm, or signal the supervising station to dispatch the fire department.
- (l) **Sensor Identification:** Verify that all sensor identification addresses correspond with the same information as the control panel.
- (m) **Supervising Station Alarm Control Unit**
- (n) **Supervising Station Alarm Control Unit- Secondary Power**
- (o) **Supervising Station Transmission Signals**

See F-340R Supervising Station Alarm Fire Protection Equipment Performance Report items 2.0 through 3.6 for the testing procedures for (m), (n), & (o) above.

J. Pressure Reducing /Regulating Hose Valves: (PRV'S)

The following procedure applies to every 2-1/2-inch standpipe hose outlet equipped with pressure regulating valves, to determine their proper operating condition and maintenance in accordance with applicable portions NFPA-14 and of Title 19/NFPA-25 California Edition

Fire pump(s) must be operating when measurements are taken. Perform the test procedure in the following sequence:

- (1) Attach approved flow and pressure measuring devices to the pressure-reducing valve.
- (2) Attach an approved 2-1/2 inch shut-off on the discharge side of the measuring devices.
- (3) Attach an approved water drainage system on the discharge side of the 2-1/2 inch shut-off.
- (4) Open the outlet fully; regulate the water for the required maintenance flows from the 2-1/2 inch shut-off.
- (5) Determine that the outlet delivers at least 300-GPM.
- (6) With 300-GPM flowing, ensure that the residual pressure on the discharge side of the outlet is at least 80-PSI and not more than 125-PSI. Document residual pressure with 300-GPM flowing on approved Fire Department forms. If adjustments are needed a residual pressure of 125-PSI is recommended.

SECTION 4 GENERAL TEST PROCEDURES

Pressure Reducing /Regulating Hose Valves (PRV'S) Continued):

EXCEPTION No 1:

For buildings built after 1994, the required flow is 300-GPM at 100-PSI to 125-PSI.

Ensure that static pressure on the discharge side of the outlet is a maximum of 150-PSI for building s built before 1994 .Document static pressure on approved Fire Department forms. When static pressures greater than 150 psi are observed during the full flow tests, the Certified Tester shall contact the Chief's Regulation No. 4 Unit for guidance.

EXCEPTION No 2:

For buildings built after 1994, static pressure shall be 175-psi maximum or higher as approved by LAFD.

- (7) Close outlet and remove test equipment.

NOTE No. 1: Some PRV's may have been accepted with a static pressure greater than 150 psi or 175 psi in order to obtain a residual pressure of 100 to 125 psi. When static pressures greater than 150 or 175 are observed during the full flow tests, the Certified Tester shall contact the Chief's Regulation No. 4 Unit for guidance.

NOTE No. 2: PRV static pressures shall not be adjusted during annual PRV maintenance. Where static pressures greater than 150 or 175 psi are found during annual PRV maintenance, the results shall be compared to the last full flow PRV test on record, but in no case shall the valve be adjusted without conducting a full flow test to verify the approved residual pressure.

See F-340R Hose Vane Pressure Reducing Valves Fire Protection Equipment Performance Report for additional procedures

K. Refrigerant Discharge Systems (Not enforced by LAFD at this time):

- (1) Systems Providing For Manual Discharge of Refrigerant to the atmosphere:
 - (a) Determine that the emergency refrigerant control box is plainly marked: "FOR FIRE DEPARTMENT ONLY – (REFRIGERANT) CONTROL VALVE."
 - (b) Determine that the high and low-pressure valves within the box are indicated.
 - (c) Operate the high and low-pressure valves to assess proper working condition.
- (2) Ensure the system is provided with a fire department diffuser consisting of a 2 ½" hose connection to a sewer:
 - (a) Determine that the emergency refrigerant control box and valves are properly labeled as per (a) and (b) above.
 - (b) With water flowing through 2 ½" hose to fire department diffuser, open the high and low-pressure valves to assess proper working condition.

SECTION 4 GENERAL TEST PROCEDURES

L. Smoke Management Systems:

- (1) **Building Emergency Smoke Management Systems:** Ensure that areas equipped with Mechanical Smoke Ventilation Systems are tested for proper automatic operation by actuation of a fire protective signaling system-initiating device.
 - (a) **Mechanical Ventilation:** Building air-handling equipment (HVAC) designed to remove smoke shall exhaust at a rate of not less than six changes of air per hour and exhaust directly to the exterior of the building without re-circulating to other locations in the building. Mechanical ventilation equipment controls shall be located in the fire control room/station and have the capability of controlling one or all floors for smoke evacuation.
 - (b) **Below Grade Levels:** All areas below grade equipped with mechanical smoke ventilation shall be tested for proper automatic operation by actuation of a fire protective signaling system-initiating device. System shall exhaust at a rate of not less than six (6) changes of air per hour, and exhaust directly to the exterior of the building.
 - (c) **Smoke Removal:** Mechanical Smoke Control systems. Check system reliability as follows:
 - [1] Actuate all initiating devices designed to operate fans, blowers, and smoke control dampers to determine proper automatic function of system.
 - [2] When fans, blowers, and smoke control dampers are interconnected to the building fire control room/station, ensure that remote control from that location is operable and proper status is indicated on the smoke control panel. Verify that all lights are functional when the lamp test button is depressed.
 - [3] Perform a visual inspection of all fans, blowers, and smoke control dampers to verify proper operation in the smoke removal mode.
- (2) **Mechanically Ventilated Smoke-proof Enclosure:**
 - (a) **Doors:** Open all doors in the system and determine if they are held open by smoke-actuated hold-open devices.
 - (b) **Initiating Devices:** Actuate any initiating device on each floor and Determine that:
 - [1] All-magnetic hold open devices release and all fire rated doors in the system properly closes and latch.
 - [2] The comfort air handling system (HVAC) has shutdown.
 - [3] The vestibule ventilation system is activated and the supply and exhaust dampers open.
 - [4] The stair-shaft ventilation system is activated.
 - [5] The fire control panel properly indicates the status of the fire protective signaling system.
 - [6] That all fire alarm audible and visual devices operate on appropriate floor.
 - [7] That the smoke control panel, if provided, operates properly in both manual and automatic modes and proper status is indicated on the panel.

SECTION 4 GENERAL TEST PROCEDURES

Smoke Management Systems (continued):

(c) Vestibule Performance test:

- [1] Actuate any fire alarm initiating device.
- [2] Open the doors from the vestibule to the stair-shaft, on any three consecutive floors.
- [3] Ensure that the system meets the following requirements:
 - [a] 2500-cfm minimum is flowing at the stair-shaft exhaust opening.
 - [b] The flow from the exhaust of each of three vestibules shall be 2500-cfm minimum per vestibule with all three flowing simultaneously.

(d) Stair-shaft Performance Test:

- [1] With the system operating and all doors closed, measure the stair-shaft static pressure at three floors located in the top, center, and bottom thirds of the stair-shaft. This pressure is to be measured between the stair-shaft and hallway, at the floors selected, with the comfort air handling (HVAC) turned off.

EXCEPTION:

Determine that the minimum pressure within the vestibule with the doors closed is 0.05-inch water gauge (12.44 PA) positive pressure relative to the fire floor and 0.05-inch water gauge (12.44 PA) negative pressure relative to the exit enclosure. No pressure difference is required relative to a non fire floor

See F-340R Fire Protection Equipment Performance Report for additional procedures

(e) Pressure Difference: California Building Code Section 905 (1997 & 2001 editions) or Section 909 (2007 & 2010 editions).

- [1] Determine that the minimum requirement of 0.05–inch water gage pressure differential was measured across smoke barriers between the zone of fire origin and the non fire zone in accordance with the Los Angeles Fire Department approved rational analysis.
- [2] Determine that the door opening force for each exit door between the active smoke zone and passive smoke zone is a maximum of 15 pounds or as per approved rational analysis.
- [3] Determine that exit enclosures (i.e. stairways or vestibules) built in accordance with the 1997 & 2001 California Building Code are pressurized and discharge a minimum of 2500 cubic feet per minute of air at the controlled relief vent at the upper portion of the exit enclosure or in accordance with approved rational analysis.

See F-340R Fire Protection Equipment Performance Report for additional procedures

SECTION 4 GENERAL TEST PROCEDURES

Smoke Management Systems: (continued)

- (f) **Pressurized Stair-Shaft System:** Inspect the system for proper status prior to activating system. Activate any fire alarm initiating device to automatically activate the system. Inspect the status panel in the building fire control room/station for proper operation.
- (g) **Airflow Requirement:** Determine that the system has the minimum airflow requirement. Measure a typical cross-sectional area in the stair-shaft in square feet and multiply by 50 linear feet per minute. With all doors closed using an approved anemometer at the exhaust point, determine that the system meets 90 percent of the minimum required CFM while maintaining a positive pressure.
- (h) **Door Opening Force:** Door opening force is obtained by using an approved door testing device applied in a direct vertical line above the axis of the door knob/lever.
 - [1] **Test 1:** With the system on and all doors closed, the maximum allowable pressure that is required to open that door should be 30 lbs. That door must close and latch when released.
 - [2] **Test 2:** With the system on one door open plus one additional door open, the maximum allowable pressure to open the door shall be 15 lbs. Door must close and latch when released.
 - [3] **Test 3:** In tests 1 and 2, stair-shaft doors that swing outward must close and latch after being opened and released.
 - [4] **Test 4:** System fans off, exit doors that swing outward (i.e. exit to the roof and a public way) require a door opening force of not more than 30 lbs.
 - [5] **Test 5:** With the system off all doors in stair-shaft must close and latch after being opened and released.

See F-340R Pressurized Stair Shaft Fire Protection Equipment Performance Report for additional procedures

M. Sprinkler Systems, Automatic: Wet, Dry, Pre-action, Deluge & Foam

Determine that all equipment is in proper operating condition and well maintained in accordance with applicable portions of NFPA-13 and Title 19/NFPA 25-California Edition

NOTE: 1 1/2 " Hose stations connected to automatic sprinkler systems installed under NFPA 13 are not required to meet flow requirements of NFPA 14 or Title 19/NFPA 25 California Edition.

- (1) **Fire Department Connection:** Determine that appropriate inlet connections are provided and are in operable condition. Determine that approved signs have been provided. Incorrect or missing signs shall be noted by the Certified Tester in section V of the F-340R Automatic Fire Sprinkler 5 year Fire Protection Equipment Performance Report for Fire Department follow-up inspection.

SECTION 4 GENERAL TEST PROCEDURES

Sprinkler Systems, Automatic: Wet, Dry, Pre-action, Deluge & Foam (continued)

(a) **Back Flush:**

Flush the Fire Department Inlet Connection and Piping: Use the following method to remove obstructions and/or debris from the Fire Department inlet connection and piping:

- [1] With the main system shut-off valve closed and the piping to the Fire Department connection drained, disassemble and inspect the check valve, then remove, reverse, or block open the clapper in the check valve. Reassemble check valve.
- [2] Open the main system shut-off and flow adequate water backwards through the Fire Department connection inlet to assure that all debris is cleared from the inlet piping and Fire Department connection. Restore system to normal.

NOTE: This is the preferred method of clearing the Fire Department connection.

(2) **Hydrostatic Test:**

Perform a hydrostatic test of the FDC piping in accordance with NFPA 13 2010 edition Chapter 24, Section 24.2.1.10 for the required PSI and Chapter 6 NFPA 25 2013 California edition Table 6.3.1.6 for the test duration.

Systems Affected: Dorothy Mae, Automatic Wet, Combined Standpipe/Sprinkler, Class III Standpipe

NOTE: This test is required where the distance between the FDC piping and the check valve is greater than 3 feet and/or all FDC underground piping back to the check valve.

The piping between the fire department connection and check valve shall be hydrostatically tested at 150 psi for 3 minutes every five years.

- a) **Conduct Air Test of FDC piping** (where necessary)
Air test 25 psi for 30 minutes to check for leakage where water damage to property may occur.
- b) **Conduct Hydro Static Test:**
Hydrostatically test the piping between the FDC and the check valve @ 150 psi for 3 minutes
Check for a significant drop in pressure or visual leakage. A slight fluctuation in pressure may occur due to a change in temperature. This is not considered a pressure loss. A Very small bead of water may also appear at a fitting. This is not considered a leak unless the bead of water continues to grow and drip.

Equipment needed: Air Compressor, Electric Hydrostatic Test Pump or Fire Pump Apparatus, Pressure gauges.

- (3) **Main Drain/Water Supply Test:** With the main drain valve closed, note the static pressure reading on the gauge. Fully open the main drain valve with water flowing, note the residual reading on the pressure gauge. Close main drain valve and note pressure gauge reading. A slow return on pressure gauge to original static reading may indicate a closed valve or obstructions in water supply lines.

- (4) **Gauge Test:** Connect a test gauge at the test gauge opening to determine the reliability of existing gauges.

SECTION 4 GENERAL TEST PROCEDURES

Sprinkler Systems, Automatic: Wet, Dry, Pre-action, Deluge & Foam (continued)

(5) On-site Water Supply:

- (a) Determine that filling for on-site water supply, if provided, operates when flow test is conducted.
- (b) Determine that the air pressure and/or water supply gauges on dry, pre-action, and deluge systems are in proper working condition.

NOTE: Tests of dry, pre-action and deluge systems will be done by using the bypass connection.

(6) Sprinkler Inspection:

- (a) Inspect system for proper sprinkler head placement, orientation, type, proper hangers, seismic bracing, and signs of corrosion, physical damage, or paint on the cap, fusible link/bulb or on the deflector in an amount that will change the sprinkler pattern

NOTE: Sprinklers protecting spray-coating areas shall be protected against over-spray residue. Sprinklers shall be protected using plastic bags having a maximum thickness of 0.003 inches, [0.076mm] or with small paper bags. Coverings shall be replaced when deposits or residue accumulate.

- (b) Inspect spare sprinkler heads box for correct number and type of sprinkler heads and proper wrench. The number of spare sprinkler heads shall be as follows:
 - o Less than 300 heads - not less than 6 sprinklers heads.
 - o 300 to 1,000 heads - not less than 12 sprinklers heads.
 - o Over 1,000 heads - not less than 24 sprinklers heads.

NOTE: Improper sprinkler installation issues e.g. broken hangers; seismic bracing lack of coverage, etc. shall be indicated in section V of F-340R Fire Protection Equipment Performance Report for follow-up by the Department of Building and Safety. Fire code issues such as missing/incorrect signage or spare sprinkler heads etc. are handled in similar same manner except the follow-up inspection will be made by fire department personnel.

(7) Sprinkler Testing:

- (a) Sprinkler heads in operation over 50 years and sprinkler heads known to have an abnormally high failure rate listed by the Chief shall have a representative sample of not less than four sprinklers or 1 percent, whichever is greater tested by an approved testing laboratory for evaluation. If one sprinkler fails, all sprinklers in the system represented by the submitted sample shall be replaced. This testing procedure shall be repeated at 10-year intervals after the initial 50 year test.
- (b) Sprinkler heads manufactured prior to 1920 shall be replaced.
- (c) Fast response sprinkler heads that have been in service for 20 years shall be tested and re-tested at 10-year intervals.
- (d) Representative samples of solder-type sprinklers with a temperature classification of Extra High (325 degrees /163 degrees C) or greater that is exposed to continuous maximum allowable ambient temperature conditions shall be tested at five-year intervals

SECTION 4 GENERAL TEST PROCEDURES

Sprinkler Systems, Automatic: Wet, Dry, Pre-action, Deluge & Foam (continued)

- (8) **Sprinkler Pressure Reducing Valves: (PRV's)** Sprinkler systems with static pressures in excess of 175 psi shall be equipped with approved pressure regulating devices.
- (9) **Sprinkler PRV Full Flow Test:** Verify that the PRV will maintain the pressure on the system side of the valve to no more than of 175 psi by opening the sectional drain valve and reading the gauges on the supply and system side of the valve.
- (10) **Inspector's Test Valve Operation Test:** Open the Inspector's test valve at the most remote location from the main control valve in the system. The alarm must sound within 5 minutes for mechanical water motor-type alarms and within 20 to 60 seconds for electrically monitored water flow switches.
- (11) **Valves:** Operate, inspect, and lubricate post indicator valves, underground gate valves, OS&Y valves, and one-way check valves to determine that they are in good operating condition and do not leak. Return all valves to their normal position.

NOTE: Control valves that are not supervised shall be secured in their normal position using a break-a-way lock and chain. Certified Tester shall indicate in section V of the F-340R Fire Protection Equipment Performance Report for Fire Department follow-up/inspection

- (12) **Tamper Supervisory Switches** Check tamper supervision circuits by moving valve from its normal position two revolutions or 1/5 the travel of the valve whichever is less. This shall initiate a distinctive signal at the fire alarm panel, if provided.
- (13) **Sprinkler Wrench:** A special sprinkler wrench[s] shall be provided and kept in the cabinet to be used in the removal and installation of sprinklers. A sprinkler wrench shall be provided for each type of sprinkler installed.
- (14) **Automatic Sprinkler Systems Pre-action, Deluge, or Dry Pipe:** Automatic sprinkler systems equipped with Pre-action, Deluge, or Dry Pipe systems shall have their water-control valves and their automatic and manual tripping means tested annually as required by approved manufacturer's testing procedures and the Chief.

(a) Trip Test

- [1] **Partial Flow:** A Partial Flow Trip test of Dry pipe, Pre-action, or Deluge Valves shall be performed annually to ensure the valve will open as designed. The test shall be conducted with the valve partially open.
- [2] **Full Flow:** A Full Flow Trip test of Dry pipe, Pre-action, or Deluge Valves shall be performed every five years to ensure the valve will open as designed. The test shall be conducted with the control valve fully open.

EXCEPTION:

Deluge valves shall be trip tested at full flow annually.

SECTION 4 GENERAL TEST PROCEDURES

Sprinkler Systems, Automatic: Wet, Dry, Pre-action, Deluge & Foam (continued)

- (15) **Foam-Water Sprinkler Systems:** Testing of foam water sprinkler systems shall be conducted to ensure that the foam-water system(s) operates as designed, both automatically and manually. Testing procedures shall simulate anticipated emergency events so the response of the foam-water system can be evaluated in accordance with NFPA 16, 16A, Title 19/NFPA 25 California edition and recommended test procedures as per manufacturer's specifications.

NOTE: This regulation shall not apply to junior sprinkler systems of less than 21 sprinkler heads and sprinkler systems designed and installed in accordance with NFPA-13D, (standard for the installation of sprinkler systems in one and two family dwellings and manufactured homes).

See F-340R Fire Protection Equipment Performance Report for additional procedures (where provided).

N. Standpipe Systems:

Determine that all equipment is in proper operating condition and well maintained in accordance with applicable portions of NFPA-14 and Title 19/NFPA 25 California Edition

- (1) **Class I Dry and Class III** (Class III Combination of Class I Wet and Class II Wet):
- (a) **Fire Department Connections:** Ensure that appropriate inlet connections are provided in operable condition. Verify that approved signs are in place and have the correct information. If signs are missing or incorrect, the Certified Tester shall place the information in section V of the F-340R Fire Protection Equipment Performance Report for Fire Department inspection/follow-up.
 - (b) **Flush Fire Department Connection** and piping using an approved method to remove obstructions and/or debris from the inlet connection and piping as stated in Section 4-M-(a).
 - (c) **Air Test:** Air test dry systems to a maximum of 25 psi for 30 minutes to determine if the system leaks. This is to avoid water damage to the building if piping has been damaged or disconnected.

NOTE: An air test is not required on outside piping.

(d) **Hydrostatic Test:**

Class I Dry: Fill the system completely with water and note the static pressure (head) on a test gauge installed on the lowest inlet connection. Hydrostatically test the system at a pressure 50 PSI greater than the head pressure but in no case less than 200 PSI for 3 minutes.

Class III Combination: Use procedures found in Section 4-M (2) of this manual

SECTION 4 GENERAL TEST PROCEDURES

Class I Dry and Class III (Continued)

- (e) **Gauge Test:** Connect a test gauge at the test gauge connection to determine the reliability of existing gauges.
- (f) **Flow Test:** Flow a minimum of 500-gpm for the first standpipe through the most remote Fire Department outlets plus 250-gpm for each additional standpipe with the total supply not to exceed 1,250-GPM (1000 GPM in fully sprinklered buildings). The system shall maintain a residual pressure of not less than 65 PSI for three minutes. Buildings built after 1993 shall obtain a minimum residual pressure of 100 PSI. Test gauges shall be used to measure residual pressures and a pitot gauge and Underwriters' Playpipe nozzle or approved flow meter shall be used to measure water flow quantities.

Alternate Flow Test Procedure:

Connect a reliable water source and pressure gauge to the lowest inlet connection, Fill the system with water and record the static/head pressure (SP). Connect a flow meter and pressure gauge at the topmost outlet with 100 GPM flowing, measure the inlet pressure and the outlet residual pressure (RP). Calculate the friction loss (FL) by subtracting the combined static pressure and residual pressure from the inlet pressure obtained during the flow test. Use the following formula: **FL= IP- (SP+RP)**
The friction loss in the system shall not exceed 15 PSI.

NOTE: A separate flow test shall be conducted for each Fire Department connection and riser. Risers with spring loaded snoots shall have the required flow through the fire department connection from an auxiliary apparatus.

(g) Fire Department Hose Outlets:

- [1] Check each Fire Department outlet for any signs of corrosion and leakage.
- [2] Inspect and operate each outlet valve in the system to determine that it will function properly. Close valve and replace cap.
- [3] Where the static pressure at a hose connection exceeds 150 psi, an approved pressure-regulating valve shall be provided to limit the static pressure to 150 and provide a residual pressure between 80 and 125 psi with 300-gpm flowing
For systems installed after 1994 where the static pressure at a hose connection exceeds 175 the pressure-regulating valve shall be provided to limit the static pressure to 175 or higher as approved by the LAFD. Buildings built after 1994 shall have a residual pressure between 100 and 125 psi with 300-gpm flowing Where possible all valves shall be set at 125 psi while maintaining the 300 GPM requirement.

NOTE: Where static pressures on hose connections are above 150 or 175 are found the Chief's Regulation No. 4 Unit shall be contacted to verify the approved static pressure. In no case shall the static pressure of a pressure reducing valve be adjusted without a flow test to verify the approved residual pressure

- [4] Flow water from each Fire Department hose valve outlet not equipped with pressure regulating valves in a manner that will indicate the valve is fully operable and that there is appropriate water pressure at that outlet.
- [5] Check automatic drip connections, if provided, for proper function.

SECTION 4 GENERAL TEST PROCEDURES

Class I Dry and Class III (Continued)

(h) On-site Water Supply:

- [1] Determine that filling for on-site water supply, if provided, operates when flow test is conducted.
- [2] Determine that air pressure and/or water supply gauges, if provided, are in proper working condition.

(i) Hose:

Disconnect hose, from Fire Department outlet (if provided). Examine full length of hose section for mildew, cuts, abrasions, and other deterioration. Check hose couplings, gaskets, and nozzle for damage and obstruction. Hydrostatic testing of fire hose shall be conducted in accordance with NFPA 1962, Chapter 5. and title19/NFPA 25 California edition

(2) Class II (Wet) Standpipes:

- (a) **Flow Test:** Determine that the system and its water supply will meet one of the following standards according to the date of its installation. Test gauges shall be used to measure residual pressures and an approved flow meter shall be used to measure water flow quantities. The required water flow must be maintained for at least thirty seconds from systems supplied by street mains or gravity tanks and at least two minutes from systems supplied by booster pumps or pressure tanks:
- (b) The following Class II and Class H systems shall have a minimal residual pressure and flow at the topmost outlet of each riser:

NOTE: 1-1/2" Hose stations connected to automatic sprinkler systems installed under NFPA 13 are not required to meet flow requirements of NFPA 14 or Title 19/NFPA 25 California Edition.

- | | |
|---|------------------------------|
| [1] Systems Installed prior to 1948: | 8 psi with 20-gpm flowing |
| [2] Systems Installed from 1948 to 1959: | 12 psi with 35-gpm flowing |
| [3] Systems Installed from 1960 to 1982: | 15 psi with 35-gpm flowing |
| [4] Systems Installed after 1982: | 65 psi with 100-gpm flowing |
| [5] Class H Standpipe Systems Installed prior to 1996: | 108 psi with 90-gpm flowing. |
| [6] Class H Standpipe Systems Installed after 1996: | 65 psi with 100-gpm flowing. |

(c) On-site Water Supply:

- [1] Determine that filling for on-site water supply, if provided, operates when flow test is conducted.
- [2] Determine that air pressure and/or water supply gauges, if provided, are in proper working condition.

SECTION 4 GENERAL TEST PROCEDURES

Class II (Wet) Standpipes:

(d) Outlets:

- [1] Check each outlet for signs of corrosion and leakage.
- [2] Where the residual pressure at a 1-1/2 inch outlet exceeds 100 psi, an approved pressure-regulating device shall be provided to limit the residual pressure to 100 psi.
- [3] Flow water from each outlet in the system in a manner that will indicate the valves are fully operable and that there is water pressure at that outlet.

(e) Hose:

Inspect hose at each outlet. Examine full length of hose section for mildew, cuts, abrasions, and other deterioration. Check hose couplings for gaskets, damage and obstructions. Check for proper nozzles. Unlined hose shall be equipped with smoothbore nozzles; lined hose shall be equipped with adjustable spray nozzles.

(f) Service Testing:

Hydrostatic testing of fire hose shall be conducted in accordance with NFPA-1962 Chapter 5. and Title19/NFPA 25 California edition

EXCEPTION:

Unlined hose shall not be hydrostatically tested. Hose shall be replaced with lined hose when replacement is necessary.

(3) Combined Standpipe/ Sprinkler Systems (wet):

Determine that all equipment is in proper operating condition and well maintained in accordance with applicable portions of NFPA-14, NFPA 13 and Title 19/NFPA 25-California Edition

NOTE: 1 1/2" Hose stations connected to automatic sprinkler systems installed under NFPA 13 are not required to meet flow requirements of NFPA 14 or Title 19/NFPA 25 California Edition.

- (a) **Fire Department Connection:** Determine that appropriate inlet connections are provided and are in operable condition. Determine that approved signs have been provided. Incorrect or missing signs shall be noted by the Certified Tester in section V of the F-340R Automatic Fire Sprinkler 5 year Fire Protection Equipment Performance Report for Fire Department follow-up inspection.
- (b) **Flush the Fire Department Inlet Connection and Piping:** Use the following method to remove obstructions and/or debris from the Fire Department inlet connection and piping:

SECTION 4 GENERAL TEST PROCEDURES

Combined Standpipe/ Sprinkler Systems (wet): (continued)

(c) **Back Flush:**

- [1] With the main system shut-off valve closed and the piping to the Fire Department connection drained, disassemble and inspect the check valve, then remove, reverse, or block open the clapper in the check valve. Reassemble check valve.
- [2] Open the main system shut-off and flow adequate water backwards through the Fire Department connection inlet to assure that all debris is cleared from the inlet piping and Fire Department connection. Restore system to normal.

NOTE: This is the preferred method of clearing the Fire Department connection.

(d) **Hydrostatic Test:**

Systems Affected: Dorothy Mae, Automatic Wet, Combined Standpipe/Sprinkler, Class III Standpipe

Perform a hydrostatic test of the FDC piping in accordance with NFPA 13 2010 edition Chapter 24, Section 24.2.1.10 for the required PSI and Chapter 6 NFPA 25 2013 California edition Table 6.3.1.6 for the test duration.

The piping between the fire department connection and check valve shall be hydrostatically tested at 150 psi for 3 minutes every five years.

NOTE: This test is required where the distance between the FDC piping and the check valve is greater than 3 feet and/or all FDC underground piping back to the check valve.

(e) **Conduct Air Test of FDC piping** (where necessary)

Air test 25 psi for 30 minutes to check for leakage where water damage to property may occur.

(f) **Conduct Hydro Static Test:**

Hydrostatically test the piping between the FDC and the check valve @ 150 psi for 3 minutes

Check for a significant drop in pressure or visual leakage. A slight fluctuation in pressure may occur due to a change in temperature. This is not considered a pressure loss. A Very small bead of water may also appear at a fitting. This is not considered a leak unless the bead of water continues to grow and drip.

Equipment needed: Air Compressor, Electric Hydrostatic Test Pump or Fire Pump Apparatus, Pressure gauges.

(g) **Main Drain/Water Supply Test:** With the main drain valve closed, note the static pressure reading on the gauge. Fully open the main drain valve with water flowing, note the residual reading on the pressure gauge. Close main drain valve and note pressure gauge reading. A slow return on pressure gauge to original static reading may indicate a closed valve or obstructions in water supply lines.

(h) **Gauge Tests:** Connect a test gauge at the test gauge opening to determine the reliability of existing gauges.

SECTION 4 GENERAL TEST PROCEDURES

Combined Standpipe/ Sprinkler Systems (wet): (continued)

(l) **On-site Water Supply:**

Determine that filling for on-site water supply, if provided, operates when flow test is conducted.

Determine that the air pressure and/or water supply gauges on dry, pre-action, and deluge systems are in proper working condition.

NOTE: Tests of dry, pre-action and deluge systems will be done by using the bypass connection.

(j) **Sprinkler Inspection:**

[1] Inspect system for proper sprinkler head placement, orientation, type, proper hangers, seismic bracing, and signs of corrosion, physical damage, or paint on the cap, fusible link/bulb or on the deflector in an amount that will change the sprinkler pattern

NOTE: Sprinklers protecting spray-coating areas shall be protected against over-spray residue. Sprinklers shall be protected using plastic bags having a maximum thickness of 0.003 inches, [0.076mm] or with small paper bags. Coverings shall be replaced when deposits or residue accumulate.

[2] Inspect spare sprinkler heads box for correct number and type of sprinkler heads and proper wrench. The number of spare sprinkler heads shall be as follows:

- Less than 300 heads - not less than 6 sprinklers heads.
- 300 to 1,000 heads - not less than 12 sprinklers heads.
- Over 1,000 heads - not less than 24 sprinklers heads.

NOTE: Improper sprinkler installation issues e.g. broken hangers; seismic bracing lack of coverage, etc. shall be indicated in section V of F-340R Fire Protection Equipment Performance Report for follow-up by the Department of Building and Safety. Fire code issues such as missing/incorrect signage or spare sprinkler heads etc. are handled in similar same manner except the follow-up inspection will be made by fire department personnel.

(k) **Sprinkler Testing:**

- [1] Sprinkler heads in operation over 50 years and sprinkler heads known to have an abnormally high failure rate listed by the Chief shall have a representative sample of not less than four sprinklers or 1 percent, whichever is greater tested by an approved testing laboratory for evaluation. If one sprinkler fails, all sprinklers in the system represented by the submitted sample shall be replaced. This testing procedure shall be repeated at 10 year intervals after the initial 50 year test.
- [2] Sprinkler heads manufactured prior to 1920 shall be replaced.
- [3] Fast response sprinkler heads that have been in service for 20 years shall be tested and re-tested at 10-year intervals.
- [4] Representative samples of solder-type sprinklers with a temperature classification of Extra High (325 degrees /163 degrees C) or greater that is exposed to continuous maximum allowable ambient temperature conditions shall be tested at five-year intervals

SECTION 4 GENERAL TEST PROCEDURES

Combined Standpipe/ Sprinkler Systems (wet): (continued)

- (l) **Sprinkler Pressure Reducing Valves: (PRV's)** Sprinkler systems with static pressures in excess of 175 psi shall be equipped with approved pressure regulating devices.
- (m) **Sprinkler PRV Full Flow Test:** Verify that the PRV will maintain the pressure on the system side of the valve to no more than of 175 psi by opening the sectional drain valve and reading the gauges on the supply and system side of the valve.
- (n) **Inspector's Test Valve Operation Test:** Open the Inspector's test valve at the most remote location from the main control valve in the system. The alarm must sound within 5 minutes for mechanical water motor-type alarms and within 20 to 60 seconds for electrically monitored water flow switches.
- (o) **Valves:** Operate, inspect, and lubricate post indicator valves, underground gate valves, OS&Y valves, and one-way check valves to determine that they are in good operating condition and do not leak. Return all valves to their normal position.

NOTE: Control valves that are not supervised shall be secured in their normal position using a break-a-way lock and chain. Certified Tester shall indicate in section V of the F-340R Fire Protection Equipment Performance Report for Fire Department follow-up/inspection

- (p) **Tamper Supervisory Switches** Check tamper supervision circuits by moving valve from its normal position two revolutions or 1/5 the travel of the valve whichever is less. This shall initiate a distinctive signal at the fire alarm panel, if provided.
- (q) **Sprinkler Wrench:** A special sprinkler wrench[s] shall be provided and kept in the cabinet to be used in the removal and installation of sprinklers. A sprinkler wrench shall be provided for each type of sprinkler installed.
- (r) **Flow Test:**
 [1] Flow a minimum of 500-GPM for the first standpipe through the most remote Fire Department outlets plus 250-GPM for each additional standpipe with the total supply not to exceed 1,250-GPM. (1000 GPM in fully sprinklered buildings)The system shall maintain a residual pressure of not less than 65 PSI for three minutes. Buildings built after 1993 should obtain 100 PSI. See F-340R Combined Standpipe and Sprinkler Performance Report for additional information Test gauges shall be used to measure residual pressures and a pitot gauge and Underwriters' Playpipe nozzle or approved flow meter shall be used to measure water flow quantities.

EXCEPTION:

Existing retrofit buildings as regulated by section 91.8604 of the Los Angeles Building Code that are 75 feet to 275 feet, shall flow a minimum of 750-GPM at 65 psi at the roof. Buildings greater than 275 feet shall flow a minimum of 1000-GPM at 65 psi at the roof.

[2] Ensure fire pump starts automatically upon water flow

NOTE: A separate flow test shall be conducted for each Fire Department Connection and riser.

SECTION 4 GENERAL TEST PROCEDURES

Combined Standpipe/Sprinkler Systems (Wet): Continued

Alternate Flow Test Procedure (systems calculated for sprinkler demand only)
Connect a reliable water source and pressure gauge to the lowest inlet connection, Fill the system with water and record the static/head pressure (SP). Connect a flow meter and pressure gauge at the topmost outlet with 100 GPM flowing, measure the inlet pressure and the outlet residual pressure (RP). Calculate the friction loss (FL) by subtracting the combined static pressure (head) and residual pressure from the inlet pressure obtained during the flow test.
Use the following formula: **FL= IP- (SP+RP)**.
The friction loss in the system shall not exceed 15 PSI.

NOTE: The Certified Tester is required to hold a valid Class I certification to perform the alternate flow test procedure

(s) Fire Department Hose Outlets and Pressure Reducing Valves

- [1] Check each Fire Department outlet for any signs of corrosion and leakage.
- [2] Inspect and operate each outlet valve in the system to determine that it will function properly. Close valve and replace cap.
- [3] **Static Pressure:** Where the static pressure at a hose connection exceeds 150 psi, an approved pressure-regulating valve shall be provided to limit the static pressure to 150.
- [4] **Residual Pressure:** A residual pressure between 80 and 125 psi with 300-gpm flowing is required.

EXECTION: Buildings built after 1994 shall have a residual pressure between 100 and 125 psi with 300-gpm flowing. Where possible all valves shall be set to flow 125 psi while maintaining 300 GPM.

NOTE: Where static pressures above 150 or 175 are found, the Chief's Regulation No. 4 Unit shall be contacted to verify the approved static pressure and residual flow. In no case shall the static pressure of a pressure reducing valve be adjusted without conducting a full flow test to verify the approved residual pressure.

- [5] Flow water from each Fire Department hose valve outlet not equipped with pressure regulating valves in a manner that will indicate the valve is fully operable and that there is appropriate water pressure at each outlet.
- [6] Check automatic drip connections, if provided, for proper function.

(t) On-Site Water Supply:

- [1] Determine that filling for on-site water supply, if provided, operates when flow test is conducted.
- [2] Determine that air pressure and/or water supply gauges, if provided, are in proper working condition.

NOTE: Fire pump(s) must be operating during procedures (m) (r) and (s) above.

SECTION 4 GENERAL TEST PROCEDURES

Combined Standpipe/ Sprinkler Systems (wet): (continued)

NOTE: Looped systems: Combined Standpipe Systems equipped with looped standpipe risers shall be flow tested by shutting down one side of the system at a time and flowing water from the open side. Fire alarm initiation shall take place within 20 to 60 seconds. After both sides have been individually tested, a flow test with both flow valves open shall be conducted. Tamper valves shall be tested by moving valve from its normal position two revolutions or 1/5 the travel of the valve whichever is less. This shall initiate a trouble signal at the fire alarm panel.

NOTE: A separate flow test shall be conducted for each Fire Department connection and riser.

See F-340R Combined Standpipe and Sprinkler Fire Protection Equipment Performance Report for additional procedures

O. Supervising Station Alarm Systems

NOTE: The following configurations of Supervising Station Alarms may be found:

- **A Stand Alone Control Panel or,**
- **A Separate Control Panel Connected to a Fire Alarm Control Panel or**
- **An integrated Digital Alarm Communicator Module Component of a Fire Alarm Control Panel**

NOTE: Integrated communicators are tested as part of the fire alarm system.

- [1] Test all fire protection equipment, systems, and devices, which are supervised by an approved supervising station monitoring company for their proper operating condition, supervision and maintenance in accordance with NFPA-72.
- [2] Maintaining a chronology of all testing.
- [3] Determine that the transmitter panel is operating properly and the approved system description, sequence of operation and operating instructions are available.
- [4] Notify LAFD fire dispatch, the supervising station monitoring company and building occupants prior to conducting tests.
- [5] Actuate each water flow alarm device by use of the Inspector's test valve.
- [6] Actuate all other fire alarm devices, supervisory devices and transmitters for proper operation and supervision.
- [7] Determine that the system has two approved methods /pathways of transmitting the signal to the supervising station monitoring company.
- [8] Check primary and secondary power supplies

At the conclusion of the test notify the supervising station monitoring company, to determine that the supervising station properly supervised and received all test signals. Return system to the normal mode, and notify building occupants that the test is complete.

See F-340R Supervising Station Alarm Fire Protection Equipment Performance Report for additional procedures

SECTION 5 – APPLICATION

The provisions of this regulation do not supersede, nullify, or in any manner abrogate any other provision of the Los Angeles City Fire Code. Compliance with the provisions of this regulation does not relieve any person from compliance with applicable provisions of any County, State, or Federal Law.

**Los Angeles City Fire Department
Chief's Regulation No. 4 Requirements**

APPENDIX

GUIDELINES FOR SEQUENCE OF OPERATION FOR LIFE SAFETY SYSTEMS IN HIGH-RISE BUILDINGS

	Manual Pull Station	Elevator Lobby Smoke Detector	Area Smoke Detector	Return Air Duct Smoke Detector	Elevator Shaft Smoke Detector	Sprinkler Water Flow Switch	Sprinkler Valve Tamper Switch	Special Extinguishing System	Building Power Failure
Annunciate @ FCR (alarm and trouble)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Annunciate @ 24-hour attended remote location (alarm and trouble)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Activate Audible Alarm Signal on floor of alarm	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No
Shut Down All Air Handling (HVAC) on floor of alarm	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No
Release All Electromagnetically Held Doors on floor of alarm	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Activate Smoke Evacuation System on floor of alarm	Yes	Yes	Yes	Yes	No	Yes	No	No	No
Recall All Elevators serving floor of alarm	No	Yes	No	No	Yes	No	No	No	Yes
Release All Stair Shaft Door Locks in building	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Activate All Stair Shaft Pressurization Fans in building	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No
Open Elevator Shaft Smoke Damper	No	No	No	No	Yes	No	No	No	No
Release Approved Elevator Security Door Locks	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes