FIRE DEPARTMENT • CITY OF NEW YORK

STUDY MATERIAL FOR THE EXAMINATION FOR THE CERTIFICATE OF FITNESS FOR

RESIDENTIAL SPRINKLER SYSTEM

S-11

(Residential R2 Occupancies up to and including 6 stories with not more than 30 sprinkler heads or a compactor sprinkler system. System water supply contains no fire/booster pumps or no gravity/pressure tanks.)

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NOTICE OF EXAMINATION

Title: **Examination for the Certificate of Fitness for Residential Sprinkler Systems (S-11)**

Date of Test: Written tests are conducted Monday through Friday (except legal holidays) 8:00 AM to 2:30 PM.

QUALIFICATION REQUIREMENTS

1. Applicants must be at least 18 years of age.
2. Applicants must have a reasonable understanding of the English language.
3. Applicant must provide two forms of identification, at least one identification must be government issued photo identification, such as a State-issued Drivers' License or Non Drivers License or a passport.
4. Applicants must present a letter of recommendation from his/her employer. The letter must be on official letterhead, and must state the applicant's full name, experience and the address where the applicant will work. If the applicants are self-employed or the principal of the company, they must submit a notarized letter attesting to their qualifications. The sample letters are available at the link below http://www.nyc.gov/html/fdny/html/c_of_f/cof_requirements.shtml or the Public Certification Unit, 1st floor, 9 Metrotech Center, Brooklyn, NY 11201.
5. Applicants not currently employed may take the test without the recommendation letter. If the applicants pass the test, FDNY will issue a temporary letter with picture for the job seeking purpose. The C of F card will not be issued unless the applicants are employed and provide the recommendation letter from his/her employer.

APPLICATION INFORMATION

Application Fees:$25.00 for originals and $ 5.00 for renewals. The fee may be paid by credit card (no debit), in cash, money order or personal check payable to New York City Fire Department. The $25.00 fee must be payable by all applicants prior to taking the Certificate of Fitness test. Application forms are available at the Public Certification Unit, 1st floor, 9 Metro Tech Center, Brooklyn, NY 11201.

Application Forms: Application forms are available at the Public Certification Unit, 1st floor, 9 Metro Tech Center, Brooklyn, NY 11201 or at this link: http://www.nyc.gov/html/fdny/pdf/a20.pdf

RENEWAL REQUIREMENTS

You will receive a courtesy notice of renewal 90 days before the expiration date. However, it is your responsibility to renew your Certificate. It is very important to renew your C of F before it expires.

For renewal, send the renewal notification or a letter stating the C of F # with a fee of

$15, money order or personal check payable to “Fire Department City of New York“ to:

FDNY (Cashier’s Unit)
9 MetroTech Center,
Brooklyn, NY 11201

Late renewals (90 days after the expiration date, up to 1 year) will incur a $ 25 penalty in addition to the renewal fee. Certificates expired over one year past expiration date will not be renewed. New tests will be required. FDNY also reserves the right to require the applicants to take a re-examination upon submission of renewal applications.

TEST INFORMATION

The S-11 test will consist of **50** multiple-choice questions, administered on a “touch screen” computer monitor. It is a time-limit test. A passing score of at least 70% is required in order to secure a Certificate of Fitness. Call (718) 999-1988 for additional information and forms.

Special material provided during the test:
The following 3 materials will be provided to you as a reference material when you take the test at Metro Tech, however, the booklet will not be provided to you during the test.

1. Temperature Ratings Classifications and Color Coding Table
2. Reference Guide for Monthly Inspection (Section 12.3)
3. Inspection Testing and Maintenance of Sprinkler Systems Activities & Records (Section 12.4)

WEBSITE
Please always check for the latest revised booklet at FDNY website before you take the test, the Certificate of Fitness Study Material link, below
http://www.nyc.gov/html/fdny/html/c_of_f/cof_study_materials.shtml

Study Material and Test Description

About the Booklet

This study material will help you prepare for the written examination for the Certificate of Fitness for Residential Sprinkler Systems. The study materials include information taken from the New 2008 New York City Fire Code (FC) Chapter 9, Fire Department Rules Chapter 9 Inspection, Testing and Maintenance of Water Based Fire Protection Systems. **It is critical that you read and understand this booklet to help increase you chances of passing this exam.** Please check for the latest revised booklet at FDNY website, the Certificate of Fitness Study Material link, below
http://www.nyc.gov/html/fdny/html/c_of_f/cof_study_materials.shtml

About the Test

You must pass a multiple choice test to qualify for the certificate of fitness. A score of 70% correct is required in order to pass the test. All questions have four answer options. Only ***one*** answer is correct for each question. If you do not answer a question, or if you mark more than one answer to a single question, your answer to that question will be scored as incorrect. Read each question carefully before marking your answer. There is no penalty for guessing.

Sample Questions

1. Which one of the following statements best describes the picture shown below?

(A) Sprinkler head.
(B) Fire department connection.
(C) Standpipe fire hose.
(D) Sprinkler System.

The correct answer is "**A**". You would mark "**A**" on your touch-screen terminal.

2. What sports team plays at Madison Square Garden?

(A) Yankees.
(B) Mets.
(C) Cardinals.
(D) Knicks.

The correct answer is "**D**". You would mark "**D**" on your touch-screen terminal.

PART 1: INTRODUCTION

A sprinkler system is a fire extinguishing system, other than a water mist system, that utilizes water as the extinguishing agent. Whether a building shall be provided with sprinkler protection or not is generally set forth in the NYC Building Code. The Fire Code however does contain several sprinkler requirements, such as for the high piled combustible storage and for buildings constructed on streets of substandard width. Inspection, testing, servicing and other maintenance of sprinkler systems must be personally supervised (FC901.6.3).

Required fire protection systems shall be extended or altered as necessary to maintain and continued protection whenever the building or structure is altered (FC 901.4.1). Systems not complying with this section shall be considered to be impaired.
It shall be unlawful to install or maintain any fire protection system or device that has the physical appearance of fire protection equipment but that does not perform a fire protection function where it may be confused with actual fire protection equipment. (FC 901.4.4) An example would be a CCTV camera modeled to look similar to a sprinkler head.

PART 2: RESPONSIBILITY OF THE BUILDING OWNER

It shall be the owner's responsibility to maintain the sprinkler system and to determine the individual qualifications and competencies of the individual his Certificate of Fitness holder to perform certain functions related to inspection, testing and maintenance.

The building owner or their agent shall assign an impairment coordinator to maintain s of all system inspections, tests, servicing and other items of maintenance shall be kept on site for a period of five years and made available for inspection by any member of the FDNY. In absence of a specific designee, the building owner shall be considered the impairment coordinator (FC 901.7.1).

PART 3: OUT OF SERVICE SYSTEMS (OOS)

Fire Department Code Section 901.7 Out of service systems: Where a required fire protection system is out of service, the department shall be notified immediately and unless otherwise directed by the commissioner, either the building shall be evacuated or a fire watch shall be maintained by one or more persons holding a certificate of fitness for fire guard. Any other actions as the commissioner may direct in addition to or in lieu of such measures shall also be undertaken, until the fire protection system has been returned to service. Where utilized, fire guards shall be provided with at least one approved means for notification of the department and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires.

901.7.1 Impairment coordinator. The building owner shall assign an impairment coordinator to comply with the requirements of this section. In the absence of a specific designee, the owner shall be considered the impairment coordinator.

901.7.2 Tag required. A tag shall be used to indicate that a system or portion thereof, is out of service.

901.7.3 Placement of tag. The tag shall be posted at each fire department connection, system control valve, fire alarm control unit, fire alarm annunciator and fire command center, indicating which system, or part thereof, is out of service. The commissioner shall specify where the tag is to be placed.

901.7.4 Planned removal from service. The certificate of fitness holder and the impairment coordinator shall be made aware of and authorize the placing of systems out of service. Before authorizing such action the impairment coordinator shall:

1. Determine the extent and expected duration of the out of service condition.
2. Inspect the areas or buildings involved and assess the increased risks.
3. Make appropriate recommendations to the owner.
4. Notify the department and the responsible person designated by the owner to issue hot work authorizations in accordance with Chapter 26.
5. Notify the central station and insurance carrier.
6. Notify the occupants in the affected areas.
7. Place out of service tags at all required and appropriate locations.
8. Maintain system in service until work is ready to begin.

901.7.5 Unplanned out of service condition. The certificate of fitness holder, impairment coordinator, and/or other person responsible for inspecting, maintaining or supervising the operation of a fire protection system who observes a serious defect such as a break or major leak in system water piping, inoperative or shut water supply valves, defective Fire Department connections, or complete or partial shut down of sprinkler, other than a shutdown for scheduled inspection, testing or maintenance, shall immediately report such condition to the owner of the building, and to the department. When a system fails or otherwise goes out of service, the certificate of fitness holder or the impairment coordinator shall take the actions set forth in Section 901.7.4. and such other actions necessary or appropriate to protect the occupants of the building and minimize property damage. When the certificate of fitness holder or other such person observes a minor defect or other condition not presenting a serious safety hazard, he or she shall report the defect or condition to the owner, and if the defect or condition is not corrected within 30 days, shall report it in writing to the department.

901.7.6 Restoring systems to service. When an out of service device, equipment or system is restored to normal working order, the impairment coordinator shall:

1. Conduct necessary inspections and tests to verify that the affected systems are operational.
2. Reserved.
3. Notify the department.
4. Notify the owner, central station, insurance carrier and occupants in the affected areas.
5. Remove the out of service tags.

Fire guard: Fire guard(s) shall be required when an automatic fire protection system is shut down while being repaired. The fire guards are responsible for making sure that fire safety regulations are obeyed. Fire guards must have a good working knowledge of basic fire fighting and fire protection techniques. They must know the location of all fire protection devices in their areas of responsibility. They must make sure that these devices are in good working conditions at all times.

Planned removal from service: When the system, or a portion of the sprinkler system, is placed out of service for a scheduled inspection, testing, regular maintenance, minor repairs or for construction affecting not more than 1 floor, the certificate of fitness holder and the impairment coordinator shall be made aware of and authorize the placing of the system out of service.

Unplanned out of service condition: A serious defect in the sprinkler system including, but not limited to: a break or major leak in the system's water piping, inoperative or shut water supply valves, defective fire department connections, construction related shut downs affecting more than one floor, or complete or partial shut downs of the sprinkler system, other than a shut down for a planned removal from service.

Fire Department Notifications For Out of Service Conditions:

a) For a planned removal from service, as described above, no notification to the Fire Department is required provided the system will be returned to service within an 8 hour period **and** when all other fire protection systems in the building (standpipes and alarm systems) are fully operational.
b) For an unplanned removal from service as described above, the certificate of fitness holder, impairment coordinator, and/or other person responsible for inspecting, maintaining or supervising the operation of a fire protection system shall immediately report such condition to the owner of the building and to the Fire Department Borough `Communications office (FC 901.7.5). The telephone numbers are as follows:

Manhattan	**212-570-4300**
Bronx	**718-430-0200**
Brooklyn	**718-965-8300**
Queens	**718-476-6200**
Staten Island	**718-494-4296**

c) The initial Fire Department notification shall include the following:

1. A brief description and extent of the out of service condition.
2. The area of the building affected.
3. The type of occupancy
4. The estimated time the system will be out of service.
5. The name and phone number of the person making the notification.

d) When the certificate of fitness holder observes a minor defect or other condition not presenting a serious safety hazard, he or she shall report the defect or condition to the owner, and if the defect or condition is not corrected within 30 days it shall be deemed to

be an impairment and reported in writing to the Fire Department (FC 901.7.5). Correspondence should be sent via email **spkstp@fdny.nyc.gov** or by certified documents to:

New York City Fire Department
Bureau of Fire Prevention
Fire Suppression Unit, 3rd Floor
9 Metro Tech Center
Brooklyn, New York 11201

Identifying Out of Service Systems Using Discs/Tags:

The Impairment Coordinator shall be made aware of and authorize the placing of systems out of service. Before authorizing such action, the impairment coordinator or the S-11 Certificate of Fitness holder, a Master Fire Suppression Piping Contractor - Class A or B, a Master Plumber (as restricted) or owner holding an S-12 Certificate of Fitness shall place these tags. The Impairment Coordinator or the S-11 Certificate of Fitness holder shall ensure placement of these discs or FDNY units. When the condition has been corrected, the disc(s) shall be removed immediately.

Tag Requirement: A tag shall be used to indicate that a system, or portion, is out of service shall be required to post tags at the main control valve and at any closed sectional valves serving areas affected (FC901.7.2). The tag shall indicate the area affected, a brief description of the condition, the occupancy classification, C of F number and the estimated time until the system becomes operational.

The results of a drain test shall be posted on the tag indicating both the static and flow pressures before and after the system was placed in and out of service condition.

If no impairment is found in the entire system **green** tags will be placed on the **main control valve.**

Systems Partially or Fully Out of Service: Fire suppression piping systems equipped with Fire Department connections shall follow the following procedures for identifying systems out of service:

Systems Fully Out of Service: The impairment coordinator/building owner shall ensure that the local administrative fire company, Master Fire Suppression Piping Contractor (MFSPC) (Class A or B) or Master Plumber (MP) (as restricted) has placed one **White** disk 8 to 9 inches in diameter on all affected fire department connections. **A RED** tag shall be placed at the main control valve indicating the sprinkler company name, date of removal from service and anticipated return to service date.

Systems Partially Out of Service: The impairment coordinator/building owner shall ensure that the local administrative fire company, MFSPC's or FDNY units Master Fire Suppression Contractor Class A or B has placed one **Blue** Disk 8 to 9 inches in diameter on all affected fire department connections. A **Red** tag shall be placed at the main control valve and any closed

sectional valve indicating the company name, date of removal from service and anticipated return to service date.

An Example of FDNY White and Blue Discs

The certificate of fitness holder and the impairment coordinator shall be made aware of and authorize the placement of system(s) out of service that are planned to be shut down. The impairment coordinator prior to taking a system out of service shall:

- Determine the duration the system is to be out of service,
- Inspect the areas of the building affected and assess the increased risk,
- Notify the insurance carrier, the central station operator (if so equipped), the occupants of the affected area, and place out of service tags and discs at the appropriate locations (901.7.4).

Impaired Equipment: Underground service mains, water storage tanks, Fire Department connections, control valves, fire and or booster pumps, that are out of service and are considered vital to part of the system that are required to be tagged following procedures outlined in chapter 14 NFPA #25 2002 Ed.

Tags placed at control valves shall indicate the level of impairment for system fully or partially shut down or defect as follows:

	Tag	**Disk**
System fully out of service	**Red**	**White**
System partially out of service	**Red**	**Blue**

Only FDNY, owner, MFSPC or MLP (as restricted) may place a white or blue disc on a system. For systems that are fully or partially out of service that are not equipped with Fire Department connections, the appropriate tags shall be placed at the main control valve. FDNY is to be notified immediately.

In a building required by the NYC Fire Code to have an S-11 C of F, is authorized to take the system out of the service for less than 8 hrs and place an appropriate colored tag on that system. A fire guard with a C of F must be on the premises at the all times.

Prior to returning a system to service, the impairment coordinator shall ensure that the necessary tests and inspections are conducted to verify that the system is operating normally, notify FDNY borough dispatcher, the building owner's tenants in the affected area, the insurance carrier, central station operator (if so equipped) and remove out of service tags and discs. (FC 901.7.6)

PART 4: PROCEDURE FOR DETAIL RECORD KEEPING, IMPAIRMENTS & SAFETY

It shall be the responsibility of the Certificate of Fitness holder to perform the following:

Record keeping - The Certificate of Fitness holder shall maintain a detailed detail record of all inspections. A detail record with the date of each inspection, the Certificate of Fitness number, and the signature of the Certificate of Fitness holder shall be posted near the main control valve.

A detailed inspection report as required by **FC 901.6.2.1** shall include information relative to conditions of the water supply, valves, risers, piping, sprinkler heads and Fire Department connections, and alarms if so equipped, obstructions to sprinkler heads, and conditions of all other system equipment and appurtenances. All defects and/or impairments shall be noted on the report. A detailed record shall be **readily available** to any representative of the Fire Department. These detail records are to be maintained on site by the building owner for **three** years.

Fire Department Code Section 901.6.2 Records - Records of all system inspections, tests, servicing and other maintenance required by this code, the rules or the referenced standards shall be maintained on the premises for a minimum of 3 years and made available for inspection by any department representative.

> **901.6.2.1 Standpipe and sprinkler systems -** In addition to those records required by NFPA 25, an approved card bearing the dates of each inspection, certificate of fitness number and signature of the certificate of fitness holder shall be posted on the premises near the main water supply control valve. A detailed inspection report relative to conditions of water supply, gravity and pressure tanks and levels therein, valves, risers, piping, sprinkler heads, hose valves, hose and nozzles, Fire Department connections, alarms, fire pumps, obstructions, and conditions of all other system equipment and appurtenances shall be completed monthly by the certificate of fitness holder. All defects or violations shall be noted on the inspection report.

Notification of all defects shall be reported to the owner or their representative by the Certificate of Fitness holder. After 30 days, any of the defects that have not been corrected shall be immediately reported to the Fire Department Borough Communication Office.

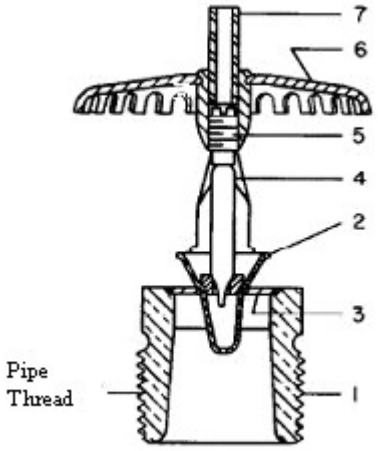
Failure to make inspections, maintain detail records, and report defects or violations may be cause for revocation of the Certificate of Fitness and court enforcement proceedings.

PART 5: INDIVIDUALS AUTHORIZED TO PERFORM TASKS AS PER NYC FIRE CODE

1. **Certificate of Fitness (C of F) for S-11** -visual inspections only, proper notification and detail record inspection results for examination by FDNY.
2. **A Certificate of Fitness (C of F) holder for S-12** is permitted to perform visual inspections and detail record all inspection results for examination by FDNY.
3. **Master Fire Suppression Piping Contractor (MFSPC)** – **with S-12 C of F** can inspect, test, maintain and repair/replace sprinkler systems components, detail record maintenance, inspection and test results for examination and evaluation by FDNY.
4. **Master Plumber (MP)** – **with S-12** is limited to residential (R) occupancies 30 sprinkler heads or less.

PART 6: DEFINITIONS

Alarm Valve - Alarm devices shall be inspected **monthly** to verify that they are free of physical damage.
Automatic Ball Drip - An automatic drain valve horizontally installed at the low point in the Fire Department connection piping of automatic sprinkler systems. Water pressure from a Fire Department pumper automatically closes this valve. It automatically re–opens when pressure ceases, permitting this piping to drain and thereby preventing freezing.
Automatic Sprinkler - A fire suppression or control device that operates automatically when its heat-actuated element is heated to its thermal rating or above, allowing water to discharge over a specific area.
Concealed Sprinkler - A recessed sprinkler with a cover plate.
Check Valve - A valve that allows flow in one direction only.
Control Valve - A valve controlling flow to water-based fire protection systems. Control valves do not include hose valves, inspector's test valves, drain valves, trim valves for dry pipe, pre-action and deluge valves, check valves, or relief valves.
OS & Y valve (Outside Stem and Yoke valve) - is an indicating type of control valve used for fire sprinkler system.
Deficiency - A condition in which the application of the component or system(s) is not within its designed limits or specifications. **Dry Sprinkler** - A sprinkler secured in an extension nipple that has a seal at the inlet to prevent water from entering the nipple until the sprinkler operates. May be configured with an upright, pendent or sidewall sprinkler.
Discharge Device (sprinkler head) - A device designed to discharge water over a predetermined, fixed area.
1. Frame 2. Button 3. Gasket spring plate 4. Bulb 5. Compression Screw 6. Deflector 7. Pintle

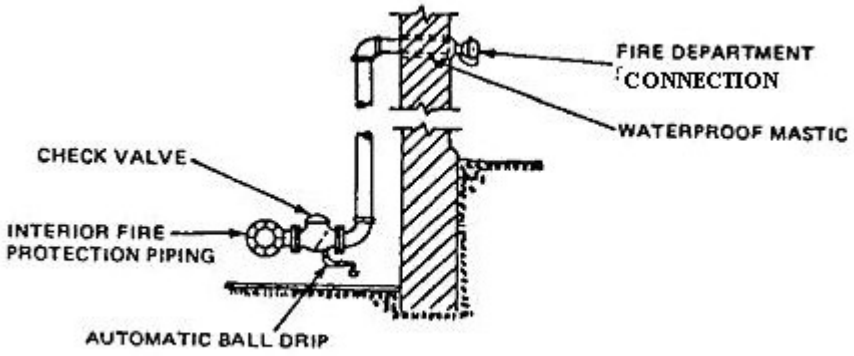


STANDARD COVERAGE UPRIGHT SPRINKLER

Dwelling - Any building that contains not more than one or two dwelling units intended to be used, rented, leased, let, or hired out to be occupied or that are occupied for habitation purposes.

Dwelling Unit - One or more rooms arranged for the use of one or more individuals living together, as in a single housekeeping unit, that normally have cooking, living, sanitary, and sleeping facilities.

Fire Department Connection - A connection, mounted on the exterior of the building or free standing, through which the fire department can pump supplemental water into the sprinkler system to augment existing water supplies. (**Formerly know as siamese connection.)**



The automatic ball drip device between the lower check valve and the outside Fire Department water from building up in the piping and **shall be installed in the horizontal position**. This ball drip device makes sure that the Fire Department connection is not blocked by water which has frozen within the piping. If water freezes in the piping, the Fire Department will not be able to pump water into the system.

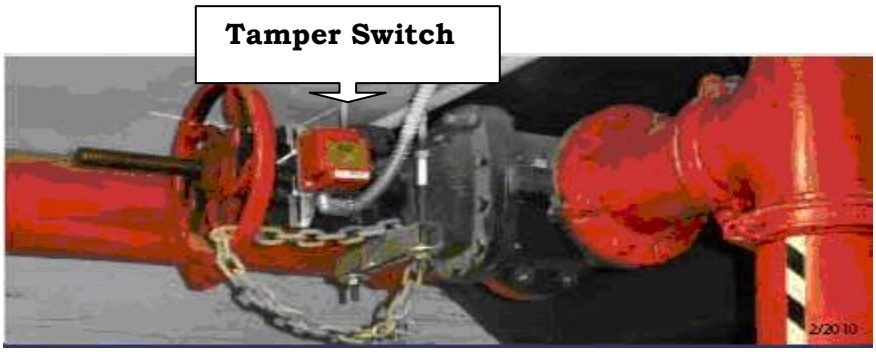
Fire Hydrant - A valve connection on a water supply system having one or more outlets and that is used to supply hose and fire department connections with water.

Glass Bulb Sprinkler - A sprinkler operated by heat breaking a glass bulb filled with a non freezing liquid with diameters that vary from 3mm for quick response sprinklers to 5mm for standard response sprinklers.

Hydraulic Placard- A sign attached to a hydraulically calculated sprinkler system indicating the design density, required gallons per minute and pressure for the system to operate properly.

Hydraulically Calculated Systems - A method of sizing automatic sprinkler piping using a prescribed amount of water to be distributed over a specific area.
Hydrostatic Tests - Where a fire department pumper connection is provided, the system shall pass a hydrostatic pressure test performed in accordance with NYC Fire Code **912.6.**
Maintenance - Sprinkler system and standpipe system fire department connections shall be periodically inspected, tested, serviced and otherwise maintained in accordance with Section 901.6. Upon order of the commissioner, but at least once every 5 years, such fire department connections shall be subjected to a hydrostatic pressure test to demonstrate their suitability for department use. The test shall be conducted in accordance with the rules and at the owner's risk, by his or her representative before a representative of the department.)
Impairment Coordinator- The person responsible for ensuring that proper safety precautions are taken when a fire protection system is placed out of service.
Listed Device - A fire protection component that has been tested to perform under parameters specified for its use by a nationally recognized testing agency. Underwriter's Laboratory (UL) and Factory Mutual (FM) are the two most common.
Main Drain - The primary drain connection located on the system riser.
Microbiologically Influenced Corrosion (MIC) - Corrosion caused by the presence of microbes in the water supply that over time attack the interior of metallic piping and cause leaks, pitting, and blockages.
Out of service system - A fire protection system that is not fully functional; or whose operation is impaired or is otherwise not in good working order.
Old-Style/Conventional Sprinkler- A sprinkler that directs 40% to 60% of the water initially in a downward direction and is designed to be installed with the deflector in either the upright or pendent position.
Pendent Sprinkler - A sprinkler designed to be installed in such a way that the water stream is directed downward against the deflector.
Pintle Screws - A visual indicating device required for sprinklers manufactured prior to 1999 identifying small orifice sprinklers and large orifice sprinklers where orifice size is different than the nominal thread size of the sprinkler head.
Pipe Schedule Systems - A method of sizing piping based upon the number of sprinkler heads and the occupancy of the protected area with a minimum operating pressure of 15 psi.
Personal Supervision - Supervision by the holder of a FDNY Certificate of Fitness who is required to personally present on the premises, or other proximate location acceptable to the department, while performing the duties for which the certificate is required.
PSI - a unit of measure of pressure in **P**ounds per **S**quare **I**nch.
Quick Response Sprinkler Head - A sprinkler having a fusible link with a response time index (RTI) of 50 or less.
Recessed Sprinkler - A sprinkler in which all or part of the body, other than the shank thread, is mounted above the ceiling.
Residential Sprinkler - A type of fast-response sprinkler having a thermal element with an RTI of 50 (meters-seconds) 1/2 or less, that has been specifically investigated for its ability to enhance survivability in the room of fire origin, and is listed for use in the protection of dwelling units.
Response Time Index (RTI) - A measurement of the thermal sensitivity of a sprinkler head expressed in (meters-seconds) 1/2.

Residential Occupancies - Occupancies, as specified in the scope of this standard, that include the following, (1) apartment buildings, (2) lodging and rooming houses, (3) board and care facilities, and (4) hotels, motels, and dormitories.
Sprinkler Identification Number (SIN) - Sprinklers manufactured after Jan. 1, 2000 are required to be marked to identify performance characteristics.
Sidewall Sprinkler - A sprinkler having special deflectors that are designed to discharge most of the water away from the nearby wall.
Small orifice sprinklers - A sprinkler head with and orifice size smaller than ½".
Solder Link Sprinkler A sprinkler operated by the melting of a metal link, they vary in size and configuration for quick response and standard response sprinklers. The smaller the size of the link, the faster the sprinkler operates.
Spray Sprinkler - A type of sprinkler listed for its capability to provide fire control for a wide range of fire hazards. The most commonly used sprinkler since 1953.
Sprinkler system - A fire extinguishing system, other than a mist fire extinguishing system that utilizes water as the extinguishing agent.
Standard Response Sprinkler Head - A sprinkler having a fusible link with a response time index (RTI) of 80 or more.
Supply Pressure - The pressure within the supply (e.g., city or private supply water source).
System Pressure - The pressure within the system (e.g., above the control valve).
System Working Pressure - The maximum anticipated static (non flowing) or flowing pressure applied to sprinkler system components exclusive of surge pressures.
Tamper switch: Sprinkler tamper switches are designed to notify a fire alarm panel if the sprinkler has been impaired or the water supply has been shut off.



Testing - A procedure used to determine the status of a system by conducting periodic physical checks to ensure such a system is "perfect working order" as per 903.5.1 and 903.5.2 of the NYC Fire Code.
Upright Sprinkler - A sprinkler designed to be installed in such a way that the water spray is directed upwards against the deflector.
Water Supply - A source of water that provides the flows [gal/min (L/min)] and pressures [psi (bar)] required by the water-based fire protection system.
Wet Pipe Sprinkler System - 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 a fire.
Water flow Alarm Valves - The basic design of most water-flow alarm valves is that of a check valve which lifts from its seat when water flows into a sprinkler system. This alarm then starts an audible signal to alert the occupants in the building that the sprinkler system has been activated.

PART 7: SYSTEM TYPES

Sprinkler System - For fire protection purposes, an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The installation includes one or more automatic water supplies. The portion of the sprinkler system aboveground is a network of specially sized or hydraulically designed piping installed in a building, structure, or area, generally overhead, and to which sprinklers are attached in a systematic pattern. The valve controlling each system riser is located in the system riser or its supply piping. Each sprinkler system riser includes a device for actuating an alarm when the system is in operation. The system is may activated by heat from a fire and discharges water over the fire area.

AUTOMATIC WET SPRINKLER SYSTEMS

Wet Pipe Sprinkler System - 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 a fire.

Automatic sprinkler systems are designed to automatically distribute water on a fire. The sprinkler system is designed to extinguish the fire entirely, or to prevent the spread of the fire. An automatic sprinkler system consists of a series of pipes at or near the ceiling in a building. The sprinkler system is fitted with automatic devices designed to release water on a fire. These devices are called sprinkler heads. The sprinkler heads are normally closed by a disk or cap. This cap is held in place by a heat sensitive releasing element. A rise in temperature to a predetermined level causes the sprinkler head to open. Water is then discharged in the form of spray. When the sprinkler heads open they are said to have fused. The sprinkler heads are fitted at standard intervals on the piping. If more than one head opens, the area sprayed by each overlaps that of the sprinkler head next to it.

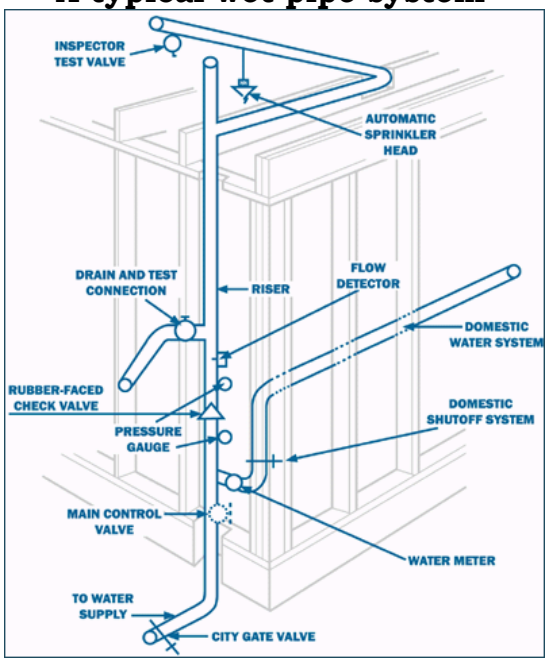
Sprinkler systems are required by law in various occupancies. They also may be installed voluntarily by the owner of the building. The sprinklers are installed to protect the building and its residents. The installation of sprinklers has a major effect in reducing fire losses. About 96% of the fires are extinguished or controlled when sprinklers are installed. The 4% failure was due to a variety of causes including defective piping, closed supply valves, frozen water lines, improper maintenance, and blocked water supply piping.

Automatic sprinklers are very effective for life safety. They signal the existence of a fire. At the same time they discharge water to the burning area. When sprinklers are installed there are rarely problems getting water to the seat of the fire. They also reduce interference with visibility for fire fighting due to smoke. The downward force of the water sprayed from sprinklers lowers the smoke level in the room. The sprinklers also serve to cool the smoke. This makes it possible for persons to remain in the area much longer than they could if the room were without sprinklers.

The most commonly installed system is wet pipe systems which have water in the piping at all times. This type of system is used where the temperature is maintained at minimum of 40F to

prevent the system from freezing. A picture of a typical wet pipe system is shown in the picture below:

A typical wet pipe system



Where temperatures drop below freezing the ordinary wet pipe system cannot be used. permitted to be installed.

GARBAGE COMPACTOR SPRINKLER SYSTEMS

Waste compactors are usually found in multiple dwelling complexes such as apartment buildings. They are used to reduce the trash buildup in a building. They consist of a chute with an opening at each floor. These opening are used for trash disposal. Occupants of the buildings take their trash and throw it through the opening and down the chute. The trash piles up at the bottom of the chute where a device regularly crushes the trash into smaller blocks of trash. The blocks of trash are then removed and taken to a garbage dump. The compactor may be located indoors or outdoors.

The build-up of trash in the compactor chute is a fire hazard. Fires may be started in several ways, for example, by a smoldering cigarette thrown into the compactor chute. Sprinkler systems must be installed to put out fires that start in the compactor chute. Any of the standard water supply sources may be used to supply the compactor sprinkler system. Fire doors shall be installed in the chute to allow firefighter access to burning trash.

The Certificate of Fitness holder shall know the location of all sprinkler heads, control valves, supply lines and compactor rooms. A sketch of the entire compactor sprinkler system shall be drawn by the Certificate of Fitness holder. This sketch shall be posted in the compactor room in a frame under glass. The sketch shall be made available to any representatives from the Fire Department. The Certificate of Fitness holder may be questioned about this sketch by inspectors from the Fire Department inspectors during routine inspections. A sign indicating

the location of all control valves shall be kept in the compactor room. This sign is shall be displayed with the sketch in the compactor room. All control valves in the sprinkler system shall be labeled. The label is to show the purpose of the valve. Additionally, the labels shall be attached to the yoke of the valves. All indicating valves in the compactor sprinkler system shall be sealed open.

A minimum of 6 extra sprinkler heads with the appropriate wrenches shall be available to replace any opened or damaged sprinkler heads. Opened or damaged sprinkler heads shall be replaced immediately. A garden hose connected to a water supply shall be kept in the compactor room. This hose may be used to put out small fires or smoldering material in the compactor room.

The Certificate of Fitness holder shall conduct an inspection of the entire sprinkler system at least once a month. Special attention should be given to the condition of the sprinkler heads in the compactor chute and the compactor room. Any defects or violations shall be detail recorded in a detailed inspection report. All inspections are detail recorded on a card that shall be kept near the main control valve. The Certificate of Fitness holder shall sign and date the card each time an inspection is made.

COMPACTORS OPERATIONS AND REGULATIONS:
The refuse room must be fire resistive, with a Fire Proof Self Closing door, be protected with a sprinkler system, and also have a water supply for a garden type hose.

Sprinkler System: Sprinkler heads are required in the compactor room, as well as inside of the compactor, near where it joins the chute. These sprinkler heads are fed by mostly off domestic water line (and in some exceptional cases from the garage sprinkler system or a standpipe riser) and there operation does not transmit an alarm. A small Outside Stem and Yoke (OS& Y) valve, controlling these heads is usually found near the entrance to the compactor room. Under actual fire conditions, it has been found that the head inside the compactor often does not function; even with fire burning nearby. This occurs when the head has become covered with trash, which tends to insulate the fusible link. Thus, the head inside the compactor should not be depended upon to extinguish the fire, or prevent its extension into the compactor room.

COMPACTOR ROOM

Refuse containers: Refuse containers in which refuse is deposited to await collection shall be constructed of metal. Containers shall be provided with tight-fitting covers. Containers shall be so constructed as to hold their contents without leakage. Adequate lighting shall be provided in refuse collection rooms.

Maintenance - Refuse chutes, refuse rooms, hoppers and all parts of the refuse collecting system shall be maintained in a clean and sanitary condition at all times, free of vermin, odors, and defects, and shall be maintained in good operating condition Newspapers, periodicals, magazines, paper bags, or similar waste paper shall first be tightly wrapped in small bundles and then placed for collection at the location. Throwing loose paper into public halls, shafts, courts or yards is prohibited.

PART 8: WATER SUPPLIES

There are two types of primary water supply sources that may be used in these dwellings. They are a direct connection from the city water supply or connected to the domestic water supply. This assumes that there is enough water at an acceptable pressure. However, a single supply may be out of service (for maintenance or repair) during a fire emergency or it may be disabled during fire or before the fire is fully extinguished.

When a sprinkler system is supplied directly from a public water main**,** the entire system shall be shut down by closing a non-indicating type control valve. This valve is located between the building and the water main in a box that is recessed into the sidewalk. The location of the box is found by reading a sign on the building or on a post nearby. The sign might read or it may have similar instructions. A special key will be required to operate this valve.

AUTOMATIC SPRINKLER SHUT OFF VALVE LOCATED_____FEET OPPOSITE THIS SIGN

Curb Valves - Gate valves of the non-indicating type are provided in water distribution systems. Gate valves allow the sprinkler system to be shut off for repairs or maintenance. Such valves are normally a non-rising stem type. They are operated using a special key wrench. A valve box is located over the valve to keep dirt from the valve. The valve box also provides a convenient access point for the valve wrench to the valve nut. A complete detail record should be made for each valve in the system. This detail record should include the exact location, the date it was installed, the make, the direction of opening, number of turns to open, and any maintenance that was performed.

Square curb box

Round curb box

The main water supply for sprinklers may also be controlled by an approved indicating type control valve. An example would be an OS&Y valve (Outside Stem and Yoke valve). The valves

are found just inside the building wall on the main riser, or outside in protected pits. It is easy to tell at a glance if the valve is open or shut. When the stem is all the way out the valve is open. When the stem is all the way in the valve is closed. Approved Indicator Valves use a flag that shows the valve position and the valves commonly are used to control the water supply for individual floors in a building. Indicating control valves are also installed to shut off certain sections of an individual floor. Being able to shutoff parts of a building allows the Fire Department to have greater control over the sprinkler system. When a fire is under control in an area the control valve can be closed to prevent any further water damage.

Sometimes repairs must be made to the sprinkler system. When this occurs the indicating control valve is used to shut the water supply to the sprinkler system.

PART 9: WATER-FLOW ALARMS AND SPRINKLER SYSTEM SUPERVISION

Sprinkler systems may have devices and equipment for signaling when water flow through risers or mains supplying the systems. The flow may be due to fire, leakage, or accidental rupture of the piping. It is important that prompt action is taken when water flow is signaled by these devices.

Functions of Alarms and Supervisory Signals - A sprinkler system with a water alarm serves two functions: 1) It is an effective fire extinguishing system, and 2) It is an automatic fire alarm. An alarm is signaled as soon as a sprinkler head has opened. This is important since it allows the occupants' time to leave the building. It also signals that the Fire Department should be summoned.

Water flow alarms and fire alarms give warning of the actual occurrence of a fire. They also signal when water flows through the system due to broken pipes. Alarms alert occupants and summon the Fire Department. Any signal, whether waterflow or supervisory, may be used to sound an audible local sprinkler alarm. It may also send a signal to the central station company. The central station company will then contact the local fire house.

Supervisory devices are often connected to an approved central station company which monitors the sprinkler system for problems with equipment and when sprinkler heads are opened. The central station company should be notified when any control valves are closed for maintenance or repair. This reduces the number of false alarms.

Sprinkler systems may be equipped with water motor gong or an electric bell, horn, or siren on the outside of the building. An electric bell or other audible signal device may also be located inside the building. Water operated devices must be located near the alarm valve, in order to avoid long runs of connecting pipe.

Devices and Equipment Supervised - Sprinkler system supervision is commonly provided for several purposes. They are used to supervise water supply control valves and water flow switch.

Water flow Alarm Valves - The basic design of most water-flow alarm valves is that of a check valve which lifts from its seat when water flows into a sprinkler system. This alarm then starts an audible signal to alert the occupants in the building that the sprinkler system has been activated.

Vane type water flow - Switches have a paddle inserted inside the main supply piping perpendicular to the direction of flow. Upon waterflow, the paddle switch transmits an alarm.

Alarm Retarding Devices - An alarm check valve that is exposed to changing water supply pressure needs an alarm retarding device. This is required to prevent false alarms when the check valve clapper is lifted from its seat by a temporary pressure surge. Vane type water flow switches sensitivity can also be adjusted to changing water pressures.

PART 10: SYSTEM COMPONENTS

SPRINKLER HEADS

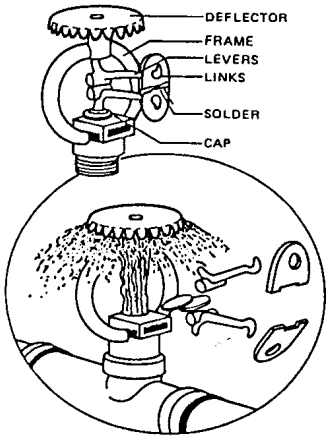
Sprinkler heads are made of metal. They are screwed into the piping at standard intervals. The water is prevented from leaving the sprinkler head by an arrangement of levers and links. The levers and links are soldered together on the sprinkler head. The solder is a metal alloy with a fixed melting point. Other types of sprinkler heads use a glass bulb which expands and breaks under heat. The sprinkler head is factory tested to withstand at least 400 psi without injury or leakage. If properly installed, there is little danger of the sprinkler operating unless it is damaged.

There are over 50,000 different variations of sprinkler heads. Sprinklers manufactured after 1/1/2000 are required to have a Sprinkler Identification Number (SIN). Sprinkler heads manufactured prior shall be replaced as required with sprinkler heads of similar characteristics such as orifice size, temperature rating, and deflector orientation. Upright, pendant and sidewall sprinkler heads are acceptable to use.

A sprinkler head that has been recalled is called the "cycling sprinkler". This sprinkler cycles water on and off depending on the temperature. When the disk reaches a temperature of 165ºF, the valve opens, permitting water to flow. When the disk temperature cools the valve closes to shut off the water. These sprinklers and all other sprinklers listed for recall at www.cpsc.gov are subject to replacement.

Recalled sprinkler heads

Some sprinkler heads are designed to be used in special situations. Sprinkler heads exposed to corrosive conditions are often covered with a protective coat of wax, or lead. Corrosive vapors are likely to make automatic sprinklers inoperative or slow down the speed of operation. They can also seriously block the spray nozzles in the sprinkler heads. They can damage, weaken or destroy the delicate parts of the sprinkler heads. In most cases such corrosive action takes place over a long time. For this reason the sprinkler heads must be carefully watched for signs of corrosion. Care should be taken to make sure that the



Typical Sprinkler Head

protective coating is not damaged when handling or replacing the heads. A typical fusible link type sprinkler head is shown in the picture above.

Spray Pattern of Sprinkler Heads - The best way to put out a fire is to spray the water from the sprinkler head downward and horizontally. The spray pattern will also prevent the spread of the fire. The force of the water against the deflector creates a heavy spray which is directed outward and downward. The shape of the deflector determines the spray pattern of the water discharged from the sprinkler head. Usually, this is an umbrella shaped spray pattern. At a distance of 4 feet below the deflector, the spray covers a circular area having a diameter of approximately 16 feet when the sprinkler is discharging 15 gpm.

Sprinkler Spray patterns must not be obstructed by building components or storage.

Temperature Ratings Classifications and Color Coding
(This chart will be provided when taking this test)

Sprinklers shall have their frame arms, deflector, coating material, or liquid bulb colored in according the following table:

Temperature Ratings Classifications and Color Coding						
Maximum Ceiling Temperature		Temperature Rating		Temperature Classification	Frame Color Code	Glass Bulb Colors
°F	°C	°F	°C			
100	38	135–170	57–77	Ordinary	Uncolored or Black	Orange or Red
150	66	175–225	79–107	Intermediate	White	Yellow or Green
225	107	250–300	121–149	High	Blue	Blue
300	149	325–375	163–191	Extra high	Red	Purple
375	191	400–475	204–246	Very extra high	Green	Black
475	246	500–575	260–302	Ultra high	Orange	Black
625	329	650	343	Ultra high	Orange	Black

In places where the temperature is normally high (e.g. boilers, ovens and drying rooms) a sprinkler head with a higher temperature rating must be used. This is to make sure that the sprinkler head does not discharge water at the wrong time. If heads with a high temperature rating are used in ordinary room (e.g., an office, an apartment, and store) the value of the sprinkler protection is greatly reduced. This is because the temperature will have to increase much higher for the sprinkler heads to open.

Sprinkler systems are excellent for controlling fires. However, they can cause water damage if they are not shut down soon after the fire has been extinguished. No control valve on the system should be closed except on the order of the fire officer in charge. If the fire has been completely extinguished, the building owner or their representative may close the control valve. Sometimes the Fire Department has a difficult time finding the control valve to shut down the system. This problem can be prevented by keeping a small sketch of the sprinkler system and the position of the control valves. This sketch should always be readily available. This sketch is very helpful to the firefighters when they have to work with the sprinkler system.

Build-up of Foreign Material on Sprinklers - Sometimes conditions exists which causes a build-up of foreign material on sprinkler heads. This may prevent the sprinkler head from

working properly. This build-up is commonly called loading. The build-up of foreign material insulates the sprinkler head. This build-up prevents the sprinkler from opening at the desired temperature.

If the build-up is hard, it may prevent the sprinkler from opening. Replace loaded sprinkler heads with new sprinkler heads rather than attempting to clean them. If the deposits are hard, attempts to clean the heads are likely to damage them. This damage may prevent the sprinkler heads from working properly. The damage may also cause the sprinkler head to leak.

Deposits of light dust are less serious than hard deposits. Dust build-up may delay the operation of sprinkler heads. However, it will not prevent the eventual discharge of water. Dust deposits can be blown or brushed off. If a brush is used, it should be soft to avoid possible injury to sprinkler parts. Scouring or acidic liquids are likely to damage the sprinkler heads and should not be used for cleaning. Hot solutions of any kind should never be used to clean the sprinkler heads.

Removal of protective caps and straps on glass bulb sprinklers shall be performed at the time of installation.

Spare Sprinkler Heads

Sprinklers required for emergency replacement must be representative of the type of sprinklers installed along with the proper wrenches. These wrenches shall be provided in the spare head cabinet. It is critical sprinklers be replaced with devices that will perform similarly to the original system sprinklers. Sprinklers that are replaced during an emergency by unlicensed individuals require that the devices used have been verified appropriate for the protected area by a Master Fire Suppression Piping Contractor. After activation by fire, sprinklers in close proximity to the affected heads is always recommended be replaced. A stock of spare sprinklers (not less than 6) shall be kept on the premise where the temperature does not exceed 100 Degrees F and shall include all types and ratings installed in the protected facility and provided as follows:

Under **300** sprinklers **six**.
301 - **1000** sprinklers **twelve**.
Over **1000** sprinklers twenty **four**.

PART 11: HANGING, BRACING & RESTRAINT OF SPRINKLER SYSTEM PIPING

The structural support of the sprinkler system plays an integral part of system reliability. Missing or defective pipe hangers can cause the entire system to fail from piping rupturing or leaking. Great care and experience must be applied when evaluating the adequacy of the structural support of the system.

Piping shall be supported from the building structure in accordance with the NYC Code requirements and NFPA # 13, 2002 edition.

The visual inspection of system hanging components and bracing is the most complicated and difficult of all the tasks to be performed by the C of F holder. This reference is a starting point and by no means does it fully explain the various means, methods and requirements to adequately perform this annual inspection task.

Chapter 9 of the NFPA#13 2002 edition describes in great detail the fundamentals of hanger design and installation and should be used as a reference guide for accurate inspection results that will be reported to the owner and FDNY.

There are any numbers of different deficiencies that may be found during the inspection process. They may include system supports being disturbed by the movement of adjacent equipment, deflection or sagging of the building structure, deterioration of the portion of the structure used to support the system and attaching excessive loads to hanging components or piping.

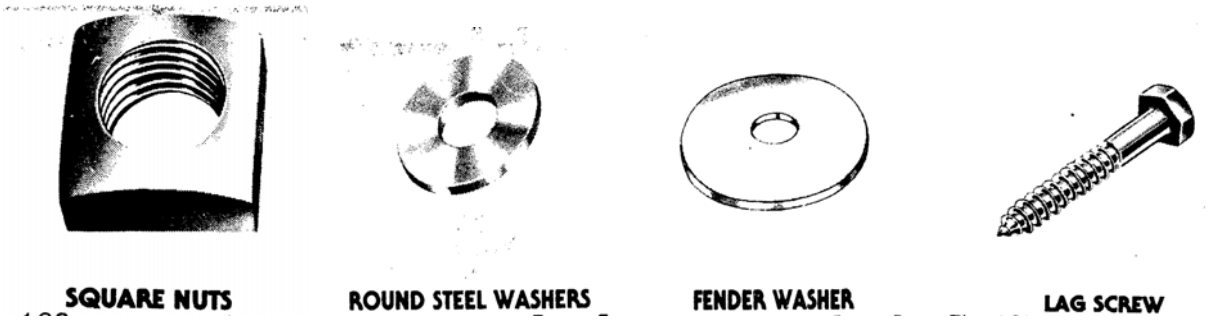
Unapproved or makeshift hangers such as perforated strapping or bailing wire are prohibited. Nails shall not be used to fasten the system or building attachments to the structure. Hangers used with plastic piping must be listed for use with the piping material.

A visual inspection of the system is performed from the floor to determine if the hangers, bracing and restraints are in place and if the piping has moved from its original location and position. This can be observed if the hanger rods or piping attachments are not being supported adequately from the building, bent, misaligned, loose or missing. Shifting of the system may occur during pressure surges, water hammer, alterations, testing, or operation.

The visual inspection of hanging and bracing for sprinkler systems is not required for piping concealed by building construction above ceilings and in concealed spaces.
When there is an indication of concealed piping system's sprinklers heads either too far above or below a hung ceiling, further investigation is required to determine if hangers and supports are defective or missing.

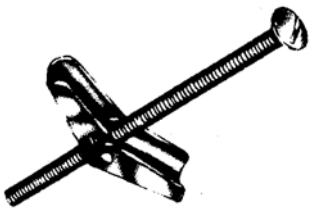
No other components shall be supported using the sprinkler system piping or hanger assemblies supporting the system.

There are many variations in hanger assemblies and a few common types illustrated below:

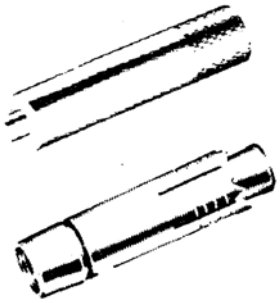


FULL THREADED STUD

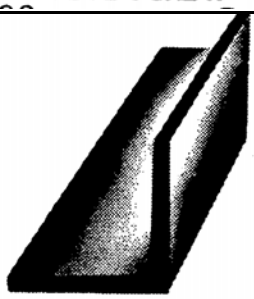
DRIVE SCREW



TOGGLE BOLT with Wing

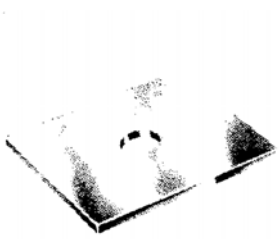


CONCRETE ANCHORS

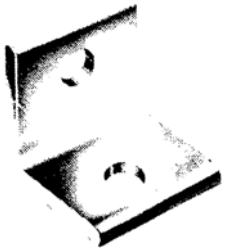


STEEL SECTIONS

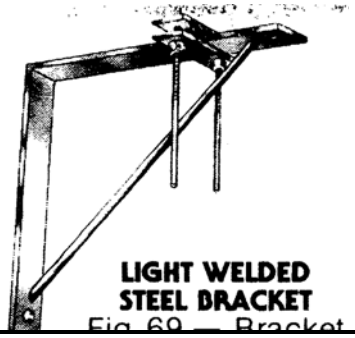
STRUT



FISH PLATE



ANGLE KNEE BRACKET

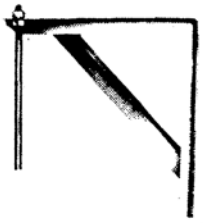


LIGHT WELDED STEEL BRACKET

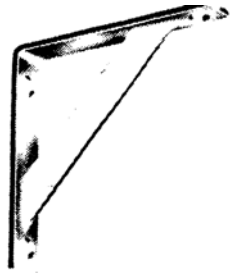
Fig. 69 — Bracket

MEDIUM WELDED BRACKET

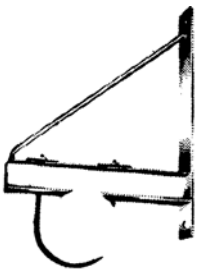
HEAVY WELDED BRACKET



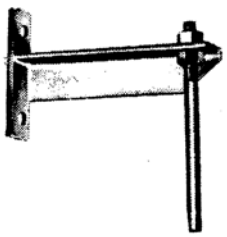
ANGLE IRON BRACKET



LIGHT DUTY BRACKET



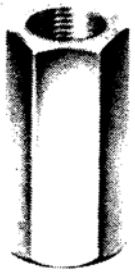
ADJUSTABLE SUSPENSION BRACKET



CANTILEVER BRACKET

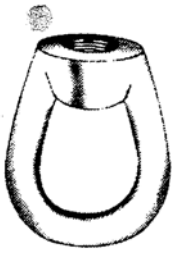
EQUIPMENT ANCHOR BOLT

METAL DECK CEILING BOLT



ROD COUPLING

EXTENSION PIECE



WELDLESS EYE NUT

EYE SOCKET

PLAIN EYE ROD

WELDED EYE ROD

WELDED BULL RING

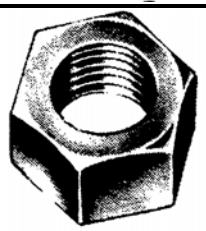
PLAIN HANGER ROD

FULL THREADED ROD

HANGER ROD

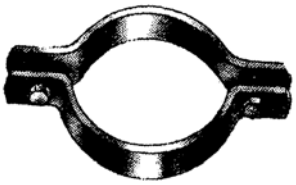
LAG AND MACHINE ROD

ANCHOR BOLT



NUTS

RISER CLAMP

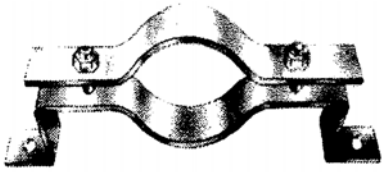


SHORT ARM
RISER CLAMP

STANDARD
STEEL PIPE CLAMP

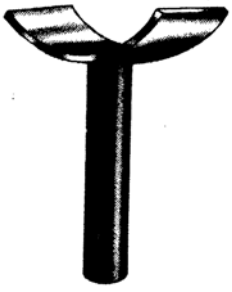
HEAVY
STEEL PIPE CLAMP

LONG AND SHORT ARM
RISER CLAMP

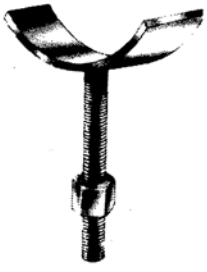


OFFSET
PIPE CLAMP

EXTENDED PIPE CLAMP

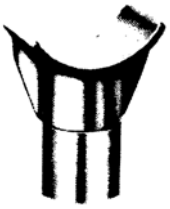


PIPE SADDLE SUPPORT



ADJUSTABLE PIPE SUPPORT

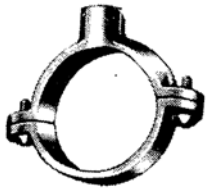
ADJUSTABLE PIPE SADDLE SUPPORT with Coupling



PIPE SADDLE SUPPORT

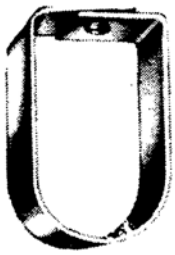
ADJUSTABLE PIPE SADDLE SUPPORT

HANGER FLANGE

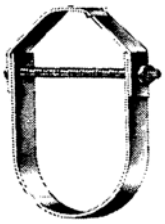


SPLIT RING EXTENSION HANGER

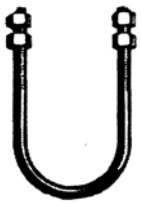
ADJUSTABLE SWIVEL RING HANGER



BAND HANGER



CLEVIS HANGER



STANDARD U-BOLT

A brief Overview of Piping and Support Fundamentals

Sprinkler system piping is categorized as follows:

Branch lines are directly connected to sprinkler heads.
Cross mains or **loop mains** are directly connected to branch lines.
Feed mains are directly connected to cross mains or loop mains.
Risers are able to supply feed mains or cross mains directly.

The spacing of hangers varies with the material and diameter of the piping, the location of piping connections, ability of the structure to support the piping, the location of the piping in relation to the building structure, and system the attachments .

Hangers generally consist of an attachment to the piping, an attachment to the building structure, and a ferrous rod attaching the components together. Hanging components are generally required to be listed devices; however, a licensed professional engineer may also certify that a hanger or hanging assembly may be used.

A partial list of specific hanger spacing requirements is noted below:

Standard wall steel pipe with diameters 1 inch and 1 ¼ inch are required to have hangers placed at a maximum of 12 feet apart. For all other pipe diameters the maximum distance between hangers is 15 ft.

The maximum hanger spacing for threaded light wall steel pipe shall not exceed 12 ft apart.

The maximum hanger spacing for CPVC (plastic) pipe varies from a maximum 5 ft 6 inches for ¾ inch piping to a maximum10 ft on center for 3 inch.

There are extensive additional hangings and bracing requirements for CPVC piping and the installation and design manuals for this product must be referenced to perform adequate visual inspections required by the standard

The distance for the hanger assembly to the centerline of an upright sprinkler head shall not be less than 3inches. Hangers placed closer to sprinklers will cause an obstruction to the discharge pattern.

The cumulative length of an unsupported arm over to a sprinkler head, sprinkler drop, or sprinkler sprig-up shall not exceed 24 inches for steel pipe and 12 inches for copper pipe.

System risers (vertical piping passing from floor to floor) shall be supported with riser clamps and hangers located within 24 inches of the centerline of the riser.
The distance between supports for risers shall not exceed 25 feet.
The minimum size hanger rods are required as follows:

Pipe Diameter in inches	**Rod Diameter in inches**
Up to and including 4	3/8
Five, Six and Eight	½
Ten and Twelve	5/8

Seismic Restraints

The NYC Building Code adopted earthquake code requirements. This reclassification requires the installation of sway bracing for earthquake protection be installed on sprinkler systems in buildings built after 1998.

The system piping shall be braced to resist both lateral and longitudinal horizontal seismic loads and to prevent vertical motion resulting from seismic events.

Lateral braces shall be spaced at a maximum of 40 feet on centers and are required on all piping 2 ½ inch and larger. The distance from the last brace to the end of the pipe being braced shall not exceed 20 feet.

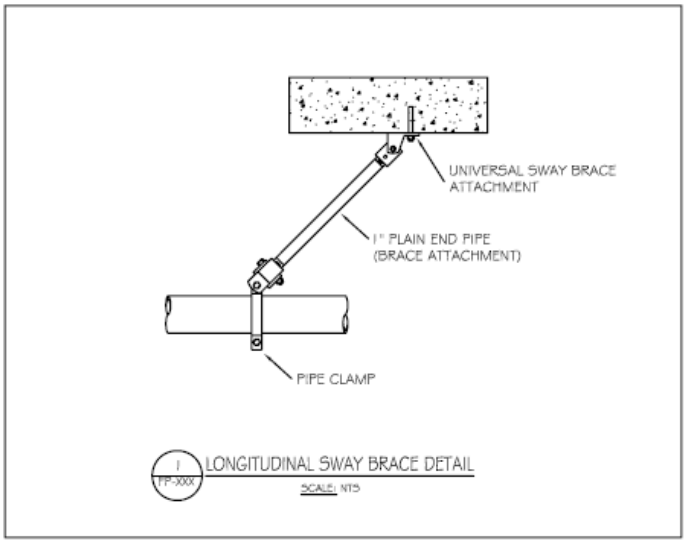
Longitudinal braces shall be spaced at a maximum of 80 feet on centers and are to be provided on feed and cross mains.

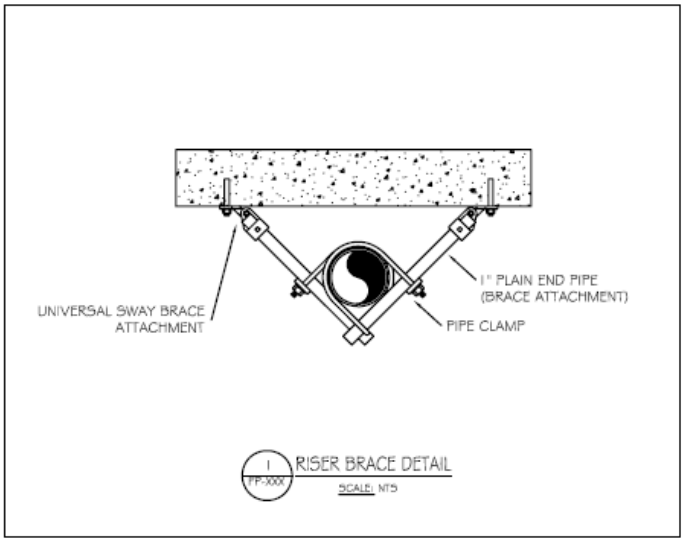
Piping shall be protected against damage where subject to earthquakes by the use of flexible couplings for piping 2 ½ inch and larger. Flexible connection shall also be provided at building expansion joints, and within 24 inches of top and bottom of the piping dropping down to in rack sprinklers and mezzanines regardless of pipe size.

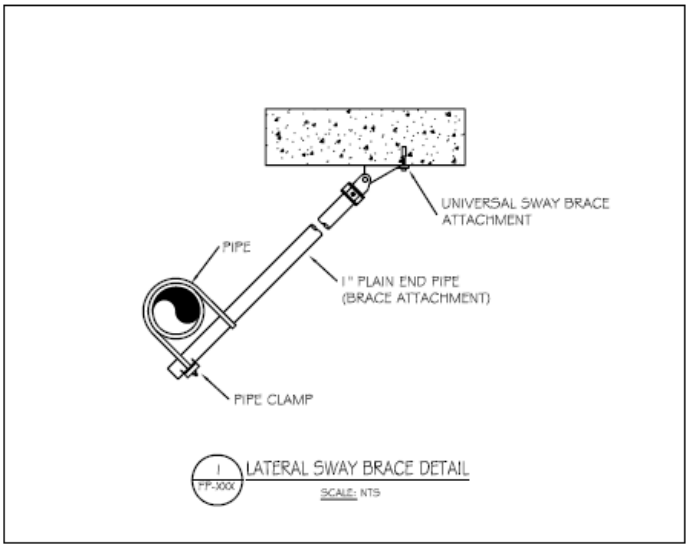
To avoid damage to piping passing through holes in platforms, walls, floors and foundations, a clearance of at least 2 inches shall be provided around the piping and the penetration. If this is not provided a flexible couplings shall be provided within 1 foot on both sides of the wall, floor, beam openings or platforms.
Risers exceeding 3 feet in length shall be equipped with a four way brace with distances between braces not to exceed 25 feet.

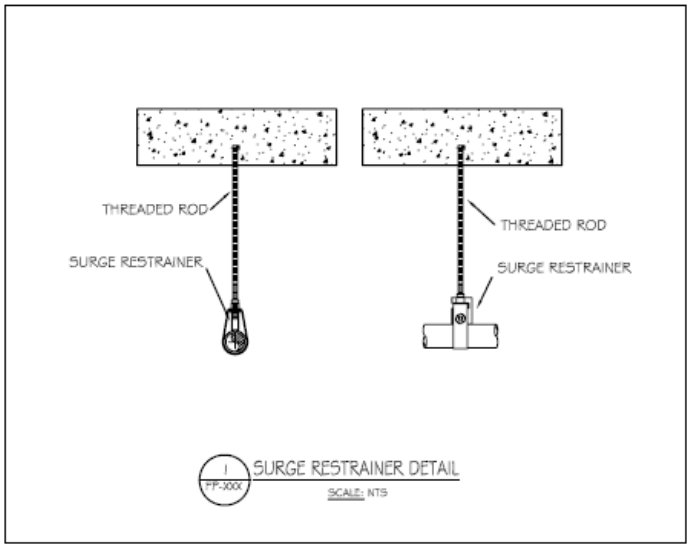
All parts of bracing and fittings attaching bracing to the piping shall lie in a straight line to avoid uneven loading of fittings and fasteners.

Examples of seismic restraints are shown below:









PART 12: INSPECTION AND MAINTENANCE FREQUENCIES

12.1 Common Deficiencies

Common Deficiencies - The most common sprinkler system deficiencies include painted or loaded sprinkler heads, building contents located less than 18 inches below sprinkler deflectors, changes from the original wall locations, ceiling heights, and positioning of mechanical equipment. For concealed sprinkler systems, cover plates with non-factory coatings and the lack of required gap between cover plate and ceiling and blocking of the spray patterns from light fixtures close to the sprinklers are the most common deficiencies seen in the field. Missing trim or cover plates not attached properly to sprinklers may indicate hanger deficiencies and may not allow the sprinkler deflectors to drop below the ceiling blocking the spray pattern.

The C of F holder shall assume that the system being inspected is installed is accordance to the NYC Building Code in effect at the time of installation. The C of F holder is to report those items of change that impact the system components regarding, compliance with any retroactive requirements, the condition of the water supply control valves, unusual changes in water supply or system pressures, condition and accessibility of control valves, fire department connections, clearance around sprinkler heads, accessibility of curb valve box ,system control valves , required signage, attachments to piping other than system components, misaligned piping due to impact, missing pipe hangers and supports, easily recognized recalled sprinkler heads and visible leakage.

Factors that may require further investigation: Installations that don't appear to be correct including sprinkler heads located more than 22 inches below the ceiling or structure, sprinklers not installed in accordance with their listing, using sprinklers with different RTI in the same protected area or the wrong RTI for the occupancy classification, undersized piping, incompatible piping materials, flexible sprinkler hoses not attached to the building structure,

along with areas of the building not protected by the sprinkler system all require further investigation by a qualified MFSPC.

When sprinklers are replaced, the following information is critical to be certain that the correct devices have been used.
Sprinklers with different diameter glass bulbs will have a different RTI and must not be used together in the same compartment.
Sprinklers replaced without SIN identification must be replaced with devices that perform Residential/hotels group R (J in pre 2008 code) residential sprinklers are required in all sleeping compartments. Quick response sprinklers are required in all other portions of the facility.

Glass bulb sprinklers are sensitive to damage and are required to be shipped from the factory with protection. The orange "caps and straps" need to be removed prior to putting the system in service. The sprinkler will fail to operate properly if these devices have not been removed.

12.2 A complete summary of tasks and frequencies to be performed

INSPECTION

A. Sprinkler Systems:

- On wet pipe sprinkler system shall be inspected **monthly** to ensure good condition and that normal water supply pressure are being maintained.

Alarm Devices:

- Alarm devices shall be inspected **monthly** to verify that they are free of physical damage.

Buildings:

- **Annually**, prior to freezing weather, buildings with wet pipe systems shall be inspected to verify that window, skylights, doors ventilators, other opening and closures, blind spaces, unused attics, stair towers, roof houses and low spaces under buildings do not expose water-filled sprinkler piping to freezing and to verify that adequate heat with temperature is 40°F (4.4°C).

Gauges:

- Gauges shall be replaced every 5 yrs or tested every 5 yrs by comparison with a calibrated gauge. Gauges that are not accurate with in 3% of the full scale shall be recalibrated or replaced.

Hydraulic Name Plate:

- For hydraulically designed systems shall be inspected **monthly** to ensure that it is attached securely to the sprinkler riser or sprinkler control valve and is legible.

Hanger/Seismic Braces:

- Hangers and braces shall be inspected **monthly** from floor level to ensure they are in place, properly aligned and otherwise not damaged. All defects and deficiencies shall be corrected.

Old Sprinklers:

- Where sprinklers have been in service for 50 yrs shall be replaced or representative samples from one of more sample areas shall be tested. Sprinklers from sample areas that do not pass performance tests shall be replaced. Test procedures shall be repeated at 10 yr intervals. All sprinkler heads

manufactured prior to 1920 shall be replaced.

Pipe and Fittings:

- Shall be inspected **monthly** from the floor level to ensure there is no mechanical damage, leakage, corrosion, misalignment and that required supports and bracing are in place and are in good condition. Nothing shall be attached to any sprinkler system component.
- Pipe installed within concealed (such as above suspended ceilings spaces) are not required to be inspected. Exposed piping installed in areas that are inaccessible for safety considerations due to process operations shall be inspected during each scheduled shutdown.
- Pipe installed in areas that inaccessible shall be inspected during each scheduled shutdown;

Sprinklers – Extra High Temperature:

– Representative samples of solder-type sprinklers with a temperature classification of extra high 325ºF (163ºC) or greater that are exposed to semi continuous to continuous maximum allowable ambient temperature condition shall be tested a 5 year intervals.

Sprinklers – Fast Response:

- Tested at 5 year using fast-response elements that have been in service for 20 years shall be tested. They shall be retested at 10 year intervals. Sprinklers from sample areas that do not pass performance standards shall be replaced.

Spare Sprinkler Heads/Wrenches:

- The supply shall be inspected **monthly** for the proper number and type of sprinklers and a sprinkler wrench for each type of sprinkler.

Sprinklers:

- Sprinklers shall be inspected for the floor level **monthly** for signs of leakage, corrosion, foreign materials, paint and physical damage; and shall be installed in the proper orientation (such as upright, pendent or sidewall). If the above problem occurs the sprinkler shall be replaced;
- Glass bulb sprinklers shall be replaced if the bulbs have emptied;
- Unacceptable obstructions to spray patterns shall be corrected;
- Sprinkler installed in concealed (such as above suspended ceilings spaces) are not required to be inspected.

B. Valve and Valve Component:

Backflow Prevention Assemblies:

- The double and single check assembly valves and double check detector assembly valve shall be inspected **monthly** to ensure that the OS&Y isolation valves are in the normal open position;
- Valves secured with locks or electrically supervised shall be inspected **monthly**.

Control Valves:

- All indicating valves controlling water supplies shall be sealed, locked or

provided with other approved methods as outlined in NFPA 25, 2002 edition. A seal is defined as an easily removable device (no key required) that will indicate the unauthorized operation of a valve.

All indicating valves controlling water supplies shall be equipped with locks and/or supervised and be inspected **monthly**.

- The inspection shall verify that, it is the normal open or closed position, properly sealed, locked, or supervised, provided with appropriate wrenches, free from external leaks and provided with appropriate identification.

Sprinkler Systems:

- All valves shall be inspected **monthly** to verify the valve in the open position, not leaking in a good condition, with hand wheels installed and unbroken. Down stream pressures shall be maintained in accordance with the design criteria.

Alarm Valves:

- **Exterior** alarm valves shall be externally inspected **monthly** to ensure the gauges indicate normal supply water pressure is being maintained. The valve shall be free of physical damage and all valves are in the appropriate open or closed position. The retarding chamber or alarm drains shall be in a good condition without leaks.

12.3 Reference Guide for Monthly Inspection

Reference Guide for Inspection, Testing and Maintenance for Residential Sprinkler System

C of F	Certificate of Fitness S-11 Residential Sprinkler System

Components		May be performed by C of F
MONTHLY VISUAL INSPECTION		
Valves	Check valve for water supply	YES
	O S & Y valve coming to the building	
	Inspector test valve	
	Automatic sprinkler shut off valve (Curb Box) (if equipped)	
Sprinkler piping & fittings	Riser piping	YES
Sprinkler heads		YES
Spare sprinkler heads/wrenches		YES
Hanger/seismic bracing		YES
Gauges	Pressure gauge(if equipped)	YES
Fire Dept connection (if equipped)	Lower check valve	YES
	Ball Drip	
Alarm Valves		YES
TESTING AND MAINTENANCE		
Testing and Maintenance shall be performed by Master Fire Suppression Piping Contractor or Master Plumber with S-12 C of F		

12.4 Inspection Testing and Maintenance of Sprinkler Systems Activities & Records

Red Tag	- Notify FDNY & owner immediately (Shall be fixed Immediately) FC 901.7
Orange Tag	- Notify the owner immediately - If deficiency is not corrected after 30 days Notify FDNY
Yellow Tag	- Notify the owner immediately - If deficiency is not corrected after 30 days Notify FDNY
Green Tag	**System Fully operational**

Components	**Inspection Activities (Reference NFPA 25 – 2002)**	**Notification of system Shut down** **Impairment - Red Tag** **Critical Deficiency – Orange Tag** **Non-Critical Deficiency Yellow Tag** **System Fully Operational Green Tag**		**Components Checked Satisfactory (Yes or No) If No, explain**
I. INSPECTION				
A. Sprinkler Systems				
Sprinkler system Shut down	Partial or Full shut down	**Red**	☐ Yes ☐ No	
No Access	Control Valves - Inaccessible for more than 30 days	**Red**	☐ Yes ☐ No	
Sprinklers	Leaking, heavily corroded, painted operating element or bulb or deflector or cover plate, heavily loaded foreign materials attached to or suspended from, improper orientation, glass bulbs that have lost fluid **(5.2.1.1.1)**	**Red**	☐ Yes ☐ No	
Sprinklers	Lightly corroded, painted frame arm or boss, lightly loaded **(5.2.1.1.1)**	**Orange**	☐ Yes ☐ No	
Sprinklers	Spray pattern obstructed – less that 18”’ below deflector (storage, signs, banner, etc) **(5.2.1.2)**	**Orange**	☐ Yes ☐ No	
Sprinklers	Spray pattern obstructed – greater than 18” below deflector (ducts, decks, etc over 4” wide, overhead doors) **(5.2.1.2)**	**Yellow**	☐ Yes ☐ No	
Spare sprinkler cabinet (If equipped)	Cabinet missing, temp, over 100°F, not proper number and type, missing wrench for each type **(5.2.1.3(1) & (2)**	**Yellow**	☐ Yes ☐ No	
Sprinklers – standard	prior to 1920 not replaced **(5.3.1.1.1.1)**	**Orange**	☐ Yes ☐ No	
Sprinklers – fast response	No test after 20 years, every 10 years thereafter **(5.3.1.1.1.2)**	**Yellow**	☐ Yes ☐ No	
Sprinklers – Standard	No test after 50 years, every 10 years thereafter **(5.3.1.1.1)**	**Yellow**	☐ Yes ☐ No	
Pipe and fittings	Leaking **(5.2.2.1)**	**Red**	☐ Yes ☐ No	
Pipe and fittings	Poor condition/external corrosion, mechanical damage, not properly aligned, external loads **(5.2.2.1, 5.2.2.2)**	**Yellow**	☐ Yes ☐ No	
Pipe and fittings	Subject to freezing conditions		☐ Yes ☐ No	
Hangers & seismic braces	Damaged or loose **(5.2.3.2)**	**Yellow**	☐ Yes ☐ No	
Gauges	Poor Condition **(5.2.4.1)**	**Yellow**	☐ Yes ☐ No	

Gauges	Not showing normal water/air pressure **(5.2.4.1, 5.2.4.2)**	**Yellow**	☐ **Yes** ☐ **No**	
Building	Prior to freezing weather – exposed piping exposed to freezing **(5.2.5)**	**Yellow**	☐ **Yes** ☐ **No**	
Building	Found during potential for freezing weather weather-exposed to freezing **(5.2.5)**	**Orange**	☐ **Yes** ☐ **No**	
Alarm devices	Physical damage apparent **(5.2.6)**	**Yellow**	☐ **Yes** ☐ **No**	
Hydraulic nameplate If equipped)	Not legible or missing **(5.2.7)**	**Yellow**	☐ **Yes** ☐ **No**	
B. Valves, Valve components, and Trim				
Gauges	Poor condition **(13.2.7.1, 12.2.8.1)**	**Yellow**	☐ **Yes** ☐ **No**	
Gauges	Not showing normal water/ pressure **13.2.7.1, 12.2.8.1)**	**Orange**	☐ **Yes** ☐ **No**	
Control valve	Improper closed position **(13.3.2.2 ,12.3.2.2)**	**Red**	☐ **Yes** ☐ **No**	
Control valve	Improper open position, leaking **(13.3.2.2 ,12.3.2.2)**	**Orange**	☐ **Yes** ☐ **No**	
Control valve	Not locked or supervised, not accessible, no appropriated wrench if required, and no identification **(13.3.2.2 ,12.3.2.2)**	**Yellow**	☐ **Yes** ☐ **No**	
Alarm valve (If equipped)	External physical damage, trim valves not in appropriate open of closed position, retard chamber or alarm drain leaking **(12.4.1.1)**	**Orange**	☐ **Yes** ☐ **No**	
Alarm valve (If equipped)	Alarm valve, strainers , filters and restricted orifices not internally inspected after 5 years **(12.4.1.2)**	**Orange**	☐ **Yes** ☐ **No**	
Check valve	Check valve not internally inspected after 5 years **(12.4.2.1)**	**Orange**	☐ **Yes** ☐ **No**	
Valve enclosure	Not maintaining minimum 40°F temp. **(12.4.3.1.1 , 12.4.4.1.1)**	**Orange**	☐ **Yes** ☐ **No**	
Backflow prevention assemblies	Reduced pressure assemblies differential-sensing valve relief port continuously discharging **(12.6.1.2)**	**Orange**	☐ **Yes** ☐ **No**	
Fire Department connection	Not accessible, couplings & swivels damaged, do not rotate smoothly, clapper not operating properly or missing **(12.7.1)**	**Red**	☐ **Yes** ☐ **No**	
Fire Department connection	Not visible, couplings & swivels do not rotate smoothly, plugs & caps or gaskets damaged or missing, check valve leaking, automatic drain not operating properly or missing **(12.7.1)**	**Orange**	☐ **Yes** ☐ **No**	
Fire department connection (If equipped)	Missing identification sign **(12.7.1)**	**Yellow**	☐ **Yes** ☐ **No**	
FDNY 5 year test not conducted	As per Chapter 9 NYC Fire Code	**Orange**	☐ **Yes** ☐ **No**	

PART 13: OBSTRUCTION INVESTIGATION

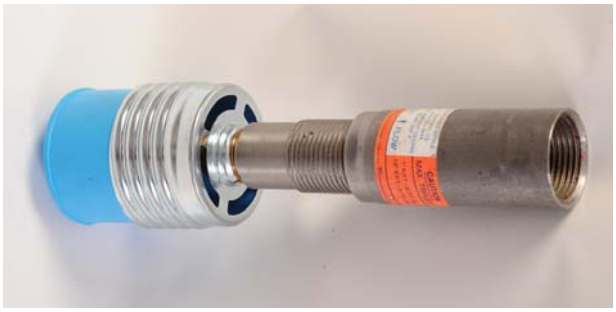
Sources of obstructions to piping include but are not limited to pipe scale, careless installation or repair, raw water sources, biological growth, sprinkler calcium carbonate deposits and Microbiologically Influenced Corrosion (MIC).

Inorganic material would include but not be limited to silt, sand, rocks, gravel, and construction debris. Organic material includes wood, microbes, and zebra mussels. While zebra mussels not reported in the NYC area, the Hudson River contains this predator, and it is possible contamination may occur in NYC's upstate water supplies.
http://www.nyc.gov/html/dep/html/press_releases/97-45pr.shtml

Piping Infested with Zebra Mussels

When tubercules and slime are found during the investigation, they shall be tested for MIC. An obstruction investigation shall also be performed whenever the following conditions exist such as pinhole leaks, a detail record of broken public water mains in the vicinity, foreign material in water discharged during drain tests or plugging of inspector's test valve connection. A complete list of system conditions requiring obstruction investigation are listed in Chapter 13 and Annex D of NFPA #25 2002 edition.

PART 14: DIFFERENT TYPES OF SPRINKLER HEADS COMPONENTS

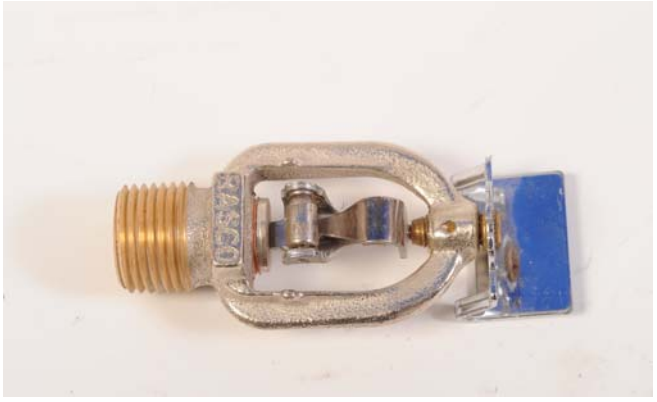


Adjustable Concealed Sprinkler Heads

Concealed Sprinkler Head

Recalled Omega Sprinkler Head

165° F Upright Sprinkler Head

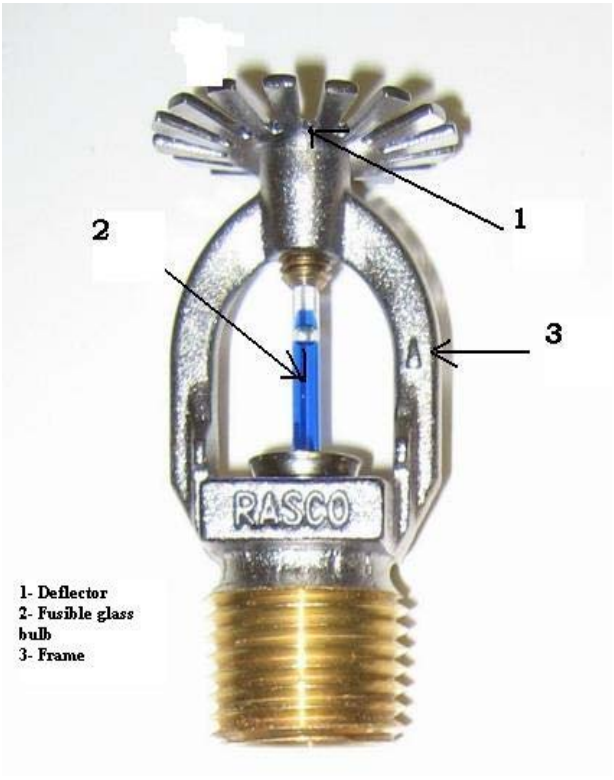


Chrome Sidewall Sprinkler Head

Adjustable Concealed Sprinkler Head

Sprinkler Head with a factory protective cap

Conventional Sprinkler Heads



Pendant Sprinkler Head

Flush Pendent Sprinkler

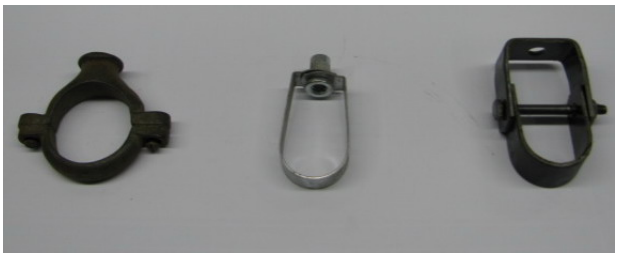
Flush Pendent Sprinkler

Sprinkler Wrenches

Sprinkler Head Wrenches

Concealed Sprinkler Head Wrench

Concealed Sprinkler Head Wrenches



Split Ring, Band Hanger, Clevis hanger

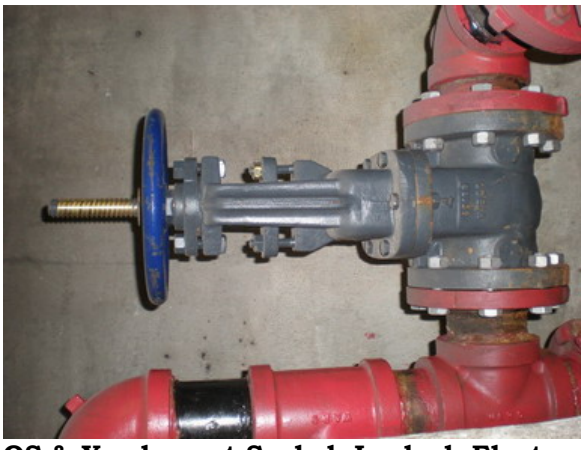
Impaired or Defective Components

Defective Water Pressure Gauge

Defective Water Pressure Gauge Exposed to Freezing Temps

Sprinkler System Improper Hanger

Rotted Piping



OS & Y valve not Sealed, Locked, Electronically Monitored, Labeled and Valve Handle Not Painted

Loaded Sprinkler in Head Guards Cage Head

PART 15: NYC Building LOCAL LAW 58 OF 2009

NYC Buildings

STANDPIPES + SPRINKLERS
New Safety Regulations

New standpipe and sprinkler piping laws go into effect in 2010. Building owners and contractors must be sure their properties and projects comply with these new local laws.

The Buildings Department participated in the multi-agency advisory group that proposed these new safety standards. Mayor Michael R. Bloomberg appointed Deputy Mayor Edward Skyler to lead the Construction, Demolition and Abatement Working Group, which generated 33 safety recommendations – including the four local laws described here.

To learn more, read *Strengthening the Safety, Oversight and Coordination of Construction, Demolition and Abatement Operations*, available at nyc.gov/buildings.

Cutting and Capping
Local Law 60/09, effective 3/2/2010.

Permits are required to cut and cap standpipes or sprinklers.

- Authorized Licensees: Only licensed master plumbers or licensed master fire suppression piping contractors may cut and cap standpipes or sprinklers during demolition.
- Local Law Incorporates TPPN 3/07: For demolitions and gut rehabilitations, a registered design professional must have a variance to remove damaged or inoperable sprinklers. This filing must include a damage report and explanation why the system can't be restored. (The design professional must first file the variance with the Fire Department and have FDNY approval before filing it with the Buildings Department.)

Color Coding
Local Law 58/09, effective 3/2/2010.
Existing buildings must comply by 6/2/2010.

All exposed standpipes and sprinkler piping must be painted red. The law outlines specific exceptions, such as branch piping.

All buildings – no matter the size or occupancy – must comply with these new requirements.

Dedicated standpipe valve handles must be painted **red.**

Combination standpipe valve handles must be painted **yellow.**

Dedicated sprinkler valve handles must be painted **green.**

Color Coding Certification

Buildings Under Construction
The special inspector will confirm compliance before the walls are enclosed.

Existing Buildings
Owners of buildings with exposed sprinkler piping and standpipes must comply and hire one of four types of contractors to certify the color coding:

- Licensed master plumbers;
- Licensed master fire suppression piping contractors;
- Registered design professionals; or
- People with the appropriate Fire Department Certificate of Fitness.

Proof of Color Coding Certification

The color coding certification must be kept on the premises at all times for Buildings and Fire Department inspection. Visit nyc.gov/buildings for the certification form, available online in March 2010.

(over)

Robert D. LiMandri, Commissioner

Michael R. Bloomberg, Mayor

Fire Suppression Piping Components to be identified as required by Local 58/2009

NOTE: Only existing visible piping shall be identified as required. When ceilings are removed during renovations, any existing visible system piping shall be identified and painted.
Standpipe and Sprinkler Feed Mains - The portion of the standpipe or sprinkler system piping that supplies water to one or more standpipe or sprinkler risers.
Standpipe and Sprinkler Cross Connections - The portion of the standpipe or sprinkler system that interconnects the feed mains and risers to the fire department connections.
Standpipe and Sprinkler Risers - The vertical portion of the system piping that delivers the water supply for hose connections, and sprinklers on stand alone as well as combined systems, vertically from floor to floor.
Fire Department Connections - The portion of the standpipe or sprinkler system that is connected to the fire department pumper connection and supplies the standpipe and sprinkler feed mains, cross connections, and risers.
All handles of Indicating Valves - These handles control controlling the water supplies to the standpipe and sprinkler systems.
Street water supply - The portion of system piping connected to the discharge of the water meter to the main sprinkler control valves.

All pipe material identification information, if present, shall not be painted.

Fire Suppression Piping Components not required to be identified as required by Local 58/2009.

Fire Department Hose valve bodies and handles, indicating control valve bodies, check valves, jockey pump control valves, trim, test, and drain valve handles.

Standpipe Branch Piping - The portion of the piping system connecting one or more hose valve stations.

Sprinkler Cross Mains - The portion of the piping system connecting supplying the branch lines either directly or through risers.

Sprinkler Feed Mains - The portion of the piping system downstream of a sectional or floor control valve supplying cross mains.

Sprinkler Branch Piping - The portion of the piping system to which the sprinkler heads or nozzles are directly connected to.
For more info go to the attached URL (NYC Building website Local law 58/2009)
http://www.nyc.gov/html/dob/downloads/pdf/ll158of2009.pdf

A LOCAL LAW #58/2009

903.6 Painting of dedicated sprinklers. *Dedicated sprinkler piping shall be painted and such painting certified in accordance with Sections 903.6.1 through 903.6.5. In addition to painting, sprinkler piping may also be identified by lettered legend in accordance with ANSI A13.1. Where the piping is required to be listed and labeled such painting shall not obscure such labeling.*

Exceptions:

1. *Attachments, gauges, valves and operable parts of sprinkler systems other than valve handles.*
2. *Horizontal branch lines.*
3. *Where different color coding may be required by Section 3406 of the New York City Fire Code for facilities storing, handling, and using flammable and combustible liquids in connection with special operations.*

903.6.1 New buildings. Cross connections and risers *in new buildings, including buildings constructed pursuant to Section 28-101.4.2 of the Administrative Code, shall be painted* ***red*** *and* ***the handles of valves*** *serving dedicated sprinklers shall be painted* ***green*** *prior to the hydrostatic pressure test regardless of whether they will be enclosed at a later point in time.*

Exception: *Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross connections that are also used for the standpipe system shall be painted* ***red*** *and the handles of valves serving such combination system shall be painted* ***yellow****.*

903.6.2 Alterations. *Cross connections and risers for independent (stand-alone) existing sprinkler systems that are exposed during alterations, including alterations pursuant to Section 28-101.4.2 of the Administrative Code, shall be painted red and the handles of valves serving such existing sprinkler systems shall be painted green. Where the alteration requires a hydrostatic pressure test such painting shall be completed prior to such test.*

Exception: *Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross connections that are also used for the standpipe system shall be painted red and the handles of valves serving such combination system shall be painted yellow.*

903.6.3 Retroactive requirement for completed buildings. *Notwithstanding any other provision of law, all exposed risers and cross connections of completed buildings in existence on the effective date of this section shall be painted red within three months after the effective date of this section, and all handles of valves serving such sprinkler system shall be painted green.*

Exception: *Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross connections that are also used for the standpipe system shall be painted red and the handles of valves serving such combination system shall be painted yellow.*

903.6.4 Buildings under construction on the effective date of this section. *Notwithstanding any other provision of law, where construction documents were approved and permits issued for the construction of a new building or alteration of an existing building prior to the effective date of this section and the work is not signed off by the department prior to such date, all exposed cross connections and risers in any such building shall be*

painted red prior to the hydrostatic pressure test, including cross connections and risers that will be enclosed at a later point in time, and handles of valves servings such sprinkler system shall be painted ***green.***

Exceptions:

1. *Where a standpipe system is used as a combination standpipe and sprinkler system, the sprinkler risers and cross connections that are also used for the standpipe system shall be painted red and the handles of valves serving such combination system shall be painted yellow.*
2. *Cross connections and risers enclosed prior to the effective date of this section need not be painted.*

903.6.5 Certification of completion of system painting. *For all buildings where sprinkler and combination sprinkler and standpipe systems are not subject to a special inspection pursuant to Section 1704.21 of this code, a licensed master plumber, licensed master fire suppression piping contractor, registered design professional or an individual holding an appropriate certificate of fitness from the Fire Department for the operation and/or maintenance of such system shall certify on forms provided by the department that all required painting has been completed in accordance with Section 903.6. Such certification shall be maintained on the premises and made available for inspection by the department and the Fire Department.*

§2. Section 905 of the New York city building code, as added by local law number 33 for year 2007, is amended by adding a new section 905.11 to read as follows:

905.11.6 Certification of completion of system painting. *For all buildings where standpipe and combination sprinkler and standpipe systems are not subject to a special inspection pursuant to Section 1704.22 of this code, a licensed master plumber, licensed master fire suppression piping contractor, registered design professional or an individual holding an appropriate certificate of fitness from the Fire Department for the operation and/or maintenance of such system shall certify on forms provided by the department that all required painting has been completed in accordance with Section 905.11. Such certification shall be maintained on the premises and made available for inspection by the department and the Fire Department.*

PART 16: Fire Department Code and Rules for Flow Testing

16.1 Fire Department Code 903.5

903.5.1 Sprinkler systems in converted dwellings and single room occupancies -
In any converted dwelling or tenement used in whole or in part for single room occupancy, regardless of occupancy classification, in which a sprinkler system has been installed pursuant to the requirements of the Multiple Dwelling Law, such sprinkler system shall be inspected and otherwise maintained as follows:

1. Sprinkler systems shall be inspected at least once a **month** by a person employed by the owner, holding a certificate of fitness issued by the department, a fire suppression contractor license issued by the Department of Buildings, or, for a sprinkler system with not more than 30 sprinkler heads, holding a master plumber license issued by the Department of Buildings, to ensure that all parts of the system are in perfect working order, and that the department connections, if any, are ready for immediate use by the department. Such inspection shall include a check of all control valves on the system,

including the main supply control valve, making certain the valves are fully open and sealed in such open position; a check of the static pressure in the sprinkler system from a pressure gauge, if installed, located at or near the inspector's test connection, making certain the system design pressure is being maintained; a check that all sprinkler heads are in place; and such other requirements as the commissioner may prescribe. A detailed record of each inspection shall be kept for examination by any representative of the department.

2. There shall be one or more employees instructed in the location and status of the sprinkler system control valves.

3. There shall be kept available at all times in the premises a supply of at least 6 extra sprinkler heads, to replace promptly any fused or damaged sprinklers, except that a supply of at least 3 extra sprinkler heads shall be kept available for any sprinkler system installed in accordance with NFPA 13R as modified by the Building Code.

4. Fire department connections shall be hydrostatically tested at least once every 5 years in accordance with Section 912.6.

5. Upon order of the commissioner, but at least once every year, a flow test of the sprinkler system shall be conducted. Such test shall be conducted at the owner's risk by his or her representative, who shall be a licensed master plumber or licensed master fire suppression contractor. At least one such flow test shall be conducted before a representative of the department at least once every 5 years. A report of each test, on an approved form, shall be certified by such licensed master plumber or licensed master fire suppression contractor and shall be kept for not less than 5 years and made available for inspection by any representative of the department.

6. The owner or managing agent of any building subject to the requirements of this section shall maintain a detailed record of each inspection and test and a listing of all outstanding violations issued pursuant to this section. Such detailed records and listing shall be made available for inspection by occupants of such residential buildings during regular business hours.

903.5.2 Sprinkler systems in other R-2 occupancies. Except as otherwise provided in Section 903.5.1, in Group R-2 occupancies, sprinkler system shall be inspected an otherwise maintained as follows:

1. Sprinkler systems shall be inspected at least once a month by a person employed by the owner, holding a certificate of fitness issued by the department, a fire suppression contractor license issued by the New York City Department of Buildings, or, for a sprinkler system with not more than **30** sprinkler heads, holding a master plumber license issued by the New York City Department of Buildings, to ensure that all parts of the system are in perfect working order, and that the department connections, if any, are ready for immediate use by the department. Such inspection shall include a check of all control valves on the system, including the main supply control valve, making certain the valves are fully open and sealed in such open position; a check of the static pressure in the sprinkler system from a pressure gauge, if installed, located at or near the inspector's test connection, making certain the system design pressure is being maintained; a check that all sprinkler heads are in place; and such other requirements as the commissioner may prescribe. A detailed record of each inspection shall be kept for examination by any representative of the department.

2. There shall be one or more employees instructed in the location and status of the sprinkler system control valves.

3. There shall be kept available at all times in the premises a supply of at least 6 extra sprinkler heads, to replace promptly any fused or damaged sprinklers, except that a supply of at least 3 extra sprinkler heads shall be kept available for any sprinkler system installed in accordance with NFPA 13R as modified by the Building Code

4. Fire department connections shall be hydrostatically tested at least once every 5 years in accordance with Section 912.6.

5. Upon order of the commissioner, but at least once every year, a flow test of the sprinkler system shall be conducted; provided, however, that where there is a pressure gauge installed at or near the inspector's test location that is checked during the required monthly inspection described in Section 903.5.2(1) to make certain the system design pressure is being maintained, a flow test of the sprinkler system shall be conducted upon order of the commissioner, but at least once every **30 months**. Such test shall be conducted at the owner's risk by his or her representative, who shall be a licensed master plumber or licensed master fire suppression contractor. At least one such test shall be conducted before a representative of the department **at least once every 5 years**. A report of each test, on a form prepared by the department, shall be certified by such licensed master plumber or licensed master fire suppression contractor and shall be kept for not less than 5 years and made available for inspection by any representative of the department.

6. The owner or managing agent of any building subject to the requirements of this section shall maintain a detailed record of each inspection and test and a listing of all outstanding violations issued pursuant to this section. Such detailed records and listing shall be made available for inspection by occupants of such residential buildings during regular business hours.

16.2 Fire Department Rules § 903-01 Flow Testing

(a) **Scope**. This section sets forth standards, requirements and procedures for flow testing of *sprinkler systems* in buildings, or parts thereof, classified as ***Occupancy Group R-2*** and certain other residential occupancies. This section applies to all such *sprinkler systems*, including *sprinkler systems* that only protect a part of the building or space, such as compactor *sprinkler systems*.

(b) **Definition**. The following term shall, for purposes of this section and used elsewhere in the rules, have the meanings shown herein:

Inspector's Test Connection. A pipe with a diameter of not less than one (1) inch, that is connected to the *sprinkler system* on the uppermost story of the building, at the end of the most remote branch line, to which is attached a valve that discharges the flow of water equivalent to one (1) sprinkler head of a type having the smallest orifice installed in the system.

(c) General Provisions

(1) Flow testing of sprinkler systems. *Sprinkler systems* in buildings or parts thereof, classified as *Occupancy Group R-2* (including *sprinkler systems* in apartment houses, apartment hotels and other residential buildings with three (3) or more dwelling units that are primarily occupied for the shelter and sleeping accommodation of individuals on a month-to-month or longer-term basis), and in

every converted dwelling, or every tenement used, in whole or in part, for single room occupancy, regardless of occupancy classification, in which a *sprinkler system* has been installed pursuant to the requirements of the New York State Multiple Dwelling Law, shall be flow tested in compliance with the requirements of FC903.5.1 and 903.5.2 and this section.

(2) Scheduling. Flow tests shall be scheduled on behalf of the *owner* by the *plumber* or master fire suppression contractor who is to conduct the test.

(3) Other flow testing. The procedure and standard set forth in this section for required *sprinkler system* flow tests shall not be construed to prohibit an *owner* of a *sprinkler system* from conducting any other lawful flow test of such a system. The provisions of this section shall not be applicable to any such other flow test, except for the provisions governing the reporting and correction of *sprinkler systems* that fail flow tests.

(4) **Frequency**: ***Sprinkler systems*** **shall be flow tested annually**, except that in buildings other than converted dwelling, or tenements used in whole or in part for single room occupancy, such system may be flow tested once every **30 months**, provided that the pressure gauge located at or near the *inspector's test connection* is checked during the required monthly inspection to make certain that the system design pressure is being maintained.

(5) Witnessing. A flow test of a *sprinkler system* shall be witnessed by a representative of the *Department* at least once every five (5) years. Fees for such witnessed test shall be as set forth in FC A03.1(20).

(6) Reporting of required flow tests. The initial flow test result reported to the *Department* shall include a copy of the installation contractor's Department of Buildings B Form FP85.

(7) Reporting of other flow tests. The result of a flow test not required by this section shall be reported to the *Department* in accordance with R903-01(e) to the extent required by such section.

(d) Flow Test Procedure and Standard

(1) The flow test required by this section is intended to ascertain whether there is sufficient pressure in the *sprinkler system* to ensure the flow of water in the event the system is activated. The flow test shall be conducted in the following manner:

(A) All control valves on the system, including the main supply control valves, shall be inspected and determined to be sealed in the "open" position either by an approved wire and seal or a lock and chain.

(B) The flow test shall be conducted using an *inspector's test connection*. Such *inspector's test connection* shall be installed in accordance with the *Building Code*. If a *sprinkler system* is not provided with an *inspector's test connection*, such test connection shall be installed in accordance with the *Building Code* prior to conducting any required flow test.

(C) The contractor's testing apparatus shall be attached liquid tight to the *sprinkler system inspector's test connection*. The contractor's testing apparatus shall consist of:

(*1*) an adapter that connects to the *inspector's test connection* valve;

(*2*) a calibrated pressure gauge with at least a two (2) inch diameter dial graduated in *psi* to at least twice the static pressure of the *sprinkler system*; and

(3) a valve and a length of hose suitable to drain the discharged water to a safe location.

(D) The *inspector's test connection* valve shall be opened, the contractor's testing apparatus valve shall be closed and the static pressure indicated on the *inspector's test connection* pressure gauge, if provided, and the contractor's testing apparatus pressure gauge recorded.

(E) The contractor's testing apparatus valve shall be fully opened allowing water to discharge from the system until the water runs clear, but in no event shall less than ten (10) gallons be discharged.

(F) The contractor's testing apparatus valve shall be closed and the static pressure indicated on the *inspector's test connection* pressure gauge, if provided, and the contractor's testing apparatus pressure gauge recorded.

(2) A *sprinkler system* shall be determined to have passed the flow test if:

(A) the static pressure indicated on the contractor's testing apparatus pressure gauge before and after draining the water is unchanged when all control valves are sealed in the open position;

(B) the contractor's testing apparatus pressure gauge indicates a pressure of at least 15 *psig* or the pressure required by hydraulic calculations, whichever is greater;

(C) the *inspector's test connection* pressure gauge, if provided, and the contractor's testing apparatus pressure gauge readings recorded, as required in R903-01(d)(1)(D) and (d)(1)(F), are similar.

(D) there is no other indication that the *sprinkler system* is not in perfect working order.

(e) Flow Testing Reporting Requirements

(1) Reporting of successful flow tests. When a *sprinkler system* passes a flow test required by this section, the plumber or master fire suppression contractor conducting such flow test shall certify that all control valves associated with the *sprinkler systems* covered by the report have been identified, inspected and observed to be sealed in the open position by either an approved wire seal or chain and lock; that they conducted a flow test of such *sprinkler systems* in accordance with the procedures and standards specified in R903-01(d); that the *sprinkler systems* passed the flow test in accordance with the criteria specified in R903-01(d); and that there is no other indication that the system is not in perfect working order. Such results shall be certified by completing a Residential Sprinkler System Flow Test Report in a form prescribed by the *Department* Such report shall be submitted to the *Department* and maintained for examination as follows:

(A) Residential Sprinkler System Flow Test Reports for flow tests that are not required to be witnessed by a *Department* representative shall be completed and mailed to the *Department* within five (5) business days after the completion of such test. Such mailings shall be addressed to:

New York City Fire Department
Bureau of Fire Prevention
9 Metro Tech Center, 3rd Floor
Brooklyn, NY 11201-3857
Attn: Fire Suppression Unit.

(B) Residential Sprinkler System Flow Test Reports for flow tests witnessed by a *Department* representative shall be certified immediately upon completion of the flow test.

(C) The *owner* or managing agent of the building or space shall maintain a copy of each Residential Sprinkler System Flow Test Report for a period of not less than five (5) years from the test date. Such reports shall be maintained on the *premises* and made available for examination by any *Department* representative. Such reports shall be made available for examination by the occupants of the building or space during regular business hours.

(2) Reporting of unsuccessful flow tests. Any *sprinkler system* that fails a flow test, whether or not such test is required by this section, is in violation of the requirement of FC901.6 that such system be maintained in good working order at all times. The *owner* of such *sprinkler system* shall take immediate corrective action and shall continue such corrective action until such time as the *sprinkler system* passes a flow test conducted in accordance with the procedure and standard required by this section. If such corrective action cannot be completed and a successful flow test result obtained by the close of business of the same day, the *plumber* or master fire suppression contractor conducting such flow test shall notify the *Department* by telephoning the *Department* communications office (dispatcher) for the borough in which the *premises* is located. Nothing contained herein shall preclude the *Department* from taking enforcement action with respect to any *sprinkler system* that is not in good working order.

PART 17: Fire Department Code & Rules For Residential Fire Safety

17.1 Fire Department Code Section 408.9

408.9 Group R-2 occupancies. Group R-2 occupancy buildings or parts thereof with 3 or more dwelling units, including apartment houses, apartment buildings, apartment hotels and other residential buildings or parts thereof that are occupied for the shelter and sleeping accommodations of individuals on a month to month or longer-term basis shall comply with the requirements of Sections 408.9.1 through 408.9.4 and the rules. Such buildings or parts thereof shall not be required to comply with the supervision requirements of Sections 401, and the requirements of Sections 404, 405 and 406.

Exception: Group R-2 occupancy buildings or parts thereof required to prepare a fire safety and evacuation plan as set forth in Section 404.2.1(8). Such buildings or parts thereof shall be operated and maintained in compliance with the additional emergency preparedness and planning requirements set forth in the rules.

408.9.1 Residential fire safety guide and notices. The owner of any premises containing a Group R-2 occupancy shall cause a fire safety guide to be prepared for such premises, and periodically reviewed, amended and distributed in accordance with this section and the rules.

408.9.1.1 Fire safety guide. The residential fire safety guide shall serve to inform building occupants and building service employees as to the building's construction, fire safety systems, means of egress, and evacuation and other procedures to be followed in the event of fire in the building.

408.9.1.2 Fire safety notices. The fire safety notice shall serve to inform building occupants, building service employees and visitors as to the evacuation and other procedures to be followed in the event of fire in the building. Such notice shall be in such form as prescribed by the commissioner by rule and shall be posted within each dwelling unit and such other locations as set forth in the rules.

408.9.2 Periodic review and revision. Fire safety guides and notices shall be reviewed prior to each distribution and posting, and shall be revised within 60 days of any material change in the building's fire safety systems, means of egress or other building condition required to be included in such fire safety guide or notice.

408.9.3 Distribution and posting. A copy of the fire safety guide and fire safety notice shall be distributed to building occupants, and fire safety notices shall be posted as set forth in this section and the rules.

408.9.3.1 Cooperative or condominium. In Group R-2 occupancies with a cooperative or condominium form of ownership and management, the board of directors, condominium association or other party generally responsible for maintenance of common areas shall be responsible for the preparation and distribution of the fire safety guide, the posting and maintenance of fire safety notices in common areas, and the preparation and distribution to individual dwelling unit owners or proprietary lessees of fire safety notices for dwelling unit doors, including instructions and the means for affixing the notice. The owners or proprietary lessees of the individual units in such

residential buildings or parts thereof shall be responsible for the posting and maintenance of the fire safety notice on their respective dwelling unit doors.

408.9.4 Floor numbering list. The commissioner shall promulgate rules establishing requirements for the electronic submission of floor numbering lists to the department by owners of buildings or parts thereof classified in Group R-2 occupancies that are 150 feet (45 720 mm) or more in height, and such other occupancies as the commissioner may designate by rule. Such rules shall provide that each owner of a building with non-sequential or non-standard floor numbering, as defined by rule, submit a floor numbering list indicating the floor numbers assigned to each floor, and submit an amended floor numbering list within 2 business days of a change in any floor numbering designation.

17.2 Fire Department Rules § 408-9

The document FD Rules 408-02 Residential Fire Safety Guides and Notices required to the Fire Safety Plans and Fire Safety Notices required to be posted in residential buildings is being provided as a service.

408.9 Group R-2 occupancies. Group R-2 occupancy buildings or parts thereof with 3 or more dwelling units, including apartment houses, apartment buildings, apartment hotels and other residential buildings or parts thereof that are occupied for the shelter and sleeping accommodations of individuals on a month to month or longer-term basis shall comply with the requirements of Sections 408.9.1 through 408.9.4 and the rules. Such buildings or parts thereof shall not be required to comply with the supervision requirements of Sections 401, and the requirements of Sections 404, 405 and 406.

Exception: Group R-2 occupancy buildings or parts thereof required to prepare a fire safety and evacuation plan as set forth in Section 404.2.1(8). Such buildings or parts thereof shall be operated and maintained in compliance with the additional emergency preparedness and planning requirements set forth in the rules.

408.9.1 Residential fire safety guide and notices. The owner of any premises containing a Group R-2 occupancy shall cause a fire safety guide to be prepared for such premises, and periodically reviewed, amended and distributed in accordance with this section and the rules.

408.9.1.1 Fire safety guide. The residential fire safety guide shall serve to inform building occupants and building service employees as to the building's construction, fire safety systems, means of egress, and evacuation and other procedures to be followed in safety systems, means of egress, and evacuation and other procedures to be followed in the event of fire in the building. **408.9.1.2 Fire safety notices.** The fire safety notice shall serve to inform building occupants, building service employees and visitors as to the evacuation and other procedures to be followed in the event of fire in the building. Such notice shall be in such form as prescribed by the commissioner by rule and shall be posted within each dwelling unit and such other locations as set forth in the rules.

408.9.2 Periodic review and revision. Fire safety guides and notices shall be reviewed prior to each distribution and posting, and shall be revised within 60 days of any material change in the building's fire safety systems, means of egress or other building condition required to be included in such fire safety guide or notice.

408.9.3 Distribution and posting. A copy of the fire safety guide and fire safety notice shall be distributed to building occupants, and fire safety notices shall be posted as set forth in this section and the rules.

408.9.3.1 Cooperative or condominium. In Group R-2 occupancies with a cooperative or condominium form of ownership and management, the board of directors, condominium association or other party generally responsible for maintenance of common areas shall be responsible for the preparation and distribution of the fire safety guide, the posting and maintenance of fire safety notices in common areas, and the preparation and distribution to individual dwelling unit owners or proprietary lessees of fire safety notices for dwelling unit doors, including instructions and the means for affixing the notice. The owners or proprietary lessees of the individual units in such residential buildings or parts thereof shall be responsible for the posting and maintenance of the fire safety notice on their respective dwelling unit doors.

17.3 Fire Department Rules § 408-02

(a) **Scope**. This section sets forth standards, requirements and procedures for the preparation, posting and/or distribution of residential fire safety guides and notices required pursuant to FC408.9.

(b) General Provisions

(1) Applicability. This section applies to all buildings or parts thereof in Occupancy *Group R-2*, except:

(A) buildings or parts thereof subject to the provisions of FC404.2.1(8); and

(B) school and college dormitories, unless such dormitories are required to comply with this section pursuant to FC408.10.

(2) Fire safety guides. The *owner* of a building or part thereof subject to this section shall prepare a fire safety guide and distribute such guide to the occupants thereof in compliance with the requirements of FC408.9 and R408-02(c).

(3) Fire safety notices. The *owner* of a building or part thereof subject to this section shall prepare, post and maintain fire safety notices in compliance with the requirements of FC408.9 and R408-02(d).

(4) Access to dwelling units. Tenants and other occupants of dwelling units in buildings and parts thereof subject to this section shall allow the *owner* of such *premises* access to such dwelling unit, upon reasonable notice, for purposes of compliance with this section.

(c) Fire Safety Guide Requirements

(1) Purpose. The fire safety guide shall serve to inform occupants of the building, including building service employees, of the building's construction, *fire protection systems*, *means of egress*, and evacuation and other procedures to be followed in the event of *fire* in the building.

(2) Form. A fire safety guide shall be:

(A) substantially similar in format to the sample fire safety guide annexed to this section as Appendix 1, and include all of the information contained in such sample fire safety guide;

(B) printed as a single-sided or double-sided document, stapled or bound, in full-page or booklet format, on paper not smaller than 8½ inches by 11 inches nor larger than 8½ inches by 14 inches in size;

(C) printed such that all text is clearly legible, using contrasting lettering and a type size not smaller than eleven (11) point Times New Roman or equivalent; and

(D) printed in English. The *owner* may print the fire safety guide in such other additional languages (including symbols) as the *owner* concludes would benefit building occupants.

(3) Content. The fire safety guide shall consist of two (2) sections: a building information section and a fire emergency information section. The fire emergency information section shall reproduce the entire text of that section as set forth in the sample fire safety guide annexed hereto as Appendix 1. The building information section shall be completed by the *owner* with the following information:

(A) The address of the premises. A separate fire safety guide shall be prepared for each building, except buildings that have common *means of egress*.

(B) The name and address of the *owner* of the building or the *owner*'s representative, unless the fire safety guide is prepared on a letterhead containing such information. For purposes of the fire safety guide, the *owner*'s representative shall be any person or company authorized by the *owner* to receive and respond to complaints, violations or questions regarding building fire safety.

(C) The number of floors in the building, above and below ground level.

(D) The year the building was constructed.

(E) Whether the building is of combustible or non-combustible construction. For purposes of the fire safety guide, all buildings, including non-residential buildings containing residential occupancies, shall be deemed to be of "combustible construction" unless:

(1) The current Certificate of Occupancy for the building issued by the *Department of Buildings* or a Letter of No Objection by same indicates that the building is of "non-combustible" construction or "fireproof" construction; or

(2) If there is no Certificate of Occupancy or Letter of No Objection for the building, a *registered design professional* has provided written certification that the building is of "non-combustible" construction within the meaning of the 1968 or 2008 *Building Code,* or "fireproof" construction within the meaning of the *Building Code* in effect prior to 1968.

(F) Whether the building is equipped with a *sprinkler system*, and if so, whether such *sprinkler system* protects the entire building or only certain areas, and, if only certain areas, specifying those areas (for example, "the compactor chute on each floor and the compactor room and boiler room in the basement").

(G) Whether the building is equipped with a *fire alarm system*, and if so:

(1) the general location of the *manual fire alarm boxes* of such system (for example, "by the main entrance of building and next to the stairwell at each end of the corridor on each floor"); and

(2) whether the *manual fire alarm boxes*, when activated, transmit an alarm to an *approved central station* that notifies the *Department*.

(H) Whether the building is equipped with a one-way voice communication system pursuant to *Building Code* Section 907.2.12.2 (Exception 3), or other public address system (apart from any intercom system), and if so, the location of the speakers.

(I) All *means of egress* from the building, and the general location and any identification number of such *means of egress*, including:

(*1*) unenclosed interior stairwells;

(*2*) enclosed interior stairwells;

(*3*) exterior stairwells;

(*4*) fire tower stairwells;

(*5*) fire escapes;

(*6*) all exits from the building (for example, "main entrance on first floor exiting onto 1st Avenue; service entrance from basement level exiting by ramp onto 5th Street; emergency exit (with alarm) from stairwell exiting on north side of building with access to 5th Street; rear entrance at basement level to rear yard with no access to street; emergency exit (with alarm) at top of stairwell to roof with no access to ground or adjoining buildings.");

(J) The date the fire safety guide was prepared; and

(K) Any other fire safety information or requirements (including lease provisions, house rules or other private building regulations) that the owner may wish to include, such as restrictions on storage or decoration. Any private building regulations shall be clearly identified as such.

(4) Accuracy of information. The *owner* of each building shall be responsible for the accuracy of the information contained in the building information section of the fire safety guide and for the accurate reproduction of the fire emergency section of such fire safety guide.

(5) Distribution. The fire safety guide shall be distributed as follows:

(A) To each dwelling unit in the building, or an occupant thereof, and to each building service employee:

(B) on an annual basis, by hand delivery or mailing a copy by first class mail, during Fire Prevention Week (observed during the month of October), or, if the fire safety guide is distributed together with the window guard notices required by New York City Administrative Code §17-123, at such time as the rules of the New York City Department of Health and Mental Hygiene require the annual distribution of such window guard notices to be made; and

(C) within 60 days of any material change in building conditions affecting the content of the fire safety guide, other than temporary repairs or maintenance work. Nothing contained herein shall be construed to relieve an *owner* of any residential building or part thereof of any duty to notify building occupants, the *Department* or other party that any *fire protection system* is not functional.

(D) To a new occupant, by providing a copy at the time the lease, sublease or other agreement allowing occupancy of the dwelling unit is presented to the occupant for signature, or, if there is no written agreement, not later than at the date the occupant assumes occupancy of the *premises*.

(E) To a new building service employee, by providing a copy to such employee not later than the date upon which the employee actually commences to perform duties at the *premises*.

(F) Each distribution of the fire safety guide shall be documented by a United States Postal Service certificate of mailing or other official proof of mailing, or, if hand delivered, by receipt signed by an occupant of the dwelling unit or the building service employee, or by sworn affidavit of the employee or agent of the *owner* who actually delivered the fire safety guide, identifying the date and manner of delivery and the dwelling units to which it was delivered or the names of the occupants who received it.

(6) Inspection. The *owner* shall make available for inspection upon request of any *Department* representative a copy of the last three (3) annual fire safety guides and proof of distribution.

(d) Fire Safety Notice Requirements

(1) Purpose. The fire safety notice shall serve to inform occupants of the building, including building service employees and visitors, as to the evacuation and other procedures to be followed in the event of *fire* in the building.

(2) Form. Each fire safety notice shall be:

(A) substantially similar in format to the sample fire safety notice annexed to this section as Appendix 2, and include all of the information contained in such sample fire safety notice;

(B) printed on a single-sided sheet of paper framed under a clear plexiglas cover or laminated with a firm backing and designed to be affixed by mounting hardware or an adhesive, or printed on a matte-finish vinyl adhesive-backed decal not less than three (3) mils in thickness, using thermal printing, screen printing or other permanent, water-resistant printing technique;

(C) 5½ inches by 8½ inches in size (excluding any frame), except that fire safety notices to be posted in the common area of the residential building or part thereof may be up to 8½ by 11 inches in size;

(D) printed such that all text is clearly legible, using contrasting lettering and a type size not smaller than ten (10) point Times New Roman or equivalent; and

(E) printed in the English language. The *owner* may print the fire safety notice in such other additional languages (including symbols) as the *owner* concludes would benefit the building occupants. In such event, the fire safety notice may exceed 5½ inches by 8½ inches in size.

(3) Content. The fire safety notice shall reproduce the entire text of the sample fire notice annexed hereto as Appendix 2 that is applicable to the building, as follows:

(A) Noncombustible construction. The text of this notice shall be used for dwelling unit doors and common areas when the building is of noncombustible construction within the meaning set forth in R408-02(c)(3)(E).

(B) Combustible construction. The text of this notice shall be used for dwelling unit doors and common areas when the building is of combustible construction within the meaning set forth in R408-02(c)(3)(E).

(4) Accuracy of information. The *owner* of each residential building or part thereof subject to the requirements of this section shall be responsible for the accurate reproduction of the fire safety notices.

(5) Posting.

(A) Location. A fire safety notice shall be posted in each of the following locations:

(*1*) Dwelling unit door. On the inside surface of the front or main entrance door of each dwelling unit in the building.

(*2*) Common area. In a conspicuous location near any common mailbox area customarily used by building occupants, or if there is no common mailbox area, in a conspicuous location in or near the elevators or main stairwell.

(B) Method of posting. Each fire safety notice shall be securely affixed, by mounting hardware or an adhesive, to the door or wall such that no part of the fire safety notice (excluding any frame) is lower than four (4) feet from the floor, nor higher than five and a half (5½) feet from the floor.

(C) Posting of Building Information Section. A copy of Part I of the fire safety guide (the building information section) shall be posted with the fire safety notice in the common area. Such posting shall be in the same form as the fire safety notice.

(6) Maintenance and replacement. The *owner* shall maintain the fire safety notice in the common area and shall prepare and post any amended Part I (building information section) of the fire safety guide within sixty days of any material change in building conditions requiring such amended fire safety guide. The *owner* shall replace any missing or damaged notice on the dwelling unit door prior to any lawful change in occupancy of the dwelling unit. The *owner* shall replace any missing or damaged notice at any other time upon written request of the tenant. The tenant may be charged the reasonable cost of replacement.

17.3.1. Fire Safety Guides Appendix 1 (Not part of the test)

APPENDIX 1
FIRE SAFETY GUIDE
PART I -- BUILDING INFORMATION SECTION

BUILDING ADDRESS: _____

BUILDING OWNER/REPRESENTATIVE:

Name:_____
Address:_____
Telephone: _____

BUILDING INFORMATION:

Year of Construction: _____
Type of Construction: □ Combustible □ Non-Combustible

Number of Floors: _____ Aboveground _____Belowground
Sprinkler System: □ Yes □ No
Sprinkler System Coverage: □ Entire Building □ Partial *(complete all that apply)*:
□ Dwelling Units: _____
□ Hallways: _____
□ Stairwells: _____
□ Compactor Chute: _____
□ Other: _____

Fire Alarm: □ Yes □ Transmits Alarm to Fire Dept/Fire Alarm Co □ No
Location of Manual Pull Stations: _____
_____

Public Address System: □ Yes □ No
Location of Speakers: □ Stairwell □ Hallway □ Dwelling Unit □ Other: _____
_____

Means of Egress (e.g., Unenclosed/Enclosed Interior Stairs, Exterior Stairs, Fire Tower Stairs, Fire Escapes,
Exits):

Type of Egress	Identification	Location	Leads to

Other Information:_____
_____

DATE PREPARED: _____

FIRE SAFETY GUIDE
PART II – FIRE EMERGENCY INFORMATION

BUILDING
ADDRESS: _____

THIS FIRE SAFETY GUIDE IS INTENDED TO HELP YOU AND THE MEMBERS OF YOUR HOUSEHOLD PROTECT YOURSELVES IN THE EVENT OF FIRE. THIS FIRE SAFETY GUIDE CONTAINS:

- **Basic fire prevention and fire preparedness measures that will reduce the risk of fire and maximize your safety in the event of a fire.**
- **Basic information about your building, including the type of construction, the different ways of exiting the building, and the types of fire safety systems it may have.**
- **Emergency fire safety and evacuation instructions in the event of fire in your building.**

PLEASE TAKE THE TIME TO READ THIS FIRE SAFETY GUIDE AND TO DISCUSS IT WITH THE MEMBERS OF YOUR HOUSEHOLD. FIRE PREVENTION, PREPAREDNESS, AND AWARENESS CAN SAVE YOUR LIFE!

IN THE EVENT OF A FIRE,

CALL 911
OR THE FIRE DEPARTMENT DISPATCHER, AT

Manhattan	**(212) 999-2222**
Bronx	**(718) 999-3333**
Brooklyn	**(718) 999-4444**
Queens	**(718) 999-5555**
Staten Island	**(718) 999-6666**

OR TRANSMIT AN ALARM FROM
THE NEAREST FIRE ALARM BOX

BASIC FIRE PREVENTION AND FIRE PREPAREDNESS MEASURES

These are fire safety tips that everybody should follow:

1. Every apartment should be equipped with at least one smoke detector. (All apartment buildings constructed after July 2009 are required to be equipped with multiple interconnected smoke alarms that sound throughout an apartment.) Check them periodically to make sure they work. Most smoke detectors can be tested by pressing the test button. Replace the batteries in the spring and fall when you move your clocks forward or back an hour, and whenever a smoke detector chirps to signal that its battery is low. The smoke detector should be replaced on a regular basis in accordance with the manufacturer's recommendation, but at least once every ten years.
2. Carelessly handled or discarded cigarettes are the leading cause of fire deaths. Never smoke in bed or when you are drowsy, and be especially careful when smoking on a sofa. Be sure that you completely extinguish every cigarette in an ashtray that is deep and won't tip over. Never leave a lit or smoldering cigarette on furniture.
3. Matches and lighters can be deadly in the hands of children. Store them out of reach of children and teach them about the danger of fire.
4. Do not leave cooking unattended. Keep stove tops clean and free of items that can catch on fire. Before you go to bed, check your kitchen to ensure that your oven is off and any coffeepot or teapot is unplugged.
5. Never overload electrical outlets. Replace any electrical cord that is cracked or frayed. Never run extension cords under rugs. Use only power strips with circuit-breakers.
6. Keep all doorways and windows leading to fire escapes free of obstructions, and report to the owner any obstructions or accumulations of rubbish in the hallways, stairwells, fire escapes or other means of egress.
7. Install window gates only if it is absolutely necessary for security reasons. Install only approved window gates. Do not install window gates with key locks. A delay in finding or using the key could cost lives. Maintain the window gate's opening device so it operates smoothly. Familiarize yourself and the members of your household with the operation of the window gate.
8. Familiarize yourself and members of your household with the location of all stairwells, fire escapes and other means of egress.
9. With the members of your household, prepare an emergency escape route to use in the event of a fire in the building. Choose a meeting place a safe distance from your building where you should all meet in case you get separated during a fire.
10. Exercise care in the use and placement of fresh cut decorative greens, such as Christmas trees and holiday wreaths. If possible, keep them planted or in water. Do not place them in public hallways or where they might block egress from your apartment if they catch on

fire. Keep them away from any flame, including fireplaces. Do not keep for extended period of time; as they dry, decorative greens become easily combustible.

BUILDING INFORMATION

Building Construction

In a fire emergency, the decision to leave or to stay in your apartment will depend in part on the type of building you are in. Residential buildings built before 1968 are generally classified either as “fireproof” or “non-fireproof.” Residential buildings built in or after 1968 are generally classified either as “combustible” or “non-combustible.” The type of building construction generally depends on the size and height of the building.

A “non-combustible” or “fireproof” building is a building whose structural components (the supporting elements of the building, such as steel or reinforced concrete beams and floors) are constructed of materials that do not burn or are resistant to fire and therefore will not contribute to the spread of the fire. In such buildings, fires are more likely to be contained in the apartment or part thereof in which they start and less likely to spread inside the building walls to other apartments and floors. THIS DOES NOT MEAN THAT THE BUILDING IS IMMUNE TO FIRE. While the structural components of the building may not catch fire, all of the contents of the building (including furniture, carpeting, wood floors, decorations and personal belongings) may catch on fire and generate flame, heat and large amounts of smoke, which can travel throughout the building, especially if apartment or stairwell doors are left open.

A “combustible” or “non-fireproof” building has structural components (such as wood) that will burn if exposed to fire and can contribute to the spread of the fire. In such buildings, the fire can spread inside the building walls to other apartments and floors, in addition to the flame, heat and smoke that can be generated by the burning of the contents of the building. **Be sure to check Part I (Building Information Section) of this fire safety guide to see what type of building you are in.**

Means of Egress

All residential buildings have at least one means of egress (way of exiting the building), and most have at least two. There are several different types of egress:

Interior Stairs: All buildings have stairs leading to the street level. These stairs may be enclosed or unenclosed. Unenclosed stairwells (stairs that are not separated from the hallways by walls and doors) do not prevent the spread of flame, heat and smoke. Since flame, heat and smoke generally rise, unenclosed stairwells may not ensure safe egress in the event of a fire on a lower floor. Enclosed stairs are more likely to permit safe egress from the building, if the doors are kept closed. It is important to get familiar with the means of egress available in your building.

Exterior Stairs: Some buildings provide access to the apartments by means of stairs and corridors that are outdoors. The fact that they are outdoors and do not trap heat and smoke enhances their safety in the event of a fire, provided that they are not obstructed.

Fire Tower Stairs: These are generally enclosed stairwells in a “tower” separated from the building by air shafts open to the outside. The open air shafts allow heat and smoke to escape from the building.

Fire Escapes: Many older buildings are equipped with a fire escape on the outside of the building, which is accessed through a window or balcony. Fire escapes are considered a “secondary” or alternative means of egress, and are to be used if the primary means of egress (stairwells) cannot be safely used to exit the building because they are obstructed by flame, heat or smoke.

Exits: Most buildings have more than one exit. In addition to the main entrance to the building, there may be separate side exits, rear exits, basement exits, roof exits and exits to the street from stairwells. Some of these exits may have alarms. Not all of these exits may lead to the street. Roof exits may or may not allow access to adjoining buildings.

Be sure to review Part I (Building Information Section) of this fire safety guide and familiarize yourself with the different means of egress from your building.

Fire Sprinkler Systems

A fire sprinkler system is a system of pipes and sprinkler heads that when triggered by the heat of a fire automatically discharges water that extinguishes the fire. The sprinkler system will continue to discharge water until it is turned off. When a sprinkler system activates, an alarm is sounded.

Sprinkler systems are very effective at preventing fire from spreading beyond the room in which it starts. However, the fire may still generate smoke, which can travel throughout the building.

Apartment buildings constructed before March 1999 were generally not required to have fire sprinkler systems. Some apartment buildings are equipped with sprinkler systems, but only in compactor chutes and rooms or boiler rooms. All apartment buildings constructed after March 1999 are required by law to be equipped with fire sprinkler systems throughout the building.

Be sure to review Part I (Building Information Section) of this fire safety guide to learn whether your building is equipped with fire sprinkler systems.

Interior Fire Alarm Systems

Although generally not required, some residential buildings are equipped with interior fire alarm systems that are designed to warn building occupants of a fire in the building. Interior fire alarm systems generally consist of a panel located in a lobby or basement, with manual pull stations located near the main entrance and by each stairwell door. Interior fire alarm systems are usually manually-activated (must be pulled by hand) and do not automatically transmit a signal to the Fire Department, so a telephone call must still be made to 911 or the Fire Department dispatcher. Do not assume that the Fire Department has been notified because you hear a fire alarm or smoke detector sounding in the building.

Be sure to review Part I (Building Information Section) of this fire safety guide to learn whether your building is equipped with an interior fire alarm system and whether the alarm is transmitted to the Fire Department, and familiarize yourself with the location of the manual pull stations and how to activate them in the event of a fire.

Public Address Systems

Although generally not required, some residential buildings are equipped with public address systems that enable voice communications from a central location, usually in the building lobby. Public address system are different from building intercoms, and usually consist of loudspeakers in building hallways and/or stairwells.

Starting in July 2009, residential buildings that are more than 125 feet in height are required by law to be equipped with a one way voice communication system that will enable Fire Department personnel to make announcements from the lobby to building occupants in their apartments or in building stairwells.

Be sure to review Part I (Building Information Section) of this fire safety guide to learn whether your building is equipped with a public address system.

EMERGENCY FIRE SAFETY AND EVACUATION INSTRUCTIONS

IN THE EVENT OF A FIRE, FOLLOW THE DIRECTIONS OF FIRE DEPARTMENT PERSONNEL. HOWEVER, THERE MAY BE EMERGENCY SITUATIONS IN WHICH YOU MAY BE REQUIRED TO DECIDE ON A COURSE OF ACTION TO PROTECT YOURSELF AND THE OTHER MEMBERS OF YOUR HOUSEHOLD.

THIS FIRE SAFETY GUIDE IS INTENDED TO ASSIST YOU IN SELECTING THE SAFEST COURSE OF ACTION IN SUCH AN EMERGENCY. PLEASE NOTE THAT NO FIRE SAFETY GUIDE CAN ACCOUNT FOR ALL OF THE POSSIBLE FACTORS AND CHANGING CONDITIONS; YOU WILL HAVE TO DECIDE FOR YOURSELF WHAT IS THE SAFEST COURSE OF ACTION UNDER THE CIRCUMSTANCES.

General Emergency Fire Safety Instructions

1. Stay calm. Do not panic. Notify the Fire Department as soon as possible. Firefighters will be on the scene of a fire within minutes of receiving an alarm.
2. Because flame, heat and smoke rise, generally a fire on a floor below your apartment presents a greater threat to your safety than a fire on a floor above your apartment.
3. Do not overestimate your ability to put out a fire. Most fires cannot be easily or safely extinguished. Do not attempt to put the fire out once it begins to quickly spread. If you attempt to put a fire out, make sure you have a clear path of retreat from the room.
4. If you decide to exit the building during a fire, close all doors as you exit to confine the fire. Never use the elevator. It could stop between floors or take you to where the fire is.
5. Heat, smoke and gases emitted by burning materials can quickly choke you. If you are caught in a heavy smoke condition, get down on the floor and crawl. Take short breaths,

breathing through your nose.

6. If your clothes catch fire, don't run. Stop where you are, drop to the ground, cover your face with your hands to protect your face and lungs and roll over to smother the flames.

Evacuation Instructions If The Fire Is In Your Apartment
(All Types of Building Construction)

1. Close the door to the room where the fire is, and leave the apartment.
2. Make sure EVERYONE leaves the apartment with you.
3. Take your keys.
4. Close, but do not lock, the apartment door.
5. Alert people on your floor by knocking on their doors on your way to the exit.
6. Use the nearest stairwell to exit the building.
7. DO NOT USE THE ELEVATOR.
8. Call 911 once you reach a safe location. Do not assume the fire has been reported unless firefighters are on the scene.
9. Meet the members of your household at a predetermined location outside the building. Notify responding firefighters if anyone is unaccounted for.

Evacuation Instructions If The Fire Is Not In Your Apartment

"NON-COMBUSTIBLE" OR "FIREPROOF" BUILDINGS:

1. Stay inside your apartment and listen for instructions from firefighters unless conditions become dangerous.
2. If you must exit your apartment, first feel the apartment door and doorknob for heat. If they are not hot, open the door slightly and check the hallway for smoke, heat or fire.
3. If you can safely exit your apartment, follow the instructions above for a fire in your apartment.
4. If you cannot safely exit your apartment or building, call 911 and tell them your address, floor, apartment number and the number of people in your apartment.
5. Seal the doors to your apartment with wet towels or sheets, and seal air ducts or other openings where smoke may enter.
6. Open windows a few inches at top and bottom unless flames and smoke are coming from below. Do not break any windows.
7. If conditions in the apartment appear life-threatening, open a window and wave a towel or sheet to attract the attention of firefighters.
8. If smoke conditions worsen before help arrives, get down on the floor and take short breaths through your nose. If possible, retreat to a balcony or terrace away from the source of the smoke, heat or fire.

"COMBUSTIBLE" OR "NON-FIREPROOF" BUILDING

1. Feel your apartment door and doorknob for heat. If they are not hot, open the door slightly and check the hallway for smoke, heat or fire.
2. Exit your apartment and building if you can safely do so, following the instructions above for a fire in your apartment.

3. If the hallway or stairwell is not safe because of smoke, heat or fire and you have access to a fire escape, use it to exit the building. Proceed cautiously on the fire escape and always carry or hold onto small children.

4. If you cannot use the stairs or fire escape, call 911 and tell them your address, floor, apartment number and the number of people in your apartment.
   A. Seal the doors to your apartment with wet towels or sheets, and seal air ducts or other openings where smoke may enter.
   B. Open windows a few inches at top and bottom unless flames and smoke are coming from below. Do not break any windows.
   C. If conditions in the apartment appear life-threatening, open a window and wave a towel or sheet to attract the attention of firefighters.
   D. If smoke conditions worsen before help arrives, get down on the floor and take short breaths through your nose. If possible, retreat to a balcony or terrace away from the source of the smoke, heat or fire.

17.3.2. Fire Safety Notices Appendix 2

APPENDIX 2
FIRE SAFETY NOTICES

The following fire safety notice shall be posted in buildings of non-combustible construction within the meaning of R408-02(c)(3)(E):

FIRE SAFETY NOTICE

IN THE EVENT OF FIRE, STAY CALM. NOTIFY THE FIRE DEPARTMENT AND FOLLOW THE DIRECTIONS OF FIRE DEPARTMENT PERSONNEL. IF YOU MUST TAKE IMMEDIATE ACTION, USE YOUR JUDGMENT AS TO THE SAFEST COURSE OF ACTION, GUIDED BY THE FOLLOWING INFORMATION:

YOU ARE IN A NON-COMBUSTIBLE (FIREPROOF) BUILDING

If The Fire Is In Your Apartment

- Close the door to the room where the fire is and leave the apartment**.**
- Make sure EVERYONE leaves the apartment with you.
- Take your keys.
- Close, but do not lock, the apartment door.
- Alert people on your floor by knocking on their doors on your way to the exit.
- Use the nearest stairwell to leave the building.
- DO NOT USE THE ELEVATOR.
- Call 911 once you reach a safe location. Do not assume the fire has been reported unless firefighters are on the scene.
- Meet the members of your household at a pre-determined location outside the building. Notify the firefighters if anyone is unaccounted for.

If The Fire Is Not In Your Apartment

- Stay inside your apartment and listen for instructions from firefighters unless conditions become dangerous.

- If you must exit your apartment, first feel the apartment door and doorknob for heat. If they are not hot, open the door slightly and check the hallway for smoke, heat or fire.
- If you can safely exit your apartment, follow the instructions above for a fire in your apartment.
- If you cannot safely exit your apartment or building, call 911 and tell them your address, floor, apartment number and the number of people in your apartment.
- Seal the doors to your apartment with wet towels or sheets, and seal air ducts or other openings where smoke may enter.
- Open windows a few inches at top and bottom unless flames and smoke are coming from below.
- Do not break any windows.
- If conditions in the apartment appear life-threatening, open a window and wave a towel or sheet to attract the attention of firefighters.
- If smoke conditions worsen before help arrives, get down on the floor and take short breaths through your nose. If possible, retreat to a balcony or terrace away from the source of the smoke, heat or fire.

The following fire safety notice shall be posted in buildings of combustible construction within the meaning of R408-02(c)(3)(E):

FIRE SAFETY NOTICE

IN THE EVENT OF FIRE, STAY CALM. NOTIFY THE FIRE DEPARTMENT AND FOLLOW THE DIRECTIONS OF FIRE DEPARTMENT PERSONNEL. IF YOU MUST TAKE IMMEDIATE ACTION, USE YOUR JUDGMENT AS TO THE SAFEST COURSE OF ACTION, GUIDED BY THE FOLLOWING INFORMATION:

YOU ARE IN A COMBUSTIBLE (NON-FIREPROOF) BUILDING

If The Fire Is In Your Apartment

- Close the door to the room where the fire is and leave the apartment.
- Make sure EVERYONE leaves the apartment with you.
- Take your keys.
- Close, but do not lock, the apartment door.
- Alert people on your floor by knocking on their doors on your way to the exit.
- Use the nearest stairwell to leave the building.
- DO NOT USE THE ELEVATOR.
- Call 911 once you reach a safe location. Do not assume the fire has been reported unless firefighters are on the scene.
- Meet the members of your household at a pre-determined location outside the building. Notify the firefighters if anyone is unaccounted for.

If The Fire Is Not In Your Apartment

- Feel your apartment door and doorknob for heat. If they are not hot, open the door slightly and check the hallway for smoke, heat or fire.
- Exit the apartment and building if you can safely do so, following the instructions above for a fire in your apartment.
- If the hallway or stairwell is not safe because of smoke, heat, or fire and you have access to a fire escape, use it to exit the building. Proceed cautiously on the fire escape and always carry or hold onto small children.

- If you cannot use the stairs or the fire escape, call 911 and tell them your address, floor, apartment number and the number of people in your apartment.
- Seal the doors to your apartment with wet towels or sheets, and seal air ducts or other openings where smoke may enter.
- Open windows a few inches at top and bottom unless flames and smoke are coming from below.
- Do not break any windows.
- If conditions in the apartment appear life-threatening, open a window and wave a towel or sheet to attract the attention of firefighters.
- If smoke conditions worsen before help arrives, get down on the floor and take short breaths through your nose. If possible, retreat to a balcony or terrace away from the source of the flames, heat or smoke.