Code Reference Package

2012 Code Edition

for

Architects
Engineers
Designers
Installers

Updated September 18, 2015

Fairfax County Fire and Rescue Department
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CODES AND STANDARDS IN FORCE

SUMMARY

Effective July 15, 2015

NOTICE: ALL PERSONS ARE REQUIRED TO CONSULT AND COMPLY WITH THE CODES. USE OF THE CODE REFERENCE PACKAGE DOES NOT EXEMPT THE USER FROM DIRECT USE OF THE CODES.

1. **Fairfax County Public Facilities Manual (PFM)** current edition, see especially Chapter 9. The PFM is continuously updated.
2. **Virginia Uniform Statewide Building Code (USBC)** 2012 edition, incorporating International Building Code (IBC), published by the International Code Council Inc. (ICC) 2012 with emendations.

   ICC International Fire Code 2012 (IFC)
   ICC International Existing Building Code 2012 (IEBC)
   ICC International Mechanical Code 2012 (IMC)
   ICC International Plumbing Code 2012 (IPC)
   National Electrical Code 2011 (NEC)

3. **Fairfax County Fire Prevention Code**, incorporating the International Fire Code with emendations, and incorporating VA Statewide Fire Prevention Code (SFPC) 2012.
4. **Elevator Code** ASME A17.1-2007, Safety Code for Elevators and Escalators
5. **Accessibility Code** ICC A117.1-2009, Accessible and Usable Buildings and Facilities.
6. **Referenced Standards:** The following are the principal National Fire Protection Association (NFPA) standards used by Fairfax County. This list is <u>not exhaustive</u> of the NFPA standards referenced by the USBC and the SFPC. Please refer to Chapter 35 of the USBC and Chapter 80 of the SFPC for the complete list of referenced NFPA standards.

NFPA 10	(2010)	Portable Fire Extinguishers
NFPA 13	(2010)	Installation of Sprinkler Systems
NFPA 13D	(2010)	Installation of Sprinkler Systems in One and Two-family Dwellings and Manufactured Homes
NFPA 13R	(2010)	Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height
NFPA 14	(2010)	Installation of Standpipe and Hose Systems
NFPA 17	(2009)	Dry Chemical Extinguishing Systems
NFPA 17A	(2009)	Wet Chemical Extinguishing Systems
NFPA 20	(2010)	Installation of Stationary Pumps for Fire Protection
NFPA 22	(2008)	Water Tanks for Private Fire Protection
NFPA 24	(2010)	Installation of Private Fire Service Mains and Their Appurtenances
NFPA 25	(2011)	Inspection, Testing & Maintenance of Water-Based Fire Protection Systems

NFPA 30	(2012)	Flammable and Combustible Liquids Code
NFPA 30A	(2012)	Code for Motor Fuel Dispensing Facilities and Repair Garages
NFPA 30B	(2011)	Manufacture and Storage of Aerosol Products
NFPA 33	(2011)	Spray Application Using Flammable or Combustible Liquids
NFPA 37	(2010)	Installation and Use of Stationary Combustion Engines and Gas Turbines
NFPA 58	(2011)	Liquefied Petroleum Gas Code
NFPA 70	(2011)	National Electrical Code (NEC)
NFPA 72	(2010)	National Fire Alarm Code
NFPA 80	(2010)	Fire Doors and Other Opening Protectives
NFPA 92B	(2009)	Smoke Management Systems in Malls, Atria, and Large Spaces
NFPA 2001	(2012)	Clean Agent Fire Extinguishing Systems

PERMIT REQUIREMENT RESOURCES FOR MISCELLANEOUS PLAN TYPES

The following table has been provided for reference purposes regarding plan types that do not otherwise appear in this document:

PLAN TYPE	PRIMARY CODE REFERENCE	FURTHER REFERENCE
Assembly Occupancies	SFPC Section 401.2	Requirements - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/assembly-occupancies
Barbeque Grills	SFPC Section 308.3.1.1	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/open-flame-cooking-devices
Bonfires	SFPC Section 307.2	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/bonfire-guidelines
Candles & Open Flame Decorations	SFPC Section 308.3	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/open-flame-decorative-devices
Carnivals & Fairs/Festivals	SFPC Section 108.1	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/festival
Controlled Burning	SFPC Section 307.2	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/controlled-burning-guideline
Evacuation Planning	Dependent on Occupancy Type	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/evacuation-planning-and-fire-safety
Fireworks	SFPC Section 108.1.1	Regulations - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/fireworks-and-indoor-pyrotechnics
High-Piled Storage	SFPC Section 3201.2 and108.2	Code Guideline - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/high-piled-combustible-storage-guideline
Indoor Vehicle Displays	SFPC Section 108.3.5	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/indoor-vehicle-display-guidelines
Non-Residential Use Permit (Non-RUP)	Fairfax County Zoning Ordinance Section 18-701	Code Compliance - https://www.fairfaxcounty.gov/planning-zoning/zoning/non-residential-use-permits
Portable Fireplaces[1]	SFPC Section 307.4.3	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/portable-fireplaces
Recreational Fires[1]	SFPC Section 307.5.1	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/recreational-fires-guidelines
Temporary Tents	SFPC Chapter 31	Code Compliance - https://www.fairfaxcounty.gov/fire-ems/fire-marshal/tents

FEES: All fees are calculated per the fee schedule in Chapter 61, Code of the County of Fairfax. This includes work done in the Engineering Plans Review, Systems Testing, and Inspections Branches. Billing rate is per the published fee schedule.

[1] SFPC provides a list of requirements but no specific permit is required.

GENERAL GUIDELINES FOR PLAN SUBMITTALS & DOCUMENTS

A. All Plans and Documents Submitted for Permit which Detail Fire Protection Systems, as required by Chapter 9 of the Virginia Uniform Statewide Building Code (USBC), must be prepared in accordance with the following guidelines:

1. Submitted plans drawn to a scale less than $^{1}/_{8}$" = 1" foot will not be accepted.
2. Submitted plans shall be blueline (traditional blueprints) or blackline (black & white bond plots/prints) only. Color prints or plots will not be accepted.
3. When executing the application for permit an applicant must provide a cogent, succinct description of work that captures the proposed scope accurately. "Fire alarm work" or "Modification of sprinkler system" is not considered an acceptable description of the proposed work.
4. Data packages must be collated, assembled in sets and bound with staples, brass fasteners, prong fasteners or binder type folders. Spring clips and loose leaf sets are not acceptable.
5. Data packages must have an integral cover sheet using the installing contractors' letterhead noting the project address, complete scope of work narrative and any other pertinent information. This requirement is particularly important for work that does not require a plan or shop drawing.
6. The submission of rolled plans is discouraged as it is difficult to handle and temporarily store, while awaiting review, multiple sets bundled with "flat" material specifications. All submitted plans must be folded unless the number of drawings in the submission set cannot be physically folded. In that case, rolled sets must be rolled face (drawing side) out so that staff may read the title/address without unrolling the set.
7. A building "key plan" must be provided on drawings to pinpoint the location in the building of the area shown on that particular drawing sheet.
8. When submitting revised or as-built plans the applicant must provide one set of the previously approved plans (to be returned). All revisions on all pages / sheets must be "clouded" and tagged with a delta designation noting the revision date or plans cannot be reviewed.
9. When resubmitting plans that have been rejected, the designer or responsible party must submit a narrative noting corrective action taken to address each rejection comment issued by the OFM plans examiner or plans cannot be reviewed.
10. The maximum number of plans that will be stamped and signed upon approval is 4; 1 set to be retained for record by the OFM and 3 sets to be returned to the applicant.
11. Submit only 2 sets of hydraulic calculation print-outs. One set to be retained for record by the OFM and 1 set to be returned to the applicant.
12. Plans with OFM rejection stamps cannot be used as a revised submission with "hand corrections."

NOTE: The Appendix contains all forms referenced throughout this document, as well as checklists which may aid in plan submission preparations.

SITE PLAN / SUBDIVISION REVIEW CHECKLIST

The following checklist is provided to serve as a general guideline for the purpose of identifying major items of review by the Engineering Plans Review Branch of the Fairfax County Fire Marshal's Office as required by the Fairfax County Public Facilities Manual, current edition, Chapter 9, Parts 1 and 2.

Public Facilities Manual, Current Edition (PFM)
Virginia Uniform Statewide Building Code, 2012 Edition (USBC)
Virginia Statewide Fire Prevention Code, 2012 Edition (SFPC)
Fairfax County Fire Prevention Code, Current Edition (FXCO FPC)

BUILDING DATA

1. Submitter name, address, telephone in full..... USBC 109.2
2. Building name, address in full..... USBC 109.2
3. County site plan number (DPWES Tracking Requirement for Plan Control)
4. Type of construction – USBC classification ..... PFM 9-0202.2 C(2)
5. Use Group – USBC classification ..... PFM 9-0202.2 C(1)
6. Number of stories ..... PFM 9-0202.2 C(10)
7. Building height in feet ..... PFM 9-0202.2 C(10)
8. Foot print area of building ..... PFM 9-0202.2 C(12)
9. Gross floor area of building..... PFM 9-0202.2 C(12)
10. If fire walls are to be built, label on plan with hour rating ..... PFM 9-0202.2 C(11)
11. State on plan if building is to be sprinklered, in full or partial ..... PFM 9-0202.2 C(7)
12. If sprinklered, show fire department siamese connection(s), fire line ..... PFM 9-0202.2 C(9)
    locations, and size of pipe (with correct valve arrangement)
13. Fire hydrants to be shown on site plan, water mains..... PFM 9-0202.2 C(5), 2 C(4)
    to be shown and size of pipe labeled..... PFM STD FH-1,2,3,4,5
14. Provide available fire flow at 20 psi and state source of
    information..... PFM 9-0202.2 C(6), 9-0202.2 F

EMERGENCY VEHICLE ACCESS

1. Adequate emergency vehicle access, turning radii.....SFPC 503.2.4
2. Fire lanes to be labeled for curb painting and signage ..... SFPC 503.3
3. Buildings more than 5 stories or 50 ft. need aerial ladder truck access..... PFM 9-0202.2 J (2)
4. Dead-end fire lanes greater than 100 ft. require a turnaround..... PFM 9-0202.2 J (6)
5. Emergency vehicle access to within 100 ft. of main ..... PFM 9-0202.2 J (1)
   entrance to every building
6. Swimming pool access – to be within 50 ft. of edge of pool via..... PFM 9-0202.2 J (7)
   12 ft. wide access lane (must be posted fire lane) with 8 ft. wide personnel gates
7. Height restrictions blocking emergency access.....SFPC 503.2.1
   (low overhead like canopy) Minimum clearance required 15'
8. Multi-story parking structure obstructions to access, ...SFPC 503.1.2
   also design live load to carry weight of fire department vehicles (80,800 pounds)

FIRE HYDRANT (FH) COVERAGE AND LOCATION

1. Minimum of 50 ft. distance from FH to any structure ..... PFM 9-0202.1F
2. Maximum 100 ft. from FH to siamese connection .....PFM 9-0202.1H
3. FH coverage: Measured from the hydrant to the ..... PFM 9-0202.1I
   most remote point of vehicular access on the site, via the vehicular travel path:
   - Industrial building and warehouse ..... 250'
   - Schools, day care centers ..... 300'
   - Offices, commercial, church, hospital, nursing home ..... 350'
   - Apartments, multi-family dwellings ..... 350'
   - Single family dwellings ..... 500'
4. Dead-end water main to FH distance:
   - 6" (150 mm.) line ..... 380 ft. max. distance
   - 8" (200 mm.) line ..... 1550 ft. max. distance
   - 10" (250 mm.) line ..... 4600 ft. max. distance
   - 12" (300 mm.) line ..... 11,150 ft. max. distance
5. No obstructions of FH within 4 ft. (plantings, fences, ...PFM 9-0202.1G
   retaining wall, etc.) or of siamese within 10 ft.
6. All fire hydrants and water mains located in or on parking .....NFPA 24,12.2.3
   structures shall be protected from freezing (no heat tape)
7. FH location for single family dwellings: ..... PFM 9-0103.12
   a. lot line and/or
   b. curve of pavement
8. Siamese located on street front, address side of building .....PFM 9-0202.1K
9. Siamese connection visible, accessible (no obstructions .....PFM 9-0202.1K
   within 10 ft.)
10. Water supply must be available as soon as..... USBC 3311.4
    combustibles present on site

HEIGHT AND AREA CHECK

1. USBC Table 503, height and area check ..... USBC 503

FIRE FLOW

1. Adequate fire flow (at 20 psi) to be available on site ..... PFM 9-0202.2 C(6), 9-0202.2 F
2. Fire line properly sized ..... PFM 9-0202.2 C(8)

FIRE LANE DESIGNATION

1. Appropriate signage and curb markings indicated on all plans ..... FXCO FPC 503 (all)

FIRE LANES STANDARDS FOR PLANS REVIEW AND SITE INSTALLATION

Posting and marking of fire lanes was required as of July 1986 for all sites regardless of Use Group classification. Under Section F503.1 of the Fairfax County Fire Prevention Code, the Fire Marshal's Office is authorized to designate fire lanes on public streets and on private property where necessary. This is to prevent parking in front of or adjacent to fire hydrants and to provide access for firefighting equipment. Additional areas may be designated as fire lanes as conditions warrant. Markings and signs are to be provided by the owner or agent of the property involved. Parking or otherwise obstructing such areas is prohibited.

FOR EXISTING PROJECTS, fire lanes will be designated at the request of the property owner, or agent, or if conditions warrant. The owner will be required to submit scaled site plan drawings for designation by the Fire Marshal's Office.

FOR NEW PROJECTS, fire lanes will be designated during site plan approval. All fire lane information must be applied in a clear and orderly manner to the original mylar. All fire lanes must be shown on a site plan that is part of the site plan submittal set and all sets must have the fire lane plan included. The site plan scale can be no smaller than 1 inch = 30 feet. Street names and building addresses are to be shown. Plans submitted must indicate fire lanes designated in accordance with Fire Prevention criteria. A summary of the information necessary to create fire lanes acceptable to Fairfax County Fire and Rescue follows.

I. FIRE LANES

A. General

1. Fire lanes shall be installed where required by the Fire Marshal's Office.
2. Fire lanes shall be marked with both sign and curb delineation per Headings V and VI below. All fire lane markings, locations and types of signs, etc., shall be subject to approval by the Fire Marshal's Office.
3. Parking and traffic flow patterns shall be required as follows:

TABLE 503.2.1.1

STREET WIDTH	PARKING	FIRE LANE MARKINGS
< 28 feet	No parking allowed on either side	Both sides marked as fire lanes
28 to 36 feet	Parallel parking allowed on one side as determined by the fire code official	One side marked as a fire lane
> 36 feet	Parallel parking allowed on both sides	No fire lane markings required Exception: Required access to pools, fire department apparatus access roads and similar areas shall be marked as fire lanes

II. HYDRANTS

A. General

1. Parking is prohibited within 15' of a fire hydrant located along the curb line or edge of any public or private roadway. No special curb marking is required for enforcement.
2. Fire hydrants installed in parking lots are to be located within a fire lane. Curb and/or roadway marking are required in accordance with Headings V and VI below.

III. FIRE LANE PLANS REVIEW CHECKLIST

The following checklist is provided to serve as a general guideline for the purpose of identifying major items of review by the Engineering Plans Review Branch of the Fairfax County Fire Marshal's Office as required by the Fairfax County Public Facilities Manual, current edition, Chapter 9, Part 1 and Part 2.

PFM = Public Facilities Manual, Current Edition
USBC = Virginia Uniform Statewide Building Code, 2012 Edition
SFPC = Virginia Statewide Fire Prevention Code, 2012 Edition
CRP = Code Reference Package, Current Edition

A. Building Data

1.	Submitter name, address, telephone number, in full	CRP
2.	Building name, address in full	CRP
3.	County site plan number (DPWES Tracking Requirement for Plan Control)	PFM 9-0202.2C (2)
4.	Number of stories	PFM 9-0202.2C (10)
5.	Building height in feet	PFM 9-0202.2C (12)
6.	If sprinklered, show fire department siamese connection(s), fire-line locations and size of pipe labeled (with correct valve arrangement)	PFM 9-0202.2C (9)
7.	Fire hydrants to be shown on the site plan, water mains to be shown and size of pipe labeled	PFM 9-0202.2C (5), PFM 9-0202.2C (4)

B. Emergency Vehicle Access

1.	Adequate emergency vehicle access, turning radii	PFM 9-0202.2J (1)
2.	Fire lanes to be labeled for curb painting and signage	PFM 9-0202.2J (5)
3.	Buildings more than 5 stories or 50 ft. need front and rear access	PFM 9-0202.2J (2)
4.	Dead-end fire lanes greater than 100 ft. require a turnaround	PFM 9-0202.2J (6)
5.	Emergency vehicle access to within 100 ft. of main entrance to every building	PFM 9-0202.2J (1)
6.	Swimming pool access - to be within 50 ft. of edge of pool via 12 ft. wide access lane (must be posted fire lane) w/ 8 ft. wide personnel gates	PFM 9-0202.2J (7)
7.	Height restrictions blocking emergency access (low overhead like a canopy) 15 ft. minimum clearance required	PFM 9-0202.2J (8)
8.	Multi-story parking structure obstructions to access, also design live load to carry weight of fire department vehicles (80,800 lbs.)	PFM 9-0202.2J (9)

C. Fire Lane Designation

1. Appropriate signage and curb markings indicated on all plans PFM 9-0202 (FH-7)

IV. NOTICES TO APPEAR ON SITE PLANS

A. The Following Notices Must Appear on the Site Plans:

1. Fire Marshal field inspection is necessary for final approval of fire lanes. Fire lanes must have final approval prior to request for occupancy permit.
2. Owner shall notify the Fire Marshal's Office, Fire Lanes Unit, 10700 Page Avenue, Fairfax, Virginia 22030, 703-246-4849, TTY 711, when fire lanes have been installed.

B. The Following Notices will be Shown on the Site Plans as Required:

1. To be an all-weather surface designed to support fire department vehicles.
2. To be identified as a fire lane at entrance.
3. To be maintained clear and accessible all year.
4. To have a mountable curb at entrance.
5. Provide manufacturer's specifications and installation instruction for items used in access lanes to the Fire Marshal's Office for approval prior to installation.
6. Installation of access areas must be witnessed by the Fire Marshal's Office. Please call for an appointment.
7. Provide approximately 4 feet high bollards, with steel chain locked between, at curbside entrances to access lanes.
8. Access lanes must be clearly delineated for entire length and at ends by shrubs, lights, etc.

V. SIGN SPECIFICATIONS

A. Approved Fire Lane Signs Must Meet the Following Specifications:

1. Sign Details
   a. Metal construction 12 inches by 18 inches.
   b. Red letters on reflective white background with $^{3}/_{8}$ inch red trim strip around entire outer edge of sign. Lettering on sign to read: "NO PARKING OR STANDING FIRE LANE"
   c. There shall be a one inch spacing between lines "No Parking" and "or". There shall be a one inch spacing between the lines "or" and Standing". There shall be a three inch space between the lines "Standing" and "Fire Lane". Lettering size to be as follows:

<u>STANDARD WORDING</u>

"NO PARKING"	(2 inches)
"OR"	(1 inch)
"STANDING"	(2 inches)
"FIRE LANE"	(2 ½ inches)

   d. Arrow (if required) shall be 1 inch by 6 inches with a solid head 1 ½ inches wide by 2 inches deep.

2. Sign Types

SIGN TYPE "A"

Figure 503.3.1.2.1

Standard wording with an arrow at bottom pointing to the right. One sign mounted parallel to the line of curbing or pavement edge at the end of the painted area.

See Figure 503.3.1.2.1 Above

SIGN TYPE "C"

Figure 503.3.1.2.2

Standard wording with an arrow at bottom pointing to the left. One sign mounted parallel to the line of curbing or pavement edge at the end of the painted area.

See Figure 503.3.1.2.2 Above

SIGN TYPE "D"

Figure 503.3.1.2.3

Standard wording with no arrow. Two signs, back to back, mounted perpendicular to line of curbing or pavement edge. To be seen from either side. Located every **100 feet** in long stretches of a marked, painted fire lane.

See Figure 503.3.1.2.3 Above

3. Sign Posts
   a. Posts for fire lane signs shall be metal and securely mounted.
   b. Signs shall be located and spaced as shown on the approved plans.
   c. In long stretches, the maximum distance between fire lane signs shall be **100'**.
   d. Fire lane signs are to be mounted 7' above the finished grade to the bottom of the sign.

VI. CURBS AND PAINTING

A. All Curbs or Paved Spaces Designated as Fire Lanes:

1. Shall be indicated by yellow (highway grade) paint as approved by the fire code official.
2. In areas without curbing, a 6" wide yellow stripe shall be applied to the edge of the pavement.
3. The property owner or designee shall repaint whenever the paint begins to fade or when directed by the fire code official.

VII. Emergency Operation for Gates and Barricades

A. Gates and Barricades Must Meet the Following Specifications:

1. In accordance with SFPC 503.6.1, gates and barricades that are installed across a fire apparatus access road that is normally intended for vehicular traffic shall be installed with a fire department access system which has an emergency override fire department master key switch as approved by the fire official.
2. Gates and barricades shall be maintained operational at all times.

DOOR LOCKS, EXITS, AND SECURITY

The increased focus on security over the past several years has risen. Conflicts occur between security to prevent intruders from entering the building, and occupants exiting quickly in an emergency. While locking outside doors to prevent unauthorized people from entering the building is permissible under the published building code requirements, inhibiting free egress is not. Code requires in general that every person within the building must be able to exit all doors in the egress path to the outside without "the use of a key, or special knowledge or effort" from the egress side. This guideline is provided to assist the contractor, owner, developer/builder with assembling a comprehensive set of plans that will result in their project moving smoothly through the building review process in the least amount of time. This checklist contains the minimum standard information required for a project submitted for the plan review of access control, door locks, special locks and security.

Plans sets submitted without the minimum information listed below cannot be accepted for review. This publication does not replace, nor supersede, any provisions of the Fire Prevention Code or other codes and/or ordinances adopted by Fairfax County.

Then, the following code sections apply:

A. **All Special Locks (including those installed by or for tenants in tenant areas):** (see also USBC 1008.1.9.3 for main exterior egress door), USBC 1008.1.9.7, USBC 1008.1.9.8, and 1008.1.9.9. Any special locking device installed under the above codes must meet one of the max options of these sections, known as the "push-bar option" or the "motion sensor option." You must consult the code for the list of all items under each of these sections which must be complied with. Do not attempt to submit any special lock plan which does not list all items found under these sections in its sequence of operation. If you omit any one element, your plans cannot be approved. For I-2 special areas, see USBC 407.4.1.1.

B. **Any Exit Stairwell Door:** USBC 1008.1.9.11, 403.5.3. In addition to the items under Item A above, USBC 1008.1.9.11 states that "all interior stairway means of egress doors shall be openable from both sides without the use of a key or special knowledge or effort." An exception is "doors arranged in accordance with USBC 403.5.3." USBC 403.5.3 applies to any building in which the stairwell doors are proposed to be locked, and mandates that there be a stairwell door unlock key switch at the main annunciator panel location in the building. In addition, USBC 403.5.3.1 mandates that there be an emergency (call-out) phone for use by anyone trapped in the stairwell. Thus, any time you wish to provide special locks on a stairwell door, you must arrange for the override and the call-out phone (call-out phone for stairs 5 levels or more).

C. **Positive Latching:** Stairwell doors are fire-rated doors, and as such (see NFPA 80, Section 6.4.4.3) require positive latching. This means that normal electric strikes in which the strike plate retracts away cannot be used in fire-rated door assemblies. There are certain exceptions to NFPA 80, Section 6.4.4.3 which provide that "in a fire emergency, the door becomes positively latched." Thus, you must provide for positive latching on a fire door.

D. **Hardware:** Rated doors (all exit stairwell doors are rated; other doors may carry a rating as well). All rated doors must have rated hardware. If you do not have rated hardware on a rated door, then your plans cannot be approved. If the cut sheets for the hardware you propose to install do not show explicitly that the hardware is rated then it cannot be installed on a rated door. Common places where rated doors occur are: stairwells, horizontal exits, fire separations, dwelling unit separations, rated corridors, etc. Fire doors modified with any special locks which you install must also meet the UL listing for fire exit hardware.

1. **Builders Hardware:** Per UL category, as found in the Underwriters Laboratories Fire Resistance Directory, Volume 3, “Builders hardware for swinging fire doors of the composite, hollow-metal, metal clad, sheet metal and wood-core types are listed in the following categories: auxiliary locks, electric strikes, fire exit hardware, automatic type flush or surface bolts, manual type flush or surface bolts, self-latching type flush or surface bolts, single point locks or latches, electrically controlled single-point locks or latches, electrically controlled single-point locks or latches, and two or three-point locks or latches”
2. **Fire Exit Hardware:** If a door is both an exit door and requires panic hardware (see USBC 1008.1.9), then you must provide fire exit hardware on this door. Any special locks which you install must also meet the UL listing for fire exit hardware.
3. **Non-Rated Doors:** Must meet USBC 1008.1.9.7 and 1008.1.9.8, or USBC 1008.1.9.9, Hardware must be listed for the exiting purpose, but does not have to carry a fire rating.
4. **Mounting Height:** Must meet USBC 1008.1.9.2 which requires 48” A.F.F. max to 34” A.F.F. min.

E. In Buildings with Required Fire Alarm. (NFPA 72, Section 21.9, “Electrically Locked Doors”)

1. **21.9.1** Any device or system intended to electrically lock a required means of egress door in the direction of egress shall be connected to the fire alarm system serving the protected premises.
2. **21.9.2** Electrically locked doors in a required means of egress shall unlock in the direction of egress as prescribed by other laws, codes, and governing standards.
3. **21.9.3** For all means of egress doors connected in accordance with 21.9.1, and where batteries are used in accordance with 10.5.6.1.1(1) as the secondary power supply, the batteries shall not be utilized to maintain these doors in the locked condition, unless the fire alarm control unit is arranged with circuitry and sufficient secondary power to ensure the exits will unlock within 10 minutes of loss of primary power.
4. **21.9.4** Locks powered by independent power supplies dedicated to lock power and access control functions, and that unlock upon loss of power, shall not be required to comply with 21.9.3.
5. **21.9.5** If means of egress doors are unlocked by the fire alarm system, the unlocking function shall occur prior to, or concurrent with, activation of any public-mode notification appliances in the area(s) served by the normally locked means of egress doors.
6. **21.9.6** All doors that are required to be unlocked by the fire alarm system in accordance with 21.9.1 shall remain unlocked until the fire alarm condition is manually reset.

F. Reminders:

1. **Flush and surface bolts are prohibited** by USBC 1008.1.9.4.
2. **Every floor area must be provided with two remote exits** (see USBC 1021.1) There are some exceptions to this, but be very careful about invoking them. Elevator lobbies, for example, need two ways out. Main corridors of individual floors must provide access to 2 remote exits.
3. **Listings are found in the following locations:** UL Fire Resistance Directory, Vol. 3; Fire Door Accessories (Categories GVUW), Hardware (GWGR) and Builders Hardware (GWTZ).
4. Underwriters Laboratories (UL) provides categories of listed hardware in the above named directories. Other listing agencies may also provide listed hardware, provided that they are

"nationally recognized testing laboratories." The four letter designations are attached by UL to indicate the precise category under which a specific product or item is listed.

Note: The building code will not recognize any other standards with regard to exiting.

Hence, design of secure areas and secure facilities must provide for exiting procedures as discussed in the building code sections cited above. Security design should therefore be premised on the identification of the secure perimeters to be maintained, the entry controls which are to be put in place, and technical means for providing response to intruders which simultaneously complies with USBC 2012 (all) and other provisions mentioned above. This means that particular attention has to be placed on the total movement pathway geometry for all occupants of the building. **A detailed exiting analysis must form part of any reasonable security design.** For federally owned (not leased) facilities, see 41 CFR 102-80.85.

DOOR LOCKS, EXITS, AND SECURITY

ACCESS-CONTROL SYSTEM PLANS AND DOCUMENTS SPECIFIC REQUIREMENTS

A. General (All submissions shall include, but are not limited to, the following):

1. A minimum of 3 complete copies of drawings with all supporting data shall be provided with permit application permitting evaluation of the system prior to installation. Properly assembled and labeled. If they are not, they cannot be reviewed. The Engineering Plans Review Branch staff cannot be responsible for assembling or collating your submittal materials.
2. Submitted plans shall be blue line (traditional blueprints) or black line (black & white bond plots/prints) only. Color prints or plots will not be accepted.
3. Full floor plan, showing all doors and devices to be installed, with sufficient detail to indicate which side and at what height each device is to be installed, with reference to the door. The complete exiting pattern of the floor on which the door is located should be shown, including all surrounding areas, the main exit stairs, etc. The exiting pattern shall be illustrated by using an arrow symbol.
4. A complete symbols list must be shown on the plans, with accurate device names and part numbers for each item to be provided in the installation, along with a door list, showing ratings and sizes of the doors on which devices are to be installed, numbering each door and showing the list of devices to be at that door.
5. Complete building address, floor number, tenant space name and number, contractor and submitter name, address, phone, FAX, space occupant, use group of space and floor.
6. Materials list: All parts, components, or wiring, with complete cut sheets verifying the UL listing of each item.
7. Sequence of operation: Must conform to USBC 1008.1.9.7, 1008.1.9.8, 1008.1.9.9, 407.4.1.1, and 403.5.3. Incomplete or erroneous sequence of operation is unacceptable. The code section applicable to the proposed locking instance must be noted on plans or in the sequence of operation narrative.
8. Wiring diagram, including details of any and all interfaces with the fire alarm system, including which modules of the existing system will be utilized for interconnection and type of wire per NEC 760.
9. Power supplies. Any power supplies associated with the installation, showing how they will drop out (fail safe) properly, if necessary.
10. Stair door unlock switch location and details if provided (see USBC 1008.1.9.11). New stair door unlock switches to be an approved Fire Department key system.
11. Signage details, with full dimensioned text of required lettering, 1” in height and location relative to the door shown, including height above finish floor and offset from the door (elevation views).
12. Location of existing or proposed stairwell call-out phones.
13. Access control door locks license requirements: ELE (Electrical) or FAS (Fire Alarm systems). A DCJS license is not an acceptable license.

14. On the full floor plan where the new access control door locks are to be provided, show all existing access control door locks in the suite and between the suite, and required exits on the floor with sufficient detail.

15. The number of doors through which a person must pass per USBC 1008.1.9.7, “A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.” Note that this option is not permitted for an assembly occupancy. Option 1008.1.9.8 is permitted in an assembly occupancy. This is because a delay is involved in the provisions of 1008.1.9.7.

ACCEPTANCE TESTING

A. Mag-Lock/Push Bar Test

1. Magnetic locks will be tested.

B. Doors Controlled by Locks Installed Under USBC 1008.1.9.8

1. Sensor release of electronically locked egress doors shall be arranged to unlock:
   a. Due to loss of power to the motion sensor
   b. Due to loss of power to the lock
   c. Due to loss of power to the locking system

C. Please Note that Acceptance Testing Performed for Locks Installed in Accordance with the Requirements of USBC 1008.1.9.8 Sensor Release of Electronically Locked Egress Doors, Shall Demonstrate that Doors will Unlock by Independently:

1. Removing power to the motion sensor
2. Removing power to the lock
3. Removing power to the locking system

D. Connection to Fire Alarm System:

1. Activation of the building fire alarm or automatic sprinkler system, where provided, shall automatically unlock the doors. In addition, remain unlocked until the fire alarm system is reset.

NOTE: The installing contractor will be responsible for having all tools, ladders, and/or other necessary equipment on hand and available at the time of the acceptance test in order to accomplish the foregoing as directed by the inspector.

UNDERGROUND FIRE MAINS / FIRE LINES

STANDARDS FOR INSTALLATION AND TESTING

The provision of adequate water supplies and distribution systems for fire suppression is the basic component of risk reduction. The purpose of this guideline is to provide the basic information necessary to meet minimum requirements for the design and installation of private hydrant and/or sprinkler supply underground piping in accordance with the provisions of the 2012 Virginia Statewide Fire Prevention Code (SFPC), the 2012 Uniform Statewide Building Code (USBC) and the 2010 editions of NFPA 24, NFPA 13, NFPA 13R, and locally adopted amendments to these codes. This guideline is not applicable to underground piping serving fire sprinkler systems designed in accordance with 2010 NFPA 13D and some systems designed in accordance with 2010 NFPA 13R.

This guideline is provided to assist the contractor, owner, developer/builder with assembling a comprehensive set of plans that will result in their project moving smoothly through the building review process in the least amount of time. This checklist contains the minimum standard information required for a project submitted for the plan review of Fire Service Mains.

Plans sets submitted without the minimum information listed below cannot be accepted for review. This publication does not replace, nor supersede, any provisions of the Fire Prevention Code or other codes and/or ordinances adopted by Fairfax County.

A. General (All submissions shall include, but are not limited to, the following):

1. A minimum of 3 copies of drawings with all supporting data shall be provided with permit application permitting evaluation of the system prior to installation.
2. All installation and testing shall be conducted per NFPA 24 and NFPA 13.
3. Provide a copy of the approved stamped (OFM) site plan showing the location of the fire line.
4. The project name and address shall be clearly indicated on all plans.
5. Provide Designer and Company name with phone number.
6. Provide data cut sheets of all piping material per NFPA 24, Section 10.1.
7. Provide data cut sheets of joining of piping and fittings per NFPA 24, Section 10.3.
8. Show on the drawing all joint restraints per NFPA 24, Section 10.8. Restraint is required on all tees, plugs, caps, bends, reducers, valves, and hydrant branches per NFPA 24, Section 10.8.1.1.
9. Provide detailed diagram of the restrained joint system, per NFPA 24, Section 10.8.3.
10. Provide detailed diagram and calculations for trust blocks per NFPA 24, Section 10.8.2. See appendix 10.8.2 for details.
11. Plans shall clearly indicate the method of providing corrosion protection for bolted/threaded assemblies, retaining rods, clamps, and other restraining devices. NFPA 24, Section 10.3.5.2
12. Provide detail of rods used for restraint, shall be sized in accordance with NFPA 24, Section 10.8.3.1.2.
13. Specific detail(s) shall be provided for pipe material transitions, changes in pipe connections (slip joint, fixed flange, mechanical joints, mega-lug joints) per NFPA 24, Section 4.1.3.
14. Provide a detail showing connection to the fire protection system per NFPA 24, Figure A 10.8.3.

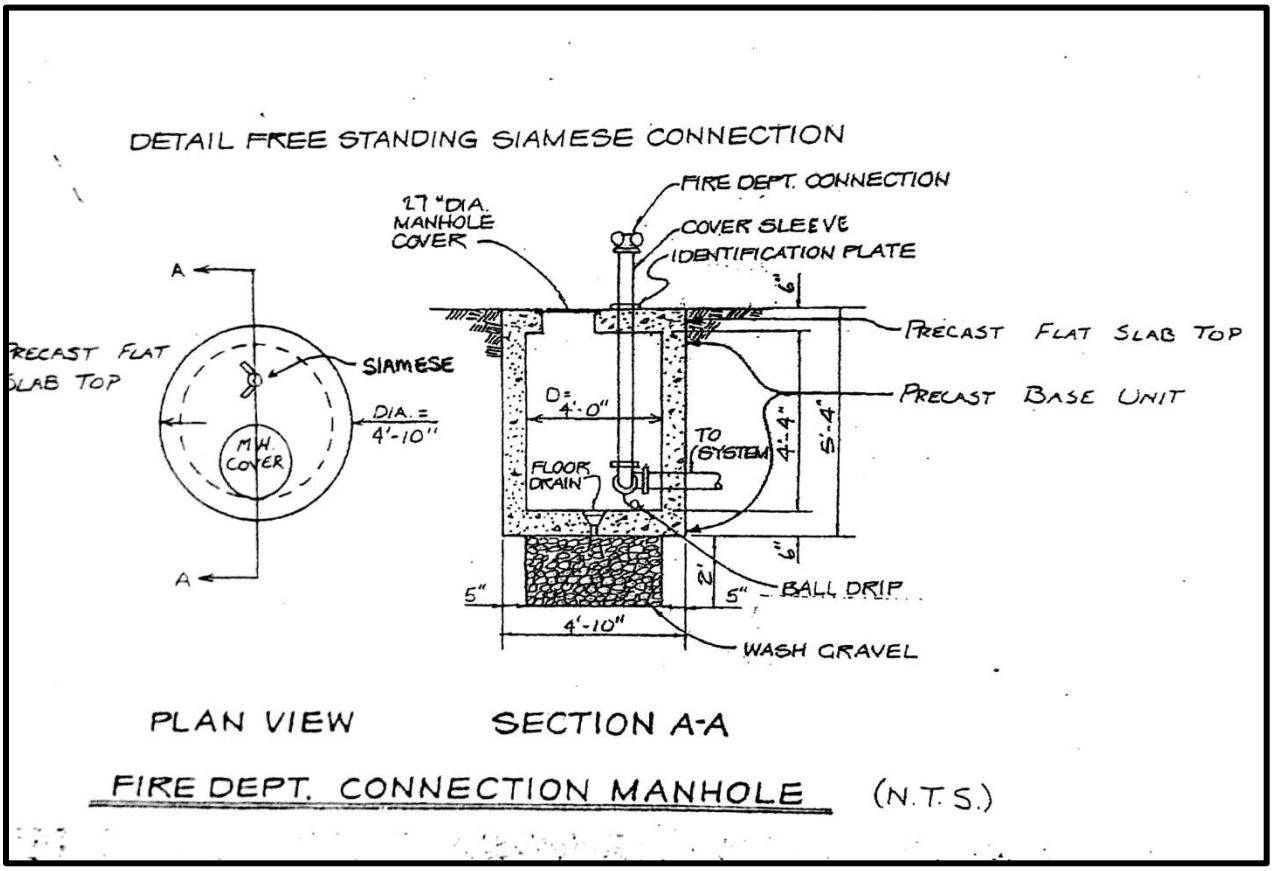
15. Pipe shall not be run under buildings per NFPA 24, Section 10.6, unless exceptions are met per NFPA 24, Section 10.6.2. Provide illustration where pipe must be run under buildings, special precautions shall be taken, including the following arching the foundation walls over the pipe, running pipe in covered trenches, or providing valve to isolate sections of pipe under buildings.
16. Electrical ground wires shall not be connected to underground fire line. NFPA 24, Section 10.6.8
17. Illustrate the depth of Cover of the fire lines from the top of the pipe in accordance with NFPA 24, Section 10.4.

B. Aboveground Pipe and Fittings

1. Aboveground pipe and fittings shall comply with the applicable sections of Chapters 6 and 8 of NFPA 13 that address pipe, fittings, joining methods, hangers, and installation. NFPA 24, Section 12.1
2. Aboveground piping for private fire service mains shall not pass through hazardous areas and shall be located so that it is protected from mechanical, and fire damage. NFPA 24, Section 12.2.1
3. Aboveground piping shall be permitted to be located in hazardous areas protected by an automatic sprinkler system. NFPA 24, Section 12.2.2
4. Where aboveground water-filled supply pipes, risers, system risers, or feed mains pass through open areas, cold rooms, passageways, or other areas exposed to freezing temperatures, the pipe shall be protected against freezing by the following: NFPA 24, Section 12.2.3
    a. Insulating coverings
    b. Frostproof casings
    c. Other reliable means capable of maintaining a minimum temperature between 40°F and 120°F (4°C and 48.9°C)
5. Where corrosive conditions exist or piping is exposed to weather corrosion-resistant types of pipes, fittings, and hangers or protective corrosion-resistant coatings shall be used. NFPA 24, Section 12.2.4
6. To minimize or prevent pipe breakage where subject to earthquakes, aboveground pipe shall be protected in accordance with the seismic requirements of NFPA 13, Section 24 and Section 12.2.5.
7. Mains that pass through walls, floors, and ceilings shall be provided with clearances in accordance with NFPA 13.

C. Free Standing Siamese Connection

1. A fire department connection (FDC) is required for most NFPA 13 and 13R automatic sprinkler systems and standpipe systems. They are not required for automatic sprinkler systems protecting one- and two-family dwellings and townhomes. Unless the requirements of Section 8.17.2.2 are met, a fire department connection shall be provided as described in NFPA 13, Section 8.17.2. (See below for Detail for Free Standing Siamese Connection).



D. Underground Fire Lines and Other Utilities

In order to maintain proper physical clearances between underground fire lines and other utilities, the following physical distances are necessary:

1. All underground fire lines are to be minimum 4 feet underground (below finished grade) to top of pipe, per FXCO PFM, Chapter 9, 9-0102.3B. The FCWA Design Practice Manual, page 9 and 10 (March, 2000, the current edition) states: “four (4) feet of cover,” exactly. Maximum cover allowed for a water main or fire line (DIP) is 7.5 feet to top of pipe.
2. Fire Line – Storm Sewer crossings (at 90 degrees more or less): If fire line is above storm, then 6 inches clearance required. If fire line is below storm, then 12 inches clearance is required.
3. Fire Line – Sanitary Sewer crossing (90 degrees more or less): fire line above sewer, 18 inches clearance required. (If above, must meet Virginia Health Code.)
4. Fire Line – Gas Main crossings (90 degrees, more or less): 12 inches clearance above or below.
5. Fire Line – Electrical Service Entrance Conductor: 12 inches. Fire line is below electrical service, and maximum depth of electrical service is no greater than 36 inches. Minimum depth of electrical service is 24 inches.
6. All other electrical underground wiring (e.g., cable TV, fiber etc.) is to be treated as in Number 5 above.

Note: OTHER UTILITIES ARE NOT TO RUN IN THE FIRE LINE TRENCH. At crossings, where other utility is above, intervening fill to be compacted granular material, 90 percent Standard Proctor, AASHTO T-99. (Per DIPRA, Installation guide for DIP.)

E. Summary Table of Crossing Clearances

Fire line to Storm	6 inches if fire line is above, 12 inches if fire line is below storm
Fire line to Sanitary Sewer	18 inches, sanitary must be below fire line. (Unless all health code requirements are met).
Fire line to Gas Main	12 inches, above or below
Fire line to Electrical Service	12 inches, electrical above, fire line below

1. The following factors shall be considered in providing adequate separation of water mains and sewers: Virginia General Assembly (12VAC5-590-1150) Legislative Information System or Code 12VAC5-590-1150
2. A visual inspection by the Fire Marshal's Office shall be made before pipe is covered. An appointment for a visual inspection can be made by calling 703-246-4821 or emailing the "FIRE ALARM, DOOR LOCK & ALTERNATIVE FIRE EXTINGUISHING SYSTEM" form to Fire.AcceptanceTesting@FairfaxCounty.gov. (This form has been included in the Appendix at the end of this document.)
3. If pipe is covered, no drop in pressure during test is allowed. The contractor shall remain responsible for locating and correcting any leakage.
4. Backfill shall be well tamped, free of rocks, and free of corrosives per NFPA 24, Section 10.9.
5. A hydrostatic test of 200 pounds or 50 pounds over static pressure, whichever is greater, shall be conducted for 2 hours per NFPA 24, Section 10.10.2.2.

F. Other Means of Hydrostatic Test

1. Where required by the authority having jurisdiction, hydrostatic test shall be permitted to be completed in accordance with the requirements of AWWA C600, AWWA C602, AWWA C603, and AWWA C900. NFPA 24, Section 10.10.2.3 (During months where temperatures are routinely at or near freezing, underground testing shall be done with air. Chemicals, anti-freeze, etc. SHALL NOT be used.)
2. Gauges used in performing acceptance tests on fire suppression systems witnessed by the Fire Marshal's Office must meet the following criteria:
   a. The gauge shall be appropriate for the type of test; i.e., air gauge for an air pressure test, a water gauge for a hydrostatic test.
   b. Air gauges shall have increment markings of two pounds or less. Water gauges must have increment marking of 10 pounds or less.
   c. The gauge shall be capable of registering pressures above the minimum pressure required during the test. The pressure registered during the actual test shall be at least the minimum required for the test and less than the maximum of the gauge register.
   d. Gauges must be marked as accepted by UL and/or FM testing laboratories.
3. No valves shall be installed in the fire line between street valve at water main and OS&Y valve inside of building.

4. Domestic water line take off shall be connected at least 5 feet outside of building with a 200 pound shut off valve on the domestic water line only.
5. All fire lines shall be flushed with not less than 4 inch opening in accordance with NFPA 24, Section 10.10.2.1. The flush shall be witnessed by the Fire Marshal's Office.
6. Site plans approved by this office showing size and location of pipe shall be on the job site accompanied with the underground shop drawings and cut sheets before the inspection or test is performed. The cover sheet and site plan page shall have an original OFM stamp by the original approved reviewer.

G. Galvanized Spool Piece (Potable Water)

1. The procedure for installing a galvanized pipe between the ductile iron fire line and the OS&Y valve is as follows:
   a. If a spool piece is used between the fire line stub and the OS&Y valve to raise the valve off of the fire line stub, then it shall be galvanized pipe or shall be rated per AWWA C104, C110 for potable water. This spool piece may be hydrostatically tested as part of the underground, or part of the sprinkler riser.

   OR

   b. If the OS&Y valve is rated by the AWWA as suitable for connection to a potable water system, this valve is a suitable transition piece between the fire line stub and the check valve. This OS&Y valve may be attached directly to the fire line stub if there is adequate clearance for proper operation of the valve, and then no galvanized pipe is required.
2. Above items shall be inspected by the Fire Marshal's Office prior to any backfill.
3. All test and permit fees shall be paid before an inspection or test is performed. If you have any questions, please contact the Engineering Plans Review Branch or Systems Acceptance Testing at 703-246-4821.

AUTOMATIC SPRINKLERS

FIRE SPRINKLER SYSTEM PLANS AND DOCUMENTS SPECIFIC REQUIREMENTS

All submitted automatic sprinkler system plans must show and/or note all information applicable to the submitted design as detailed in 2010 NFPA 13, Section 22.1.3 items 1 through 46. In addition, the following specific information must be show and/or noted on all plans:

1. Sprinkler head locations / spacing in areas with no gridded ceiling or exposed structure must be fully dimensioned. Fully dimensioned is defined as dimensions from walls to sprinklers (both directions), dimensions between sprinklers on branch lines and dimensions between branch lines. Center-to-center or pipe cutting dimensions may be provided but are not acceptable alternatives to full dimensioning.
2. All areas with exposed construction (no ceiling) must clearly show the location of all structural steel or concrete elements. The size / depth must be clearly noted for each element in addition to the top of joist / beam, joist bearing or top of concrete slab elevation relative to the floor / level.
3. All areas with exposed construction (no ceiling) must clearly show the location of all mechanical duct work / plumbing pipe, electrical conduit / cable trays and lights. The size, diameter, depth and/or width must be clearly noted for each element in addition to the finished top or bottom elevation for each relative to the floor / level.
4. Finished ceiling articulation must be captured clearly through notation on the floor plan and or section views where necessary. Of particular note will be “cloud ceilings” and any ceiling openings.
5. Sprinkler relocates shall be piped from existing original branch line tee outlets or branch line weld-o-lets. Compound relocates (new relocate piped from existing relocate piping) are not permitted **without supporting hydraulic calculations**.
6. Where flexible drops are proposed to supply added or relocated sprinklers, the designer must submit hydraulic calculation support.

FIRE SPRINKLER SYSTEM HYDRAULIC CALCULATIONS SPECIFIC REQUIREMENTS

1. Generally, sprinkler installations / modifications in areas built-out with “cloud ceilings” will require hydraulic remote area calculation support showing sprinklers above and below the cloud ceiling flowing simultaneously. In order to avoid unnecessary construction delays where “cloud ceilings” are encountered, the designer should contact the OFM Engineering Plans Review Branch prior to the submission of plans to determine whether hydraulic calculation will be required for each instance. The OFM will accept e-mailed .pdf format plans of the area in question and will effort a response within 2 business days, workload dependent.
2. Each submitted floor plan for all new construction (includes tenant fit-ups) requiring hydraulic calculation must be annotated with a finished floor elevation provided on approved architectural plans or an elevation in feet relative to (above or below) a “zero” elevation at the finished floor where the water service enters the building.

FIRE SPRINKLER SYSTEM TENANT AND WALK-THROUGH PLANS SPECIFIC REQUIREMENTS

Each submitted walk-through and take-in plan sheets for tenant modifications to existing automatic sprinkler systems must be annotated using the following information boxes:

BASE BUILDING REFERENCE DRAWING
Plan Bag Designation: SP1808
Plan Bag Number: 1 of 2
Original Contractor: ABC Sprinkler, Inc.
Drawing Sheet Number: 2 of 6
Drawing Sheet Title: Second Floor Piping Plan
Drawing Sheet Date / Approval Date: 5-29-1978 / 6-23-1978

(Note: Information shown in boxes is for example only.)

BASE BUILDING SYSTEM HYDRAULIC DESIGN
Design Standard | Year: NFPA 13 | 1976
Hazard Classification: Light
Design Density | Remote Area: .10 | 1500 s.f.
Calculated Spacing and Minimum Flow: 196 s.f. | 19.6 gpm
Sprinkler Type and Response: Recessed Pendent | Standard Response
Sprinkler K Factor: 5.6
Calculated Line Sizing: 1” - 1” - 1¼” - 1¼” - 1½”
Tie-In | Feed Main Sizing: 2½” 2”
Calculated Safety Factor: 11.5 psi

(Note: Information shown in boxes is for example only.)

Failure to provide these boxes in itself will not constitute a rejection. If however an archived approved base building plan of the commensurate area cannot be located within one-half hour to verify the submitted design, the submission will be rejected and the designer will be required to provide ALL the information shown above.

SPRINKLER SYSTEM WATER SUPPLIES

Effective October 1, 2015, all automatic sprinkler hydraulic designs submitted to this office shall provide:

1. One hard copy of the flow test data and hydrant map for an on-site hydrant which is connected to the water supply main for the building's sprinkler system, and is provided by and attested to by the water supplier to the site concerned, with the date of the flow test. If an on-site hydrant is not available for the test, the closest available hydrant (whether existing or proposed) shall be used. The hard copy may be a print-out of the e-mail from the water supplier. In addition to the hard copy, the flow test data and the adjusted water supply information must be shown on the sprinkler drawings.
2. Elevation, tax map number, and street location of the test hydrant.
3. An adjusted water supply curve for the test hydrant based on the low hydraulic grade line (H.G.L.) as provided by the water supplier. High and low hydraulic grade lines shall be obtained from the water supplier and shall be referenced to a specific date. Adjustment of the water supply curve at the test hydrant by use of the low hydraulic grade shall consist of adjusting the entire water supply curve by subtracting the elevation of the test hydrant from the low hydraulic grade, converting the difference to psi, and if the psi values obtained from the flow test (static and residual) are greater than the low hydraulic grade, dropping the test hydrant water supply curve to the level of the low hydraulic grade.

WATER SUPPLY CALCULATION EXAMPLE

Flow Test: Static (S) = 97 psi, Residual (R) = 30 psi, Flow (Q) = 800 gpm,
Test elev. = 400 feet

Low H.G.L. = 600 feet

600 ft – 400 ft = 200 ft (0.433) = 86.6 or 87 psi (adjusted S)

97 psi – 87 psi = 10 psi (pressure difference)

30 psi – 10 psi = 20 psi (adjusted R)

Hence use S =87 psi, R = 20 psi, Q = 800 gpm as the adjusted water supply curve at the test hydrant location.

Note: for all new construction with a fire pump, flow test data must also be adjusted to show the maximum expected pressure using the High H.G.L. elevation reported by the water supplier.

4. A combined curve graph of the water supply for new construction with a fire pump. The combined curve must include a graph of the flow test, the adjusted water supply curve, the fire pump curve, and the fire pump combined discharge graph based on the adjusted water supply.

5. Effective October 1, 2015 the safety factor below the adjusted water supply curve for **new shell buildings** shall be as follows:
   a. Buildings with occupancy classifications of Assembly Group A, Business Group B, Factory Group F, Mercantile Group M, or Storage Group S without a fire pump: **20 psi** minimum.
   b. Buildings with occupancy classifications of Assembly Group A, Business Group B, Factory Group F, Mercantile Group M, or Storage Group S with a fire pump: **25 psi** minimum.
   c. Buildings of all other occupancy classifications without a fire pump: **10 psi** minimum.
   d. Buildings of all other occupancy classifications with a fire pump: **15 psi** minimum.
6. The safety factor below the adjusted water supply curve for all **tenant work** within buildings shall be **10 psi** minimum:

   Please note: The additional 5 psi for fire pump supplied installations will account for new requirements in NFPA 25 (2008 Edition and later) allowing fire pump performance to drop to 95% of the fire pump rated pressure at the rated flow.

   These safety factors may not necessarily accommodate all potential increases in water supply requirements due to tenant fit outs. Final responsibility for long-term and short-term system adequacy rests with the designer/contractor/installer.

INTERCONNECTION OF SPRINKLER/STANDPIPE RISERS & HYDRAULIC CALCULATIONS

It remains the policy of the Fairfax County Fire Marshal's Office that, where standpipe systems are installed in accordance with USBC 905, automatic sprinkler piping systems on each floor must be supplied by at least two (2) standpipe risers through the floor control assemblies. Exceptions to this practice will be considered on a per case basis for structures where fire or smoke divisions are required by code and therefore alarm annunciation zoning for the Fire Department is the primary issue.

Hydraulic calculations for all systems should consider only a single, most remote, riser and shall calculate the full sprinkler (and/or standpipe) demand back to water supply test via that riser and associated bulk piping. Dual riser feeds should not be calculated for simultaneous supply of a given remote design area. The above practice insures the adequacy of protection in all structures if one standpipe riser is shut down for maintenance, repair, or tenant work. If the owner chooses not to interconnect risers and calculate all floors from a single riser, this office will have to have on file a notarized letter from the owner stating that he will comply with SFPC 901.7 whenever any single standpipe riser is out of service for any reason. Unless such a letter is on file, review of sprinkler plans cannot be undertaken.

STANDPIPE CALCULATIONS AND FIRE HOSE VALVES

Standpipe calculations must be performed in accordance with the requirements of USBC 905 and NFPA 14:

1. In all buildings where standpipes are required, two sets of calculations are necessary to size riser piping, supply piping and the water service piping.

2. Calculations for sizing the supply piping to standpipes must be performed in accordance with NFPA 14, Section 7.10.1.1 and Section 7.10.1.2. A minimum flow of 500 gpm is required for the first riser and 250 gpm for each additional riser up to 1250 gpm. (1000 gpm for fully sprinklered buildings.)
3. A minimum residual pressure of 100 psi must be maintained at outlet of the hydraulically most remote 2½" hose connection on each standpipe riser while flowing the minimum quantities of water required in NFPA 14, Section 7.10.1.1 and Section 7.10.1.2. The fire department's hose is to be supplied by the pumper with the following pressures and flows at the siamese connection: 200 psi @ 0 gpm, 199 psi @ 750 gpm, 150 psi @ 1250 gpm. For buildings over 150' in height, standpipes must be supplied by an on-site fire pump in compliance with USBC 905.2. Where pressures in excess of 175 psi are encountered at any point in the system, plans and specifications must show the use of listed high pressure fittings.
4. Sprinkler and standpipe calculations must take into account the low hydraulic grade line for the site, generate a total demand within the limits of the water supply curve, and comply with requirements for Sprinkler System Water Supplies detailed in this package.
5. Fire Hose Valves (FHV) shall be located at an intermediate floor level landing between floors in accordance with USBC 905.4 such that, when seen from the main floor landing above, the FHV is seen in the corner of the intermediate landing below. Hose lays are made along the wall.

FIRE PUMP CALCULATIONS

In all buildings requiring fire pumps, hydraulic calculations shall be submitted to prove that sufficient pressure will be available at the time of the fire pump test. The calculation shall prove that not less than 20 psi is available at the suction flange of the fire pump while the pump is operating at 150% of its rated capacity (per Virginia Department of Environmental Quality requirements for public water supply). Fire pump calculations must take into account the low hydraulic grade line for the site and demonstrate the safety factor requirements for Sprinkler System Water Supplies detailed in this package have been met.

Hydraulic calculations shall be submitted for all fire pumps installed in buildings over 150' in height to demonstrate that minimum pressure and flow rates will be achieved in accordance with the requirements of USBC 905 and NFPA 14, when applicable, as detailed in this package.

Where pressure reducing / regulating valves (PRVs) are installed, the high hydraulic grade line must also be taken into account when performing hydraulic calculations.

PRESSURE REDUCING/REGULATING VALVES
STANDPIPE HOSE OUTLETS

The following policy is adopted to define the type of fire hose pressure reducing valves to be installed in Fairfax County. NFPA 14, Section 7.2.3.2

Pressure reducing / regulating fire hose valves shall be capable of delivering a residual flow pressure between 150 psi to 170 psi, at 250 gpm. This standard shall be applied to all Class I and III systems.

Pressure reducing / regulating fire hose valves shall be capable of external adjustment to higher pressures by the fire department. The external mechanism for reducing or regulating shall be capable of being removed completely, allowing the fire hose valve to function fully open. Installation of pressure reducing/regulating valves shall not occur until:

1. Approved by the Engineering Plans Review Branch of the Fire Marshal's Office.
2. Certification is received from the manufacturer on testing and pressure settings using 1¾" hose with a 100 psi tip pressure.
3. Valves are tested on site by the installing contractor and witnessed by the systems testing personnel from the Fire Marshal's Office.
4. Valves, once adjusted and approved, shall be fixed with a plastic break-away seal. This seal shall contain the date of test, valve identification and contractor conducting test. Once installation has occurred, the installing contractor shall forward a report to the Fire Marshal's Office with valve identification (i.e., numbering system), set points, location and floor level.
5. Valves shall be inspected visually each year to ensure that the settings have not changed and there is no damage to the valves. A flow test is required every 5 years per NFPA 25. If there is a question due to damage, change of settings, missing tag, etc., the valve shall be removed and retested. The retest shall be witnessed by Fire Marshal's Office personnel.

ELEVATOR HOISTWAYS AND MACHINE ROOMS
FIRE PROTECTION SYSTEMS

The following discussion is intended to clarify requirements for removing electrical power from elevator machinery prior to automatic sprinkler activation. In the interest of brevity this discussion assumes that automatic sprinkler protection is required and has been installed in the elevator pit, elevator hoistway and elevator machine room.

I. APPLICABLE CODES AND STANDARDS

1. Virginia Uniform Statewide Building Code (USBC) 2012 Edition, 3006.5 and 3006.7
2. ASME A17.1 2007 Edition, 2.8.3.3, 2.8.3.3.2, 2.8.3.3.3 and 2.27.3.2
3. NFPA 13 2010 Edition, Section 8.15.5
4. NFPA 72 2010 Edition, Section 21.4.1, Section 21.4.2, Section 21.4.4, and Section 21.4.5

II. AUTOMATIC SPRINKLER PROTECTION

1. Provide and install listed 375°, standard response sprinklers in the elevator pit, at the top of the hoistway, and in the elevator machine room.

III. FIRE ALARM PROTECTION

A. Heat Detectors

1. Provide and install a listed 200° fixed temperature heat detector within 24 inches of each sprinkler installed in the elevator pit, at the top of the hoistway and in the machine room.
2. These heat detectors are part of the building fire alarm system and will be connected directly to the shunt trip disconnect(s) to the affected elevator(s).
3. Activation of these heat detectors will disconnect power to the affected elevator(s). NOTE: The fire alarm system supervises the elevator power circuit as well as the initiating device circuit.

B. Smoke Detectors

1. Provide and install listed smoke detectors in the elevator machine room, control space, or control room.
2. Provide and install listed smoke detectors in the elevator hoistway ONLY when automatic sprinklers are present or the smoke detector is used to activate a hoistway vent.

C. Additional Notes

1. See NFPA 13, Section 8.15.5.2 and Section 8.15.5.5 which allow omission of automatic sprinkler protection at the bottom of the elevator hoistway (pit) and the top of the elevator hoistway respectively.
2. In no case shall automatic sprinkler or fire alarm protection be omitted from elevator machine rooms.
3. Machine-room-less elevator installations (elevator machine is located within the elevator hoistway) shall be protected with automatic sprinklers as a machine room in accordance with USBC 3006.7.

SPECIAL PROVISIONS FOR NEW SPRINKLER INSTALLATIONS IN HIGH RISE BUILDINGS

For all new sprinkler/standpipe systems to be installed within buildings where the highest floor level is 200 ft. or greater above the lowest level of the fire department vehicle access, the sprinkler contractor **must schedule a preliminary meeting** with the Fire Marshal's Office – Engineering Plans Review Branch **at least 4 weeks prior** to submitting for a sprinkler system permit plans review.

SPECIAL PROVISIONS FOR NEW SPRINKLER INSTALLATIONS IN WAREHOUSES AND STORAGE AREAS

All new sprinkler systems to be installed in undetermined warehouses and storage areas with an available clear storage height of greater than 16 feet shall comply with the following **minimum requirements:**

1. The maximum floor area on any one floor to be protected by sprinklers supplied by any one sprinkler system riser shall be 40,000 sq. ft.
2. Sprinklers shall have a maximum protection area of 100 sq. ft. and a maximum spacing of 12 ft. (12.5' in buildings with storage bays 25' wide).
3. Sprinklers shall have a minimum $^{17}/_{32}$" orifice, $^{3}/_{4}$" threads, K factor of 8.0 and have a 286° temperature rating.
4. A total combined inside and outside hose allowance of 500 gpm shall be added to the water supply for sprinklers.
5. If a fire pump is being installed as a part of the new sprinkler system, the sprinkler system flow demand shall not exceed the fire pump rated capacity, and the minimum design area shall be the hydraulically remote 2000 sq. ft. with a minimum sprinkler density of 0.21 gpm/sq. ft.

In lieu of complying with items 1 thru 5 above, a letter from the building owner stating that there will be no storage above 12 feet in height, will be acceptable to this office. The owner must also acknowledge that any sprinkler system designed and installed to this storage height limitation may have to be fully replaced if future storage heights exceed 12 feet.

HYDROSTATIC TESTING OF SPRINKLER TENANT WORK

A. Hydrostatic Testing Shall be Performed Where Automatic Sprinkler Tenant Work Consists of:

1. The addition or relocation of 5 heads or more;
2. The addition of 10 or more new fittings;
3. The addition of 20' or more of pipe (nipples shall not be counted as pipe length);
4. Or any combination of the above. Modifications to more than 5 sprinklers and less than 20 sprinklers will be tested at the required system working pressure. The installing contractor shall remain on site in occupied buildings during the hydrostatic test. All work falling within Items 1 – 4 above shall require a visual inspection prior to any close-in.

➔ **ATTENTION:** Any piping system that may be isolated by closing a control valve (floor, zone, etc.) shall require a separate hydrostatic test.

B. Gauges Used in Performing Acceptance Tests on Fire Suppression Systems Witnessed by the Fire Marshal's Office Must Meet the Following Criteria:

1. The gauge shall be appropriate for the type of test; i.e., air gauge for an air pressure test, a water gauge for a hydrostatic test.
2. Air gauges shall have increment markings of 2 pounds or less. Water gauges must have increment marking of 10 pounds or less.
3. The gauge shall be capable of registering pressures above the minimum pressures required during the test. The pressure registered during the actual test shall be at least the minimum required for the test and less than the maximum of the gauge register.
4. Gauges must be marked as accepted by UL and/or FM testing laboratories.
5. Only 1 gauge, per test appointment, per inspector, will be permitted.
   a. All new piping shall be hydrostatically tested.
   b. All standpipes shall be flushed (prior to charging or connection to floor system).
6. Where sprinkler heads only have been replaced, visual inspection with approved cut sheets is the only requirement; i.e., defective, corroded ordinary heads that have been replaced with quick response heads.

C. Annual Maintenance

1. Each fire sprinkler system shall be tested in accordance with NFPA 25-11 and a sprinkler system test card/tag that shows the date and results of the test and the name of the person and organization conducting the test shall be attached to the sprinkler system valve/riser.
2. Annually, testing shall include a main drain test to determine whether there has been a change in the condition of the water supply piping and associated control valves. The results of the test shall be recorded on the sprinkler system test card/tag attached to the sprinkler system valve/riser.
3. Additionally, each sprinkler system valve shall be fully tripped annually. Dry sprinkler system valves shall be partially tripped each year and fully tripped every 3 years during warm weather. Preaction and deluge sprinkler system valves should only be partially tripped every year. The valve trip times and the type of trip test (full or partial) shall be recorded on the sprinkler system test card/tag attached to the sprinkler system valve/riser.

FIRE PUMP / STANDPIPE TESTING AND RETESTING

A. Fire Pump/Standpipe Testing and Retesting

1. All fire pumps will be acceptance tested in accordance with NFPA 20. All controllers shall be signed off by the electrical inspector per NFPA 20, Section 10.3.4, and NEC-11 695 prior to the acceptance test. Fire pump retesting will be conducted in accordance with NFPA 25-11.
2. Prior to the fire pump acceptance test, all hydrostatic tests for shell building piping shall be completed.
3. All fire pump test gauges shall be approved (UL/FM) type or on-site documentation of calibration must be provided. NFPA 20, Section 14.2.5.1.2
4. Standpipe flow test will be done in those buildings having standpipes at the time of fire pump acceptance testing. Gauge must be provided at the top of standpipe riser per NFPA 14, Section 5.5.1. It is the responsibility of the contractor to provide all hoses and equipment needed and to make acceptable arrangements for disposal of the water released.

B. Annual Maintenance

1. The property owner is responsible for answering that the fire and life safety systems are maintained in an operable condition at all times in accordance with NFPA 25-11.
2. A written record of tests/maintenance shall be maintained and made available to the code official on request.

RECALLED SPRINKLER HEADS
(REF SFPC 901.10)

After review and discussion with the Systems Acceptance Testing Section the following procedure will be effective immediately regarding recalled sprinkler heads. This procedure is for “one for one” sprinkler head replacement only. Any other changes to a fire protection system must go through the normal Plans Review process.

1. The County will require a permit be issued as usual but will not charge for it. The Permit Section already does this.
2. The Sprinkler contractor must submit to the Engineering Plans Review Branch the old and new “cut sheets” for the sprinkler heads at the permit location. They will be reviewed by the Plans Review staff and approved or denied as appropriate replacements for use at the permit location. The charge for review is at the normal rate.
3. Upon completion of the sprinkler head replacement, the contractor will call Systems Acceptance Testing, 703-246-4821, to schedule a free inspection of the replaced heads.

FIRE ALARM DEVICES AND SYSTEMS

CODE REQUIREMENTS STUDY GUIDE

NOTE: This list **DOES NOT** replace the requirement for everyone to consult and comply with the code. Codes and Standards key:

Virginia Uniform Statewide Building Code 2012 (USBC)
Virginia Statewide Fire Prevention Code 2012 (SFPC)
International Mechanical Code 2012 (IMC)
ASME A17.1 2007 Edition
NFPA 20 & 72 2010 Edition
NFPA 70 2011 Edition

I. INSPECTIONS, TESTS AND MAINTENANCE

A. Acceptance Tests – ALL COMPONENTS, ALL FIRE ALARM DEVICES/SYSTEMS (USBC 907.7)

B. Regular Inspections/Tests

Device	Frequency	Code Reference
1. Flow Switch	Quarterly	NFPA 25, Section 13.2.6
2. Fire Pump	Annual	NFPA 25, Section 8.5.3
3. Manual Pulls	Semi-Annual	NFPA 72, Table 14.3.1
4. All Automatic Devices	Semi-Annual	NFPA 72, Table 14.3.1
5. Smoke Control System	Semi-Annual	SFPC 909.20.4

II. DEVICES: ALARM & SUPERVISION REQUIREMENTS UNDER VIRGINIA UNIFORM STATEWIDE BUILDING CODE, 2012 EDITION

A. Item/Device	Code Section	Comment
1. Central Station Hookup	USBC 901.6	Spk + unrated corridors A,B,E,F,M,U uses; suppression system in A,B,E,I,M,R uses; any required system; high-rise buildings
2. S.D.'s, Hospitals, Automatic Sys., H-Use	USBC 907.2.6.2 USBC 908	Corridors
3. Sprinkler Flow Alarm & Supervise	USBC 901.6.1, 903.4.2 USBC 903.4; NFPA 72, Sections 23.3.3.1 and 23.14	Exterior required, Dry pipe hi/lo air, etc.
4. Duct Detectors	IMC 606; USBC 907.6.5	Return ducts over 2000 CFM, supervision required, access required
5. Visual Alarms (& Accessible)	USBC 907.5.2.3; ICC A117.1, 1006	To meet/UL 1971& ANSI/NFPA 72, Chapter 18
6. Audible Alarms	USBC 907.5.2.1	Audibility required in all spaces

A. Item/Device	Code Section	Comment
7. Fire Pump	NFPA 20, Section 10.4.7 NFPA 72, Section 23.8.5.9	
8. Elev. Lobby/Hoistway Machine Room S.D.	NFPA 72, Section 23.17.1; ASME A17.1, 2.27.3.2	Verification required Dedicated loop required
9. Voice Alarms	USBC 907.5.2.2, 907.2.1.1, 907.2.1.2, 907.2.13, 907.2.14, 907.2.19, 907.2.20	High-Rise; any building w/ atrium and of A, E, or M use, mall >50k sq. ft.; u.g. buildings
10. Atrium S.D.'s	USBC 907.2.14	Any Atrium with smoke exhaust/control
11. Damper Control	USBC 717.3.3.2	UL 555S type dampers w/ S.D.'s
12. Sleeping Area S.D.'s	USBC 907.2.10.3, 907.2.11	
13. Releasing S.D., H.D.	NFPA 72, Section 23.13	Connected to building alarm (USBC 04.3.5) (e.g., halon, dry/wet chemical)
14. Refrigerant Detector	USBC 908.6	

III. OCCUPANCIES (USE GROUPS) REQUIRING ALARM SYSTEMS (SEE CODE FOR SOME EXCEPTIONS)

A. Fire Alarm System Type	Code Section	Comment
1. Manual System	USBC 907	A>300; B>500 or >100 above/below grade; schools, F=> 2 stories with 500, M-Use with 500 or >100 above/below grade. I Uses, hotels, motels, apartments 3 stories & up
2. Automatic System	USBC 907	I-Use; hotels, motels, all high-rises, special amusement building
3. Smoke Control	USBC 909; IMC 513	Malls, atriums

IV. POWER SUPPLY REQUIREMENTS

USBC 2702;
NFPA 72, Section 10.5

V. WIRING REQUIREMENTS

NFPA 70 (NEC) Article 760

FIRE ALARM SYSTEMS PLANS AND DOCUMENTS SPECIFIC REQUIREMENTS

1. All information required by USBC 907.1.2 (Items 1 through 13 inclusive), and NFPA 72, Sections 10.18.1.2 and A.10.18.1.2 must appear on submitted plans or in technical documents. Failure to provide this minimum information will result in a rejection.
2. All submitted fire alarm system plans must be drawn to $^{1}/_{8}$" = 1' scale. Submitted fire alarm plans drawn to a scale other than $^{1}/_{8}$" = 1' will not allow the engineers to perform the visible alarm notification coverage assessment using templates and will therefore incur additional fees as all visible alarm notification coverage areas will need to be "scaled".
3. Submission of electrical drawings from the building contract set (versus dedicated fire alarm drawings) will increase time needed for review, and therefore incur additional fees. When using electrical drawings, the fire alarm system review process is slowed measurably because of the clutter of outlets, circuits, switches, notes, etc. Every effort will be made by the engineers to use submitted plans. However, in a very few cases, the clutter from non-fire alarm system components may require their removal from the plans before the review can continue.
4. Use the following output voltage value for calculating the NAC: Voltage drop calculations required by USBC 907.1.2(9) shall use 20.4 VDC as the supply/starting voltage. NFPA 72 and UL require a power supply – even secondary power – to deliver no less than 85% of the nominal voltage. Therefore: VDC = 0.85 x 24 = 20.4 VDC. NFPA 72, Section 10.14 and Section 18.3.2.
5. A wide variety of voltage drop calculation formats (and results) are submitted for review. Applicants / contractors with a desire to help expedite review of fire alarm voltage drop calculations may use the NAC Circuit Calculator available for free download through AFAA.

NOTE: The FIRE ALARM PLANS CHECK-IN FORM can be found in the Appendix at the end of this document.

ELEVATOR HOISTWAYS AND MACHINE ROOMS
FIRE PROTECTION SYSTEMS

The following discussion is intended to clarify requirements for removing electrical power from elevator machinery prior to automatic sprinkler activation. In the interest of brevity this discussion assumes that automatic sprinkler protection is required and has been installed in the elevator pit, elevator hoistway and elevator machine room.

I. APPLICABLE CODES AND STANDARDS

1. Virginia Uniform Statewide Building Code 2012 Edition (USBC) 3006.5 and 3006.7
2. ASME A17.1 2007 Edition 2.8.3.3, 2.8.3.3.2, 2.8.3.3.3 and 2.27.3.2
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4. NFPA 72 2010 Edition, Section 21.4.1, Section 21.4.2, Section 21.4.4 and Section 21.4.5

II. AUTOMATIC SPRINKLER PROTECTION

1. Provide and install listed 375°, standard response sprinklers in the elevator pit, at the top of the hoistway, and in the elevator machine room.

III. FIRE ALARM PROTECTION

A. Heat Detectors

1. Provide and install a listed 200° fixed temperature heat detector within 24” of each sprinkler installed in the elevator pit, at the top of the hoistway and in the machine room.
2. These heat detectors are part of the building fire alarm system and will be connected directly to the shunt trip disconnect(s) to the affected elevator(s).
3. Activation of these heat detectors will disconnect power to the affected elevator(s). NOTE: The fire alarm system supervises the elevator power circuit as well as the initiating device circuit.

B. Smoke Detectors

1. Provide and install listed smoke detectors in the elevator machine room, control space, or control room.
2. Provide and install listed smoke detectors in the elevator hoistway ONLY when automatic sprinklers are present or the smoke detector is used to activate a hoistway vent.

C. Additional Notes

1. See NFPA 13, Section 8.15.5.2 and Section 8.15.5.5 which allow omission of automatic sprinkler protection at the bottom of the elevator hoistway (pit) and the top of the elevator hoistway respectively.
2. In no case shall automatic sprinkler or fire alarm protection be omitted from elevator machine rooms.
3. Elevator installations which have no machine room (elevator machine is located within the elevator hoistway) shall be protected with automatic sprinklers, as with those having a machine room, in accordance with USBC 3006.7.

TENANT FIRE ALARM PANELS IN SINGLE STORY FULLY SPRINKLERED BUILDINGS

In order to mitigate confusion caused by multiple central station calls to the McConnell Public Safety Transportation and Operations Center (MPSTOC) the following policy is to be implemented in the case of single-story, fully sprinklered buildings with central station monitoring per USBC 903.4 and tenant fire alarm systems. See Item 6 below for buildings with a base building fire alarm throughout.

1. Sprinkler flow and tamper are to be handled by the base building Digital Alarm Communicator Transmitter (DACT), with signals transmitted directly to the central station per USBC 903.4.

2. Tenant fire alarm panels can pick up a signal from the base building flow switch as an input to their panel. This signal can be used, along with other inputs, to provide an evacuation alarm for that tenant space. Tenant panels are **not to retransmit the base building flow or tamper signal** to their central station, unless they direct their central station that this particular signal is not for retransmission to the MPSTOC. For the case in which only a local alarm is sought by the tenant, this is not an issue. In the case of those tenants who have their own central station, they must partition the signals sent to that station by device, such that retransmission by their central station to the MPSTOC does not occur in the case of a signal picked up from the base building flow or tamper.

3. If the tenant space has an individual flow switch or pressure switch, it is assumed that that particular water flow alarm will be sent out by the base building DACT, as picked up by the base building flow switch. This assumes that the tenant space does not have an individual water supply separate from the base building. Again, this individual tenant flow switch or pressure switch can be used to activate an evacuation signal for that tenant space only, but will not be retransmitted to the central station responsible for calling the Fire Department, as that will have already been done by the base building DACT.

4. Additional devices attached to the tenant fire alarm panel (or DACT), such as smoke detectors (including e.g. elevator recall detectors for a mezzanine elevator), manual stations, duct detectors, can be used to:

    a. Evacuate the individual tenant pace by means of code compliant notification appliances and/or

    b. Transmit a signal to a listed central station used by the tenant, in order to report the tenant address to MPSTOC. Note: The tenant address must be distinguishable in some fashion from the base building address in order for this to be allowed.

5. Reviewers must be aware of the base building DACT, its location and capabilities, at the time of tenant review, in order for the above to function. Fire alarm tenant plans that do not have adequate information about the base building and the context of the tenant fire alarm proposed will have to be immediately rejected and returned to the submitter to provide the necessary information.

6. If the base building has a <u>fire alarm system</u> (as opposed to only sprinkler monitoring), with notification appliances, then the base building alarm system initiating devices (e.g., sprinkler flow, other initiating device, etc.) must notify all tenants and occupants of the building. The tenant panel signal must show up as a satellite panel activation at the base building panel. The base building panel must then activate all notification appliances throughout. The retransmission to MPSTOC must be handled by the base building fire alarm panel's central

station. The tenant central station is not to retransmit to MPSTOC (in order to avoid confusion). This is exactly the same procedure used for computer room satellite panels in any building with a fire alarm system. This requires proper interconnection of base building and satellite panels.

NON HIGH-RISE ANNUNCIATOR PANEL LAYOUT

THIS IS A SAMPLE ONLY
(Revised January, 2003)

POWER ON ○ (Green)

MANUAL STATION	○ (RED)	PENTHOUSE	(RED)	○
SMOKE DETECTOR	○ (RED)	5TH. FLOOR	(RED)	○
(Spare)	(RED)	4TH. FLOOR	(RED)	○
HEAT DETECTOR	○ (RED)	3RD. FLOOR	(RED)	○
ATRIUM SMOKE DETECTOR	○ (RED)	2ND. FLOOR	(RED)	○
ELEVATOR LOBBY/MACHINE ROOM	○ (RED)	1ST. FLOOR	(RED)	○
SMOKE DETECTOR	○ (RED)	CELLAR	(RED)	○
SPRINKLER FLOW	○ (RED)	GARAGE #1 LEVEL	(RED)	○
STANDPIPE FLOW	○ (RED)	GARAGE #2 LEVEL	(RED)	○
FIRE SERVICE LINE	○ (RED)	STAIRWAY A	(RED)	○
CLEAN AGENT OR PRE-ACTION SYSTEM	○ (RED)	STAIRWAY B	(RED)	○
KITCHEN HOOD	○ (RED)	STAIRWAY C	(RED)	○
DUCT DETECTOR	○ (AMBER)	STAIRWAY D	(RED)	○
VALVE TAMPER	○ (AMBER)			
DRY PIPE HI/LO AIR	○ (AMBER)			
FIRE PUMP RUN	○ (GREEN)	GENERATOR RUN	(GREEN)	○
FIRE PUMP FAULT	○ (AMBER)	GENERATOR FAULT	(AMBER)	○

TROUBLE ○ (AMBER) LIGHT	TROUBLE ☐ BUZZER	TROUBLE ○ (KEYED) SWITCH	RESET ○ (KEYED) SWITCH	TEST ○ (KEYED) BUTTON

The above drawing is a sample: Number of floors, garage levels, etc., may vary. Certain lights may be omitted or additional ones may be needed. This sample is <u>not</u> for a high-rise building.

1. Panel to be located at main lobby.
2. Annunciator shall indicate type of alarm received by device and floor level. Sub-zoning required when floor area exceeds 20,000 square feet.
3. Layout of building will be required for zoning purposes and identification of areas/stairways/risers.
4. Submit 3 sets of plans, riser diagrams, cut sheets, and annunciator panel diagram for approval.
5. Ring back required on trouble and reset switch (if it is not a momentary switch).
6. Sprinkler annunciation shall be by floor and device (sprinkler flow) only.
   Exception:
   a. If sprinkler system piping is separated into zones and not cross-connected between zones, and
   b. Sprinkler system zones coincide exactly with graphic fire alarm zoning.

NOTE: Generators are not mandatory on low-rise buildings. If present, they shall annunciate as above.

FIRE ALARM TESTING OF NON HIGH-RISE BUILDINGS

1. Prior to installation of fire alarm systems, 3 sets of complete fire alarm system plans shall be submitted for approval to the Fire Marshal's Office. The submittal shall contain electrical floor plans, manufacturers cut sheets for all devices, wiring riser diagrams, operational description of system, any mechanical risers or floor plans necessary to evaluate controls and status indicators, and an annunciator panel diagram including status indicators and controls for mechanical equipment where necessary. All submittals shall contain verification of the listing of all components.
2. Every fire alarm system shall be pre-tested by the installing contractor or his representative before the Fire Marshal's acceptance test begins. This will help to alleviate multiple retesting and free up more appointment time for other tests to be held.
3. To set up fire alarm acceptance tests, please call the Fairfax County Fire Marshal's Office at 703-246-4821 **at least 14 days** prior to test. Fire alarm acceptance tests can also be scheduled by emailing a completed FIRE ALARM, DOOR LOCK & ALTERNATIVE FIRE-EXTINGUISHING SYSTEM FORM (see Appendix) to Fire.AcceptanceTesting@FairfaxCounty.gov.
4. All fire alarm annunciator panels, control panels, and associated equipment are to be "buttoned up" with no loose wire hanging before the Fire Marshal's acceptance test will be conducted. Test area shall have completed painting, carpeting, etc., in final form. Areas with smoke detectors shall be free of dirt, dust, and sanding residue.
5. During testing of the fire alarm systems, the following installers or representatives should be present to assist in testing the fire alarm systems if applicable:
   a. Fire Alarm installer
   b. Sprinkler installer
   c. Elevator installer
   d. Air handling units installer (duct smoke detector)
   e. Fire alarm control panel representative
   f. Fire alarm panel programmer
6. The acceptance test will not be conducted without Fire Marshal's Office fire alarm approved plans (cut sheets and electrical floor plans, fire alarm sequence of operation, etc.) on site.
7. All permit and test fees shall be paid before the test.
8. The Fire Marshal's acceptance test will include but is not limited to the following:
   a. All smoke detectors will be tested with smoke
   b. All heat detectors will be tested
   c. All pull stations will be tested
   d. All flow switches (i.e., sprinkler, standpipe, and main fire line) will be tested by actual flowing of water. Sprinkler flows will be tested through a test orifice equal in size to the smallest sprinkler orifice in the system. Sprinkler flow retard switch shall be adjusted to no less than 20 seconds retard to avoid false alarms due to water hammer.
   e. All duct smoke detectors will be tested. Air handling units are to be "running" during duct smoke detector test to witness "shut down" of unit when duct smoke detector activates.

f. All smoke removal systems reports on testing by Special Inspector per USBC/IFC 1704 shall be approved by the Fire Marshal's Office.

g. Trouble circuits will be "spot checked" periodically during the tests, and the alarm system will be checked with the system in "trouble."

h. Any concealed detector must have a remote, readily visible, red LED light and descriptive label, as close as possible to the actual device location.

i. Floor call buttons for elevator shall be tested while elevator is in Phase I and Phase II. Elevator inspector approval must be obtained before testing by FPD.

j. If the sprinkler system is divided by zone, annunciator of sprinklers will be by floor, device (sprinkler flow), and proper zone. If system is zoned, the sprinkler zones shall correspond with fire alarm zones. If the sprinkler is a "looped" system covering an entire floor, no zone annunciation will be accepted. Only floor level and device (sprinkler flow) shall annunciate.

k. A high/low air pressure condition in the dry sprinkler system shall set off a trouble light and a buzzer on the annunciator panel. A separate circuit shall be on the control panel showing high/low air pressure.

l. All suppression and detection devices and equipment in the building shall be tied to the alarm system and tested.

m. All Digital Alarm Communication Transmitters (Dialers) shall be tested. Approved DACT plans shall be on site for test. UL/FM central station listing documentation is required. Central station shall be on line with no alarms or troubles for 24 hours prior to test.

n. Generator (if present) shall show fault when turned off or when load side breaker to building is open, or experiences any condition that would cause failure under emergency operation . NFPA 110, Section 5.6.5.2

o. All ceiling tile, floor covering, and interior finish shall be in place for testing of audibility and visibility. Visual appliance coverage shall be complete. For shell building tests, interior walls shall be prime coated and floors broom swept. When fire alarm tests are to be conducted in occupied buildings, the building shall be posted 24 hours prior to the test to notify the occupants.

p. Detection devices shall not be installed until after construction clean-up of all trades is complete. Detectors that are contaminated shall be cleaned or replaced. NFPA 72, Section 17.7.1.11

q. R-2 occupancies with copper loops under breezeways will be required to conduct flow tests from remote points. NFPA 13R, Section 6.5.3

9. All testing equipment (smoke machines, etc.) shall be supplied by the contractor. Where required, UL approved Central Station shall be on line, and is part of the Fire Alarm System. Central Station documentation (listing, etc.) is required. The sequence of operation/installation manual shall be maintained on site for the life of the system for inspection by the fire official. For further assistance, please call the Fire Marshal's Office, Monday through Friday, from 8 a.m. to 4:30 p.m. at 703-246-4821.

10. **POSTING OF CENTRAL STATION MONITORING COMPANY**. The name, telephone number, and account number of the current central station monitoring company shall be posted and maintained inside the locked Fire Alarm Control Panel (FACP). If the fire alarm system is not monitored, that fact shall be posted inside the locked FACP.

HIGH-RISE ANNUNCIATOR PANEL LAYOUT

THIS IS A SAMPLE ONLY

DEVICE	LOCATION
(RED)	(RED)
○ Manual Station	○ PH
○ Smoke Detector	○ 20th Floor
○ Heat Detector	*
○ Atrium Smoke Detector	○ 10th Floor
○ Elevator Lobby/ Machine Room Smoke Detector	*
	*
	*
	○ 1st Floor
○ Sprinkler Flow	○ Atrium
○ Clean Agent (or) Pre-Action System	○ Basement
	○ Cellar
	○ Garage Level P1
○ Kitchen Hood	○ Garage Level P2
(YELLOW)	
○ Duct Detector	
○ Standpipe Flow	○ System Trouble (with buzzer)
○ Stair A	
○ Stair B	
○ Stair C	◙ Trouble Silence
○ Fire Service Line	
○ Valve Tamper	◙ Reset
○ Dry Pipe Hi/Lo Air	○ Lamp Test

Fire Pump Remote Start

◙	ON	(GREEN)	○ Fire Pump Run	Stair Door Locks	◙ Unlocked	(GREEN)
	AUTO	(YELLOW)	○ Fire Pump Fault		Locked	(RED)

Generator Remote Start

◙	ON	(GREEN)	○ Generator Run
	AUTO	(YELLOW)	○ Generator Fault

LEGEND

◙ = Keyed Switch

○ = Annunciation Light

1. **The above drawing is a sample.** Fan control panel must be adjacent to this panel and both, plus FACP and VOICE/PAGING/FIREFIGHTER'S PHONE panels, must be in 1-hr rated fire control room at the main lobby. See USBC 911 for all equipment, including elevator panel.
2. Maximum annunciation zone size = 22,500 sq. ft. (USBC 907.6.3). Sprinklers zoned by floor only, except for atriums. All sprinklers in atrium must annunciate as atrium sprinklers.
3. Floor, zone and type of device must annunciate, except see Note 2 above.
4. Ring back required on trouble & reset, if not a momentary (spring loaded) switch.

HIGH-RISE CENTRAL FIRE CONTROL SYSTEMS REQUIREMENTS AND ACCEPTANCE TESTING

I. DEFINITION

A. In all buildings having floors used for human occupancy which are greater than 75 feet above the lowest level of Fire Department vehicle access. USBC 403, Ch. 2

II. FIRE ALARM AND DETECTION SYSTEMS

A. All fire alarm and detection systems, fire and life safety system controls and system supervision shall conform to the "High-Rise Buildings" section of the current Virginia Uniform Statewide Building Code (USBC) and to the referenced editions of applicable NFPA documents, including but not limited to: NFPA 13, 14, 20, 37, 70, 72, and 110.

III. FIRE CONTROL ROOM (Fire Command Station) USBC 403.4.6, 911

A. Construction and Size — minimum 96 square feet & minimum 8 feet in any direction. See also exceptions, up to 200 sq. ft. USBC 911.1.3

1. One hour rated enclosure with 1 hour "B" label door. USBC 911.1.2
2. Sized to allow minimum of 3 feet working clearance to front of panels. NFPA 70, Section 110.13
3. Clearance at rear and top of panels per equipment manufacturer's recommendations. NEC, Section 110.13
4. Provided with adequate ventilation necessary for removal of heat generated by equipment. NEC, Section 110.13
5. Electrical, mechanical, or plumbing equipment other than those associated with the system shall not be located in the Fire Control Room.
6. One copy of building plans to be in Fire Control Room.
7. Must be sprinklered.
8. Provide smoke detector.
9. Layout must be approved.
10. Provide 15 sets of master keys in room.
11. Direct callout phone.

B. Location USBC 911.1.1

1. Located at main lobby entrance.
2. Preferably located on an outside wall.
3. Not located next to or adjacent to boiler rooms, transformer rooms, etc.
4. Bulk piping not to be run through Fire Control Room.

IV. SHOP DRAWINGS AND SPECIFICATIONS

A. General (All submissions shall include, but are not limited to the following):

1. A minimum of 3 sets of drawings and specifications shall be submitted for review and approval.

2. All equipment shall be listed by a recognized testing authority for its intended use. The submittal shall include the following:

   a. Quantity, manufacture, model number, etc. of each device to be installed (materials list)

   b. Engineering cut sheets and specifications for each type of device

   c. Specifications on the type of wire to be used NEC 760; NFPA 72, Section 6.9.10.4.3

   d. Wiring diagrams, annunciator panel detail, fan control panel detail, voice/paging panel detail

   e. Floor plans showing the location of each device including legend

   f. Operational description of system, including overall program matrix

   g. Any mechanical reference sheets (e.g. riser diagrams, fan schedules, etc.) pertaining to the system

   h. A complete operational description, including volume calculations, for all smoke control and pressurization systems, including a proposed test protocol and testing measurement locations

   i. Provide generator load breakdown/summary, and battery calculations

3. It is suggested that submittal of atrium or other smoke control design calculations and sequences be submitted prior to or simultaneously with building permit drawings to insure timely feedback to the designer. USBC 909, 404.5

V. CENTRAL CONTROL STATION: ALARM DETECTION, COMMUNICATION AND STATUS INDICATION

A. Receive Fire Alarm Indication and Annunciation from:

1. Manual fire alarm stations NFPA 72, Section 23.8.5.2 and Section 17.4
2. Heat detectors
3. Smoke detectors (by location and zone: elevator lobby detectors and atrium detectors to be on individual zones) NFPA 72, Section 6.16.3; USBC 3003.2, 907.2.13.1.1
4. Duct detectors Virginia Mechanical Code (VMC) 606; USBC 907.2.13.1.2
5. Sprinkler flow switches (atrium sprinkler to be on separate zone) NFPA 72, Section 17.12, and Section 23.8.5.5

B. Receive or Transmit Communications from:

1. Firefighter's 2-way telephone (dedicated phones, NOT jacks) USBC 911, 907.2.13.2
2. Public telephone – in Fire Control Room, line direct to outside USBC 911.1
3. Voice Alarm and Public Address Systems USBC 907.5.2.2

C. Receive Status Indication from:

1. Fire pump (run or fault) NFPA 20, Section 10.4.7
2. Emergency power system (run or fault) USBC 911.1(9)
3. Elevators (recalled or not)(status and location) USBC 911.1(4)
4. Stairway pressurization system (on, off) USBC 911.1(4)
5. Smoke control systems (on, off) USBC 911.1(6)
6. Air handling systems (on, off) USBC 911.1(5)
7. Stairway door unlock (open=green, locked=red) USBC 911.1(7)
8. The above shall be provided with a status indicator light as follows: ON (green); OFF (red); Elevator emergency recall (yellow)

D. Receive and Annunciate Supervisory and/or Trouble Indications:

1. Tamper switches on sprinkler, fire pump and standpipe water control valves (supervisory) NFPA 72, Section 17.6
2. Duct detectors Virginia Mechanical Code (VMC) 606; USBC 07.2.13.1.2
3. Electrical circuits and wiring
4. See Sections A, B, and C above, except public telephone
5. Voice alarm system and all components
6. Standpipe flow switch (trouble light)
7. Fire pump flow switch (trouble light)
8. Generator (trouble light)
9. Hi/Lo air pressure for dry pipe systems (supervisory signal)

E. Operational Controls

1. Operational controls shall be provided for and located in the Fire Control Room for the following: USBC 911
    a. Voice Alarm and Public Address System.
    b. Firefighter's 2-way communications system
    c. Fire pump (ON, auto only)
    d. Emergency generator (ON, auto)
    e. Stairwell pressurization system (separate controls for each stairwell required) (H-O-A)
    f. Smoke control systems (H-O-A) (separate controls required for each system, on a per floor basis)
    g. Off normal conditions on H-O-As shall sound a trouble buzzer
    h. Air handling systems (separate controls required for each system, on a per floor basis (H-O-A)
    i. Elevators

VI. OPERATIONAL REQUIREMENTS

A. Receipt of Any Alarm Signal Shall:

1. Initiate a signal to an approved Central Station (or to a proprietary system conforming to NFPA 72). USBC 907.6.5
2. Activate the voice alarm system and the visual fire alarm indicators on the floor level where the alarm was initiated, the floor directly above and below, and the elevator car and stairwell speakers. USBC 907.5.2.2
3. Activate the stairwell pressurization system. USBC 1022.9, 909.20.5
4. Activate mechanical smoke control (if provided) on the fire floor, except if signal originates from a manual pull station. (NOTE: Per floor smoke control is often not found today; AHU controls are still necessary.)
5. If the signal originates from an elevator machine room or elevator lobby smoke detector, activate the elevator recall system. If the primary floor level of return is the floor of alarm origin, the elevators shall be automatically directed to the secondary floor level of return. ASME A17.1; USBC 3003.2; NFPA 72, Section 21.3

B. Design and Installation

1. Voice Alarm and Public Address System
   a. The alarm and communication system shall be designed and installed so damage to any terminal unit or speaker will not render more than one zone of the system inoperative. USBC 907.6.3.2; NFPA 72, Section 24.4.1.8.4.1
   b. The system shall be continuously electrically supervised against component failure of the audiopath including amplifiers, speaker wiring, switches, and electrical contacts and shall detect opens, shorts and grounds which might impair the function of the system. Both a visual and audible trouble signal shall operate at a location as indicated in Heading VI Section A.1 above. NFPA 72, Section 10.17.2
   c. All wiring shall be installed in metallic tubing or approved equivalent. The installation shall be in a manner which will afford the maximum protection against the effects of fire and which will facilitate repair or replacement. NEC 760; NFPA 72, Section 12.2.4 and Section 12.4
   d. The system shall be installed so trouble can be readily detected by floor and device.
   e. There shall be a maintained contact push button and visual indicator for each floor level or zone. An “all call” position is also required. Operation shall be by selective basis; i.e., one zone, any combination of zones, or by all zones. One set of maintained push buttons for the fire alarm system and one set for the public address system is required. NFPA 72, Section 24.4.1.5.6
   f. Zones shall be limited to a maximum of 22,500 square feet. In no instance shall a zone encompass more than one floor level. Floors shall alarm on a per floor basis and alarms shall annunciate by floor, zone and device. USBC 907.6.3.
   g. Speakers shall be installed in the following locations: elevators, elevator lobbies, corridors, exit stairwells at every 3rd level, rooms or tenant spaces exceeding 1,000 square feet, dwelling units in apartments, and hotel guest rooms or suites. NOTE: Speakers in elevator, stairs & cabs. NFPA 72, Section 23.8.6.2, Section 18.4.8, Section 18.4.9, and Section 18.4.10

h. Speakers shall be listed by a recognized testing authority for fire alarm use. Speakers shall provide the sound levels specified in NFPA 72 at all locations in the structure. USBC 907.5.2.1; NFPA 72, Section 23.9, Section 18.4.1, Section 18.4.2, Section 7.4.5, Section 24.3.1, Section 24.4.1.2

i. Wall mounted speakers shall be installed so sound reproduction is in one direction only. In no instance shall corridor speakers be installed so sound reproduction is directed towards the opposite wall. NFPA 72, Section 18.4 (all)

j. Speaker spacing shall be in accordance with the recommendation of the manufacturer, the listing authority, and above all, to provide the required sound reproduction listed under Item 'h' above.

k. The pre-taped message shall be: "There is a fire emergency in the building. You are to leave the building by the nearest exit or exit stair. Do not use the elevators." Visual indication that the message is being delivered to the required zones shall be installed at the control panel.

l. Failure of the pre-taped message for any reason shall cause the fire alarm signal to sound continuously in the required zones until the system has been restored to normal or is silenced at the control panel.

m. The alarm signal shall be the slow whoop signal. The alarm signal shall sound for a maximum of 15 seconds followed by the pre-taped message. Both shall sound alternately in sequence until silenced at the control panel or when the fire alarm panel is restored to normal. There shall be no more than a 5 second pause between the alarm signal and the pre-taped message for each revolution.

n. Upon activation of any manual alarm or automatic fire detection or suppression device, the fire alarm system shall operate on the floor level of origin, the floor levels directly above and below, in all elevators and in all stairwells. Atriums shall be alarmed as one space, including all levels open to the atrium.

o. The system shall be designed so the fire alarm signal and pre-taped message may be transmitted to any floor while voice messages are being transmitted to other floors. If the voice instructions are required to be transmitted to any floor, the fire alarm signal and pre-taped message shall automatically restart or continue in the required sequence after the voice transmission is completed.

p. The microphone for the transmission of voice messages shall be hand-held type with a 5 foot cable. The cable shall be permanently connected at both ends with the microphone hanger mounted on the front of the panel.

q. Visual indicators (flashing lights) with the word "FIRE" shall be installed above each manual fire alarm station, in elevator lobbies, and exit corridors, per USBC 907.3.1. Letters shall be a minimum of ½ inch block letters on a contrasting background.

r. Alarm tone generators, preamplifiers, power amplifiers and power supplies shall be continuously supervised. Backup units shall automatically provide the required signaling in the event of component failure. NFPA 72, Section 10.17.2 and Section 10.17.3

2. Fire Department Communication System

a. Fixed telephones (NOT jacks) shall be located at the following locations: Each elevator car, elevator lobbies, and the entry inside the stair enclosure at each floor level (also

Fire Pump Room and Elevator Machine Room). USBC 911, 907.2.13.2; NFPA 72, Section 24.5

b. Telephone shall be of the press-to-talk type and located in a locked telephone cabinet with breakaway safety glass or plexiglass panel. Cabinets may be wall mounted or recessed. Cable shall be capable of withstanding elevated temperatures.

c. Each cabinet shall be provided with an engraved or permanently attached sign reading: "FIREFIGHTER'S TELEPHONE – FIREFIGHTER'S USE ONLY." Letters shall be a minimum of $^{1}/_{2}$" block letters on a contrasting background. Mounting height 3'-5' A.F.F.

d. The phone at the Fire Control Room shall be mounted on the front of the control panel without any enclosure.

e. Removal of any telephone from its cradle will activate an audible and visual indicator which shall remain lit until the telephone is returned to the cradle in a normal position. The firefighter's telephone shall be annunciated by floor level and zone (see above Heading VI Section B.1 Item 'f', "Voice Alarm and Public Address Systems").

f. The control unit and all wiring for the system shall be continuously supervised for power failure, open, shorted or grounded conditions which would affect the intended operation or performance. Detection of any fault in the system shall activate an audible and visual trouble signal. NFPA 72, Section 10.17

g. The system shall be designed to provide power for the simultaneous use of 5 telephones while maintaining an audible level of communication. NFPA 72, Section 24.5.1.6

h. There shall be provided a minimum of 25 keys to the telephone cabinets which shall be located in the Fire Control Room. Locks shall be uniform and require the use of one key to unlock any telephone cabinet.

3. Fire Detection and Alarm System Annunciator Panels – Sprinkler Valve and Water Flow Detector Panels

a. Panels may be the graphic annunciator type or labeled device type with adjacent fixed building diagram. USBC 907.6.3.1

b. Annunciator panel or individual device panels shall clearly indicate the type of initiating device, the floor level of alarm, and the zone (see above Heading VI Section B.1 Item 'f', "Voice Alarm and Public Address Systems"). USBC 907.6.3.1

c. Stairwells shall be clearly shown and labeled on graphic or building diagram. A "YOU ARE HERE" indicator shall be shown and labeled on graphic or diagram. If stairs discharge at other than entrance level, so indicate.

d. All manual or automatic fire detection or suppression devices shall be annunciated including the following: Fire alarm manual stations, smoke detectors, heat detectors, elevator lobby smoke detectors, duct smoke detectors, atrium smoke detectors, sprinkler flow switches, standpipe flow switches (1 required at the base of each standpipe riser), fire pump flow switch, and tamper switches. USBC 907.6.3.1

e. Activation of any of the above listed devices, with the exception of the standpipe flow switches, duct detectors, fire pump flow switch, or tamper switches, shall cause the activation of the stairwell pressurization systems and the fire alarm signal and pre-taped message to the required zones.

f. Activation of the standpipe flow switches, fire pump flow switch, or tamper switches shall initiate an audible and visual supervisory signal at the Fire Control Panel and to a central station or continuously staffed station.

g. All wiring and power supply shall be continuously supervised. Detection of any fault shall initiate a visual and audible trouble signal at the control panel and to a location (as indicated above, Heading V Section D, “Receive and Annunciate Supervisory and/or Trouble Indications”).

h. The system shall be designed and installed so trouble conditions may be readily detected by floor level and/or zone. Visual trouble indicators at the control panel shall indicate type of device.

4. Status Indicator for Elevators

a. Status indicators shall be provided for each elevator car. A green light for normal operations, red light for power off, and a yellow light for emergency recall shall be provided. USBC 911.1(4), USBC 3003

b. Activation of any elevator lobby smoke detector shall initiate elevator recall (Machine Room Detector included). NFPA 72, Section 21.3

c. The elevator emergency recall system shall be programmed to return all elevators to the main lobby floor level of return. There shall be a secondary floor level of return in the event the primary floor is in alarm. The secondary floor shall be as directed by the Fire Marshal.

d. The elevator emergency controls are to be located at the main lobby. This shall be a three position switch – normal operation – manual over-ride – emergency recall. It is recommended that an additional control be located in the Fire Control Room which shall have a permanently attached key.

5. Status Indicators and Controls for the Fire Pump, Emergency Generator, Air Handling Systems, Smoke Removal Systems, Stairwell Pressurization Systems. USBC 911

a. Status indicators, green light – on, red light – off, and operational controls shall be provided for each of the above in the Fire Control Room.

b. Where there is more than one system; i.e., air-handling systems, smoke removal systems or stairwell pressurization systems, status indicators and controls shall be provided for each separately, on a per floor basis (H-O-A’s) or per stair basis. Labeling shall clearly show any system integrated with smoke control.

6. Stairway Door Unlocking Systems

a. Controls shall be provided to unlock all stairwell doors simultaneously from the Fire Control Room. No door may be locked in the direction of egress travel except under provisions of USBC 1008. USBC 403.5.3

b. Call-out telephones shall be provided inside the stairwell at a minimum of every 5th floor for occupant use. They shall provide direct communication to the Fire Control Room, and to an approved emergency monitoring service. USBC 403.5.3.1

c. Telephone communication wiring and power supplies shall be continuously supervised for open, short, or ground conditions. Detection of any trouble fault shall initiate a visual and audible trouble signal at the control panel and at the central station.

7. Public Telephone

   a. A public telephone shall be provided inside the Fire Control Room. The telephone shall not be coin operated. It is suggested that the telephone be an extension of the building owner or management telephone rather than a separate telephone number. USBC 911.1(10)

VII. EMERGENCY POWER REQUIREMENTS

A. Standby Power

1. The following systems or equipment shall be connected to the standby power system: USBC 2702.2.15, 403.4.7, 403.4.8

   a. All fire alarm equipment

   b. All stairwell pressurization systems

   c. Elevator designated for firefighter's use

   d. Emergency lighting and exit lights

   e. Fire Pump

NOTE: Stairwell pressurization systems DO require standby power. Likewise, atrium and floor opening smoke control do require standby power. USBC 404.6

B. Emergency Systems

1. Egress lighting, exit signs, elevator car lighting, emergency voice, fire pump, fire alarm, and door unlocking are emergency systems and shall be supplied with backup power within 10 seconds of primary power failure. USBC 403.4.8; NFPA 72, Section 10.5.7.1

C. Load Acquisition for Standby Power

1. The following systems shall be supplied with standby power within 60 seconds of loss of primary power.

   a. Firefighter's elevator

   b. Stairwell pressurization

NOTE: Neither standby nor emergency power for a high-rise building may be provided by connection ahead of the main disconnect. Options 700-12(f)/701-11(g) of NEC are not permitted for high-rise buildings. Both are Level 1, Class 2 systems per NFPA 110. USBC 2702.2.15; NFPA 110, Section 4.1

VIII. TEST AND INSPECTION REQUIREMENTS

A. General

1. No inspection or tests shall be made without OFM approved and stamped plans, and all submittals on the job site.
2. Tests and inspections shall be made by appointment only.
3. Each component shall be tested.
4. Spot checks of the system shall be made while operating on the emergency power system.

5. A representative of the equipment supplier shall be present during all tests and inspections of the system.
6. A sound pressure level meter shall be provided by the contractor for use in testing the system.
7. The system shall be pre-tested by the contractor to assure proper operation prior to requesting inspection by the Fire Marshal's Office.
8. Tests and inspections of the system should commence no later than 30 days prior to anticipated or desired occupancy. Past experience indicates the time required to complete inspections and tests takes four inspectors approximately one week.
9. The supplier shall furnish complete operating instructions and personnel necessary to instruct and train fire department personnel in the operation of the system.
10. Areas with smoke detectors shall be free of dirt, dust, and sanding residue.

MARKING OF HIGH RISE BUILDING STAIRWELLS AND FLOORS

Section 401 of the Fire Prevention Code (as amended by Fairfax County), permits the fire official to issue regulations which require the owner, lessor, or management agent of buildings to post signs where, in the professional judgment of the fire official, such signs are deemed to be effective in minimizing the danger to persons and property in case of fire. Therefore, all buildings with stairways connecting more than three stories located in Fairfax County and the towns of Clifton, Herndon, and Vienna shall have signs posted as follows.

A. Stairway Identification Signs (See Sample 1 on Page 56)**:**

1. **Stairway Identification Signs.** Signs shall be provided at each floor landing in exit enclosures and stairways connecting more than 3 stories. Sign shall comply with the following requirements:

   a. **Stair & Floor Designation.** Signs shall identify the stairway with a letter of the alphabet and indicate the floor number. Letters and numbers shall be a minimum of 5” in height and shall be located in the center of the top half of the sign with stairway letter(s) positioned to the left of the floor number. All stairway lettering shall correspond with the stairway location schematic described below.

   b. **Assignment of Stairway Letters.** Assignment of stairway designation letters shall start with stairway next to the main entrance with the letter “A” and continue in a clockwise or left to right pattern.

   c. **Lettering Height.** With the exception of stairway designation letters and floor numbers being at least 5” in height, all other signage lettering and numbers shall be a minimum of 1” in height.

   d. **Exit Discharge.** Signs shall identify the floor level or story of, and the direction to, the exit discharge.

   e. **Roof Access.** Signs shall indicate the availability of roof access from the stairway. The stairway shall be marked “ACCESS TO ROOF” at street and floor levels indicating that the stairway has access to the roof. Stairways without roof access shall be marked “NO ACCESS TO ROOF.”

   f. **Stairway Terminus.** Signs shall identify the terminus of the top and bottom of the stairway.

   g. **Minimum Sign Size.** The signs shall be a minimum size of 18” x 12”. However, stairway identification information may be stenciled directly onto the wall provided other requirements are met.

   h. **Location & Visibility of Signs.** The sign shall be located 5’ above the floor landing in a position that is readily visible when the doors are in the open and closed positions.

   i. **Non-Glare Finish.** Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background or dark characters on a light background.

   j. **Uniformity.** Placement and dimensions of stairway identification signs shall be consistent and uniform throughout the same exit enclosure or stairway.

k. **Tactile Signs.** Where required by the USBC, floor level identification signs in tactile characters complying with ICC A117.1 shall be located at each floor level landing adjacent to the door leading from the enclosure into the corridor to identify the floor level.

l. **Luminous Signs.** When signs are installed in interior exit enclosures of buildings subject to USBC 1024, “Luminous Egress Path Markings”, the signs shall be made of the same materials as required by USBC 1024.4.

B. Stairway Location Schematic (See Sample 2 on Page 56)**:**

1. A simplified schematic of the building footprint showing the building’s exterior and general layout of the first floor or lobby level floor shall be displayed in the main entrance lobby and/or fire control room.
2. All stairway designation letters shall be illustrated on the schematic and shall correspond with each stairway.
3. Stairway identification signs and location schematics can significantly assist fire and rescue personnel manage fire emergencies in multi-story buildings.

Thank you for your cooperation. If you have any questions about these requirements, please contact the Fire Inspections Branch at 703-246-4849.

STAIRWAY SIGN SAMPLES

STAIRWAY FLOOR / LEVEL

A 12

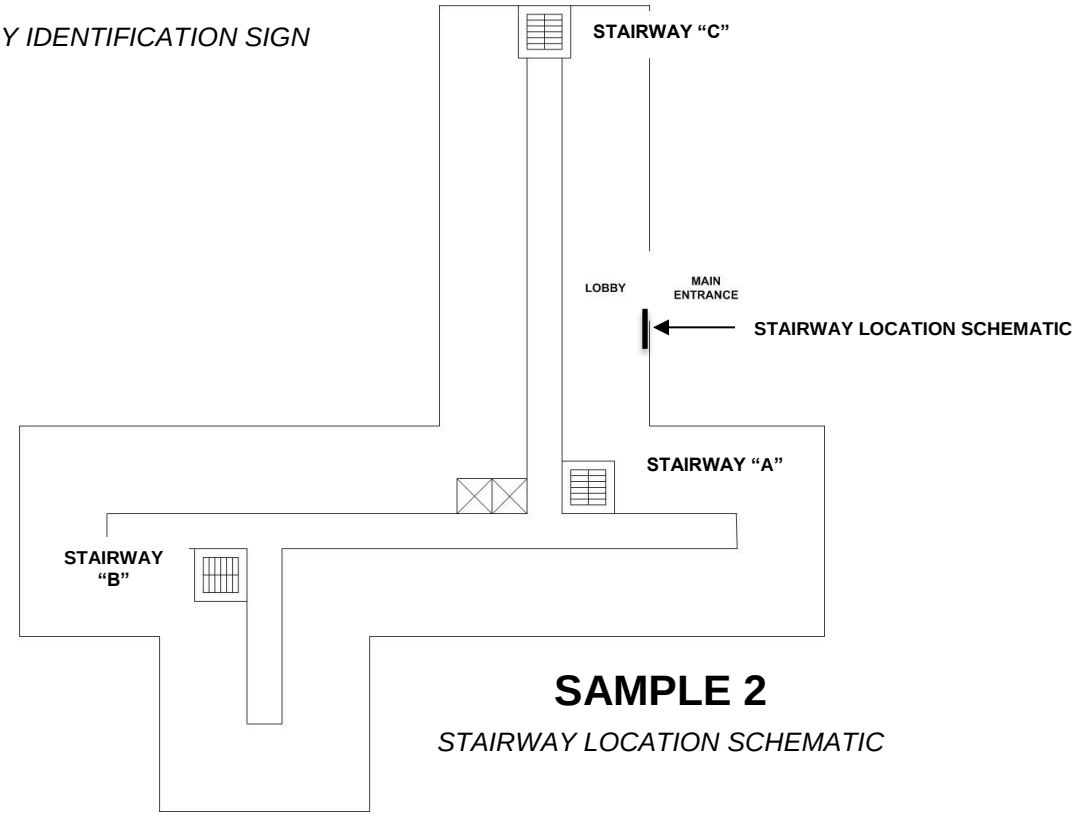
EXIT ON FLOOR 1

<u>NO</u> ACCESS TO ROOF

P-2 THRU 14

SAMPLE 1

STAIRWAY IDENTIFICATION SIGN



SAMPLE 2

STAIRWAY LOCATION SCHEMATIC

FIRE DEPARTMENT KEY BOXES

A. Access to Structures. In accordance with Section 506.1 of the Fire Prevention Code, where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type listed in accordance with UL 1037 and shall contain keys to gain necessary access as required by the fire code official. The only exception to the key box listing requirement applies to existing key boxes which are not required to be listed in accordance with UL 1037 unless replaced.

B. Structures Requiring Key Boxes. In Fairfax County and the towns of Clifton, Herndon, and Vienna, all buildings with the exception of single-family dwellings shall provide a fire department building access system (i.e., key box with the proper inventory of building entry keys) as approved by the Fire Marshal. The types of boxes typically installed include surface-mounted and recessed key boxes, as well as MSDS repository cabinets when required.

C. Approved Key Boxes. The following brands of fire department key boxes are approved for use in Fairfax County and the towns of Clifton, Herndon, and Vienna:

Knox-Box® Rapid Entry System by Knox Company
SupraSafe™ Rapid Entry System by UTC Fire & Security

Literature on the key boxes can be obtained by calling 703-246-4803, and is also available online at the Fire Department Key Boxes area of the Fire Marshal's Office website.

D. Installation - Buildings & Structures. Fire department key boxes shall be installed in an approved manner in accordance with the following requirements:

1. Key boxes must be installed at the primary fire department entrance (main entrance or entrance nearest to the fire control room).
2. Key boxes must be visible and accessible.
3. Key boxes must be installed 42" – 54" above finished grade.
4. For new or renovated buildings, fire department key boxes must be installed prior to occupancy.

E. Installation - Gates & Barricades. In accordance with Section 503.6.1 of the Fire Prevention Code (as amended by Fairfax County), gates and barricades that are installed across a fire apparatus access road that is normally intended for vehicular traffic should be installed with a fire department access system which has an emergency override fire department master key switch. This will improve fire department response time. This may require that an approved fire department key box be installed at gates or similar barriers that impede fire department apparatus access.

F. Number and Types of Keys Required. In accordance with Section 506.2 of the Fire Prevention Code (as amended by Fairfax County), the following number and types of keys shall be provided:

1. In buildings with Fire Command Centers (Fire Control Rooms), 15 sets of common keys shall be provided for access to building services and systems regulated by Chapter 6 of the Fire

Prevention Code, and to all storage, trash and utility rooms, roof access doors, and doors to other secured areas.

2. In all other buildings required to provide fire department access, 3 sets of common keys shall be provided.
3. Individual keys shall be clearly labeled as to function and each set of keys shall be tagged.

WET CHEMICAL EXTINGUISHING SYSTEMS

PLAN SUBMITTAL REQUIREMENTS

A. General (All submissions shall include, but are not limited to, the following):

1. A minimum of 3 copies of drawings, a key plan showing the location of the building, kitchen equipment layout, hood, tank and pull station locations. One manufacture's technical design manual and complete submittal data product sheets for all cooking appliances shall be provided with permit application permitting evaluation of the system prior to installation. Provide all necessary calculations for the installation, rehabilitation or modification of any fire protection system. Construction documents for fire protection systems shall be submitted for review and approval prior to system installation. The permit application shall clearly designate the system as being required for compliance with USBC.
2. Provide the name, address, email and telephone/fax numbers of designer of fire suppression/detection system. NFPA 17A, Section 6.3
3. Provide the building name, and address on all drawings. NFPA 17A, Section 6.3
4. New Installations are required to meet the testing requirements of UL-300 and shall be listed and labeled for the application. USBC [F]904.11
5. The submitted plans are to be of uniform size and drawn to a recognized scale or fully dimensioned. NFPA 17A, Section 6.3.1
    a. A scaled front elevation and isometric view shall be included.
6. The submitted plans shall contain sufficient detail to evaluate the protection of the hazard, provide manufactures data sheet for all cooking appliances. NFPA 17A, Section 6.1.1
7. The submitted plans shall contain sufficient detail to evaluate the protection of the hazard(s), provide a floor plan and elevation views indicating the location of the hood(s), all appliances that will be or are required to be under the hood(s), the location of the pull station and the location of all appliances with nozzle location, including required height above the hazard surface.
8. The submitted plans shall show a detail of the hood and associated ductwork and dimensions of the hood and associated duct work. NFPA 17A, Section 6.3.2
9. The submitted plans shall show the location of all appliances indicating which each appliance require protection, their arrangement under the hood and the hazard area of each appliance. NFPA 17A, Section 6.3.2
10. The submitted plans shall include the size, type, brand, length and arrangement of all connected piping. Indicate maximum flow points available for the system, the flow point(s) of each nozzle type, the number of each nozzle type utilized, and the total flow points actually utilized. NFPA 17A, Section 6.3.3
    a. Tank size and flow point count must be noted on the plans.
11. The submitted details of the system shall include the location and function of detection devices, operating devices, auxiliary equipment, and electrical circuitry. NFPA 17A, Section 6.3.4
12. The submitted plans shall indicate that systems protecting two or more hoods or plenums, or both, that meet the requirements of 5.1.5 shall be installed to ensure the simultaneous operation of all systems. NFPA 17A, Section 5.6

13. Fusible links or heat detector shall be provided within each exhaust duct opening and above each protected cooking appliance in accordance with the manufacturer's listing. The Submitted plans shall indicate the specific temperature rating of the fusible link or heat detector utilized. NFPA 17A, Sections 5.6.1.4, 5.6.1.5, 5.6.1.6 and 5.6.1.6.1
14. At least 1 manual system actuator, pull station, shall be provided for each system and be located not more than 4 feet and not less than 42 inches above the finished floor. NFPA 17A, Section 5.2.1.10; USBC/IFC Section 904.11.1
15. The manual system actuating device shall be a minimum of 10 ft. and a maximum of 20 feet from the kitchen exhaust system, be conveniently and easily accessible at all times, including at the time of a fire. USBC/IFC Section [F]904.11.1
16. An automatic means shall be provided to ensure the shutoff of fuel or power sources to the protected appliances that are located under ventilating equipment protected by the extinguishing system, upon system actuation. NFPA 17A, Section 4.4.3.1; IFC Section 904.11.2
17. An audible or visual alarm shall be provided to show that the system has operated, and that the system is in need of a recharge. NFPA 17A, Section 5.2.1.8; USBC 2012 Section [F]904.3.4
18. If a fire alarm system is provided in the building, the extinguishing system shall be connected to the fire alarm panel in accordance with the requirements of NFPA 72 "The National Fire Alarm Code". The actuation of the extinguishing system will sound the building fire alarm as well as provide the function of the extinguishing system. NFPA 17A, Section 5.2.1.9; IFC Section 904.3.5
19. Multiple systems that are protecting back-to-back or adjacent non-separated hoods shall be installed to ensure the simultaneous operation of all systems protecting the hoods. NFPA 17A, Section 5.1.5
20. Automatic fire suppression shall be provided for all portions of a common exhaust duct. NFPA 17A, Section 5.6.2
21. A specifically listed "K" type fire extinguisher shall be provided in accordance with International Fire Code. The portable extinguisher shall be compatible with the extinguishing agent utilized for the fire suppression system and shall be within 30' of the cooking equipment. USBC Section 906.4; IFC Sections 904.11.5, 904.11.5.1, and 904.11.5.2
22. Where movable cooking equipment is to be installed, a means shall be provided to ensure the cooking equipment is properly repositioned, after movement for cleaning or servicing, in relation to the appliance discharge nozzle. Permanent floor rails or guides, permanent floor markings or other suitable means of marking the correct cooking equipment location, as acceptable to the Authority Having Jurisdiction, shall be provided. NFPA 17A, Section 5.6.4
23. Provide sequence of operations, including actuation of building fire alarm system or hood suppression fire alarm, and/or simultaneous operations of multiple hazards, if applicable.
24. All revisions shall be clearly denoted on the plans with appropriate delta change designation, revision cloud and revision date.
25. A pamphlet (owner's guide) containing the manufacturer's recommendations for the proper inspection and operation of the extinguishing system. NFPA 17A, Section 3.3.9.2
26. Design and installation of systems shall be performed only by persons properly trained and qualified to design and/or install the specific system being provided. The installer shall provide certification to the authority having jurisdiction that the installation is in complete

agreement with the terms of the listing and the manufacturer's instructions and/or approved design. NFPA 17A, Section 6.2

27. Where plans are required, the responsibility for their preparation shall be entrusted only to trained persons. NFPA 17A, Section 6.3

DRY CHEMICAL EXTINGUISHING SYSTEMS

PLAN SUBMITTAL REQUIREMENTS

This following information is provided to assist the contractor, owner, developer/builder with assembling a comprehensive set of plans that will result in their project moving smoothly through the building review process in the least amount of time. The material contained within this checklist will aid in both the predictability and timeliness of the plan review process and eventual installation of your project. This checklist contains the **minimum** standard information required for a project submitted for the plan review of Dry Chemical Extinguishing Systems. Plan sets submitted without the minimum information listed below cannot be reviewed for compliance. This publication does not replace, nor supersede, any provisions of the Virginia Fire Prevention Code or other codes and/or ordinances adopted by Fairfax County.

A. General (All submissions shall include the following but not limited to):

1. A minimum of 3 copies of drawings, a key plan showing the location of the space in the building, chemical extinguishing equipment layout, one manufacture's technical design manual and complete submittal data product sheets for all listed equipment shall be provided with permit application permitting evaluation of the system prior to installation. Provide all necessary calculations for the installation, rehabilitation or modification of any fire protection system. Construction documents for fire protection systems shall be submitted for review and approval prior to system installation. The permit application shall clearly designate the system as being required for compliance with the USBC.
2. Provide the building name, and address on all drawings.
3. Provide the name, address, and telephone number of designer of fire suppression/detection system on all drawings.
4. Plans shall be prepared by qualified persons trained in the design and application of these systems. Provide copy of certification.
5. Plans submitted for approval shall be working plans for the system installation, drawn to scale. The scale for floor plans shall not be less than $^{1}/_{8}$" = 1'.
6. Provide a legend showing all symbols, device descriptions, size and type of pipe on all plans.
7. Note NFPA Standard (including edition) that the installation will comply with on all plans.
8. For pre-engineered local application or total flooding systems, submit a manufacturer's installation manual.
9. For engineered systems, a statement reading "There Shall Be No Deviations from the Plans without Approval form the Authority Having Jurisdiction." Shall be provided on all plans.
10. Provide on the plan a sequence of operations, including actuation of building fire alarm system or dry system suppression fire alarm, and/or simultaneous operations of multiple hazards if applicable.
11. Three-dimensional representation of hazard to be protected, including volume of enclosure if applicable, shall be provided. Permanently mounted equipment, structural or architectural features or structures that materially reduce the volume, shall be identified and computed.
12. The submitted plans shall be drawn to scale, include a plan view of the protected area showing the enclosure partitions, full and partial height; the agent distribution piping system including the location of the agent storage containers and amount of agent, piping and nozzle

types; types of pipe hangers and rigid pipe supports; and the detection system, the alarm device locations and mounting height. The plans shall also indicate the control system including all devices and schematic drawings of the wiring interconnection between the devices; the end of line resistors and their location; location of the controlled devices such as dampers and shutters; and the location of the instructional signage. NFPA 17, Section 10.2.1, Section 10.2.3, Section 10.2.3.2

13. The submitted plans shall include an isometric view of the agent distribution system indicating the length and diameter of each pipe segment; the flow calculations; and the fittings including reducers, strainers and the nozzles including the make, model and size of each item. NFPA 17, Section 10.2.3

14. The submitted plans shall indicate the flow rates of the nozzles for engineered systems. NFPA 17, Section 10.2.3.1

15. Automatic equipment interlocks with fuel shutoffs, ventilation controls, door closers, window shutters, conveyor openings, smoke and heat vents, and other features necessary for proper operation of the fire-extinguishing system shall be provided as required by the design and installation standard utilized for the hazard. IBC Section 904.3.3

16. Documentation shall be provided to show/note all emergency shut-off systems are fail-safe and require manual reset. The shut-off systems shall not reset without the dry chemical fire suppression system being restored to service. NFPA 17, Sections 5.5.4 and 5.5.5

17. If common exhaust ducts are utilized, the plans shall show fire protection of the common ducts in accordance with NFPA 17, Section 9.3.4.1

18. Alarms and warning signs. Where alarms are required to indicate the operation of automatic fire-extinguishing systems, distinctive audible and visible alarms and warning signs shall be provided to warn of impending agent discharge. Where exposure to automatic-extinguishing agents poses a hazard to persons and a delay is required to ensure the evacuation of occupants before agent discharge, a separate warning signal shall be provided to alert occupants once agent discharge has begun. Audible signals shall be in accordance with USBC 907.5.2 and 904.3.4

19. Ventilation systems, within the spray area, room or booth, shall be shut down upon system activation and/or additional dry chemical agent shall be provided and calculated for the unenclosed opening(s) based on the percentage of the unenclosed opening. NFPA 17, Sections 6.2.1 through 6.2.1.4 and Section 6.2.2.2

20. The submitted plans and data shall provide details of the electrical/mechanical equipment that is interfaced with the fire suppression system to initiate performance of control function(s) in accordance with the fire suppression system manufacturer's requirements. USBC 904.3.3; NFPA 17, Section 5.5.2 and 5.5.4

21. The submitted plans shall indicate the location, the mounting height and the method for manual activation of fire suppression system. USBC 904.11.1; NFPA 17, Sections 5.7.1.5, 5.7.1.7, 5.7.1.7.1 and 5.7.1.9

CLEAN AGENT FIRE EXTINGUISHING SYSTEMS

Our goal is to assist the contractor, owner, developer/builder with assembling a comprehensive set of plans that will result in their project moving smoothly through the building review process in the least amount of time. The material contained within this checklist will aid in both the predictability and timeliness of the plan review process and eventual installation of your project. This checklist contains the minimum standard information required for a project submitted for the plan review of Clean Agent Fire Extinguishing Systems. Plans sets submitted without the minimum information listed below cannot be accepted for review.

This publication does not replace, nor supersede, any provisions of the Fire Prevention Code or other codes and/or ordinances adopted by Fairfax County.

A. General (All submissions shall include the following):

1. A minimum of 3 complete copies of drawings with all supporting data shall be provided with permit application permitting evaluation of the system prior to installation. Properly assembled and labeled. If they are not, they cannot be reviewed. The Plans Review staff cannot be responsible for assembling or collating your submittal materials.
2. Provide the name and address of the project or tenant where system will be installed on all drawings. NFPA 2001, Section 5.1.2.2
3. The plans shall be drawn to a uniform size and to a recognized scale. NFPA 2001, Section 5.1.2.2
4. The applicant must provide a single copy of the manufactures design, installation, operation and maintenance manual with the submission. The copy will be returned with the approved package for use by field inspectors.
5. Protected enclosure location within the building must be shown with a key plan or floor plan.
6. Indicate the location and the construction of the protected enclosure walls and partitions. Identify fire walls. NFPA 2001, Section 5.1.2.2
7. Provide an enclosure cross section, full height or schematic diagram, including the location and the construction of building floor/ceiling assemblies above and below, the raised access floor and the suspended ceiling. The location of all equipment, furniture, cabinets, etc. within the protected closure must be shown on the floor plan with finished top dimensions noted. NFPA 2001, Section 5.1.2.2
8. Indicate the type of clean agent being used by its brand name and its chemical nomenclature. NFPA 2001, Section 5.1.2.2
9. Provide a description of the occupancies and the hazards being protected, designating whether or not the enclosure is normally occupied. NFPA 2001, Section 5.1.2.2
10. Provide a description of the adjacent exposures and occupancies surrounding the enclosure. NFPA 2001, Section 5.1.2.2
11. Provide the description of the agent storage containers used including the internal volume, the recommended storage pressure, and the nominal capacity expressed in units of agent mass, or volume at standard conditions of temperature and pressure. NFPA 2001, Section 5.1.2.2
12. Provide a description of nozzle(s) being used including the size, the orifice port configuration, and the equivalent orifice area. NFPA 2001, Section 5.1.2.2

13. Provide a description of the pipe and fittings used including the material specifications, the grade, and the pressure rating. NFPA 2001, Section 5.1.2.2
14. Provide a description of the wire or cable used including the classification gauge (AWG), shielding, the number of strands in conductor, the conductor material, and the color coding schedule. The segregation requirements of various system conductors shall be clearly indicated. The required method of making the wire terminations shall be detailed. NFPA 2001, Section 5.1.2.2
15. Provide a detail of the method of the detector mounting. NFPA 2001, Section 5.1.2.2
16. Submitted plans shall provide a plan view of protected area showing the enclosure partitions, full and partial height, the agent distribution system including the agent storage containers, piping, and nozzles; the type of pipe hangers and rigid pipe supports; the detection, alarm, and control system including all devices and a schematic of the wiring interconnection between them; the end-of-line device locations; the location of controlled devices such as dampers and shutters and location of instructional signage. NFPA 2001, Section 5.1.2.2
17. Provide an isometric view of agent distribution system showing the length and the diameter of each pipe segment; the node reference numbers relating to the flow calculations; the fittings including reducers and strainers; the orientation of tees and nozzles including the size, the orifice port configuration, the flow rate and the equivalent orifice area. NFPA 2001, Section 5.1.2.2
18. Scaled drawings shall be provided showing the layout of the annunciator panel graphics. NFPA 2001, Section 5.1.2.2
19. Provide details of each unique rigid pipe support configuration showing the method for securement to the pipe to the building structure. NFPA 2001, Section 5.1.2.2
20. Provide details of the method for the container securement showing the method of securement to the container and to the building structure. NFPA 2001, Section 5.1.2.2
21. Provide a complete set of calculations to verify the enclosure volume and to determine the quantity of clean agent required. NFPA 2001, Section 5.1.2.2
22. Provide a complete step-by-step description of the system sequence of operations including the function of abort and the maintenance switches, the delay timers, and the emergency power shutdown. NFPA 2001, Section 5.1.2.2
23. The submitted plans shall include a point-to-point wiring schematic diagram(s) in a plan view and a system riser diagram showing all the circuit connections to the system control panel and the graphic annunciator panel. This is to include any external or add-on relays. NFPA 2001, Section 5.1.2.2
24. Indicate the method used to determine the number and location of audible and visual indicating devices, and the number and location of the detectors. NFPA 2001, Section 5.1.2.2
25. Provide a complete set of back up battery calculations and voltage drop calculations for the detection system. NFPA 2001, Section 5.1.2.2
26. The submitted plans shall include the flow calculations for the system. The version of the flow calculation program shall be identified on the computer calculation printout. NFPA 2001, Section 5.1.2.5.1

27. The system flow calculations shall be performed using a calculation method listed or approved for the agent by the authority having jurisdiction. The system design shall be within the manufacturer's listed limitations. NFPA 2001, Section 5.2.1
28. Warning and instruction signs shall be noted on the plans. Warning and instruction signs at entrances to and inside protected areas shall be provided. Warning and safety instruction signs shall be located outside each entrance to clean agent cylinder storage rooms. The safety sign format and color and the letter style of the signal words shall be in accordance with ANSI Z535. NFPA 2001, Section 4.3.5.5.2
29. Provide manufacturer's data sheets for the following: Agent Cylinder and Valve Assemblies Agent Cylinder Data, Agent Valve Outlet Adapters, Agent Discharge Nozzles, Agent Release Control Heads, Agent System Release Control Panels Suppression System, Abort Devices, Agent Manual Release Stations, Initiating Devices Notification, Appliances Conductor Wire, Relays, Interface Modules.

FUEL STORAGE TANKS REFERENCE TABLE

Fuel Tank Type	Installation Site	Activity	Fire Prevention Code			Virginia Construction Code		
			Permit	Plans	Insp.	Permit	Plans	Insp.
	Commercial[2]	Installation	Yes	Yes	Yes	No	No	No
	Commercial[3]	Removal	No	No	No	No	No	No
Liquefied Petroleum Gas (LP-G)	Residential[4]	Installation	No	No	No	Yes	No	Yes
	Residential[2]	Removal	No	No	No	No	No	No
	Commercial[1,5]	**Installation**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Diesel Fuel or Gasoline	Commercial[4, 6, 7]	Abandonment or Removal	Yes	No	Yes	No	No	No
	Residential[4]	Installation	Yes	Yes	Yes	No	No	No
	Residential[4]	Abandonment or removal	Yes	No	Yes	No	No	No
	Commercial[1, 8]	**Installation**	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Fuel Oil	Commercial[6]	Abandonment or removal	Yes	No	Yes	No	No	No
	Residential	Installation	No	No	No	Yes	No	Yes
	Residential[9]	Abandonment or removal	Yes	No	Yes	No	No	No

[2] Plans, permits (plumbing/mechanical/electrical), and inspections shall be required from Land Development Services for service piping, branch line piping, and equipment served. Contact **703-222-0801, TTY 711** (Permit Application Center), **703-222-0114, TTY 711** (Building Plan Review), or **703-324-1910, TTY 711** (Commercial Inspections).

[3] The Fire Marshal's Office shall be notified at **703-246-4849, TTY 711**, at least 48 hours in advance of removal. Permit fees and plan reviews may apply.

[4]Tank(s) capacity of 500 gallons or greater, and all underground tanks of any capacity, to be located on property with well and/or septic will require the permit applicant to contact the Health Department at **703-246-2201, TTY 711**. Permit fees and plan reviews may apply.

[5] State Water Control Board Department of Environmental Quality regulations shall apply for aboveground storage tanks greater than 660 gallons and underground storage tanks greater than 110 gallons.

[6] Owner is required to submit the results of a soil sampling to the State Water Control Board for evaluation after the removal/closure of the tank.

[7] Abandonment in place shall be in accordance with Article 20, Part 3 of the Fairfax County Zoning Ordinance.

[8] Aboveground tanks greater than 660 gallons shall be registered in accordance with the State Water Control Board regulations. Aggregate aboveground storage in excess of 5,000 gallons shall comply with Pollution Prevention requirements of the State Water Control Board regulations.

[9] No permit is required for abandonment or removal if the fuel oil tank is aboveground and is 60 gallons or less.

FLAMMABLE AND COMBUSTIBLE LIQUID STORAGE TANKS

INSTALLATION, ABANDONMENT, REMOVAL AND TESTING PROCEDURES

Under the provisions of Title 36, Chapter 6 of the Code of Virginia, underground storage tank installation, removal, closure, and testing shall be performed in accordance with the Virginia Uniform Statewide Building Code (USBC). Section 414.6.2 of the USBC requires that the installation, upgrade or closure of any underground storage tank containing an accumulation of regulated substances shall be in accordance with underground storage tank regulations adopted by the Virginia State Water Control Board.

Aboveground storage tank installations shall comply with USBC 414.6.2 and Virginia Statewide Fire Prevention Code (SFPC) 5704.

WARNING: NO PRODUCT SHALL BE INTRODUCED INTO TANKS OR PRODUCT LINES UNTIL A REPRESENTATIVE FROM THE FIRE MARSHAL'S OFFICE HAS WITNESSED THE REQUIRED TEST(S) OR INSPECTION(S) AND GRANTED WRITTEN APPROVAL.

A. Pre-Installation Requirements of New Aboveground or Underground Storage Tanks shall be in accordance with the following procedures. Submit to the Engineering Plans Review Branch of the Fire Marshal's Office:

1. Three copies of the completed site plan for review and approval, showing the location of the tank(s), distances from the tank(s) to all above or underground structures, monitor well locations, and location and layout of all piping and dispensing units associated with the tank(s).
2. Three copies of complete elevation plans of the tank(s) shall also be submitted, showing depth of burial, fill material, overtop slab if present, ballast slab if present, fill and vent piping, and vapor recovery. Tank specifications including manufacturer's cut sheets shall also be included. Information on spill and overflow protection shall be shown. For aboveground tanks, complete plans of tank and supporting structure shall be provided. Include details and cut sheets for leak detection where required.
3. Three copies of buoyancy calculations from the tank manufacturer or submitter (for underground tanks).

Petroleum storage tank and distribution piping system plans review fee are per the published fee schedule.

B. Installation Requirements of New Aboveground or Underground Storage Tanks. Only after the above plans have been reviewed and approved can the installation of tanks, product lines and equipment begin. Prior to pit closure and covering of product lines, the following steps shall be taken by the installer.

1. A strength test (by manufacturer) – a label on the tank to verify ASME, UL, API, or ULC. An air test (before placing in pit for underground tanks, or for aboveground tanks, before any product is introduced) at 5 psig.
2. A visual inspection witnessed by a Fire Marshal's Office inspector of the hold down pad or deadman anchors, bedding and straps is required prior to backfilling the pit.
3. An air test of the tank(s) after placing in pit or after mounting on its foundation, prior to introduction of product – 10 inches by mercury gauge or 5 psig (gauge shall have a maximum reading of 15 psi and be graduated in 1 psi increments) for a minimum of 60

minutes. If applicable, the interstice on double-walled tanks shall be tested as per the manufacturer's instructions for a minimum of 60 minutes. These shall be witnessed by a Fire Marshal's Office inspector.

4. A hydrostatic test – when static head on bottom of tank is over 10 psig.
5. An air test of the product lines (suction system) – shall be done when the tank is air tested. Product lines shall be installed to the tank and capped off at connection to the device.
6. An air test of the product lines (with day tank) – 5 psig every 10 feet of elevation for a minimum of 10 minutes witnessed by a Fire Marshal's Office inspector.
7. An air test of the product lines (submersible systems) – 50 psig for a minimum of 10 minutes witnessed by a Fire Marshal's Office inspector.
8. An air test of secondary containment piping – 5 psig for a minimum of 10 minutes witnessed by a Fire Marshal's Office inspector.
9. A visual inspection, witnessed by a Fire Marshal's Office inspector, of the product line trenches is required when the backfill is even with the top of the product lines.

New petroleum storage tank inspection fee(s) per visit per tank and piping distribution system are per the published fee schedule.

(Note: Multiple tank installations located on the same site which can be tested simultaneously will be counted as one tank for fee charge purposes.)

The installer shall call the Fire Marshal's Office, Inspections Section, at 703-246-4849 to schedule an inspection appointment at least 24 hours in advance.

AST's for Dispensing shall be Fire-Resistive TANKS or TANKS in Vaults.

See NFPA 30A-12, 4.3.3, 4.3.5(AII); SFPC 3404.2.7(AII) and 2206.2.3.

C. Pre-Installation/Replacement Requirements for New Product Lines Only shall be in accordance with the following procedures. Submit to the "Engineering Plans Review Branch" of the Fire Marshal's Office:

1. Three copies of the completed site plan for our review and approval, showing the location of the tank(s), distances from the tank(s) to all above or underground structures, and location and layout of all piping and dispensing units associated with the tank(s); and including manufacturer's cut sheets for non-metallic piping.
2. Three copies of complete elevation plans showing depth of burial and fill material.

D. Installation/Replacement Requirements for New Product Lines Only after the above procedures have been reviewed and approved can the installation of product lines begin. Prior to covering the lines, the following steps shall be taken by the installer.

1. Suction Systems – Air test of 5 psig for a minimum of 10 minutes shall be witnessed by a Fire Marshal's Office inspector.
2. Submersible Systems – Air test of 50 psig for a minimum of 10 minutes shall be witnessed by a Fire Marshal's Office inspector.
3. Secondary Containment Piping – Air test of 5 psig for a minimum of 10 minutes witnessed by a Fire Marshal's Office inspector.

New product lines inspection fee(s) per visit are per the published fee schedule.

(Note: Multiple line installations located on the same site which can be tested simultaneously will be counted as one tank for fee charge purposes.)

The installer shall call the Fire Marshal's Office, Inspections Section at 703-246-4849 to schedule an inspection appointment at least 48 hours in advance.

All new installations shall meet NFPA 30, 30A, 31 and 407 and Article 57 of the SFPC and the County of Fairfax Fire Prevention Code, as amended.

E. Removal or Closure of Underground Storage Tanks shall be in accordance with the following:

1. Compliance with Chapter 7 of DEQ's requirement – see document VR 680-13-02.
2. All requests for abandonment in place need to be justified with a letter and site diagram. A site inspection will be conducted before approval of abandonment.
3. A Fire Prevention Code Permit shall be obtained from this office for Section 5704.2.13 – Abandonment, and status of tanks. This permit shall be obtained in person at 12099 Government Center Parkway, 3rd floor, Fairfax, Virginia 22035.
4. A check made payable to the "County of Fairfax" shall be presented at the time of application. Three site drawings shall be submitted showing the location of the tank(s) in relationship to buildings, lot lines and underground utilities.
5. All tanks and tank pits shall be inspected by a Fire Marshal's Office inspector after tank removal or permanent closure. Call the Inspections Branch at 703-246-4849 to schedule an inspection appointment **at least 24 hours prior** to closure or removal of the tank(s).
6. A minimum of 2 soil samples shall be taken from each tank pit for analysis by a certified laboratory. The results of the analysis, along with the tank closure form, shall be mailed to the Virginia Department of Environmental Quality (DEQ).
7. The pit(s) may be backfilled for safety reasons with the understanding that the DEQ may order the pit(s) to be reopened and cleaned out if tests show gross contamination of the soil. Soil remediation shall comply with the Department of Environmental Quality, Department of Waste Management, and Department of Air Pollution Control regulations.
8. Tanks permanently closed in ground shall comply with the following:
   a. All liquids shall be removed from the tank lines.
   b. Tanks shall be thoroughly cleaned to remove any vapors or sludge.
   c. Suction, inlet, gauge and vent lines disconnected.
   d. Fill pipe removed.
   e. Tank shall be filled with a solid inert material.
9. The tank(s) and contaminated soil shall be disposed of at a site for such waste. Consult the yellow pages of your local telephone directory under "Scrap Metal".

Testing and recordkeeping of underground and aboveground storage tanks shall be in accordance with regulations adopted by the Department of Environmental Quality and Article 57 of the SFPC and the County of Fairfax Fire Prevention Code, as amended.

Should you have any questions or need assistance, please contact the Inspections Branch of the Fire Marshal's Office, Monday through Friday during the hours of 8:00 a.m. to 4:30 p.m. at 703-246-4849.

TANKS FOR LIQUEFIED PETROLEUM GASES (LP-GAS)

INSTALLATION, ABANDONMENT, REMOVAL, AND TESTING PROCEDURES

A. Storage, Handling, and Transportation of Liquefied Petroleum Gas (LP-gas) and the Installation of LP-Gas Equipment pertinent to systems for such uses shall comply with Chapter 61 of the Virginia Statewide Fire Prevention Code (SFPC) 2012 and NFPA 58-11, "Liquefied Petroleum Gas Code."

1. Permits shall be required as set forth in the SFPC.
2. Distributors shall not fill an LP-gas container for which a permit is required unless a permit for installation has been issued for that location by the Fire Marshal's Office, except when the container is for temporary use on construction sites.
3. Where a single LP-gas container is more than 2,000 gallons in water capacity or the aggregate water capacity of the LP-gas containers is more than 4,000 gallons, the installer shall submit construction documents for such installation.

B. General Requirements

This guideline is provided to assist the contractor, owner, developer/builder with assembling a comprehensive set of plans that will result in their project moving smoothly through the building review process in the least amount of time.

This checklist is contains the minimum standard information required for a project submitted for the plan review of LP-gas containers. Plans sets submitted without the minimum information listed below cannot be accepted for review. This publication does not replace, nor supersedes, any provisions of the SFPC or other codes and/or ordinances adopted by Fairfax County. **All submissions shall include, but are not limited to, the following:**

1. A minimum of 3 complete copies of drawings with all supporting data shall be provided with permit application permitting evaluation of the containers prior to installation. All must be properly assembled and labeled. If they are not, they cannot be reviewed. The Plans Review staff cannot be responsible for assembling or collating your submittal materials.
2. Complete site address, contractor and submitter name, address, phone, and fax.
3. Site plan showing the location of the LP-gas container(s) and the dimensions of the containers.
4. Submitted site plans shall provide a plan view of the area. Provide on the plans the separation distance from any building, property lines, any other containers, and other combustible materials.
5. Materials list: All parts and components with complete cut sheets.
6. Provide the size (water capacity in gallons) of the LP-gas container(s).
7. Provide signage details, with full dimensioned text of required lettering. "NO SMOKING" signs shall be posted and comply with the SFPC, Section 310.
8. Provide details of vehicle protection. All storage locations for LP-gas must be protected against accidental impact from vehicles. Impact protection must be in accordance with the SFPC, Section 312.

LP-GAS CYLINDER EXCHANGE FOR RESALE

The most common type of LP-gas container is the propane cylinder, commonly known as a bottle. Cylinders range widely in size and use. Most people are familiar with propane bottles as the source of fuel for their gas grills. Industrial LP-gas consumers are also familiar, as forklifts are commonly powered by propane and use cylinders as a portable gas supply source. Cylinders fall into two groups of propane service, liquid and vapor. Cylinders in liquid service are commonly found on forklifts while bottles in vapor service are easily spotted fueling a gas grill.

This guideline is provided to assist the contractor, owner, developer/builder with assembling a comprehensive set of plans that will result in their project moving smoothly through the building review process in the least amount of time. This checklist contains the minimum standard information required for a project submitted for the plan review of LP-gas cylinder exchange for resale.

Plans sets submitted without the minimum information listed below cannot be accepted for review. This publication does not replace, nor supersede, any provisions of the Fire Prevention Code or other codes and/or ordinances adopted by Fairfax County.

A. General (All submissions shall include, but are not limited to, the following):

1. A minimum of 3 complete sets of installation documents shall be submitted with the permit application for evaluation of the system prior to installation. Each installation document set must be individually collated, bound and labeled. If they are not, they cannot be reviewed. The Engineering Plans Review Branch staff cannot be responsible for assembling submitted materials. Each installation document package must contain the following:
   a. Full site plan, showing the location of the building.
   b. The complete building address, tenant space name and number, contractor and submitter name, address, phone, FAX, space occupant, use group of space and floor shall be noted in clear legible fashion on the site plan.
   c. Site plan shall show the location of the LP-gas exchange cylinder cabinet.
   d. A detailed plan view of the immediate area where the LP-gas exchange cylinder cabinet will be located shall be shown on the submitted plan. Clearly show the separation distance from the building, door way or openings, combustible materials, motor vehicle fuel dispenser and property lines.
   e. Provide a photo of the area where the proposed LP-gas cylinder exchange cabinet is to be located.
   f. Submit a materials list along with complete manufacturer listing and technical specification “cut sheets” for the LP-gas cylinder exchange cabinet, all parts, components, devices and assemblies that will be part of the completed installation.
   g. Provide the number and size of LP-gas cylinders being stored in the gas cabinet.
   h. Cylinders shall be secured in a lockable, ventilated metal cabinet or other approved enclosure.
   i. Cylinders shall be accessible only by authorized personnel or by use of automated exchange system in accordance with the IFC Section 6109.15.1.
   j. Provide signage details, with full dimensioned text of required lettering. A sign shall be posted on the entry door of the business operating the cylinder exchange stating “DO NOT BRING LP-GAS CYLINDERS INTO THE BUILDING” or similar approved wording.

k. An emergency contact information sign shall be posted within 10’ of the cylinder storage cabinet. The content, lettering, size, color and location of the required sign shall be as required by the fire code official.

l. Provide details of vehicle protection. All storage locations for LP-gas must be protected against accidental impact from vehicles. Impact protection must be in accordance with IFC Section 312.

OCCUPANCY REQUIREMENTS (NON-RUP)

NEW BUILDINGS

A. Prior to Occupancy, the Following Must be Completed:

1. The standpipes shall go up with each floor. A standpipe with valves having N.S.T. and 2½" x 1½" caps shall not be more than one floor below the highest forms or staging. There shall be a fire department connection at the first floor level. This connection shall be marked so it can be readily and easily accessible at all times.
2. Submit 3 sets of plans to the Fire Marshal's Office for approval of all fire detection, fire suppression systems, and special locks. All fire protection systems must have approved plans and permits before installation is started.
3. All permits and plans review fees shall be paid before the test is scheduled.
4. Approved plans and complete submittals with original notes, stamps, and signature shall be on the job site before any tests are conducted (including site plans with approval and original signature from the Fire Marshal's Office).
5. No piping shall be covered up or otherwise made inaccessible for inspection before systems are tested.
6. All systems shall be pre-tested by the contractor before witnessing of the final test by Fire Marshal's Office personnel.
7. The following inspections and tests are required. All tests shall be set up with the OFM Fire Protection Systems Branch **at least 10 working days** before the desired date. Call Systems Acceptance Testing at 703-246-4821 to arrange a scheduled appointment time.
   a. A visual inspection of an underground fire line is required before it is covered. If line is covered before the hydrostatic test is performed, there shall be no drop in pressure during the test. **Original, signed, approved site plans must be on the job for this test to be witnessed.**
   b. A 200-pound hydrostatic test on underground fire lines. Approved site plan must be on the job.
   c. A flush test of an underground fire line, witnessed by the Fire Marshal's Office, before it is connected to the fire suppression system, using at least a 4" flushing line.
   d. All fire alarms, sprinklers, special locks and other systems must be tested, and the test witnessed by Fire Marshal's Office personnel. Smoke control systems must have testing completed by Special Inspector per USBC 1704 and IFC. Special inspection report for smoke control must be approved by FPD.
   e. Test stairwell pressurization in high-rise buildings.
   f. All elevators must be tested for recall and firefighter's use, Phase I and Phase II, using normal and if present, e.g., high-rise, backup power sources.
8. Fire lanes shall be installed per Fairfax County standards and approved by the Fire Marshal's Office.
9. All fire protection systems must be tested and approved before final occupancy inspection is requested.

10. An occupancy inspection request is to be made to the OFM Inspections Branch after all of the above have been completed. Call the Inspections Branch at 703-246-4849 to schedule an appointment.

SHELL AND TENANT - FIRE PROTECTION AND SAFETY REQUIREMENTS

I. REQUIREMENTS FOR ISSUANCE OF A BUILDING SHELL NON-RESIDENTIAL USE PERMIT (NON-RUP)

A. Initial tenant occupancy cannot take place until shell approval has been obtained.

B. A building shell occupancy inspection and approval is required by all inspection disciplines including: Building, Electrical, Mechanical, Plumbing, and Fire Prevention (Health Department is required for food service establishments, medical buildings, etc.).

C. The following building shell fire and life safety features must be completed, inspected, and approved prior to the issuance of the Shell Nonresidential Use Permit (Non-RUP), and **before first tenant occupancy**:

1. Exit stairs
2. Grade exit lobbies
3. Grade exit corridors or passage ways
4. Elevator shaft enclosures
5. Mechanical shaft enclosures
6. Required exit lights and emergency lighting
7. Elevator emergency recall system or elevators must be locked out of service
8. Required fire proofing of structural members in the core and occupied areas must be completed
9. Fire stopping of wiring, piping or other penetrations, both vertical and horizontal, of floors, ceilings and walls
10. Combustible tank and construction debris must be removed
11. Storage shall comply with Section II, Items A1 through 4 (see below)
12. Fire-fighting, fire detection, and suppression systems shall be in compliance with Section II, Item C (see below)
13. Fire department access key box in place
14. Fire department access and fire lanes must be approved

II. REQUIREMENTS FOR ISSUANCE OF A TENANT NON-RESIDENTIAL USE PERMIT (NON-RUP)

The following building fire and life safety feature procedures shall be implemented after the first tenant occupancy.

A. Construction Material Storage

1. Noncombustible storage (see definition) shall be unlimited; however, storage shall not exceed the structural load design of the floor.
2. Combustible storage (see “Definition Examples” below) shall be limited to 2,500 cubic feet or 10% of the floor area. Storage exceeding 2,500 cubic feet will require a Fire Prevention Code Permit in accordance with the Fire Prevention Code.

3. Storage, combustible or noncombustible, shall be arranged in neat piles with the floor kept broom clean and free of trash and construction debris. Storage shall be kept to a minimum of 2' below ceilings or the lowest member of the floor/ceiling or roof/ceiling assembly.
4. Combustible storage areas located on an occupied floor shall be separated from the occupied areas by a 1 hour fire-rated partition.

DEFINITION EXAMPLES	
NONCOMBUSTIBLE STORAGE	**COMBUSTIBLE STORAGE**
Dry Wall	Hollow core wood doors
Metal Studs or Fire-retardant lumber	Wood studs, paneling and other wood products
Steel or Other Metal Doors	Carpet and padding
Solid Core Wood Doors including package aids without voids	VCT and Base
Sheet Metal Duct	Insulation with Combustible Vapor Facing
Masonry Products	Flammable/Combustible liquids
Noncombustible insulation	Adhesives and Paints, etc.
Plumbing Fixtures	Any item of "noncombustible storage" where the quantity of combustible packaging or storage aids are deemed excessive by the building or fire official.
Light Fixtures Wrapped in light plastic	

B. Sprinkler Requirements

1. In fully sprinklered buildings, sprinkler protection shall be maintained at all times.
2. In non-sprinklered buildings, an approved limited area sprinkler system shall be provided for combustible storage if an adequate water supply is available; i.e., standpipe system.
3. Sprinkler heads shall be located within 12" of the underneath side of the floor or roof deck above in either the pendent or upright position. If the ceiling grid and tile are in place, the sprinkler shall be installed in the pendent position at the ceiling level.
4. The use of commercial rapid response sprinkler heads, located at the future ceiling line without tiles in place, except at the sprinkler head location, will be considered as an acceptable alternative to Item 3 above, on a case-by-case basis. Minimum 2' x 2' tile must be in place at head location.
5. Where, in the opinion of DPWES Building Inspections or the Fire Marshal's Office, the type or quantity of combustible storage exceeds the limitations of the existing sprinkler design, the sprinkler system in these areas shall be modified to conform with the fire hazard posed by the combustible storage.

C. Operational Maintenance of Fire Protection Systems, Exit Ways, and Occupancy Permit Requirements

1. With the exception of residential apartments and condominiums, the Fire Marshal's Office occupancy inspection occurs *after* tenant move in. In buildings of Use Group A, E, I and H, occupancy inspections must be performed prior to issuance of the Non-Residential Use Permit (occupancy permit) by the Zoning Administration Division.
2. In all other Use Groups, the Non-Residential Use Permit (Non-RUP) may be issued prior to the Fire Marshal's Office occupancy inspection. The following approvals must be obtained prior to issuance of the Non-RUP:
   a. Building, Final, Electrical Final, Plumbing Final, Mechanical Final
   b. Health Final (if applicable)
   c. Fire Protection Systems Final
3. Occupancy inspections must be scheduled by calling the OFM Inspections Branch at 703-246-4849 **within 5 days** of the issuance of the Non-RUP.
4. No inspections will be made unless the approved construction drawings are on the job site for all inspection disciplines. This includes OFM approved shop drawings for any sprinkler, fire alarm, or other fire protection systems.
5. The entire core, including exit corridors, passageways, stairs and elevator shafts and doors must be maintained throughout the building. Any work required in any part of the exit way system, after the first tenant move-in, shall be conducted after normal business hours or the building will be ordered evacuated.
6. The McConnell Public Safety and Transportation Operations Center (MPSTOC) shall be notified when any fire suppression, detection, or firefighting system is placed out of service and when placed back in service. The telephone number for making these notifications is 703-691-2131.
7. All sprinklers, standpipes, fire alarm systems and other required fire suppression or firefighting systems shall be activated throughout the entire structure for first tenant occupancy. Under no conditions shall any fire suppression or firefighting system be shut off to any occupied area unless the valve or other activation control mechanism is continuously staffed, during the period the system(s) are shut off. If this provision is deemed unworkable, any work shall be done after normal business hours. A documented fire watch shall be instituted during the time any fire suppression or firefighting system is out of service. Call the OFM, Fire Protection Systems Branch at 703-246-4821 for fire watch procedures.
8. See Heading II, Sections A and B above for construction materials storage requirements.
9. If any system must be taken out of service during normal business hours, a documented fire watch shall be instituted during this time period (see Item 6 above). The number of persons required will be such that the entire building can be checked every hour with the exception of Residential (Use Groups R-1 or R-2) Institutional (I-1, I-2 and I-3) and Education (Use Group E) which must be checked every half hour. A written record, including date, time, and the person(s) conducting the fire watch is required.

The criteria set forth in this document should cover the majority of field conditions. It is conceivable that individual situations may arise which must be evaluated for compliance on a case-by-case basis. Please call the OFM Inspections Branch for any related questions at 703-246-4849.

BUILDINGS UNDER CONSTRUCTION AND RENOVATION

FIRE PROTECTION SYSTEMS

A. During any construction or remodeling operation, it is important that the fire protection systems remain operable.

B. An existing system scheduled for removal shall not be removed until the new system is installed, tested and approved.

C. When it becomes necessary to disable any system, it shall only be allowed after normal business hours and under the following conditions.

1. The McConnell Public Safety and Transportation Operations Center (MPSTOC) dispatcher at 703-691-2131 shall be notified prior to disabling any system. The following information will be provided:
   a. The name of the person calling
   b. A telephone number where they can be reached
   c. The reason the system is disabled
   d. The anticipated time and date the system will be returned to service
2. Establishment of a documented fire watch (call 703-246-4821, or MPSTOC after hours) which will tour the building continuously, recording the date, time, and area checked in a notebook that can be visually inspected.
3. Notification to the MPSTOC dispatcher when the system is returned to service.
4. Repairs or modifications to existing systems in individual tenant spaces will be allowed during normal business hours, provided there are supervised control valves for each space, and there is no combustible storage in that space. In addition, responsible personnel shall remain in that area until the system is restored to service. Exceptions to the above shall be allowed for emergency repairs only, and those repairs shall be diligently pursued.

APPENDIX OF REFERENCED FORMS

1. BUILDING INFORMATION FORM FOR COMMERCIAL CONSTRUCTION
2. HERNDON TENANT & SITE PLAN AND SUBMITTAL INFORMATION
3. BUILDING / TENANT PLAN REVIEW CHECKLIST
4. WAREHOUSE STORAGE LIMITS AGREEMENT
5. FIRE ALARM PLANS CHECK-IN FORM
6. APPLICATION FOR FIRE PREVENTION CODE PERMIT (FPCP)
7. FPD PERMIT APPLICATION
8. WATER-BASED FIRE PROTECTION SYSTEMS FORM
9. FIRE ALARM, DOOR LOCK & ALTERNATIVE FIRE-EXTINGUISHING SYSTEM FORM

BUILDING INFORMATION FORM FOR COMMERCIAL CONSTRUCTION

Building Plan Review, Land Development Services
Fire Prevention Division, Fire & Rescue Department

Project Name:_____
Street Address:_____Suite:_____
Submitting Firm:_____
Address:_____
City:_____State:_____Zip Code:_____
Phone:_____Expeditor's name:_____
Email address:_____

Plans may be rejected if this form is not completed in its entirety

RESPONSIBLE PARTY IF OTHER THAN SUBMITING FIRM

(Designated to pay all bills per Code of Fairfax County, Chapter 61, Section 61-1-5.)

Billing Name:_____FIDO Number:_____
Address:_____
City:_____State:_____Zip Code:_____
Phone:_____Contact Person:_____

SCOPE OF WORK

New Building: ☐ No ☐ Yes Tenant Fit-Out for previously unoccupied space in: ☐ No ☐ Yes
Description of Work:_____
Type of alteration (Check all that apply): ☐ Interior ☐ Exterior ☐ Addition ☐ Change of Occupancy

(Unless specified otherwise alterations will be reviewed using the Prescriptive Compliance Method. VRC chapter 4)

BUILDING INFORMATION

CODE INFORMATION

Occupancy Classification(S) (per VCC):_____Type of Construction (per VCC):_____
Number of Stories in Building:_____Gross Floor Area Per Floor (SF):_____
Original (Base) Building Design - Code and Year:_____
High-Rise Building: ☐ No ☐ Yes Fire Control Room: ☐ No ☐ Yes

FIRE PROTECTION SYSTEMS

Sprinklers: ☐ None ☐ Partial ☐ Full Approved Central Station: ☐ No ☐ Yes
Fire Alarm System: ☐ No ☐ Yes Type:_____
Standpipes: ☐ No ☐ Yes - Identify Location on Plans:_____

FIRE RESISTANCE DESIGN NUMBER, PRESCIPIVE ITEM NUMBER, OR CALCULATED CODE SECTION

Floor/Ceiling:_____Roof/Ceiling:_____
Columns:_____Beams:_____
Corridor Separation:_____Tenant Separation Walls:_____

TENANT INFORMATION

Purpose of Space:_____Floor No:_____
Occupancy Classification (per VCC):_____Area of Tenant Space (SF):_____
Hazardous Materials: ☐ Combustible Liquid ☐ Flammable Liquid ☐ Other:_____

FAIRFAX COUNTY
FIRE AND RESCUE DEPARTMENT
Office of the Fire Marshal
Records & Revenue Branch

HERNDON TENANT & SITE PLAN SUBMITTAL INFORMATION

SUBMITTING FIRM

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Contact Person: _____

PARTY RESPONSIBLE FOR PAYMENT (If same as above – write same)

Company Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Contact Person: _____

PROJECT INFORMATION

Type of Plan: _____ (Site or Herndon Tenant)

If Site: (Please provide Fx Cty Site Plan Number): _____

Previously Rejected: (Y or N) _____

Revised Approved Plan (Y or N) _____ Plan Sets (#) _____

Project Name: _____

Address: _____ Suite: _____
Floor: _____

City: _____ State: _____ Zip: _____

REVISED 15 August 17 T:\PREV\REV\FORMS

BUILDING / TENANT PLAN REVIEW CHECKLIST

2012 USBC-VA (VCC) Effective July 15, 2015

PROJECT NAME:_____ TENANT Q NUMBER_____

SUBMITTER NAME:_____ PHONE #:_____

Your tenant plans were rejected on _____, 20_____ for the following reasons:

_____1. Provide Key Plan showing location of space in building.
_____2. Provide completed Building Information Sheet.
_____3. Provide size of space in square feet.
_____4. Provide full floor plan. USBC 109
_____5. Provide clear scaled drawings. USBC 109
_____6. Define contents of space; define all work to be done. USBC 109.3
_____7. Separation required for mixed uses. USBC 508.4
_____8. Provide design number for floor/ceiling or other rated assembly. USBC 601, 602
_____9. Guestroom/D.U. or mall tenant demising walls shall be 1 hour rated. USBC 708.1
_____10. Provide fire dampers. USBC 716
_____11. Provide an audible notification device (water bell) on the exterior of the building for fire sprinkler water flow. *Note: Typically located outside the sprinkler room or at the FDC.* USBC 903.4.3
_____12. Where there is no fire alarm system, a local alarm must be provided to notify of a hood suppression system activation. USBC 904.11, NFPA 17A 5.5.1.8
_____13. Range hood pull station must be 10 to 20 feet from hood. USBC 904.11.1
_____14. Pull stations to be no more than 5 feet from exit door. USBC 907.4.2.1
_____15. Provide fire alarm speakers or audible devices. USBC 907.5.2.1, 907.5.2.2
_____16. Provide strobes per NFPA 72, 18.5.4.3, USBC 907.5.2.3
_____17. Provide seating plan (scaled). USBC 1004.4
_____18. Emergency egress lighting required. USBC 1006
_____19. Door hardware does not conform to USBC 1008.1.9
_____20. Provide details of door hardware/special locking (wiring, location & description). USBC/USBC 407.4.1.1, 1008.1.9.3, 1008.1.9.7, 1008.1.9.8, 1008.1.9.9
_____21. Exit lights required. USBC 1011
_____22. Travel over 75 feet requires 2 remote exits. USBC 1014.3
_____23. Over 50 people in a space requires 2 remote exits. USBC 1015.1
_____24. Exit access corridor requires 1 hour rating with 20 min. doors, closers. USBC 1018.1
_____25. Exit access corridor to be minimum 36/44” width. USBC 1018.2
_____26. Dead end over 20/50 feet not permitted. USBC 1018.4
_____27. Transfer grilles/ducts not permitted in exit access corridor. USBC 1018.5
_____28. Floor space must have minimum of 2 remote exits. USBC 1021.1
_____29. Stairs 3 levels or less shall be 1 hour rated. USBC 1022.1
_____30. Stairs 4 levels or more shall be 2 hour rated. USBC 1022.1
_____31. Assembly aisles to be minimum width. USBC 1028.9
_____32. Provide Manufacturer Safety Data Sheets for all substances. IFC 5001.2

** ADDITIONAL COMMENTS ON BACK OF CHECK LIST: YES _____ or NO _____

If you have questions please contact _____ at 703-222-0114 or 703-246-4806.
Reviewer

WAREHOUSE STORAGE LIMITS AGREEMENT

BUILDING NAME: _____

BUILDING ADDRESS: _____

PROJECT: _____

OWNER/TENANT: _____

SPRINKLER CONTRACTOR: _____

SPRINKLER SYSTEM DESIGNED TO NFPA: _____

STORAGE OF:
CLASS____ COMMODITY _____ TO A MAXIMUM HEIGHT OF _____FEET

CLASS____ COMMODITY _____ TO A MAXIMUM HEIGHT OF _____FEET

CLASS____ COMMODITY _____ TO A MAXIMUM HEIGHT OF _____FEET

CLASS____ COMMODITY _____ TO A MAXIMUM HEIGHT OF _____FEET

Example:
CLASS_***IV***_COMMODITY ___***Solid piled / on racks / on shelves / in bins***___TO A MAXIMUM HEIGHT OF___***18***___ FEET

List below any hazardous materials are part of the proposed high-piled storage plan:

_____

_____

Refer to the SFPC chapter indicated for material-specific storage limitations and/or requirements. When these hazards exist in the high-piled storage areas, other chapters also apply to the storage of these materials.

INSIDE HOSE STATIONS PROVIDED? YES _____ NO _____

We, the undersigned, by our signature(s), understand the limitations of this building/tenant space. In addition, we realize that storage in excess of the height mentioned is prohibited; storage of a greater hazard commodity is likewise prohibited.

BUILDING OWNER: _____

DATE: _____

TENANT: _____

DATE: _____

PLEASE NOTE:
Failure to submit this form will be grounds for rejection of plans by the Fire Marshal's Office, Fire and Rescue Department, Fairfax County, Virginia.

Fire Marshal's Office - Fire Prevention Division
Engineering Plans Review Branch
12099 Government Center Pkwy
Fairfax, Virginia 22035
703-246-4806

FIRE ALARM PLANS CHECK-IN FORM

Building Name: _____

Address: _____

Suite #: _____ Floor: _____ Building Permit #: _____

CONTRACTOR:

Name: _____

Address: _____

Telephone Number: (_____) _____

E-mail Address: _____

EQUIPMENT SUPPLIER:

Name: _____

Address: _____

Telephone Number: (____) _____

E-mail Address: _____

PLEASE NOTE: The plan **submittal cannot be accepted** by this office if the following items are not submitted. If the submitter does not supply the items listed below in one complete package, no review or approval will be conducted and the items shall be returned to the individual at the counter.

Are the items below submitted with this submittal?		YES	NO
1. Electrical Floor Plans	(3) Copies	☐	☐
2. Wiring Riser Diagrams	(3) Copies	☐	☐
3. Operational Description with Battery Calculations	(3) Copies	☐	☐
4. Any Necessary Mechanical Risers or Floor Plans Necessary to Evaluate Duct Detection or Smoke Control	(3) Copies	☐	☐
5. Annunciator Panel Diagram	(3) Copies	☐	☐
6. Manufacturer's Cut Sheets for All Devices Including Sprinkler System, Alarm, and Supervisory Devices, Verifying Listing	(3) Copies	☐	☐

FAIRFAX COUNTY FIRE AND RESCUE DEPARTMENT
OFFICE OF THE FIRE MARSHAL
10700 Page Avenue, Fairfax, VA 22030
Telephone: 703-246-4803, TTY 711, Fax: 703-246-6044
www.fairfaxcounty.gov/fr/prevention/

FPCP APPLICATION

APPLICATION FOR FIRE PREVENTION CODE PERMIT (FPCP)

*** ALL INFORMATION MUST BE PROVIDED BEFORE THIS APPLICATION WILL BE PROCESSED ***

Detailed permit descriptions and fees are outlined in the FPCP Requirements guideline located at www.fairfaxcounty.gov/fr/prevention/fpcp_codelist.pdf. Call 703-246-4803 for assistance.

Application for a Fire Prevention Code Permit is hereby made by the undersigned for the following:

FPCP DESCRIPTION	FPCP FEE	FIDO CODE

Total Amount Due: _____

Return this application to the above address with payment. Make Check or Money Order Payable to "County of Fairfax"

Business / Headquarters: _____

Billing Address: _____
Zip Code

I, _____ (*Printed Name*), **hereby accept full responsibility for the adherence to all requirements of the** *Virginia Statewide Fire Prevention Code* **(SFPC) and the** *Fairfax County Fire Prevention Code* **pertaining to the above Fire Prevention Code regulated process, installation, storage, occupancy or use applied for in this permit application.**

Permit / Inspection Location Name: _____

Permit / Inspection Location: _____
Zip Code

Non-RUP or Zoning Permit # (Required for all Commercial Occupancies): _____

Signature of Person Making Application: _____
Signature *Date*

Telephone: _____ **Emergency Telephone:** _____

FAX #: _____ **EMAIL Address:** _____

OFFICE USE ONLY: Account Number: _____ **Expiration Date:** _____

☐ **NEW** ☐ **ADD-ON** **Inspector:** _____ **Follow-Up Date:** _____

Publication Updated: July 1, 2015

FIRE AP #_____

DPWES AP #_____

FPD Permit Application

Initials_____

Plans Review & Billing Information

www.fairfaxcounty.gov/fr/prevention/

_____ New submittal

_____ Resubmission of previously rejected plans (FIRE AP # _____)

_____(AS BUILTS) Revised previously approved Plans (FIRE AP # _____)

Job Address_____ Bldg#_____Floor_____Suite_____

Job Name_____

Is the location of the work in the **Town of Herndon limits?** NO YES
(If yes, a permit from Herndon must be obtained after the plan approval and fee payment at Fairfax County FPD.)

Please complete the information below so that your application may be processed in a timely manner. Your application will not be processed if complete information is not provided. **This form itself is not a complete permit application**, and must be attached to a completed Fairfax County DPWES Permit Application (except jobs in the Town of Herndon, which must have a Herndon Permit Application attached, and fire protection system jobs involving sprinkler systems).

PERMIT BEING APPLIED FOR (check only one)

__	F COMMERCIAL	This permit is needed for all fire **SPRINKLER** systems installed according to NFPA 13.
__	F RESIDENTIAL	This permit is needed for all fire **SPRINKLER** systems installed according to NFPA 13R or 13D.
__	F LIMITED AREA	This permit is needed for all fire **SPRINKLER** systems defined as limited area per the USBC.
__	F UNDERGROUND	This permit is needed for all underground portions of a fire sprinkler water service system.
__	F FIRE ALARM	This permit is needed for all installations and/or modifications of a fire alarm and detection system, special door lock arrangement/system, clean agent fire extinguishing system, etc.
__	F FIRE LANE	This permit is needed for installation and/or modification Fire Lanes.
__	F RANGE HOOD & SP PROJECTS	This permit is needed for installation or modification of a range hood, paint spray booth or other specialized fire suppression system.
__	HERNDON (305)	Tenant plans reviewed for the Town of Herndon are considered this type.

INFORMATION NEEDED FOR ALL PERMIT TYPES

_____ Associated Parent AP # (Building Permit Number)

_____ Use of building (see choices on rear of sheet) (Dept of Commerce)

_$_____ Declared value of work _$_____Declared value of equipment

_____ FIDO ID # of Primary Contractor/Company (Responsible for FPD fees)

Name_____

_____ FIDO AC # of Applicant/Contact

Name_____

Virginia code and edition year work is to be done under: IBC IMC IPC IRC IFC || **2009** **2012**

Description of work to be done, please be explicit: _____

_____

_____

AUTHORIZED SIGNATURE _____ Name Printed Legibly_____

*** CONTINUED ON REAR ***

F COMMERCIAL SPRINKLER PERMITS ONLY

NFPA standard and edition year work is to be done under: NFPA 13 NFPA 20 || **2007 2010**

F RESIDENTIAL SPRINKLER PERMITS ONLY

NFPA standard and edition year work is to be done under: NFPA 13R NFPA 13D NFPA 20 || **2007 2010**

____ Are there multiple addresses? List additional addresses below.

_____

_____

F UNDERGROUND PERMITS ONLY

Have Plans been approved for this work? YES NO If yes, please indicate Reviewer_____

Date of Review_____ Site Plan Number_____

____ I am applying for a permit for the underground piping from the Public Water Supply to the Building

Which Portion?

_____From street valve to 5 ft. outside bldg. _____From 5ft outside bldg to 1st joint inside building ____Both

____ I am applying for a permit for the underground portion of a free-standing Siamese connection. (F FDC)

F FIRE ALARM PERMITS ONLY

Type of system to be installed or modified (check only one)

_____ FIRE ALARM (F ALRM) _____ DOOR LOCKS (F LOCK) _____ CENTRAL STATION (F CENS)

_____CLEAN AGENT SYSTEM (F ALRM) _____ SMOKE EVACUATION (F SMKE)

Will the contractor be doing any other electrical work in the building? Describe _____

_____

F FIRE LANES PERMITS ONLY

Have Plans been approved for this work? YES NO If yes, please indicate Reviewer_____

Date of Review_____ Site Plan Number_____

Please list **ALL** streets and addresses that this permit will cover.

(EXAMPLE: 200-210 ALL Main Street; 8510-8520 EVEN Red Street; 8527, 8531, & 8535 Blue Street, etc.)

_____

_____

USE OF BUILDING CHOICES

ACCSRY	ACCESSORY STRUCTURE
AGRCLT	AGRICULTURAL NURSERIES
ANTNNA	TOWER OR ROOF MOUNTED ANTENNA
CIVIC	CIVIC/SOCIAL/FRAT ORGANIZATION
CONVST	CONVENIENCE STORE
DUPLEX	DUPLEXES, VERTICAL OR HORIZONT
GENMCH	GENERAL MERCHANDISE-NOT SHPCNT
GROCRY	GROCERY/FOOD STORE
GRPHSG	GROUPHOUSE/NURSINGHOME/DAYCARE
GRPQTR	NURSINGHOME/DORM/BOARDINGHOUSE
HOSPTL	HOSPITAL/URGENT CARE
HOTEL	HOTEL/MOTEL TRANSIENT LODGING
INDUST	INDUSTRIAL OTHERTHAN WAREHOUSE
INDWHS	INDUSTRIAL INCULDING WAREHOUSE
LIBRRY	LIBRARY
MOBILE	MOBILE
MODULR	MODULAR/MANUFACTURED HOMES
MULTFM	APARTMENT/MANUFACTURED HOMES

MUSEUM	MUSEUM/ART GALLERY
OFFICE	OFFICE BUILDING
PUBLIC	PUBLIC SERVICE USE/FIRE/POLICE
RECRTN	RECREATION/SWIM POOL/GOLF FAC
RESTRT	RESTAURANT/CARRY OUT
SCHOOL	EDUCATION-INCLUDE PORT CLASSES
SFD	SINGLE FAMILY DWELLING
SHOP	SHOPPING CENTER
SIGNS	SIGNS
SVCSTA	SERVICE STATION-VEHICLE/MARINE
TELCOM	TELECOM EQUIP TOWER STRUCTURE
THEATR	THEATHER/STADIUM
TOWNHS	TOWNHOUSES
TRAILR	COMMERICAL SALES TRAILER
TRNPRT	TRANSPORTATION/UTILITY/COM FAC
WAREHS	WAREHOUSE/SELF STORAGE
WORSHP	CHURCH/SYNAGOGUE/TEMPLE

Publication Updated: February 7, 2015

WATER-BASED FIRE PROTECTION SYSTEM

Acceptance Inspection/Test Request

Fairfax County Office of the Fire Marshal, Fire Protection Systems Branch, 10700 Page Avenue, Fairfax, VA 22030 Phone - 703-246-4821 Fax - 703-246-9173

Permit / AP # _____ *Review ID old system only* _____ Today's Date: _____/_____/_____

Company: _____ Phone No: _____ - _____ - _____

Requesters Name: _____ Fax No: _____ - _____ - _____

Email Address: _____

Project Address: _____ Building: _____ Floor / Suite: _____

Tenant Name: _____ Project Name: _____

Completion / Request Date: _____/_____/_____ Options: _____ Time Requested: ☐ AM ☐ PM

Estimated Inspection Time Check one

- ☐ 15-Minute Inspection
- ☐ 30-Minute Inspection
- ☐ 45-Minute Inspection
- ☐ 1-Hour inspection with 1-inspector
- ☐ 2-Hour inspection with 1-inspector
- ☐ 2-Hour inspection with 2-inspectors
- ☐ 4+ hour inspection with 2-inspectors
- ☐ Overtime Inspection

Type Test Check One

- ☐ UG Visual *(check below)*
- ☐ UG Visual & Hydro *(check below)*
- ☐ UG Hydro *(check below)*
- ☐ UG Hydro & Flush *(check below)*
- ☐ UG Flush) *(check below)*
- ☐ UG Visual, Hydro & Flush *(check below)*
- ☐ Sprinkler Hydro
- ☐ Other_____ _____
- ☐ Standpipe Hydro
- ☐ FDC Hydro
- ☐ Bulk Pipe Hydro
- ☐ Fire Pump Test
- ☐ Trip Test
- ☐ Standpipe Flow/ Flush
- ☐ 24-Hour Air Test
- ☐ Main Drain Test
- ☐ Sprinkler Visual
- ☐ Final Walk
- ☐ 15-minute Hydro
- ☐ 13-R Booster Pump
- ☐ Preaction

* **Check portion of UG Fireline to be inspected**

- ☐ Portion of UG Fireline from street valve to five feet outside building.
- ☐ Portion of UG Fireline from five feet outside building to first flange inside.
- ☐ Entire UG Fireline from street valve to first flange inside building.

Scheduled Test Date _____/_____/ 20_____@ _____ or will call with a 2-hour time frame

Inspector _____/_____ Scheduled by Inspector _____

FIRE ALARM, DOOR LOCK & ALTERNATIVE FIRE-EXTINGUISHING SYSTEM

Acceptance Inspection/Test Request

Fairfax County Office of the Fire Marshal, Fire Protection Systems Branch, 10700 Page Avenue, Fairfax, VA 22030 Phone - 703-246-4821 Fax - 703-246-9173

Permit / AP # _____ *Review ID – Old System Only*_____ Today's Date: _____/_____/_____

Company: _____ Phone No: _____ - _____ - _____

Requesters Name: _____ Fax No: _____ - _____ - _____

Email Address: _____

Project Address: _____ Building: _____ Floor / Suite: _____

Tenant Name: _____ Project Name: _____

Completion / Request Date: _____/_____/_____ Options: _____ Number of floors involved in this inspection _____

Building Occupied Requiring ☐ AM ☐ PM

- ☐ 15-Minute Inspection
- ☐ 30-Minute Inspection
- ☐ 45-Minute Inspection
- ☐ 1-Hour inspection with 1-inspector
- ☐ 2-Hour inspection with 1-inspector
- ☐ 2-Hour inspection with 2-inspectors
- ☐ 4+ hour inspection with 2-inspectors
- ☐ Overtime Inspection

Type and number of Devices - Check all that applies

_____ Visual & Audible Devices	_____ Tampers	_____ Foam System
_____ Smoke Detectors	_____ Central Station	_____ Halon System
_____ Duct Detectors	_____ Rapid Entry System	_____ Fire Alarm Visual
_____ Heat Detectors	_____ FM-200 System	_____ Smoke Evac
_____ Pull Stations	_____ CO^2 System	_____ Door Locks
_____ Sprinkler Flows	_____ Dry Chem. System	_____ Intergen System
_____ Other _____		_____ PreAction System

Description of inspection requested: _____

_____

Scheduled Test Date _____/_____/20____ @ _____ or will call with a 2-hour time frame

Inspectors _____/_____ Scheduled by Inspector _____