

ARTICLE 2 – FIRE REGULATIONS

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2-1 PURPOSE AND INTENT

1. Purpose and Intent

- A. The intent of this Article is to prescribe minimum requirements necessary to establish a reasonable level of fire safety and property protection from the hazards created by fire and explosion.
- B. This Article is partially comprised of text extracted from the current edition of the National Fire Protection Association (NFPA) codes and standards in an effort to bring together information useful during field inspections.

2. Applicability

The provisions of this Article are applicable to:

- A. The inspection of site design, processes, equipment, systems, and other fire and related life safety situations.
- B. The review of construction plans, drawings, and specifications for life safety systems, fire protection systems, access, water supplies, processes, and hazardous materials and other fire and life safety issues.
- C. Existing occupancies and conditions.
- D. The storage, use, processing, handling, and transportation of hazardous materials.

- E. The design, alteration, modification, construction, maintenance, and testing of fire protection systems and equipment.
- F. Access requirements for fire department operations.
- G. Hazards from outside fires in vegetation, trash, buildings debris, and other materials.
- H. The regulation and control of special events including but not limited to exhibits, trade shows, amusement parks, haunted houses, and other similar special occupancies.
- I. The interior finish, decorations, furnishings, and other combustibles that contribute to fire spread, fire load, and smoke production.

2-2 ABBREVIATIONS

The following list of abbreviations is used throughout this Article:

AASHTO	American Association of State Highway and Transportation Officials
FREM	Department of Fire Rescue and Emergency Management
FDC	Fire Department Connection
NFPA	National Fire Prevention Association
PIV	Post Indicator Valve
USBC	Uniform Statewide Building Code
VDH	Virginia Department of Health
VDOT	Virginia Department of Transportation

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2-3 ADMINISTRATION

1. Fire Official

- A. The Fire Official with the Spotsylvania County Department of Fire, Rescue and Emergency Management (FREM) shall be responsible for the review, modification and approval of all design and construction specifications and inspection of all field work related to this Article.
- B. The Fire Official is the Director of FREM, the Fire Marshal, or specified designee and shall enforce the requirements of this Article.

2. Requirements

In accordance with the current adopted edition of The Virginia Statewide Fire Prevention Code pursuant to Section 27-97 of the Code of Virginia and Chapter 9 of the Spotsylvania County Code:

- A. No person shall use, tamper with, damage or destroy, any fire hydrants, valves, or water mains within the County; except that a fire department may use such hydrants for firefighting and training purposes. In addition, any person who has obtained a permit from the Utility Department may use the items as prescribed by the permit conditions.
- B. When use is by a person under permit from the authority having jurisdiction, the user shall comply

with all policies that are outlined on said permit or application.

3. Plan Approval

- A. When a site plan has been approved, one copy will be returned to the owner after the fees for plan review, if any, have been paid. A cover letter may be included, if deemed necessary, giving the amount of time allowed for completion and other pertinent information.

4. Inspections

- A. Fire Lanes must have an on-site final inspection before an Occupancy Permit may be issued. It is the responsibility of the owner to contact the Fire Official or the FREM to schedule this inspection.

2-4 PUBLIC WATER SUPPLY

1. General Requirements

All public water supply systems shall conform to the standards and specifications of this Article and the standards and specifications set forth in Chapters 20 (Subdivision), 22 (Water, Sewers, and Sewage Disposal), 23 (Zoning), and shall be approved by the Utilities Department.

2. Fire Flow Requirements

A. General

- (1) Applicable fire flows shall be selected using Section 2-4.3.C., below after coordinated

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discussion between the water supply owner, design consultant, the Utilities Department and the Fire Marshal.

- (2) Fire flow waivers shall be requested as specified in Section 2-7.

B. Fire Flow Requirements

- (1) One and two-family dwellings – minimum exposure distances are shown in Table 2.1, below.
- (2) Residential or professional townhouse or multiplex units – minimum exposure distance of 2500 GPM or as calculated in Section 2-4.3.C., below, or as required by the current requirements of the Building Department.
- (3) Other uses – fire flow requirements established by the procedures and formulas delineated in Section 2-4.3.C., below.

residual pressure remaining on the public water or central well system. Where a pressure of 40 psi cannot be attained the minimum pressure shall be 20 psi and in conformance with State Waterworks Regulations.

- (1) Definitions: (For this determination only)
- Required Fire Flow: Fire flow water to the site required for firefighting for any and all structures and appurtenances on the site.
 - Floor level: Any occupiable level of a structure whether above or below grade.
 - F: Required fire flow in GPM.
 - C: Coefficient related to the type of construction as shown in Table 2.2 below.
 - A: The total area of all floor levels in the structure being considered. (Gross floor area of the whole structure.)

TABLE 2.1 – Fire Flow	
Min. Exp. Distance	Fire Flow (GPM)
0' -10'	1000 -1500
11' -30'	750 -1000
31' and greater	750

C. Fire Flow Requirement Determination:

All required fire flow should be designed and calculated at 40 psi

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TABLE 2.2 – Fire Flow Coefficient

C	TYPE OF CONSTRUCTION
1.5	wood construction (current edition of USBC-VA types 5A,5B)
1.0	non-combustible/combustible construction (current edition of USBC-VA types 3A, 3B)
0.9	heavy timber construction (current edition of USBC-VA type 4)
0.8	noncombustible construction (current edition of USBC-VA types 2A, 2B, 2C)
0.6	non-combustible construction (current edition USBC-VA current edition of USBC-VA types 1A, 1B)

values are absolute minimums after all reductions are taken.

- (4) Complete automatic sprinkler protection reduction – Value obtained from the formula given below may be reduced 50% only if the structure or structures under consideration are completely covered with a sprinkler system. Partial protection will not be allowed for any reduction in fire flow.
- (5) Calculation formula: $F = 18 C (A)^{.5}$ where F, C, A are defined in the current Fire Code. This formula must be applied sequentially to each structure on the site. The largest fire flow calculated then applies.
- (6) Exposure surcharges – The value calculated in the above formula shall be increased by a percentage for exposure of other structures within 150' of the structure under consideration. The percentage increase for any one side is indicated in Table 2.4 below.

TABLE 2.3 -Maximum Fire Flow

GPM	TYPE OF CONSTRUCTION
8000	Wood, heavy timber or ordinary construction
6000	Noncombustible or fire-resistive construction

- (2) Maximums – Fire flow required shall not exceed the figures indicated in Table 2.3 above (before any reductions are taken):
- (3) Minimums – Fire flow required shall never be less than 500 GPM for a structure. Fire flow required for single-family detached dwellings shall never be less than 750GPM. Both

TABLE 2.4 – Exposure Surcharges

Separation (feet)	Percentage (%)
0-10	25
11-30	20
31-60	15
61-100	10
100-150	5

Total exposure surcharge shall be the sum of the percentages for all sides of the building but shall not exceed 75%.

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- (7) Special consideration -The above calculation procedure does not apply to:
- a. high hazard structures,
 - b. lumber yards or lumber storage,
 - c. petroleum storage,
 - d. refineries,
 - e. chemical plants,
 - f. grain storage,
 - g. power generating facilities,
 - h. hazardous manufacturing processes,
 - i. paint storage, high piled combustible storage, flammable liquids storage, etc.

All of the above require special consideration and direct consultation with the Fire Prevention Division regarding fire flow requirement.

- (8) Occupancy reductions – The following percentage reductions to the value calculated by the above formula may be taken.

TABLE 2.5 -Occupancy Reductions

Type Occ. %	Type Occ. %	Type Occ. %	Type Occ. %
Asylums	15	Nursing Homes	15
Churches	15	Office Buildings	10
Clubs	10	Prisons	10
Dormitories	25	Public Buildings	10
Hospitals	20	Rooming Houses	10
Hotels	10	Schools	15
		Open Parking (stand-alone structures, not under buildings)	25

D. Procedure for Calculation of Required Fire Flow:

- (1) Determine type of construction, "C."
- (2) Determine the gross floor area (A).
- (3) Determine the occupancy reductions, if any.
- (4) Apply the sprinkler reduction, if fully covered by a sprinkler system. Determine the total surcharge for exposures.
- (5) Perform the following multiplication:

$$F = 18C (A)^{.5}$$

(F) (occupancy reduction)
(sprinkler reduction) (exposure)

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surcharge) equals total required fire flow for the structure under consideration.

Note: Occupancy reduction is 100% - percent (%) given above. Sprinkler reduction is 50%. Exposure surcharge is 100% + percent (%) given above.

3. Central Well Systems

- A. Central well systems apply to one and two-family developments where public water is not available within specified distances required for public water main extension. (Specified distance required equals 125 times the number of proposed lots to the nearest boundary line of the proposed development.)
- B. Central well systems shall be designed for a minimum 30,000 gal. storage capacity with adequate pressure for firefighting activities.

2-5 DESIGN AND CONSTRUCTION REQUIREMENTS

1. Fire Hydrants

A. General

The Fire Official shall have the authority to require the installation of fire hydrants as he deems necessary to have water available for firefighting purposes prior to the use of combustible materials in construction being commenced on any floor above the first or ground

floor level. Such hydrants shall be accessible to firefighting apparatus. The need for such fire hydrants will be determined by the use and size of the structure involved and the availability of water in the area of the property. The number of fire hydrants, their placement and the desired fire flow shall be determined by the standards and specifications of this Article, established from nationally recognized standards.

B. Fire Hydrant Design and Placement

- (1) Fire hydrants shall be generally located at street intersections and at the ends of long streets ending in cul-de-sacs. The maximum distance between hydrants located along streets and roadways shall be as indicated in Section 2-5.1.B (5) below. Fire hydrants shall not be installed on lines less than 6 inches in diameter. Where dead end lines occur, a fire hydrant shall be installed. Hydrant drains and flushing devices will not be connected to sanitary sewers or storm drains.
- (2) Site plan approval shall be obtained for the installation of fire hydrants.
- (3) All fire hydrant locations shall be reviewed by the Fire Official for conformity to this Section. See Plates 2-1 to 2-5.
- (4) The location of all existing or proposed fire hydrants within

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- 800' of the site shall be shown on the plans for the improvements. No consideration will be given to off-site hydrants unless they are shown on the site plan.
- (5) The maximum distance measured from the fire hydrant to the most remote point of vehicular access on the site shall be as follows:
- a. Industrial Buildings – 400'
 - b. Commercial and Office Buildings – 400'
 - c. Churches and Schools – 400'
 - d. Apartments, Multi-family and Townhouses – 200'
 - e. Single Family cluster – 400'
 - f. Single Family dwellings – 800'
 - g. Mobile Home Parks – 800'
- (6) The separation between fire hydrants shall be as follows:
- a. Single family detached developments shall be 600' to 800' maximum.
 - b. Townhouse, apartment, commercial, office, industrial, and mixed-use developments shall be 300' to 500' maximum.
- (7) A fire hydrant shall be provided within 50 feet of the fire department connection to any fire protection systems located within the building.
- (8) All fire hydrants shall be located a minimum of 40' from all buildings.
- (9) Hydrants shall not be placed in concrete areas. See Plates 2-1 to 2-5 for fire hydrant details.
- (10) Hydrants shall be installed either 5' from the point of curvature of curb returns or on the property line in subdivisions.
- (11) Hydrants shall be located as follows: (Refer to Plate 2-1)
- a. Curb and Gutter Streets: typically 3 feet from the face of curb, but not less than 18" and not more than 12' behind the face of curb, unless approved by the Fire Official.
 - b. Ditch Section Streets: typically 6'-4" from the edge of the shoulder or as required by VDOT, but not more than 12' beyond the edge of pavement, unless approved by the Fire Official.
- (12) All hydrant branches shall have a minimum cover of 3' at the ditch line.
- (13) Steel posts shall be installed around hydrants as needed for industrial and commercial development where curbs are not available to prevent hydrants from being damaged.

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Refer to Plate 2-5 for fire hydrant details.

- (14) Sidewalks shall be wrapped around hydrants in areas where the grass area is shown as 2' or less.
- (15) Easements shall be required for hydrants located on ditch section streets where there is less than 5' clearance from hydrant to the property line. Show typical installation.
- (16) If hydrants are to be located in an area of possible guard rail construction, plans should be checked for notes regarding possible obstruction.
- (17) No plantings or the erection of other obstructions shall be made within 4' of any fire hydrant, or within 10' of a siamese connection.
- (18) If a fixed fire suppression or detection system is to be provided, the type of system shall be clearly indicated. The installation shall be subject to the applicable section of the Uniform Statewide Building Code.
- (19) In developments where no public water supply system is available, a dry fire hydrant may be required as determined by the Fire Marshal and/or Planning Commission. The dry

fire hydrant shall be designed and located according the Fire Marshal requirements and NFPA standards.

C. Fire Hydrant Specifications

- (1) All fire hydrant design and installation shall be in accordance with the current standards and specifications of the Spotsylvania County Utilities Department, both on public or private streets and in easement areas. The 4 ½" nozzle shall face the street, travel lane, service drive, fire lane or vehicular travel-way, where accessible or as approved by the Fire Official.

D. Fire hydrants placed on streets without curb and gutter shall have the 2 ½" hose connection a minimum clearance of 5' from the side slopes. Refer to Plate 2-1 for fire hydrant assembly details.

E. The bottom of the safety flange shall be 2 ½" above the elevation of the edge of the shoulder on the streets without curb and gutter and above the elevation of the curb on streets with curb and gutter. Refer to Plate 2-1 for fire hydrant assembly details.

2. Fire Lanes

A. General

- (1) Under the currently adopted edition of the Virginia Statewide Fire Prevention

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Code, the Fire Official 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. Markings and signs are to be provided by the owner or agent of the property involved. Parking or otherwise obstructing such areas is prohibited.

- (2) A fire lane shall be designated where it is desirable that certain roads, areas, and building ingress and egress facilities be kept clear for fire department access to buildings and equipment provided for fire protection. Approved signs only shall be used to designate such areas and they shall be provided by the owner or his agent as required by the Fire Official.
- (3) Action for establishment of fire lanes may be initiated by the Fire Official or by the request of the owner or his agent.
- (4) All fire lane information proposed by the owner shall be shown on the site plan in accordance with this Section. The Fire Official shall be contacted during the project

design phase to discuss the appropriate areas for fire lane designation.

- (5) Fire Lanes must have an on-site final inspection before an Occupancy Permit may be issued. It is the responsibility of the owner to contact FIREM to schedule this inspection.
- (6) Maintenance of fire lanes shall be the responsibility of the property owner. Fire lanes may not be altered or deleted without written permission from the Fire Official.

B. Fire Lane Design and Specification

- (1) Fire lanes shall have a minimum width of 20 feet and a maximum width of 24 feet. Parking and traffic flow patterns shall be required as in Table 2.6, below.
- (2) Parking is prohibited within 15 feet of a fire hydrant located along the curb line or edge of any public or private roadway. No sign or special curb marking would be required for enforcement.
- (3) Fire lanes shall be marked with both signs and curb delineation per Sections 2-5.2.C, D, and E, below.

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TABLE 2.6 Standard Fire Lane Requirements

Street Width – Curb to Curb	One-Way Traffic	Two-Way Traffic
Less than 24'	No parallel parking on either side of the street	No parallel parking on either side of the street
24' – 29'	Parallel parking allowed on one side of street as determined by Fire Official	No parallel parking on either side of the street
30' – 35'	Parallel parking allowed on both sides of the street	Parallel parking allowed on one side of the street as determined by Fire Official
36' or greater	Parallel parking allowed on both sides of the street	Parallel parking allowed on both sides of the street

NOTE: Permission for one-way traffic flow on private streets is granted through the FREM.

C. Signage Location

The spacing between signs shall be 100 feet; however, this distance may vary as site conditions warrant. The placement of signs will be determined by the Fire Official and noted on the site plan.

D. Signage Specifications

- (1) Metal construction, 12" x 18".
- (2) Red letters on reflective white background with 3/8" red trim strip around entire outer edge of sign.
- (3) Lettering on sign to be: "NO PARKING OR STANDING FIRE LANE". See Plate 6-2.
- (4) Lettering size to be as follows:
 - a. NO PARKING and STANDING – 2",
 - b. OR – 1",
 - c. FIRE LANE-2 1/2",

d. Arrows 1" x 6" solid shaft with solid head 1 1/2" wide and 2" deep.

- (5) Signs are to be mounted 6' from ground surface to the bottom of the sign unless otherwise directed by the Fire Official.
- (6) Posts for signs, when required, shall be metal and securely mounted, unless written permission for alternatives is obtained from the Fire Official prior to installation. Signs should be spaced as required in the current Fire Code.
- (7) Other special signs may be allowed if approved in advance by the Fire Official.

E. Curb Designation

Fire lanes designated by the Fire Official and shown on the approved site plan shall be painted with

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VDOT Highway Traffic grade yellow paint and installed as follows:

- (1) All curbs or paved spaces shall be painted.
- (2) A 4" yellow stripe shall be painted 3 feet from the edge of the curb face for the entire length of the fire lane.
- (3) "NO PARKING FIRE LANE" shall be painted with 12" letters, 4" wide and equally spaced between the curb face and the striping listed in (2) above. When fire lane signs are required, the "NO PARKING FIRE LANE" shall be centered between signs.
- (4) In areas without curbing, a 6" wide yellow stripe should be applied to the edge of the pavement. Paint shall be VDOT Highway Traffic grade.
- (5) Refer to Plate 2-7 for a typical fire lane detail.

3. Fire Department Connections

A. Fire Department Connections

When fire suppression systems are required a connection through which the fire department can pump water into the sprinkler, standpipe, or other system furnishing water for fire extinguishment makes a desirable auxiliary supply. For this purpose one or more fire department

connections (FDC) shall be provided.

- (1) There shall be no shutoff valve in the fire department connection.
- (2) In fire suppression systems, the fire service piping shall be installed in compliance with NFPA standards, NFPA allows for this piping to be installed in a vault or inside the structure.
- (3) Fire Department connections shall be on the street side of buildings and shall be located and arranged so that hose lines can be readily and conveniently attached to the inlets without interference from any nearby objects including buildings, fences, posts, or other fire department connections.
- (4) Each FDC shall be located at least 40 feet from the building or as approved by the Fire Official when not located on the building.
- (5) The height of fire department connections shall be 36 inches from the ground surface to the operating features.
- (6) Refer to Plates 2-8, 2-9 and 2-10 for acceptable Fire Department Connections.
- (7) Additional specifications for each FDC are found in and

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shall conform to the NFPA 24 standards.

B. Post Indicator Valves

Every connection from the fire service main to a building shall be provided with a listed indicating valve so located as to control all sources of water supply except fire department connections when arranged as specified in Section 2-5.3.A, above.

- (1) Post Indicator Valves (PIV) shall be located not less than 40 feet from the buildings being protected.
- (2) The height of Post Indicator Valves shall be 36 inches from the ground surface to the operating features.
- (3) The PIV shall be located within 15' of the FDC.
- (4) Tamper switches shall be provided on PIV unless specifically waived by the Fire Marshal.
- (5) A PIV is not required in applications where tamper switches are provided on the OS & Y valves located within the building.
- (6) Additional PIV specifications are found in and shall conform to the NFPA 24 standards.

A. Definition

Hazardous materials are generally defined as those chemicals or substances which are physical hazards or health hazards as defined and classified in this section and the Fire Prevention Code listed in Chapter 35 of the current USBC, whether the materials are in a usable or waste condition.

B. Requirements

- (1) The following references provide regulations involving the storage of hazardous materials, including all structures which are occupied for the storage or other use of hazardous materials:
 - a. Currently adopted edition of Virginia State Building Code Section 307.1
 - b. Currently adopted edition of Virginia Statewide Fire Prevention Code, Chapters 23-43
 - c. Code of Federal Regulations, Title 49 (CFR-49) Hazardous materials regulations, US DOT
 - d. All NFPA Codes and References that are applicable
- (2) The location and type of any proposed hazardous materials storage areas, interior or exterior must be shown on the

4. Hazardous Material Storage Areas

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site plan. Refer to Section 2-6 for site plan requirements.

5. Refuse Disposal Areas

- A. The outside storage of combustible or flammable materials shall not exceed 20 feet in height and shall be compact and orderly. Such storage shall be located so as not to constitute a hazard. The storage structure and enclosure shall not be less than 15 feet from any lot line or any other building on the site unless approved by the Fire Official.
- B. The storage of combustible or flammable materials shall be confined to the approved areas as shown on the site plan.

6. Obstructions

- A. Site features that may obstruct emergency vehicle access include but are not limited to the following:
 - Fences,
 - Gates,
 - Walls,
 - Bridges,
 - Tunnels,
 - Guardrails,
 - Ditches,
 - Topographic features, including slope,
 - Utilities,
 - Overhangs and
 - Other special features
- B. All of the items mentioned in section A above plus any additional items which may present a possible obstruction for emergency vehicle

access, fire protection equipment, and firefighting operations shall be clearly shown on the site plan. Refer to Section 2-6 for site plan requirements.

7. Emergency Vehicle Access

- A. Access for emergency vehicles shall be provided to within 100' of the main or principal entrance of every building. The access shall be provided by a public or private street or parking lot.
 - (1) Fire department access shall be provided and maintained to all structures undergoing construction, alteration or demolition. Fire department access roadways shall be of an approved VDOT or County surface material capable of providing emergency vehicle access and support at all times, and shall be a minimum of 20 feet in unobstructed width. The access roadways shall provide a minimum 45 feet turning radius capable of accommodating the largest fire apparatus of the jurisdiction and a minimum vertical clearance of 13 feet, 6 inches.
 - (2) The inner surface of the ladder truck access way shall be no less than 15' and no more than 30' from the exterior building wall.

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(3) Pavement Grades shall be no more than 10 percent. In addition, grades shall be no less than 0.5 percent in order to prevent pooling of water in the travelway. Steeper grades may be permitted as site conditions warrant with prior approval from the Fire Official.

- B. Required fire department access ways over 300' in length shall have provisions for turning emergency vehicle apparatus around. Refer to Article 5-4.2.A, Streets, Parking and Driveways for design guidance.
- C. The access to the rear may be provided by a street, parking lot, or fire lane.
- D. When buildings are more than 5 stories or 50' in height, ladder truck access shall be provided to both the front and rear of the building.
- E. A 12' wide access lane to within 50' of the edge of swimming pools is required except for individually owned pools located on single family lots when required by Fire Marshall.
- F. Private bridges must have a design satisfactory to the Fire Official to carry and provide adequate clearance for emergency vehicles, where necessary. AASHTO "Standard Specifications for Highway Bridges" and the VDOT Bridge Engineer will be consulted for guidance on a case by case basis.

2-6 SITE PLAN REQUIREMENTS

1. Review

All fire hydrant locations shall be reviewed by the Fire Official for conformity to the Spotsylvania County Standards and as shown in Plates 1-2 through 5-2 of this Article.

2. Requirements

- A. Site plans submitted for compliance with Article 4, Division 11 of Chapter 23 (Zoning) shall also include the following information.
- B. Site plans for review by the Fire Official shall be to a scale not smaller than 1" = 50', unless prior approval from the Fire Official is granted. The site plans shall show streets, parking spaces, fire hydrants, fire department connections, fire department access lanes, and any other pertinent information as indicated below, or subsequently required by the Fire Official.
 - (1) Use group classification including the type of operations that will occur at this site (defined by the Uniform Statewide Building Code).
 - (2) Type of construction (defined by the Uniform Statewide Building Code).
 - (3) Existing and proposed water mains and size.

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- (4) Available water pressure and flow capability, static pressure, residual pressure, flow in GPM.
 - a. Calculation of the fire flow required on site. Refer to Section 2-4.3 for the calculation procedure.
- (5) Existing and proposed fire hydrants within 800 feet of the project site.
- (6) Location of all proposed fire lanes with details of curb marking and sign locations.
- (7) Location and type of any proposed hazardous materials storage areas, interior and exterior.
- (8) Location of any fencing, temporary or permanent, or any other potential obstruction to fire hydrants, fire department connections or fire lanes. See section 2-5.6 for a list of typical obstructions.
- (9) Type of fire suppression or detection equipment to be provided; i.e. sprinklers, standpipes, smoke or heat detectors, etc. (See current edition of the Uniform Statewide Building Code for requirements).
- (10) Location and size of underground fire lines.
- (11) Location of fire department siamese connections (street front of building).
- (12) Height of building in feet and stories.
- (13) Breakdown of building interiors such as fire walls, tenant separations, etc.
- (14) If a fixed fire suppression or detection system is to be provided, the type of system shall be clearly indicated. The installation shall be subject to the applicable section of the Uniform Statewide Building Code.

2-7 WAIVERS AND MODIFICATIONS

1. Fire Protection Waiver Procedures

- A. The provisions of this Article are not intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability and safety to those prescribed by this Article, provided that the spirit and intent of the Article are observed and public health, safety and welfare are ensured.

- (1) An alternative material or method of construction shall be approved when the Fire Official finds that the proposed design is satisfactory and complies with the intent of the provisions of this Article, and the material, method, or work offered is, for

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the purpose intended, at least the equivalent of that prescribed in this Article in quality, strength, fire resistance, effectiveness, durability and safety.

- (2) Sufficient technical data shall be submitted to substantiate the proposed installation of any material or assembly.
- (3) Supporting data, where necessary to assist in the approval of all material or assemblies not specifically provided for in this Article, shall consist of valid research reports from approved sources.

B. All requests for a modification or waiver of any fire protection requirement of Chapter 9 of the Spotsylvania County Code or this Article must be submitted and addressed to the Fire Official.

2. Fire Protection Waiver Requirements

All requests must be submitted and addressed to the Fire Official and include the following:

- A. A plan or sketch drawn to scale showing the proposed location of all improvements on the site and the type of construction involved.
- B. The address, tax map reference number and the proposed use of the property.
- C. The current zoning classification of the property and if rezoned within 1

year, the rezoning number and the date of approval by the Board of Supervisors.

- D. Copies of any required Special Exception or Special Use Permit with date of approval.
- E. Specific item requested to be waived or modified.
- F. Length of time for which the waiver is requested.
- G. Any proposed alternate form of fire protection.
- H. The name, address, telephone number and email address of the person making the request.
- I. The County assigned number for site and subdivision plans and waiver requests associated with the property.

2-8 REFERENCED PUBLICATIONS

1. The following referenced publications and code sections should be consulted as a source of information when developing plans for compliance with this Article.

- A. NFPA Fire Protection Handbook (Current Edition)
 - Fire Prevention Code – NFPA 1
 - Fire Pumps – NFPA 20
 - Sprinklers – NFPA 13, 13D, 13R
 - Installation of Standpipe and Hose Systems – NFPA 14
 - Water Tanks for Private Protection – NFPA 22

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- Private Fire Service Mains and their Appurtenances – NFPA 24
- Code for Safety to Life from Fire in Buildings and Structures – NFPA 101, 101A
- Fire Protection in Planned Building Groups – NFPA 1141
- Water Supplies for Suburban and Rural Fire Fighting – NFPA 1231
- Construction, Alteration and Demolition Operations – NFPA 241
- Water Based Fire Protection Systems – NFPA 25
- Supervision of Valves Controlling Water Supplies – NFPA 26

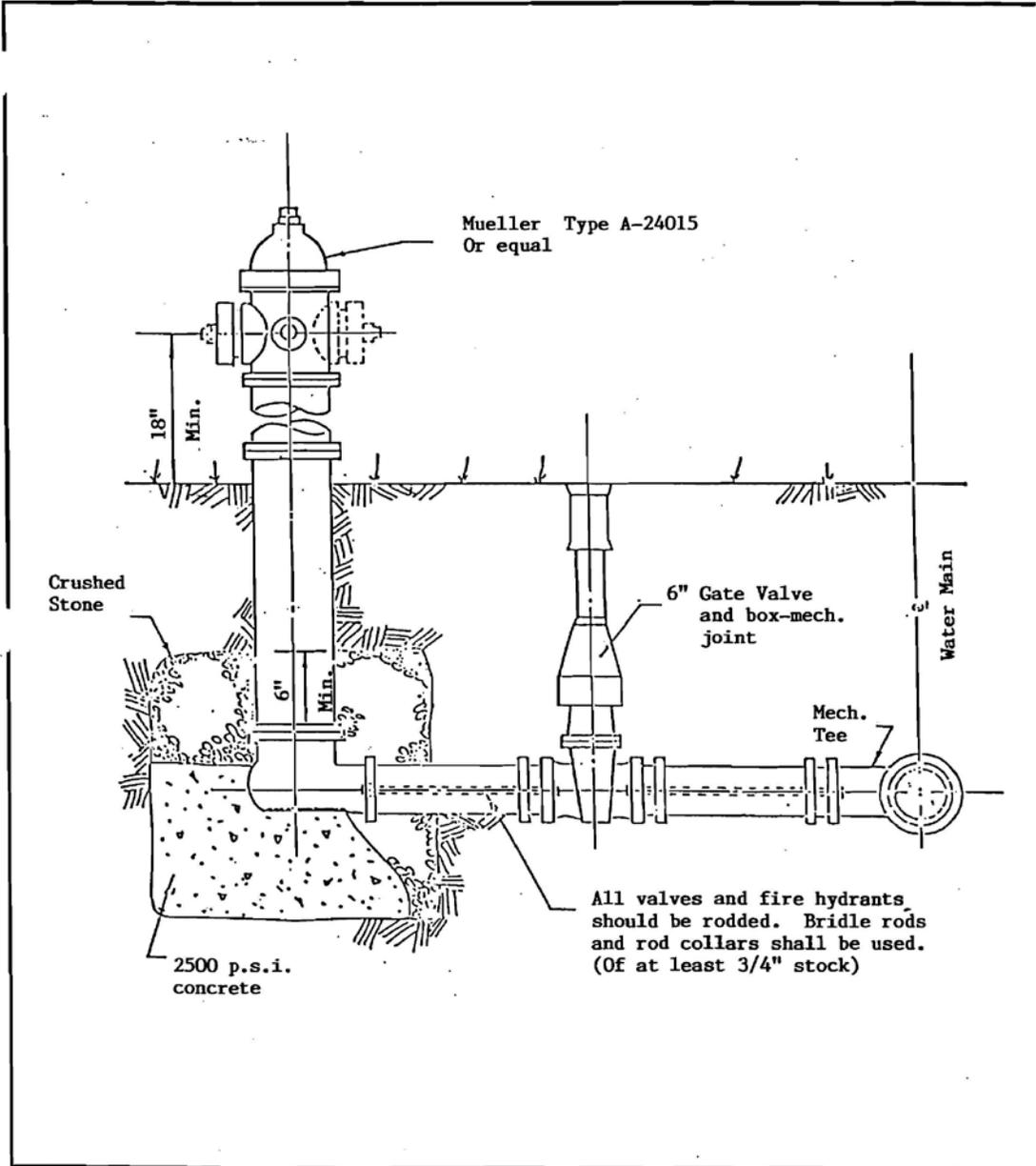
- J. AWWA Publications – American Water Works Association

2-9 PLATES

The following Plates will illustrate and assist in the explanation of the standards and specifications in Article 2, (Fire Regulations) of the Spotsylvania County Design Standards Manual and Chapter 9 (Fire Prevention and Protection) of the Spotsylvania County Code.

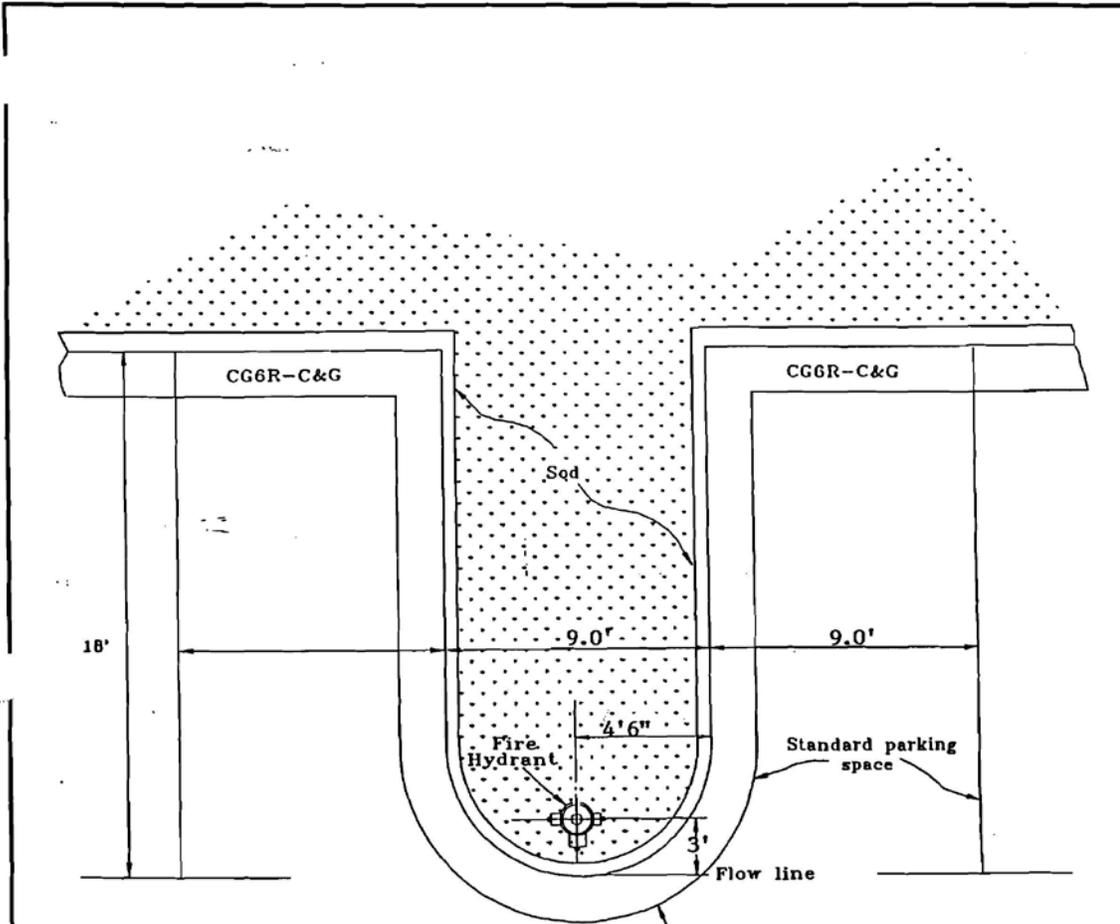
- B. Current adopted edition of USBC
- C. Current adopted edition of Virginia Statewide Fire Prevention Code
- D. Current adopted edition of BOCA National Fire Prevention Code
- E. Code of Federal Regulations Title 49 – Hazardous Materials Regulations
- F. NFPA Publications – National Fire Protection Association
- G. ANSI Publications – American National Standards Institute
- H. ASTM Publications – American Society for Testing and Materials
- I. AWS Publications – American Welding Society

ARTICLE 2 – FIRE REGULATIONS



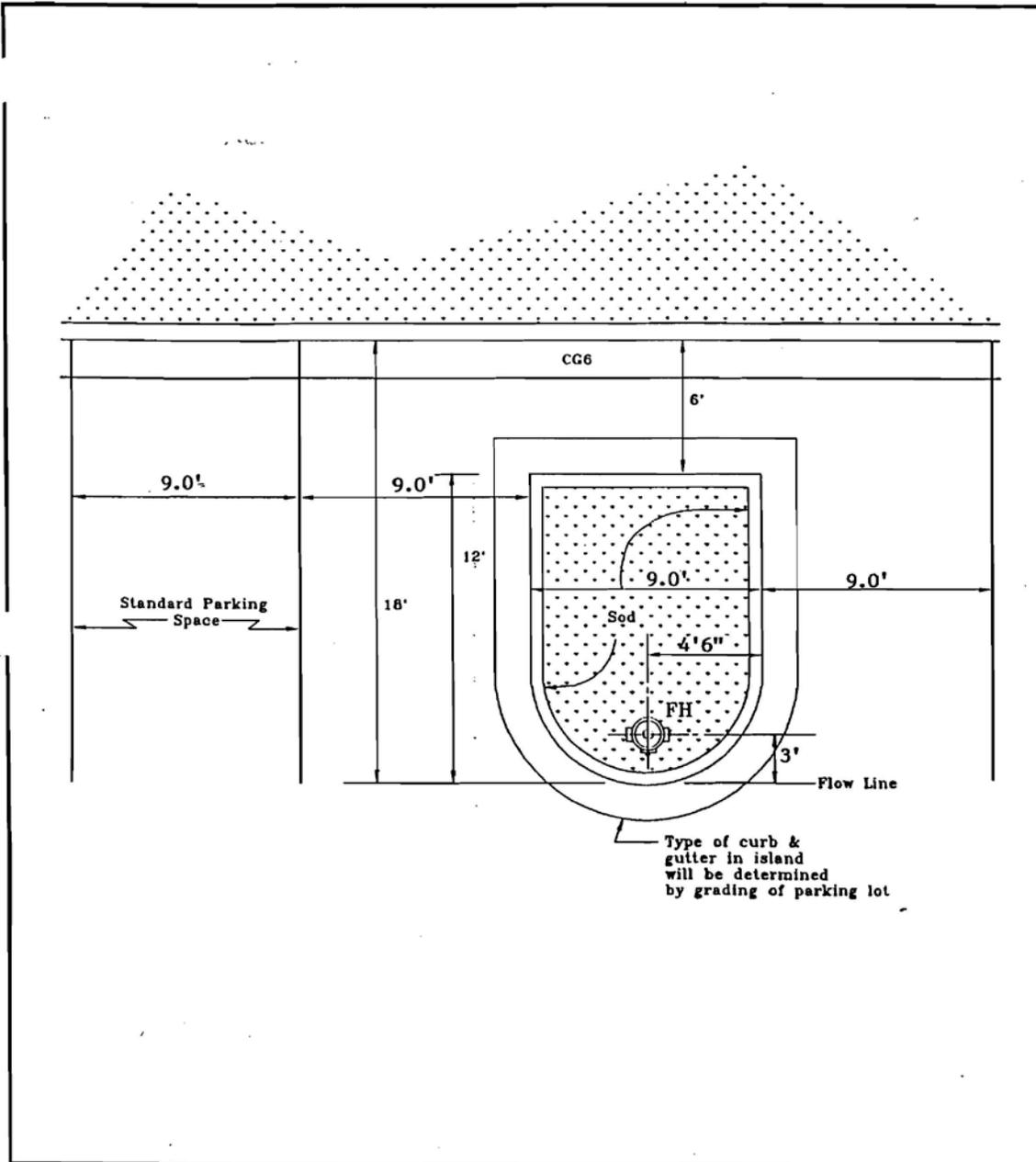
TYPICAL FIRE HYDRANT ASSEMBLY	PLATE NO.	STD. NO
	2-2	

ARTICLE 2 – FIRE REGULATIONS



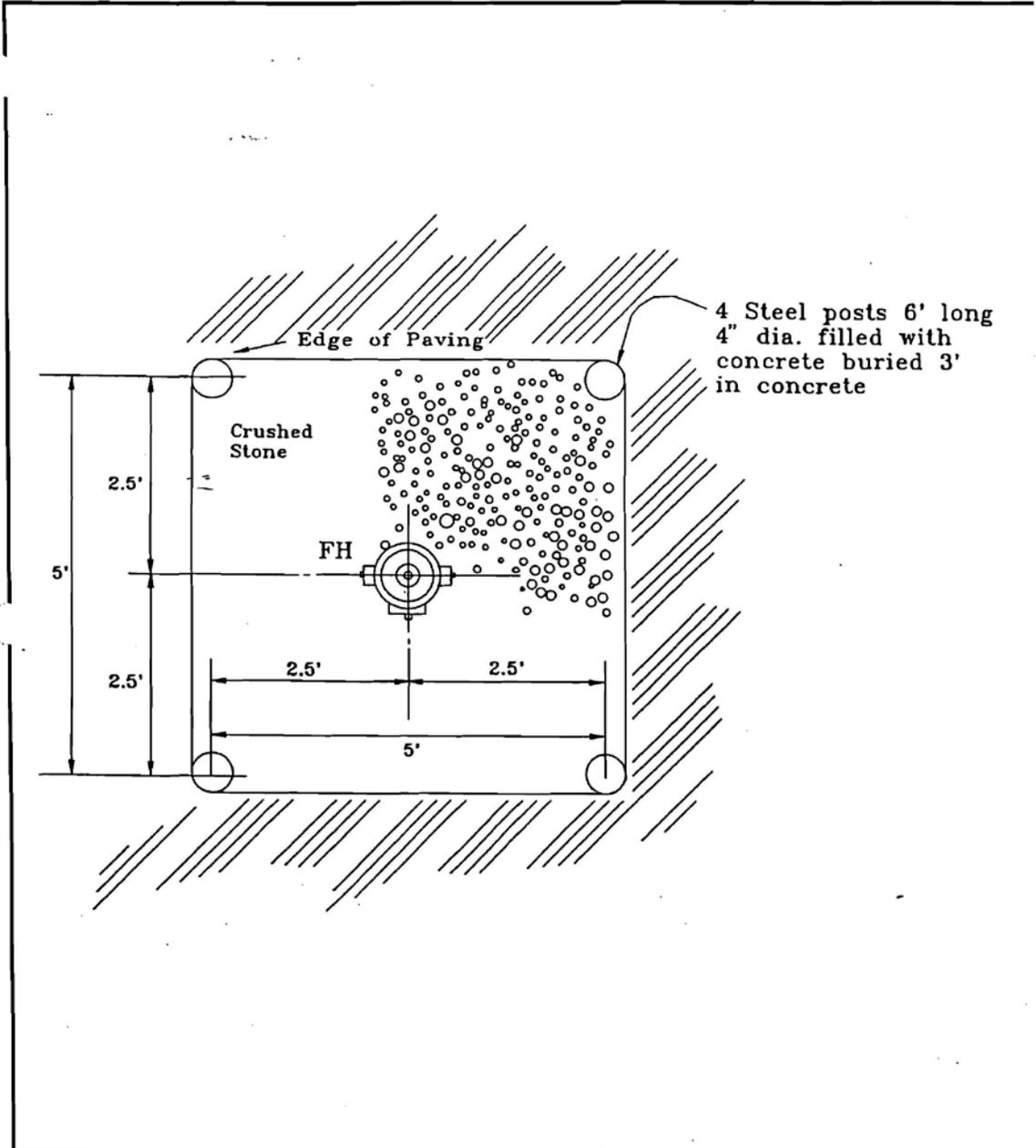
STANDARD FIRE HYDRANT ISLAND PARKING AREAS	PLATE NO.	STD. NO
	2-3	

ARTICLE 2 – FIRE REGULATIONS



STANDARD FIRE HYDRANT ISLAND PARKING AREAS	PLATE NO.	STD. NO.
	2-4	

ARTICLE 2 – FIRE REGULATIONS



4 Steel posts 6' long
4" dia. filled with
concrete buried 3'
in concrete

	FIRE HYDRANT PROTECTION IN AREA WHERE ISLAND CANNOT BE CONSTRUCTED	PLATE NO.	STD. NO.
		2-5	

ARTICLE 2 – FIRE REGULATIONS

SIGN TYPE "A"



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

SIGN TYPE "C"



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

SIGN TYPE "D"



Standard wording with no arrow. Two signs, back to back, mounted perpendicular to line of curbing or pavement edge.

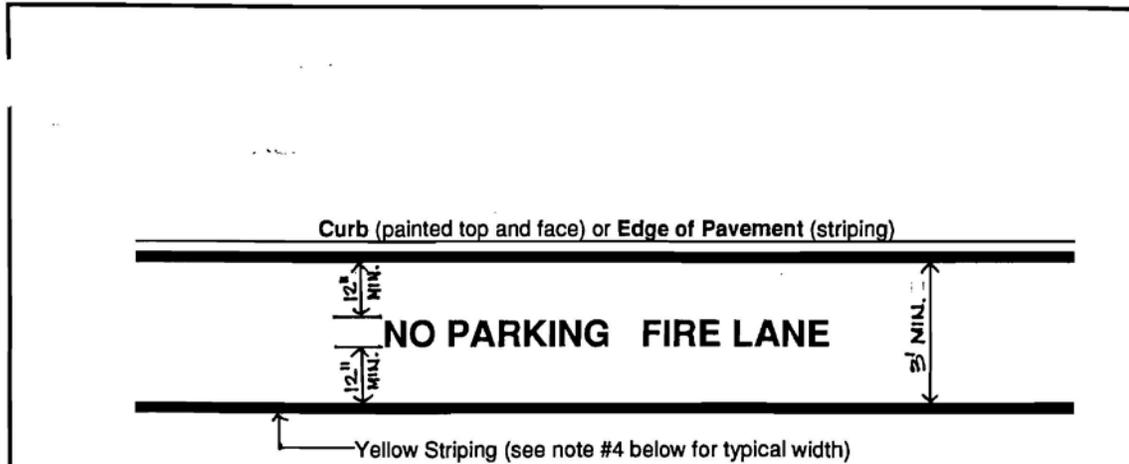
Signage Specifications

- (1) Metal construction, 12" x 18".
- (2) Red letters on reflective white background with 3/8" red trim strip around entire outer edge of sign.
- (3) Lettering on sign to be: "NO PARKING OR STANDING FIRE LANE".
- (4) Lettering size to be as follows:
 - a. NO PARKING and STANDING - 2",
 - b. OR - 1",
 - c. FIRE LANE - 2 1/2",
 - d. arrows 1" x 6" solid shaft with solid head 1 1/2" wide and 2" deep.
- (5) Signs are to be mounted 6' from ground surface to the bottom of the sign unless otherwise directed by the Fire Official.
- (6) Posts for signs, when required, shall be metal and securely mounted, unless written permission for alternatives is obtained from the Fire Official prior to installation. Signs should be spaced as required in section 2-5.2.C. above and as shown on the approved site plan.
- (7) Other special signs may be allowed if approved in advance by the Fire Official.

	SIGNAGE	PLATE NO.	STD. NO.
		2-6	

ARTICLE 2 – FIRE REGULATIONS

Ss

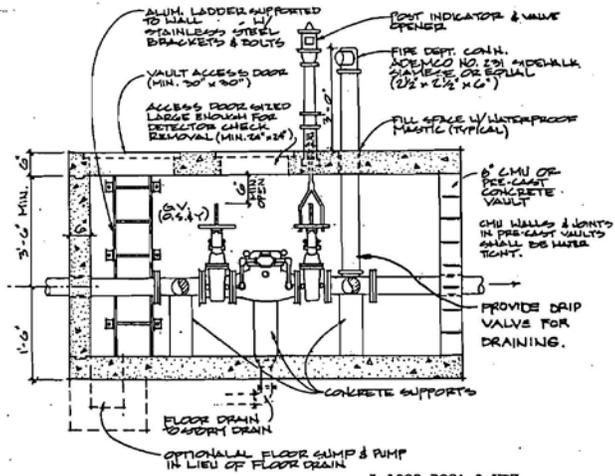


Notes:

1. The "NO PARKING FIRE LANE" lettering shall be centered between fire lane signs.
2. Lettering size shall be 12" in height (minimum) and located 12" from the painted curb and striping.
3. Striping shall be as follows:
 - 4" wide striping for curb and gutter pavement located 3' from the edge of curb along with the curb face and top painted
 - 6" wide striping for pavement without curb and gutter located 3' from the edge of pavement and along the edge of pavement.
4. Yellow VDOT highway grade paint shall be used on all striping and lettering

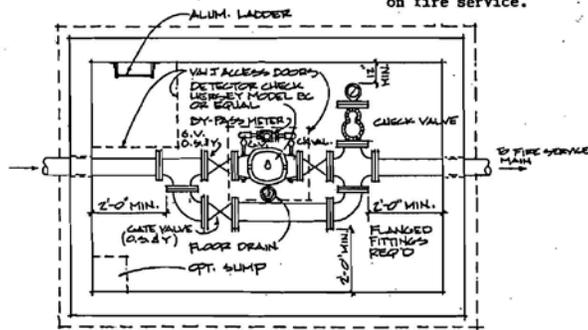
	TYPICAL FIRE LANE LAYOUT AND MARKINGS	PLATE NO.	STD. NO
		2-7	

ARTICLE 2 – FIRE REGULATIONS



SECTION
NO SCALE

* 1993 BOCA & VDH
Waterworks Regulations
require backflow protection
on fire service.



PLAN
NO SCALE

NOTE:
ACCESS DOORS TO BE EXTERIOR TYPE, ALUM. DOORS BY "BULLO" TYPE "K" OR "KD", WOODY PRODUCTS "L12" OR "L2K" OR "SYRACUSE CASTINGS", CM OR CHD, DOORS SIZED 4'-0" OR LARGER SHALL BE DOUBLE LEAF CONSTRUCTION. IN LIEU OF (2) DOORS, ONE DOOR CAN BE USED PROVIDED IT IS LARGE ENOUGH TO PROVIDE ACCESS TO THE ENTRY LADDER & METERS ON THE DETECTOR CHECK FOR READING PURPOSES.
ALL MATERIALS & INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE NFPA, VA, WATER WORKS REGULATIONS, ANIWA, & THE BOCA FIRE & PLUMBING CODES.

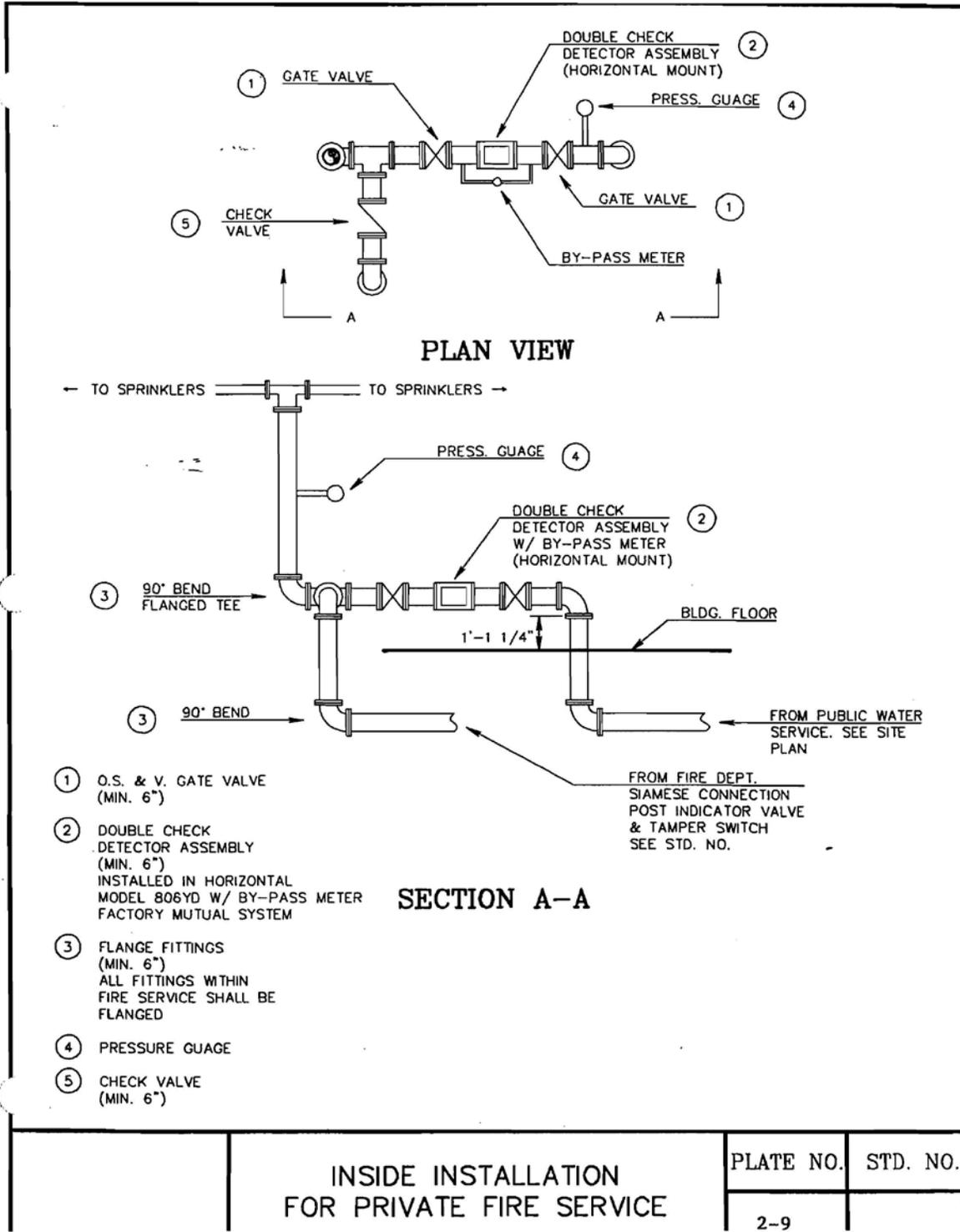
**PRIVATE FIRE SERVICE METER
VAULT**

PLATE NO.

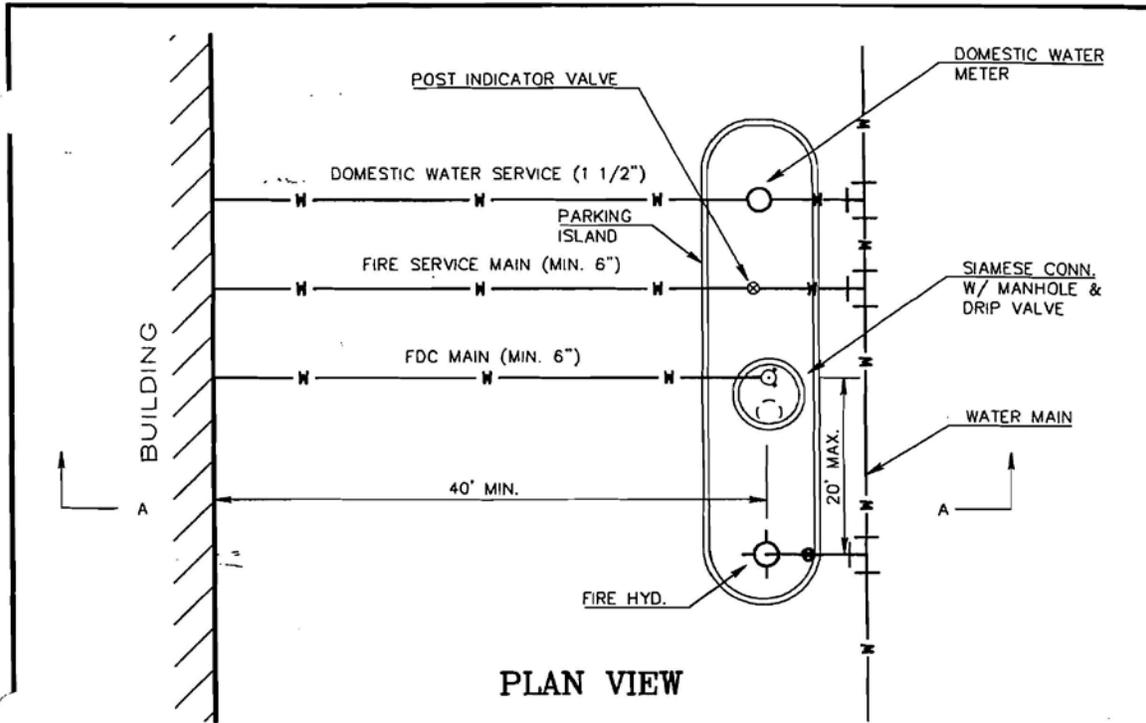
STD. NO.

2-8

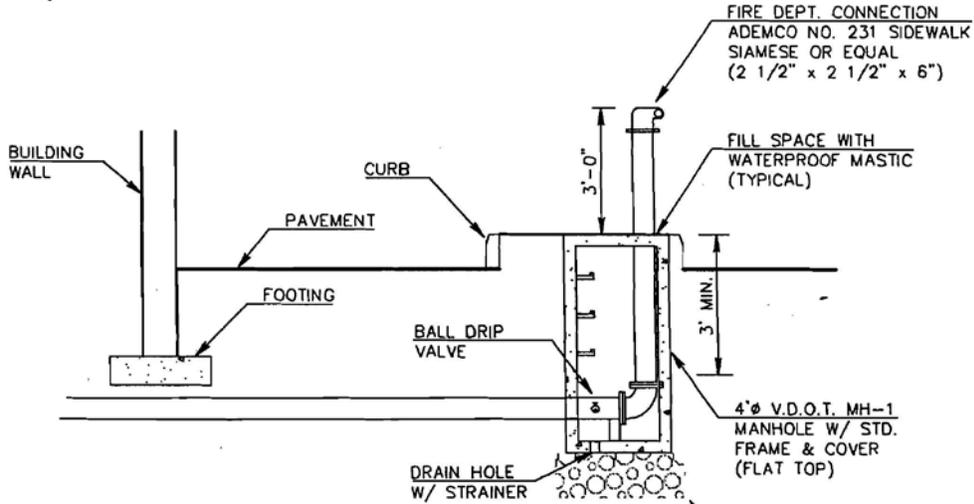
ARTICLE 2 – FIRE REGULATIONS



ARTICLE 2 – FIRE REGULATIONS



PLAN VIEW



**SECTION A-A
FDC MAIN**

**SIAMESE CONNECTION
FOR INSIDE INSTALLATION**

PLATE NO.	STD. NO.
2-10	