



**SAN BERNARDINO COUNTY FIRE DEPARTMENT  
COMMUNITY SAFETY DIVISION**

620 South 'E' Street  
San Bernardino, CA 92415-0179  
(909) 386-8400

Standard Number

**F-4**

Revision Date:  
3-22-16

**FIRE PREVENTION STANDARD**

**POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS**

**AUTHORITY**

Sections 102.9, 103 and 104.1 of the 2013 California Fire Code provides that the fire code official of the San Bernardino County Fire Department shall have the authority to adopt policies, procedures, rules, and regulations in order to clarify the application of the Fire Code and to specify requirements not specifically provided for by the Fire Code. For further requirements on this subject, see section 508 of the 2013 California Fire Code. This standard may be modified with the approval of the Fire Code Official.

**PURPOSE**

The purpose of this standard is to provide minimum requirements and guidelines for the installation of Post Indicator Valves (PIV's) and Fire Department Connections (FDC's) for fire sprinkler systems.

**SCOPE**

This standard, in conjunction with the latest edition of NFPA 13, NFPA 13R and NFPA 24, shall apply to the design and installation of, and the modification to, all new and existing fire sprinkler systems in commercial and industrial buildings and multi-family dwellings. This standard and its interpretation shall take NOT precedent where there is any conflict with NFPA standards.

**DISCLAIMER**

*These standards may change without notice. Whenever applicable statutes, regulations and standards are updated and adopted, the latest shall apply. Please contact the Community Safety Division at (909) 386-8400 to determine if these standards have changed.*

*These requirements do not exempt any individual from complying with other applicable state, county, or city codes and standards.*

**SUBMITTALS**

- 1) Plans shall be submitted to the Fire Department for approval and permit prior to performing any work on any fire sprinkler or underground fire protection water system. For detailed submittal requirements, see SBCFD Standards F-1 and W-2.



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**GENERAL**

- 1) Each fire sprinkler system shall have at least one Post Indicator Valve and one Fire Department Connection serving it.
- 2) The number and locations of all PIVs and FDCs shall be approved by the Fire Code Official, and shall be based on this Standard as well as on the type of construction of the building, the uses and occupancy classifications within the building, and any special hazards being protected.
- 3) A minimum of three (3) feet of clearance of obstructions is required around all PIVs and FDCs. Limited ground cover type vegetation may be allowed with the approval of the fire code official.
- 4) Post Indicator Valves and Fire Department Connections shall be painted OSHA Safety Red or equivalent, and maintained painted and in an operable condition by the property owner.

**INSTALLATION**

- 1) All PIVs and FDCs shall be located in an accessible area, as approved by the Fire Code Official. Additional signage per this Standard may be required by the fire code official for PIVs and FDCs that are located on the sides or rear yard of buildings or in areas that may be less visible to emergency responders.
- 2) PIVs and FDCs shall be located a minimum of twenty feet (20') from the structure protected, or a minimum of ten feet (10') farther from the building than the height of the wall adjacent to the connection and valve, whichever is greater. Unless approved by the Fire Code Official, PIVs and FDCs shall not be located more than 50' from the structure protected. In areas where this is not practical or possible due to site constraints, PIVs or FDCs may be installed closer (a minimum of three (3) feet) to the building, or a wall mounted FDC or PIV may be used, installed in a location approved by the fire code official. In such cases, such close-proximity or wall mounted PIVs or FDCs shall be installed in walls with non-combustible construction, away from building openings, and in an area accessible to emergency responders.
- 3) Post Indicator Valves and Fire Department Connections shall be set back a minimum of two (2) feet from the face of all concrete curbs in a raised planter or similar protected area (**See DIAGRAM F-4.1**) or be shall protected from vehicular damage with bollards or guard posts that comply with the 2013 California Fire Code section 312, as excerpted below, or the equivalent of all of the following specifications:



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- a) Constructed of Schedule 40 steel pipe steel not less than four (4) inches in diameter and concrete filled.
- b) Spaced not more than four (4) feet between posts on center.
- c) Set not less than three (3) feet deep in a concrete footing of not less than a fifteen (15) inch diameter.
- d) Set with the top of the posts not less than three (3) feet above ground.
- e) Located not less than three (3) feet from the protected PIV or FDC.
- f) Guard posts shall be painted with high-visibility OSHA safety yellow paint.

**SPECIFIC REQUIREMENTS FOR FIRE DEPARTMENT CONNECTIONS**

- 1) Buildings up to 100,000 square feet in floor area shall install all FDCs with a four inch (4") riser and two, two-and-a-half inch (2 ½") female inlet connections on a "Siamese" style fitting (4" x 2 ½" x 2 ½"). **(See DIAGRAM F-4.2)** Buildings 100,000 sq. or larger in floor area, and any size buildings with a fire protection supply that is boosted by a fire pump, shall install all FDCs with a six inch (6") riser and with one four inch (4") and two, two-and-a-half inch (2 ½") female inlet connections on a "Siamese" style fitting (6" X 4" X 2 ½" X 2 ½"). **(See DIAGRAM F-4.3)**
- 2) All hose connections on FDCs shall be of National Standard Hose Thread (NH or NST) and shall be provided with threaded plugs (plastic or brass) to protect the FDC connection. Break-away metal caps in may be used when the FDC is located in secured areas that are not subject to vandalism. If required by the fire code official because of concerns of vandalism, threaded locking plugs (Knox Plugs) shall be provided on all inlets, secured with a chain.
- 3) All exposed brass components on FDC's shall be secured by with a ¼" x # 20, grade 6, case- hardened steel bolt through the fitting and into the threads of the riser or steel inlet pipe. The head of the bolt shall be filed flush with the FDC fitting. Other equivalent methods of theft protection shall be accepted on a case by case basis, as approved by the fire code official.
- 4) All FDCs shall be provided with a welded flange and either a wafer check or swing check valve. In areas subject to freezing, the check valve shall be located one foot (1') below frost line and shall have a ball drip valve. A bed of gravel shall be provided to allow for proper drainage of the above grade piping.**(See DIAGRAM F-4.4)**



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- 5) All FDCs shall be installed within fifty feet (50') of a fire hydrant that takes supply from a public circulating water main. When it is determined that this is not possible or practical, and with approval from the fire code official, FDC's may be located within fifty feet (50') of a private fire hydrant. Check valves shall be installed in order to prevent circular water flow during fire ground pumping operations (See SBCFD Standard W-2)
- 6) Each building and each point of connection to the public water system shall have a separate FDC, installed onsite or when approved by the Fire Code Official, at the entrance to the property, as part of a Double Detector Check Assembly (DDCA.) (**See DIAGRAM F-4.5** and SBCFD Standard W-2.) A single FDC assembly may serve multiple buildings on a project, provided all of the following conditions are met:
  - a) The aggregate floor area of all buildings served by the entire system does not exceed 50,000 square feet.
  - b) The buildings are not on separate parcels or have individual addresses.
  - c) In special cases or when special hazards exist, the fire code official shall determine whether or not each building shall have a separate FDC.
- 7) FDCs shall serve only automatic fire sprinkler systems and standpipe systems, and shall not be connected to onsite fire hydrants systems.

**IDENTIFICATION AND SIGNAGE**

- 1) Signage shall be provided on all PIVs and FDCs in accordance with this standard and the current editions of NFPA 13 and NFPA 24. (**See Diagram F-4.6**)
- 2) Identification signs on PIVs and FDCs shall be red in color with engraved one (1) inch block type white letters. Signs shall measure a minimum of ten (10) inches wide by five (5) inches high, and be made of metal not less than 10 gauge (3 mm) in thickness. The sign shall be fastened by means of a "U" bolt, or other similar secure method.
- 3) Identification signs shall indicate the following information:
  - a) The street address of the building(s), and the area or zone served if applicable
  - b) The type of system it serves, i.e. sprinklers, standpipe, hydrants, sectional valves etc.
  - c) Where the system demand pressure exceeds 150 p.s.i., the sign shall indicate the required design pressure of the system served.



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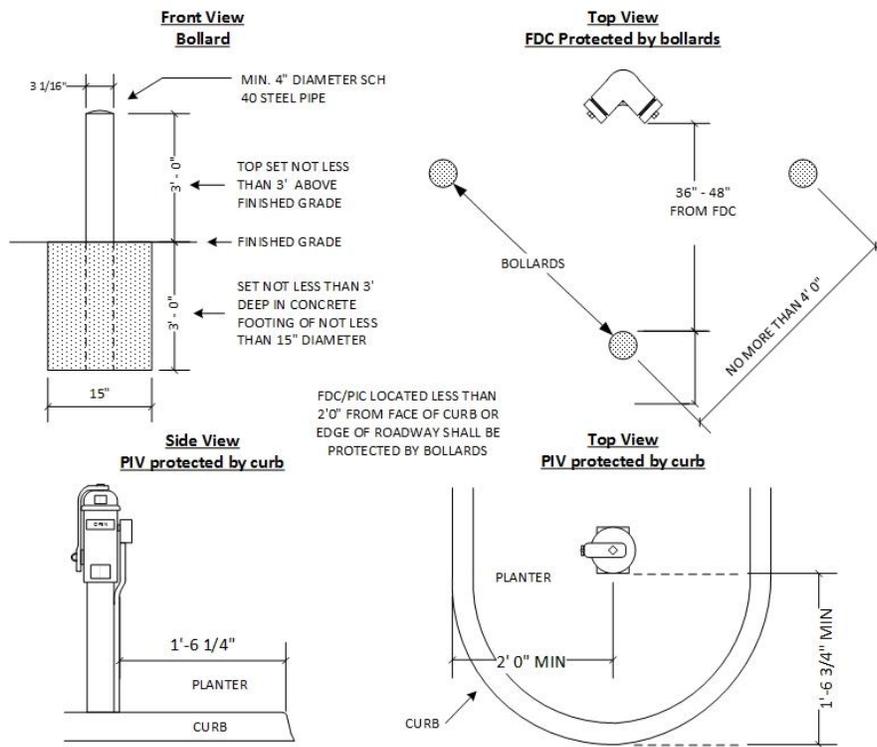
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**EXISTING SYSTEMS**

- 1) When additions or upgrades are made to existing buildings with automatic sprinkler systems, the PIVs and FDCs shall conform to this standard when required by the fire code official.
- 2) Existing breakaway caps on Fire Department Connections shall be replaced with threaded plugs and chains when deemed necessary by the fire code official.
- 3) Existing Fire Department Connections that are vandalized or removed shall comply with this standard when replaced.

**DIAGRAM F-4.1: PIV AND FDC PROTECTION**





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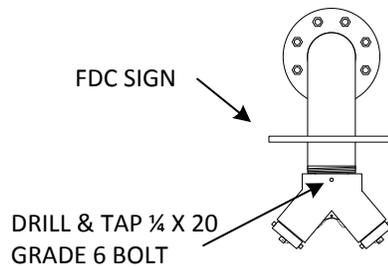
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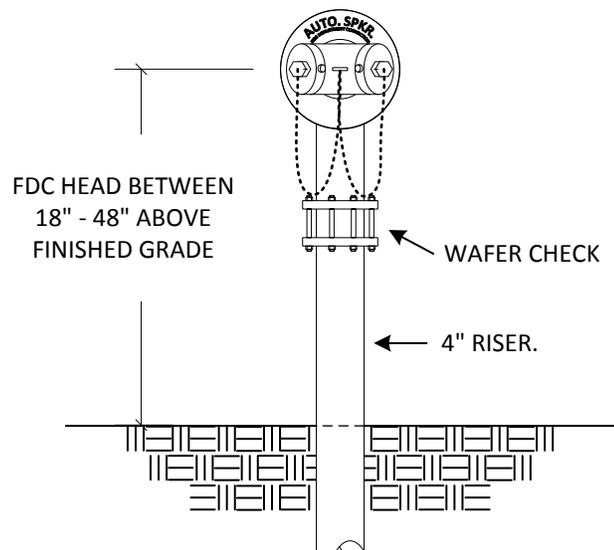
**POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS**

**DIAGRAM F-4.2: SINGLE 4" X 2 1/2" X 2 1/2" FDC DETAIL**

**TOP VIEW**



**FRONT VIEW**





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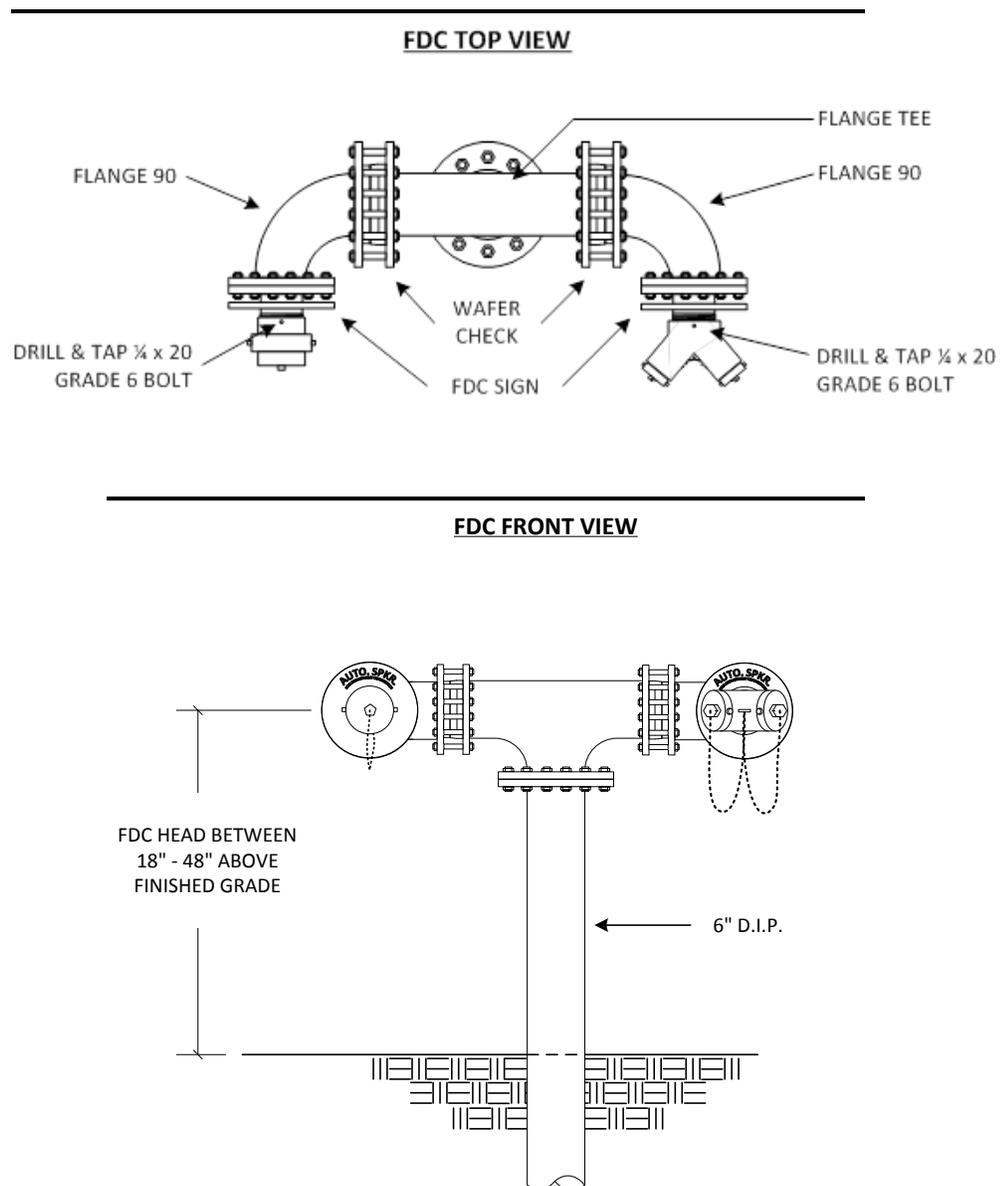
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**DIAGRAM F-4.3: COMBINED 6" X 4" X 2 1/2" X 2 1/2" FDC DETAIL**





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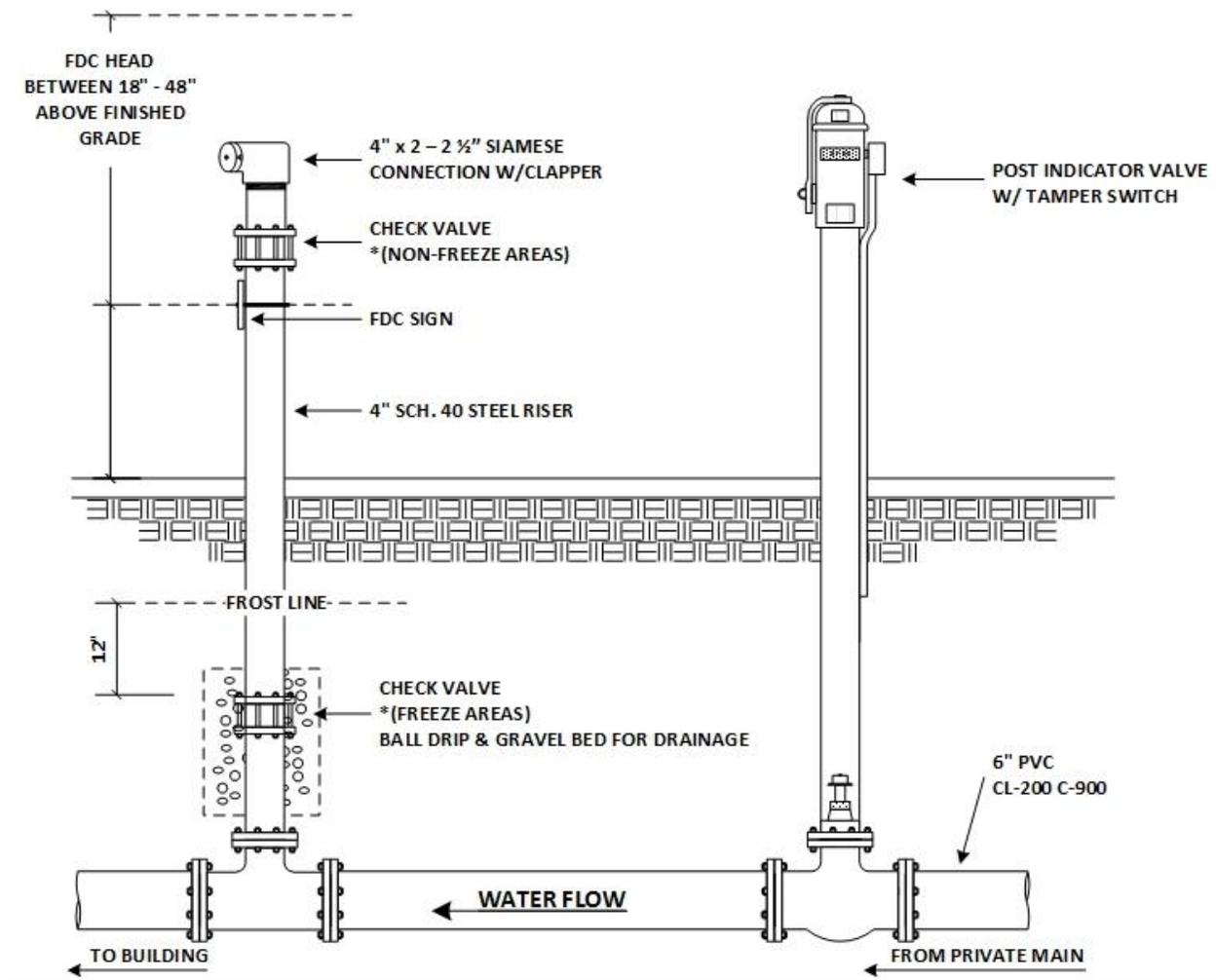
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**DIAGRAM F-4.4: FDC CHECK VALVE DETAIL**





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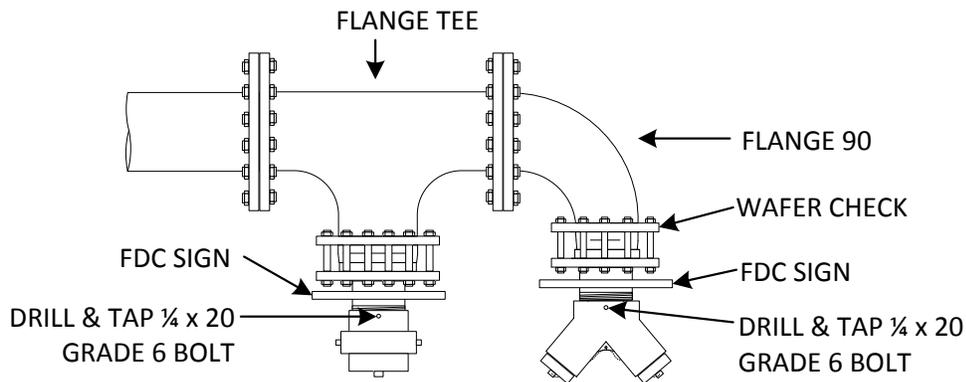
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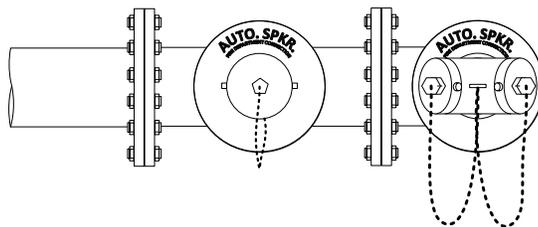
**POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS**

**DIAGRAM F-4.5: FDC ON DOUBLE DETECTOR CHECK VALVE ASSEMBLY**

**FDC TOP VIEW**



**FDC FRONT VIEW**





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**DIAGRAM F-4.6: FDC IDENTIFICATION SIGNAGE DETAIL**

