



# Woodland Fire Department

## Installation and Maintenance of OS&Y and FDC Guideline CRR-010

### PURPOSE

The purpose of this guideline is to establish clear requirements and best practices for the installation, inspection, testing, and maintenance of Outside Stem and Yoke (OS&Y) valves and Fire Department Connections (FDCs) within the City of Woodland. Proper design, installation, and upkeep of these critical fire protection components are essential to ensuring that water-based fire suppression systems operate effectively during an emergency.

This document provides direction to contractors, property owners, facility managers, and fire protection professionals to promote compliance with the California Fire Code (CFC), applicable NFPA standards (including NFPA 13, NFPA 14, NFPA 24, and NFPA 25), and local Woodland Fire Department requirements. By following this guideline, stakeholders will help ensure that fire protection systems remain reliable, accessible, and ready for immediate use by fire department personnel, thereby enhancing life safety and property protection in the community.

### SCOPE

This guideline applies to all new installations, modifications, and ongoing maintenance of Outside Screw and Yoke (OS&Y) valves and Fire Department Connections (FDCs) serving water-based fire protection systems within the City of Woodland. It covers systems installed in accordance with the California Fire Code (CFC), California Building Code (CBC), and applicable NFPA standards, including but not limited to NFPA 13, NFPA 14, NFPA 24, and NFPA 25.

The requirements outlined herein apply to:

- Commercial, industrial, multi-family residential, and public assembly occupancies.
- New construction, tenant improvements, and retrofits affecting fire protection system water supply or fire department access components.
- Routine inspection, testing, and maintenance activities performed by qualified fire protection professionals.

This guideline does not replace or supersede applicable laws, codes, or standards, but serves as a supplemental resource to clarify Woodland Fire Department expectations and local practices. In the event of a conflict between this guideline and a code or standard, the more stringent requirement shall apply.

### REFERENCES

The following codes, standards, and resources are referenced in this guideline and should be consulted for detailed technical requirements:

- **California Fire Code (CFC), Current Adopted Edition** – Sections related to fire department connections, valves, and water supply (including Chapters 9 and 10 and referenced standards).

- **California Building Code (CBC), Current Adopted Edition** – Provisions governing the design and installation of fire protection systems.
- **NFPA 13 – Standard for the Installation of Sprinkler Systems** – Requirements for system components, including FDC placement, valve installation, and signage.
- **NFPA 14 – Standard for the Installation of Standpipe and Hose Systems** – Specifications for fire department connections, piping arrangements, and valve locations.
- **NFPA 24 – Standard for the Installation of Private Fire Service Mains and Their Appurtenances** – Installation guidelines for OS&Y valves, backflow prevention assemblies, and underground piping.
- **NFPA 25 – Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems** – Minimum maintenance frequencies and testing procedures for OS&Y valves and FDCs.
- **NFPA 291 – Recommended Practice for Fire Flow Testing and Marking of Hydrants** – Color coding and marking practices to assist fire department operations.

## **INSTALLATION REQUIREMENTS – OS&Y (OUTSIDE STEM AND YOKE) / BACKFLOW PREVENTION ASSEMBLIES**

All Outside Stem and Yoke (OS&Y) valves and associated backflow prevention assemblies for water-based fire protection systems shall be installed in accordance with the California Fire Code, NFPA 24, California Building Code, and this guideline.

### **1. Location and Placement**

- Install the backflow prevention assembly above finished grade to allow full visual inspection, testing, and maintenance.
- Locate the assembly within the Public Utility Easement (P.U.E.) adjacent to the public right-of-way for accessibility.
- Ensure a minimum of 2 feet of horizontal clearance on all sides for safe and unobstructed access during testing and maintenance.
- Install so that Fire Department Connections (FDCs) can be accessed without interference, allowing hose lines to be readily and conveniently attached to inlets.
- Provide additional 2 ½-inch FDCs where required by the Fire Marshal for specific operational needs.

### **2. Device Type and Approval**

- Use a Double Check Detector Assembly (DCDA) from the State Department of Health Services' current approved list. The list is available at the City of Woodland Public Works offices.
- For devices 2 inches and larger, install an insulating flange kit in bolted flanges between the assembly and the meter box (see detail at end of guideline).

### **3. Enclosures and Protection**

- Provide a rigid insulated backflow prevention enclosure to prevent tampering and protect from environmental damage.
- The enclosure shall be:
  - Green or a similar neutral color to blend with surrounding features.
  - Constructed with epoxy fusion coating or an equivalent corrosion-resistant method.

- Model: Placer Waterworks E1AW or approved equal.
- If the backflow location has restricted public access, the City Engineer may determine that a rigid enclosure is not required.

#### **4. Testing and Approval**

- Performance testing is required prior to final approval.
- Contact the City of Woodland Municipal Service Center at 530-661-5962 for testing information and required forms.
- Testing shall be conducted by a certified tester and documented per NFPA 25 and local reporting requirements.

### **MAINTENANCE REQUIREMENTS – OS&Y (OUTSIDE STEM AND YOKE) VALVES / BACKFLOW PREVENTION ASSEMBLIES**

OS&Y valves and backflow prevention assemblies are critical for controlling water supply to fire protection systems and preventing contamination of the public water system. Routine inspection, testing, and maintenance ensure they remain in proper working condition and compliant with applicable codes.

#### **1. General Maintenance Responsibilities**

- Property owners or their designated representatives are responsible for ensuring that all OS&Y valves and backflow prevention assemblies are maintained in accordance with NFPA 25, the California Fire Code, and the City of Woodland Fire Department requirements.
- All maintenance and testing must be performed by qualified personnel trained and certified in the inspection and servicing of fire protection system components.

#### **2. Inspection and Testing Frequencies**

- Per NFPA 25 and local requirements:
  - **Monthly (Visual)**
    - Verify the OS&Y valve stem is in the fully open position (stem visible).
    - Check for leaks, corrosion, physical damage, or obstructions.
    - Confirm tamper seals and supervisory switches (if present) are intact and functional.
  - **Annually**
    - Conduct a full operational test by closing and reopening the OS&Y valve to ensure smooth operation and that the stem moves freely.
    - Inspect valve packing for leakage and tighten or replace packing as needed.
    - Check that the valve is properly lubricated and free of rust or debris.
  - **Backflow Prevention Assembly Testing**
    - Test annually in accordance with California Code of Regulations and Title 17.
    - Testing must be completed by a California Department of Public Health–certified backflow prevention assembly tester.

- Submit all test reports to the City of Woodland Municipal Service Center.

### 3. Corrective Actions

- Repair or replace any damaged or inoperative OS&Y valves or backflow prevention assemblies immediately.
- Use only manufacturer-approved replacement parts and ensure all repairs comply with NFPA and local requirements.
- If a component is taken out of service, notify the Woodland Fire Department immediately and implement fire watch procedures as required.

### 4. Recordkeeping

- Maintain inspection, testing, and maintenance records for a minimum of five years, available for review by the Woodland Fire Department upon request.
- Records must include:
  - Date of inspection or test
  - Name of inspector/tester and certification number
  - Test results and any deficiencies found
  - Corrective actions taken

## **INSTALLATION REQUIREMENTS – FIRE DEPARTMENT CONNECTIONS (FDCS)**

Fire Department Connections (FDCs) provide the Woodland Fire Department with a means to supplement the water supply to a building's fire sprinkler or standpipe system during an emergency. Proper installation ensures rapid connection, unobstructed access, and reliable performance.

### 1. Location and Accessibility

- Locate the FDC on the street side of buildings, visible and accessible from the public way, or as otherwise approved by the Fire Marshal.
- Position the FDC so it is within 100 feet of a fire hydrant (as measured along an unobstructed, paved route), unless otherwise approved.
- Maintain unobstructed access year-round. FDCs shall not be blocked by landscaping, vehicles, fencing, or other obstructions.
- Ensure the mounting height is between 18 inches and 48 inches above finished grade, per NFPA 13/14.

### 2. Orientation and Clearances

- The FDC shall be oriented so that hose lines can be readily and conveniently attached without interference from walls, fences, plantings, or other equipment.
- Maintain a minimum of 3 feet of clearance in all directions from the FDC to allow firefighters full access during operations.
- Provide additional 2 ½-inch FDC inlets if required by the Fire Marshal for system capacity or operational needs.

### 3. Type and Configuration

- FDCs for sprinkler systems shall be a Siamese connection with two 2 ½-inch female National Standard Thread (NST) swivel inlets equipped with approved caps or plugs.
- FDCs for standpipe systems shall comply with NFPA 14 and may require larger or multiple inlets depending on system demand.
- All inlet swivels shall be equipped with breakaway caps or plugs to prevent debris entry while allowing rapid firefighter access.

#### **4. Signage and Identification**

- Provide a durable, weather-resistant sign above or next to the FDC with letters at least 1 inch in height reading "FIRE DEPARTMENT CONNECTION" and identifying the system served (e.g., SPRINKLER, STANDPIPE, SPRINKLER/STANDPIPE).
- Lettering shall be red on a white background or as otherwise approved by the Fire Marshal.
- Where the FDC is not visible from the street or fire apparatus access point, provide approved directional signage.

#### **5. Piping and Backflow Considerations**

- Install per NFPA 13, NFPA 14, and NFPA 24, ensuring the FDC connects to the system side of the check valve and is arranged to supplement the system without bypassing the backflow prevention assembly.
- All underground piping to the FDC shall meet the same material and installation standards as other private fire service mains.

#### **6. Weather Protection**

- In cold-weather locations, provide automatic drip valves or approved means to prevent water from freezing in the FDC piping.
- All exposed metal surfaces shall be corrosion-resistant or coated to withstand environmental conditions.

### **MAINTENANCE REQUIREMENTS – FIRE DEPARTMENT CONNECTIONS (FDCS)**

Fire Department Connections are critical for delivering supplemental water to fire protection systems during an emergency. Regular inspection, testing, and maintenance ensure they remain operable, accessible, and ready for immediate use by the Woodland Fire Department.

#### **1. General Maintenance Responsibilities**

- Property owners or their designated representatives are responsible for ensuring all FDCs are maintained in accordance with NFPA 25, the California Fire Code, and Woodland Fire Department requirements.
- Maintenance and testing shall be performed by qualified personnel experienced in fire protection system inspection and repair.

#### **2. Inspection and Testing Frequencies**

- Per NFPA 25 and local policy:
  - **Quarterly (Visual)**
    - Confirm that the FDC is unobstructed, visible, and accessible.

- Ensure caps/plugs are in place and undamaged, or breakaway caps are properly installed.
- Check swivel connections for free movement; lubricate if needed.
- Verify gaskets are present, pliable, and in good condition.
- Confirm identification signage is legible and clearly indicates the type of system served (e.g., SPRINKLER, STANDPIPE).

- **Annually**

- Remove caps/plugs and flush FDC piping to ensure it is free from debris, obstructions, or insect nests.
- Verify check valves are operational and not leaking.
- Test automatic drip devices in cold-weather locations to ensure proper drainage.
- Confirm piping between the FDC and system is intact, leak-free, and arranged per NFPA requirements.

- **After Each Use**

- Clean and lubricate inlets and swivels.
- Replace any damaged caps, plugs, or gaskets.
- Inspect for damage caused by apparatus connection or fireground operations.

### **3. Corrective Actions**

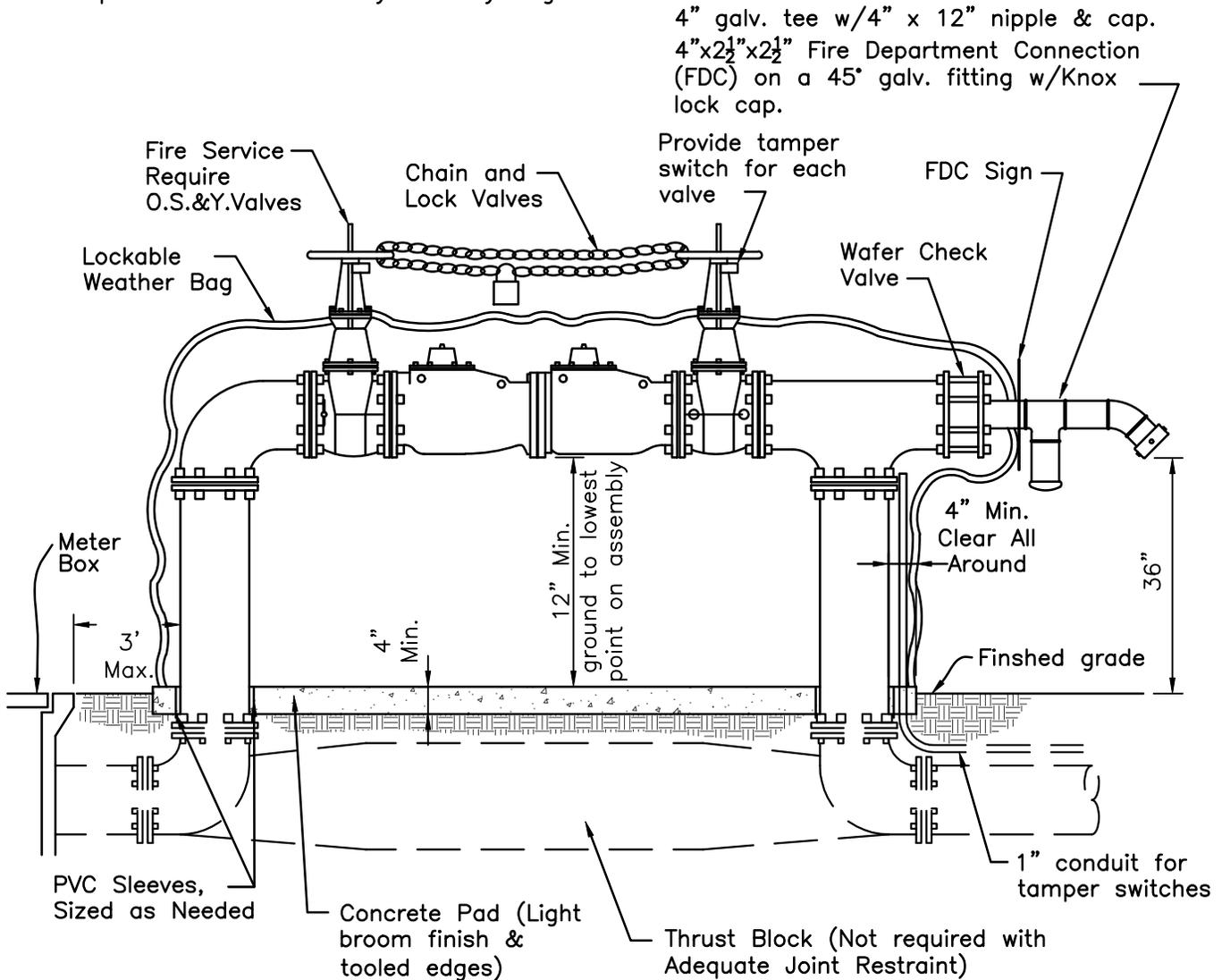
- Replace missing or damaged caps/plugs immediately to prevent debris entry.
- Repair seized swivels promptly to ensure hose connections can be made without delay.
- If the FDC or its piping is out of service, notify the Woodland Fire Department immediately and implement fire watch procedures as required.

### **4. Recordkeeping**

- Maintain inspection, testing, and maintenance records for a minimum of five years, available for review by the Woodland Fire Department upon request.
- Records must include:
  - Date of inspection or test
  - Name of inspector/tester and company
  - Test results and deficiencies noted
  - Corrective actions taken

**NOTES:**

1. Install Backflow Prevention Assembly above finished grade. Provide 2' of horizontal clearance for testing access and maintenance.
2. Test required prior to final approval; contact City Municipal Service Center, (530) 661-5962 for testing information and forms.
3. Locate within the P.U.E. adjacent to the public right of way.
4. Use insulating flange kit in bolted flanges between assembly and meter box for 2" and larger devices. See Detail 0712.
5. Provide a Double Check Detector Assembly from the State Department of Health's current approved list. List is available at Public Works offices.
6. Provide rigid insulated backflow prevention enclosure to prevent tampering. Green color or similar to blend in with adjacent features, Epoxy fusion coating or equivalent method. Enclosure shall be Placer Waterworks E1AW or approved equal.
7. Orientation of the FDC shall be such that the hose lines may be readily and conveniently attached to the inlets without interference.
8. Provide additional 2½" FDC as required by Fire Marshall for specific use.
9. If public access to the backflow location is restricted, the rigid enclosure may not be required as determined by the City Engineer.

**TYPICAL SIDE VIEW**

REVISION



**CITY OF WOODLAND**  
COMMUNITY DEVELOPMENT DEPARTMENT  
ENGINEERING DIVISION

APPROVED BY  
DATE 03/12/21 BRENT MEYER, CITY ENGINEER

**Fire Department  
Connection**

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