

## 21 05 19 – Meter and Gauges for Fire-Suppression Systems

### 1. General

The following are the requirements for fire lines on the City of Durham Water System:

- A. There shall not be any unprotected interconnection between potable water and fire lines.
- B. All backflow prevention assemblies installed on fire suppression systems shall be either a Double Check Detector Assembly (DCDA) for low hazard installations or a Reduced Pressure Detector Assembly (RPDA) for high hazard installations. All meters on the detector by-pass must read in cubic feet. Backflow prevention assemblies installed in fire lines shall be placed in the horizontal position unless prior written approval from the Cross-Connection Control Section is obtained. All assemblies used in fire suppression systems must have USC and/or ASSE as well as FM approvals.
- C. All equipment must be supported directly by structural members with adequate load-bearing capacity and material integrity, using appropriate anchoring/connection hardware. Under no circumstances may equipment be supported by connections to finish materials. For example, equipment hung from toggle bolts through plaster-on-lath, gypsum board or ACT ceilings is **not acceptable**.

### 2. Backflow Preventer Approvals

Facilities are broken down into the following basic categories:

- A. Low Hazard – DCVA:
  1. Fire sprinkler systems without booster pump facilities or chemical additives
  2. Connection to tanks, lines and vessels that handle non-toxic substances
  3. Lawn sprinkler systems without chemical injection or booster pumps
  4. Automotive service stations
  5. Bakeries and beauty shops with no health hazard
  6. Bottling plants with no back pressure
  7. Most commercial establishments
- B. High Hazard – RPZ:
  1. Lawn Sprinkler Systems with chemical injection or booster pumps
  2. Wastewater Treatment Plants
  3. Connection to an unapproved water system or unapproved auxiliary water supply
  4. Connection to Tanks, Pumps, Lines, Steam Boilers and Vessels that handle sewage or lethal substances, including toxic or radioactive substances

5. Fire Sprinkler Systems with booster pump facilities or chemical additives
  6. Buildings with five or more stories above ground level
  7. Hospitals, Dental Offices and other Medical Facilities
  8. Morgues, Mortuaries and Autopsy Facilities
  9. Metal Plating Facilities
  10. Bottling Plants subject to back-pressure
  11. Canneries
  12. Battery Manufacturers
  13. Exterminators
  14. Lawn Care Companies
  15. Chemical Processing Plants
  16. Dairies
  17. Film Laboratories
3. Assemblies 2 1/2 inch Size and Larger (Fire Suppression System Only)
- A. There shall not be any unprotected interconnection between potable water and fire lines. Backflow prevention devices used on fire suppression systems are required to include Factory Mutual approved resilient wedge OS&Y (outside stem and yoke) gate valves.
  - B. Wye Strainers: No strainer shall be allowed on a fire suppression system. However, all other systems utilizing reduced pressure or double check valve assemblies shall have an approved wye mesh strainer as provided by the manufacturer installed immediately upstream of the backflow preventer's inlet shut-off valve.
  - C. In no case shall a backflow preventer be smaller in line size than its supply piping.