

# APPENDIX H

## BACKFLOW PROTECTION FOR FIRE LINES

### 1. Purpose

In the interest of protecting the public's potable water supply from possible contamination, effective January 1, 1996, the City of Fort Worth Water Department began requiring backflow protection on all new fire line installations. As in other situations encountered in cross-connection control, the degree of backflow protection necessary for a particular fire protection system is dependent on specific conditions present. Pressure losses across backflow prevention assemblies must be accommodated in the design or redesign of the fire protection system if it is to function properly. This factor is particularly important when redesigning existing fire protection systems. All backflow assemblies will be U.L. listed and U.S.C. approved. Backflow Prevention Assemblies detailed herein shall be installed/constructed with the provisions set forth in the City of Fort Worth Water Department Ordinance on Backflow Prevention. (Ordinance 12274, Division 3)

### 2. Classification and requirements for Backflow Protection

TYPE OF FIRE LINE	REQUIRED PROTECTION
A. Fireline with no chemical additive and no additional water supply	Double Check Detector Assembly (DCDA) *
B. Firelines with fire hydrants, no chemical additive and additional water supply	Double Check Detector Assembly (DCDA) *
C. Fire protection system utilizing chemical additives	Air Gap Separation or Reduced Pressure Principle Assembly (RP) *
D. Fire protection system with access to an auxiliary water supply	Air Gap Separation or Reduced Pressure Principle Assembly (RP) *
E. Firelines tied into domestic lines that are already metered	Double Check

Systems with only a single chemical loop, e.g., anti-freeze loop, foam, etc., may install the backflow protection on the loop, however, an expansion chamber will be recommended as a part of the installation to compensate for thermal expansion. Systems containing more than one loop must provide backflow protection for the entire system. Existing chemical loops and systems with access to an auxiliary water supply shall be retrofitted with approved backflow protection. \* **Note:** All fireline systems, not otherwise metered, shall be equipped with a detector check (bypass meter) assembly.

### 3. Backflow Prevention Approval

Backflow prevention assembly approval must be obtained from the City of Fort Worth Water Department, Cross Connection Section, prior to installation. The installation shall conform to the attached guidelines. Direct any questions or comments to the Cross Connection Section at (817) 392-8375.

- A. To install the Backflow Assembly inside a building, the distance from the tap to assembly shall not be over 100 feet. Branch lines from tap to assembly are not allowed.
- B. For **firelines** over 100 feet from tap to assembly, the assembly shall be installed in an approved vault, or above ground (type of assembly) at property line. Install to meet City testing procedures. The assembly will be located on private property, not in an easement or right of way.
- C. All installations shall be horizontal unless approved by Administrative Authority. To be installed in the vertical position, the assembly has to be:
  - 1. Approved by USC for vertical installation;
  - 2. Equipped with spring loaded checks;
  - 3. Installed in “Up flow” position; and
  - 4. Approved by Administrative Authority at (817) 392-8375 Prior to installation.

### 4. Testing:

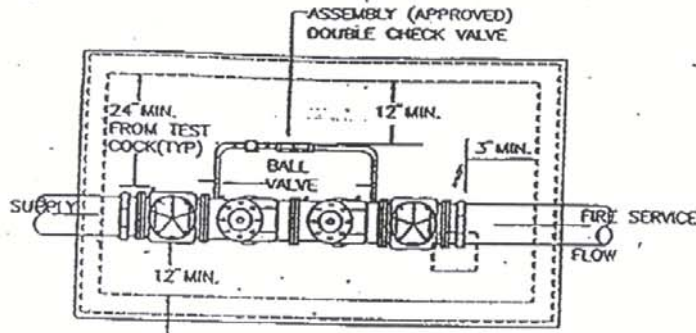
- A. Backflow Testing and Inspections of New Firelines: Call (817) 392-8375 to coordinate time.
  - 1. The fireline contractor should make arrangements with a private Backflow Prevention Assembly Tester that is registered with the City to test firelines. The City Inspector will need to witness the test procedures and will approve installations which meet testing and installation specifications.
  - 2. Backflow assemblies shall meet testing / access specifications for distance from wall to floor. See attached vault details.
  - 3. Backflow assemblies inside buildings, which are more than 5 foot above floor level shall have an approved permanent platform for testing and maintenance.
- B. Static and Residual Tests of existing supply lines & hydrants: Cesar Zavala, (817) 392-8275.
- C. Hydrostatic/Pressure Tests for firelines: Fire Department, Capt. James, (817) 392-6846.

All maintenance and annual testing thereafter is the responsibility of the property owner or lessee. Annual testing is to be completed by registered tester in accordance with City Ordinance 12274.

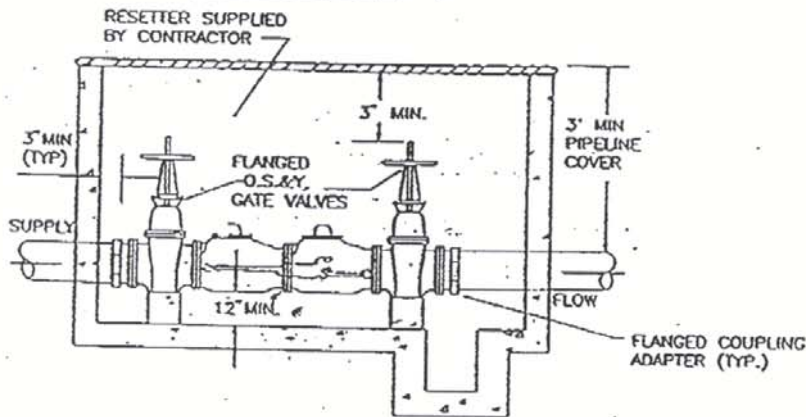
## 5. Existing Firelines

- A. Retrofitting existing firelines is necessary if there is a chemical additive used, or if there is an alternate water source tied into system. This is a HIGH HAZARD RETROFIT.
- B. Retrofitting an existing Low Hazard fireline is not required unless size of the main is changed or replaced to accommodate pressure loss for additional sprinkler heads.
- C. Repair or replacement of existing systems may require a City valve crew to turn valves off and on, since **only City employees are permitted to operate water main valves**. If this service is necessary, please contact Water Field Operations at (817) 392-8300.

## 6. Vault Details Attached



*TOP VIEW*



*SIDE ELEVATION*

**DOUBLE DETECTOR CHECK** ( for fire line)

NO SCALE

**NOTES:**

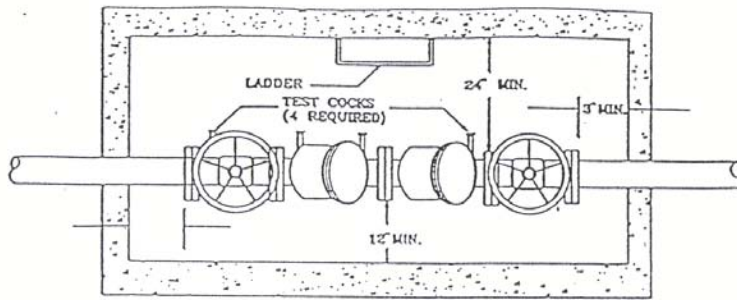
- 1) BRASS PLUGS TO BE INSTALLED IN ALL TEST COCKS
- 2) IF DOMESTIC SERVICE IS INSTALLED OFF THE FIRE, A SECOND GATE VALVE MUST BE INSTALLED OUTSIDE THE VAULT. JOINT RESTRAINT MUST BE PROVIDED BETWEEN THIS VALVE AND THE MAIN.
- 3) STRAINER MAY BE REQUIRED. SEE DETAIL BACK-SIDE THIS SHEET.

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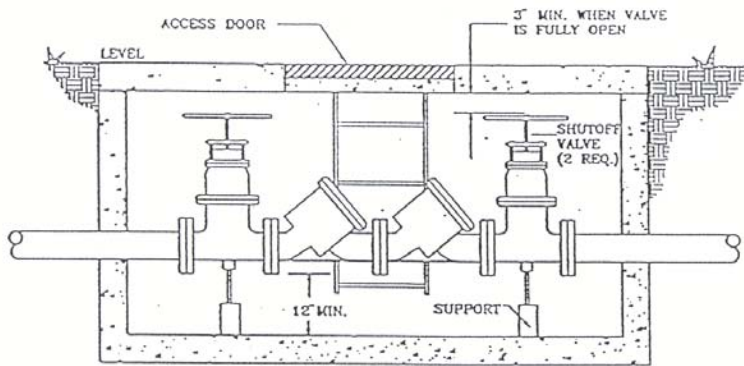
Meter Vault should be Wet Pour Meter Vault from Brooks Products or Oldcastle Precast, Inc. or equal. The minimum concrete thickness for the vault should be 6". The concrete should have design strength of 5500 psi at 28 days, H-20 Loading with ASTM A-615 Grade 60.

Access Hatch should be J-5AL or JD-3DL from Bilco with Recessed HASP covered by Hinged Lid Flush with surface or equal.

Aluminum ladders shall be as manufactured by Heron Industries, Inc. of Fort Worth or Equal. Ladder rails shall be 1 1/2" schedule 40 aluminum pipe (6063 alloy) with end caps. Rungs shall be 3/16" thick aluminum tread plate (3003 alloy) bend to form 2 1/2" x 1 1/2" channel. Top rung of ladder shall be no more than 6" below hatch. Bottom rung of ladder shall be no more than 12" above floor of vault. Wall brackets shall be 1/4" x 2 1/2" x 10" bent plate (6030 alloy with 8" standoff).



TOP VIEW Ladder Required 5ft. & Deeper



SIDE ELEVATION

## DOUBLE CHECK VALVE LARGE ASSEMBLY (for 3" and larger meter)

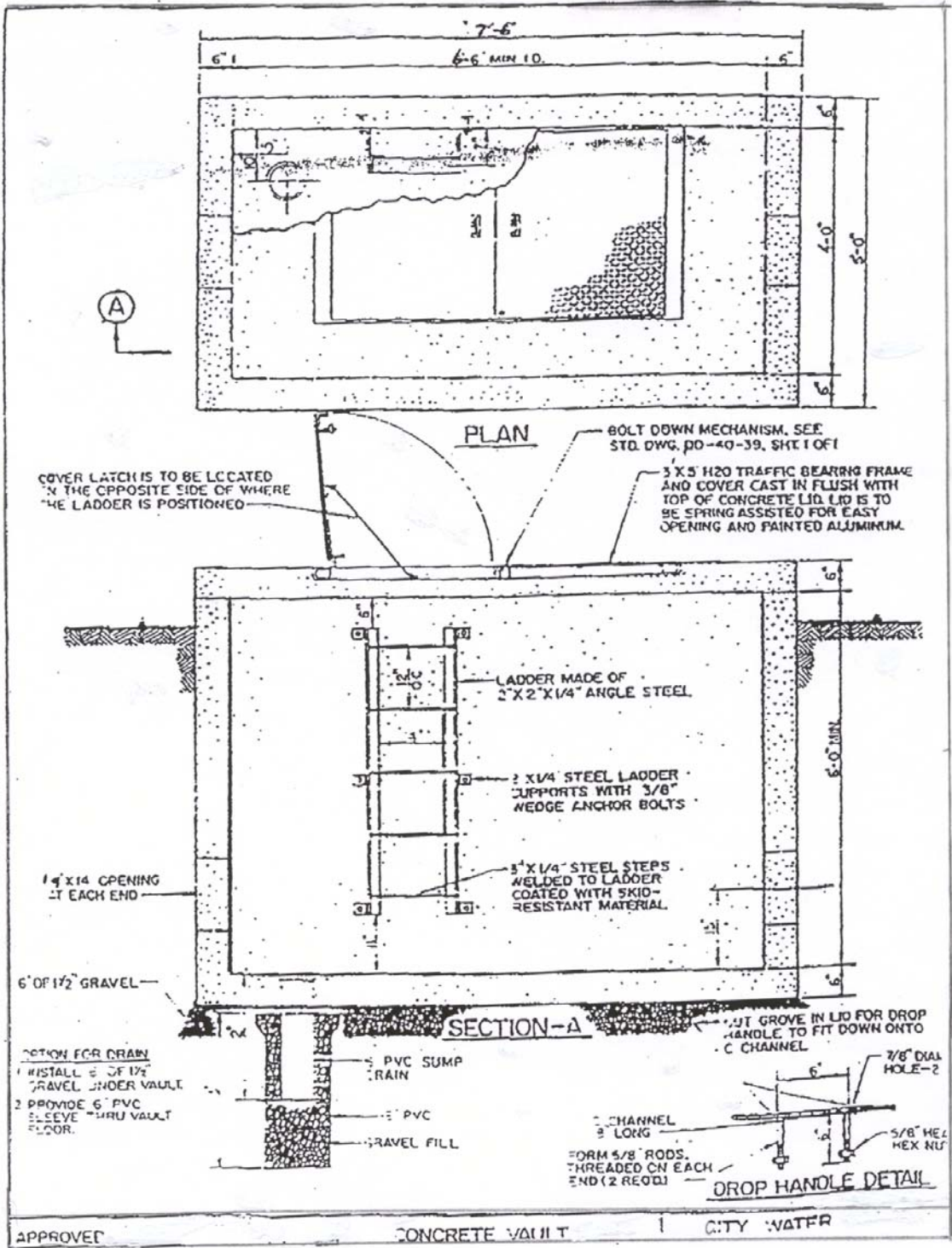
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5-03-99



## **FIRELINE TEST PROCEDURES**

1. The Fort Worth Water Department will no longer do any initial testing of backflow assemblies on firelines regardless of location [in vault or inside building].
2. All testing of firelines must be scheduled with the Water Department 48 hours in advance, by calling 817-392-8375 during normal business hours. Do not schedule, after hours, via voice mail.
3. All testing will be done by private fireline testing contractors that are registered with the Fort Worth Water Department.
4. Fort Worth Water Department employees will observe all tests.
5. Inspection of associated vault and installation will be done by the Fort Worth Water Department at time of fireline test.
6. If installation of assembly, including vault, is not completed, the Water Department will not approve inspection. Testing and inspection will need to be rescheduled.
7. Final approval [green tag] will not be assigned until all the above provisions have been met.