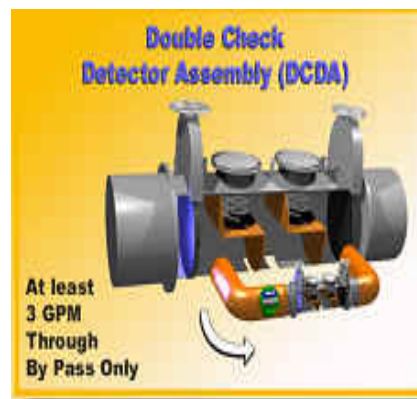


Backflow/Cross Connection Control Program

Pursuant to Title 30, Texas Administrative Code, Section 290.44 (www.TCEQ.com), it is the responsibility of the City of Highland Village to protect its drinking water supply by instituting and enforcing a cross connection program. The program includes the installation of backflow prevention assemblies where deemed appropriate or necessary.

It is a logical assumption that because water is always under pressure, it can only flow in one direction. However, it is possible for the flow to be reversed. Water will always flow towards the point of lowest pressure. If a main line in our system should break, or if a fire occurred and the fire department opened several hydrants, the pressure in our water mains could drop dramatically, causing a reversal of flow. The potential for this reversal of flow is why our department is concerned about the possibility of backflow of contaminants into our water system.



Key Definitions

- **CROSS CONNECTION** is any physical arrangement where a public water system, such as the City of Highland Village, is connected directly or indirectly with any other apparatus that may cause any substance, other than the City's drinking water, to enter the drinking water system.
- **BACKFLOW** means the flow in the direction opposite to the normal flow or the introduction of any foreign liquids, gases, or substances into the water distribution system.

Some cross connections are necessary and cannot be eliminated. Therefore, appropriate isolation methods and assemblies must be employed to protect against the potential of a backflow incident.

Applicability

As a condition of water service, all customers shall install, maintain, and operate their piping and plumbing systems in accordance with the City's Plumbing Code, Cross Connection Control and Prevention Ordinance(s) and TCEQ regulations. If there is a conflict between this guidance document and these codes, the more restrictive provision shall apply.

Circumstances Requiring Use of Backflow Assemblies

At a minimum, a backflow prevention assembly will be required in each of the following circumstances:

1. When the nature and extent of any activity at a premise, or the materials used in connection with any activity at a premise, or materials stored at a premise, could contaminate or pollute the potable water supply.
2. When internal cross connections are present that is not correctable.
3. When intricate plumbing arrangements are present that make it impractical to ascertain whether cross connections exist.
4. When a premises has a repeated history of cross connections being established or re-established.
5. When entry to a premise is unduly restricted so that inspections for cross connections cannot be made with sufficient frequency to assure that cross connections do not exist.
6. When materials are being used such that, if backflow should occur, a health hazard could result.
7. When installation of an approved backflow prevention assembly is deemed by an Inspector to be necessary to accomplish the purpose of these regulations.
8. When an appropriate cross connection survey report form has not been filed with the Director.
9. When a fire sprinkler system using non-potable piping material is connected to the City's water system.
10. In all new nonresidential construction there shall be installed an approved backflow assembly at the service connection. The type of the assembly will be commensurate with the degree of hazard as determined by an Inspector.

11. When a building is constructed on commercial premises, and the end use of such building is not determined or could change, a reduced pressure principle backflow prevention assembly shall be installed at the service connection to provide protection of the public water supply in the event of the most hazardous use of the building.
12. If a premises is required to have backflow prevention assemblies, but water cannot be turned off during the testing of such assemblies, the premises shall be equipped with dual backflow prevention assemblies of the same type so that testing, repair and maintenance can be performed.
13. Any used water return system that has received approval from the Director.
14. If a point-of-use assembly has not been tested or repaired as required by this Division, a premise isolation assembly shall be required.
15. If a Backflow or Plumbing Inspector determines that additions or rearrangements have been made to the plumbing system without the proper permits as required by the Plumbing Code, premise isolation shall be required.
16. All multistory buildings or any building with a booster pump or elevated storage tank.
17. Retrofitting shall be required on all health hazard connections and wherever else the Director deems retrofitting necessary. (No "Grand fathering" for health hazards – ever.)
18. Any premises requiring multiple service connections for adequacy of supply and/or fire protection shall have a backflow assembly on each service connection. The assembly shall be commensurate with the degree of potential hazard that could occur in the event of an interconnect between any of the buildings on the premises.

Installation Specifications

Backflow prevention assemblies shall be installed in accordance with the City's Plumbing Code and City ordinances. The assembly installer shall obtain the required permits prior to installation and shall have the assembly inspected by a certified cross connection inspector and as required by the Plumbing Code and City ordinances.

1. No part of a reduced pressure principle backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. All assemblies installed below grade shall have non-ferrous threaded plugs inserted in the test ports.
2. Assemblies shall be installed at the point of delivery of the water supply of the potential hazard, before any branch in the line. An Inspector may specify other areas for installation of the assembly. The assembly shall be protected from freezing and other severe weather conditions.
3. All vertical installations shall be approved, in writing, prior to installation and all vertical installations must be nationally recognized and certified as an approved testable device.

4. The assembly shall be readily accessible with adequate room for maintenance and testing. Assemblies two (2) inches and smaller shall have at least a six (6) -inch clearance on all sides of the assembly. All assemblies larger than two (2) inches shall have a minimum clearance of twelve (12) inches on the backside, twenty-four (24) inches on the test cock side, twelve (12) inches below the assembly and thirty-six (36) inches above the assembly.
5. If the Director or his designee grants written permission to install the backflow assembly inside of a building, the assembly shall be readily accessible between 8:00 a.m. and 5:00 p.m., Monday through Friday.
6. If an assembly is installed pursuant to Ordinance #06-1003, and is four (4) inches or larger and is installed five (5) feet or higher above the floor, it shall be equipped with a rigidly and permanently installed scaffolding acceptable to the Director or his designee. This installation shall also meet all applicable requirements set out by the U.S. Occupational Safety and Health Administration and the State of Texas occupational safety and health laws.
7. RP assemblies may be installed in a vault only if relief valve discharge can be drained to daylight through a bore sight type drain. The drain shall be of adequate capacity to carry the full rated flow of the assembly and shall be screened on both ends.

Other requirements

Thermal expansion - It is the responsibility of the property owner to eliminate the possibility of thermal expansion.

Special considerations

Pressure Loss - Any water pressure drop caused by the installation of a backflow assembly shall not be the responsibility of the City. The Department may give reasonable assistance to a property owner regarding information on adequate sizing of assemblies and proper plumbing practices to provide for required pressure and flows for fire protection.