RULES AND REGULATIONS
FOR
WATER AND WASTEWATER SERVICE

APPENDIX G

BACKFLOW PREVENTION AND CROSS CONNECTION CONTROL (BPCCC) PROGRAM

Last Approved Revision: January 25, 2018

TABLE OF CONTENTS

SECTION I - GENERAL

1.1 Authority

Authority to implement and maintain this Cross-Connection control program is contained in these Rules and Regulations and the following documents and or organizations:

1. C.R.S. 25-1-114, 25-1-114.1, (Colorado Department of Public Health and Environment (CDPHE)).

2. CDPHE Regulation 11.39, Back Flow Prevention and Cross-Connection Control Guidance. Colorado Primary Drinking Water Regulations Article 14, (Hazardous Cross-Connections).

3. Water Quality Control Division-Cross-Connection Control Manual, CDPHE.

4. Occupational Safety and Health Administration Federal Register #202 part 2, page 22234, subparts J.

5. The most recently adopted version of the International Building Code.

6. The most recently adopted version of the Colorado Plumbing Code and/or the International Plumbing Code

7. The most recently adopted version of the International Swimming Pool and Spa Code.

The following manuals are incorporated into these Rules and Regulations and the District's Cross-Connection control program, by reference:

1. "Cross-Connection Control Manual," Environmental Protection Agency (EPA) 570/9-89-007.

1.2 Protection of Potable Water Quality

The District is responsible for protecting the potable public drinking water supply from contamination or pollution that could enter the Water System through a connection from another water system or by means of backflow from a customer's system.

SECTION II – APPROVED BACKFLOW PREVENTION DEVICE

2.1 Approved Backflow Prevention Device (Assembly) Required

Per 25-1-114, 25-1-114.1, C.R.S. CDPHE Water Quality Control Division Regulation 11.39 and these Rules and Regulations, an Approved Backflow Prevention Device (Assembly) is required on all Water Services. All laws and regulations apply as of the adoption of these Rules and Regulations, regardless of the age of the Water Service and/or the age of the building, home, facility or structure served. No "grandfathering" of this requirement exists or shall be asserted.

1. All fire sprinkler systems shall conform to the National Fire Protection Association (NFPA) pamphlets number 13 and 24.
2. All fire sprinkler services shall have a minimum protection of an Approved Double Check Valve for Containment of the system, and all valves and assembly plumbing shall be approved by the local fire protection jurisdiction.
3. Backflow devices used on fire lines shall have outside stem and yoke (OS&Y) valves and be listed by the National Fire Protection Association.
4. All glycol (ethylene or propylene) or anti-freeze fire suppression systems shall have an Approved Reduced Pressure Zone Device for Containment.
5. Dry fire systems shall have an Approved Double Check Valve installed upstream of the air pressure valve.
6. A residential unit with a common fire sprinkler and domestic Water Service shall have a double Check Valve when no chemicals are used.
7. All Backflow Prevention Devices (Assemblies) shall be Approved by the District.
8. Backflow Preventers that do not meet the requirements of the District shall be replaced with an Approved Backflow Prevention Device (Assembly) at the time the device fails an operational test specified by the District.

2.2 Submittal Requirements:

For determination of the need and type of Backflow Prevention Device required, a complete set of building plans including Backflow and Meter Assembly Design, Approved by the applicable building permit authority is required to be submitted by the Customer with a New Account Application.

2.3 Standards for Backflow Prevention Devices:

The District will determine the need and type of Backflow Prevention Device appropriate to the Customer's water use.

2.4 Installations:

1. Backflow Prevention Devices shall be installed in accordance with instructions and approved designs.

2. Backflow Prevention Device installations shall be inspected and Approved by the District prior to use.

3. All Backflow devices shall be installed in the horizontal position. Devices manufactured and identified for other alignments may be installed if such devices are in accordance with the design and FCCCHR approval, and approved by the District.

4. A Pressure Type Vacuum Breaker shall be used where the device will not be subjected to Back Pressure and installed a minimum of 12 inches above the highest piping or outlet downstream of the device in a manner to preclude Back Pressure, but no higher than 60 inches above ground level.

5. An atmospheric non-Pressure Type Vacuum Breaker shall be used only where the device is:
    a. Never subjected to more than 12 hours continuous pressure;
    b. Installed with the air inlet in a level position and a minimum of six inches above the highest piping or outlet it is protecting; and
    c. No valves shall be installed downstream of atmospheric non-Pressure Type Vacuum Breakers.

6. A single Check Valve shall not be considered to be a Backflow Prevention Device.

7. A Double Check Valve Assembly may be installed in a below-grade vault when the vault is properly constructed, in accordance with Approved plans, Degree of Hazard, and insulated to prevent freezing.

8. A reduced pressure Backflow Preventer shall be used only if:
    a. The reduced pressure assembly will not be submerged under water;
    b. There is a drain twice the diameter of the service to daylight;
    c. It is installed in a horizontal position; and
    d. It is installed a minimum of 12 inches and a maximum of 36 inches from the floor.

9. Basement installations:
    a. May be made where a drain large enough to allow the maximum flow of water the size of the reduced pressure Backflow Preventer is capable of discharging under twice the normal static pressure for the system. Refer to flow chart in Colorado Cross Connection Control Manual, Appendix D Discharge Flow Rate;
    b. An acceptable high water alarm system is installed.
    c. There are no electrical components in the general area of the assembly;
    d. Only factory-supplied funnels shall be used to remove the periodic discharge from the assembly and the piping system must have an adequate Air Gap at the termination of the run;

10. The reduced pressure Backflow Preventer shall be kept from freezing.

11. Device must be tested and Approved by the District when installed; and annually tested by a certified inspector.

12. In no case is it permissible to connect the relief valve discharge on the reduced pressure device to a sump, drainage ditch, etc.

13. All Backflow Prevention Devices shall be installed in an accessible location to facilitate maintenance, testing and repair.

14. All Backflow Prevention Devices shall be installed downstream of the water meter.

15. Before installing a Backflow Prevention Device, pipelines will be thoroughly flushed to remove foreign material.

16. Backflow prevention valves are not to be used as the inlet or outlet valve of the water meter. Test cocks are not to be used as supply connections.

17. To ensure that Backflow Prevention Devices continue to operate satisfactorily, the device(s) must be tested at the time of installation and on an annual schedule thereafter. Such test(s) shall be conducted in accordance with ASSE or ABPA field test procedures, as directed by the Colorado Department of Public Health and Environment, to ASSE or ABPA performance standards.

18. The District shall inspect all new and replacement installations.

19. All costs for design, installation, maintenance, repair and testing are to be borne by the Customer.

SECTION III – TESTING AND COMPLIANCE

3.1 Testing and Maintenance

At least once per year, as required by CDPHE Regulation 11.39 each Customer shall have a certified test conducted on the Backflow Prevention Device on each of its Water Services and deliver the certificate and results of the test to the District. In those specific instances in which the District deems the Hazard to be great enough, certified inspections and/or tests may be required more than once per year. Any and all tests shall be at the expense of the Customer and shall be performed by a certified technician. An inspection of the device may be performed by the District at any time.

As necessary or required, the Customer's Backflow Prevention Device(s) shall be repaired or replaced at the expense of the Customer whenever the device is found to be defective. Records of all such tests, repairs or replacement shall be kept by Customer, a copy of which shall be submitted to the District.

All testing gauges used in the District Water System shall be checked yearly for accuracy.

The District retains the right to test or otherwise check the installation and operation of any Backflow Prevention device(s) at any time to assure proper operation.

3.2 Compliance

Failure of the Customer to cooperate in the installation, maintenance, testing or inspection of Backflow Prevention Devices shall be considered a violation of these Rules and Regulations and therefore subject to Section 3.6, Violator's Liability.

Service of water to a Customer may be revoked per Article I, Discontinuance or Revocation of Service, if an actual or potential Cross-Connection is found to exist on a Customer's property. Service may also be revoked when any defect is found in an installed Backflow Prevention Device, or if a Backflow Prevention Device has been removed or bypassed. Reinstatement of service is subject to Article I, Reinstatement of Service.

3.3 Process for Conducting Surveys

The District uses a software program (Advanced Utilities CIS Infinity Backflow Module) and three certified tester inspectors to manage the surveys to identify whether any cross connections are present which could contaminate the drinking water system.

The District will identify the type and number of connections. Surveys can be performed onsite or by questionnaire. The District maintains a list of certified testers, certification agencies, and certification numbers.

Surveys will occur on every meter-related inspection and through the District's Backflow compliance program, including annual reports from a certified Backflow technician; High Hazards may require a site survey by the District.

3.4 Notifications

Department notification of a backflow contamination event will be reported within 24 hours of the of the event to the CDPHE Colorado Environmental Release and Incident Report line 1-877-518-5608

3.5 Violations

Control Treatment Technique and cross connection Violations will be reported to the Water Quality Control Division within 48 hours