



**Cornell University
Cross Connection Control Program
2018**

I. PURPOSE

- A. To protect the public potable water supply served by Cornell University from contamination or pollution which could backflow or back siphon from a customer's internal distribution system.
- B. To eliminate existing cross connections.

II. AUTHORITY

- A. The Federal Safe Drinking Water Act of 1974, as amended in 1986, and Part 5 of the New York State Sanitary Code, Subpart 5-1 Public Water Supplies, Section 5-1.31, states that the water supplier has the primary responsibility to protect the public water system by containing potential contamination within the premises of the customer through cross connection control by containment.
- B. Cornell University (**Water System**) requires that customers install and maintain backflow prevention devices in all service connections to contain their facility.
- C. The New York State Department of Health has delegated approval of cross connection control projects to the Cornell University **Water System** for all of its customers.

III. RESPONSIBILITY

- A. The **Water System** will determine the need for backflow prevention for each customer, existing and proposed, on a case by case basis. If an approved backflow device is required at a service connection to a customer's premises, the **Water System** will give notice to said customer that an approved backflow prevention device shall be installed at each service connection to the premises.
- B. The customer shall submit New York State Department of Health Form DOH-347, *Application for Approval of Backflow Prevention Devices*, an engineering report, stamped and signed drawings and other information as required, for each existing and proposed service connection to the **Water System** for approval. All backflow preventers that directly protect the Cornell University **Water System** from customer domestic systems must have an approved Cross-Connection application on file with NYSDOH, specifically Tompkins County Department of Health. (Form DOH-347) Class I and Class II Fire Protection

System services do not require NYSDOH approval, however **Water System** approval is required.

- C. The New York State Education Law pertaining to Professional Engineers and Land Surveyors, Article 145ff, Section 7200, requires that a project involving the safeguarding of life, health and property must be designed by a Registered Professional Engineer (P.E.) of the State of New York. The design of backflow prevention device installations is such a project. The only exception to the P.E. requirement for design is that an architect licensed in New York State may design the installation per New York State Department of Health Public Water Supply Guide titled "Cross Connection Control", dated January, 1981, Section 9, Paragraph A.
- D. The customer shall install, maintain and initially test each backflow prevention device protecting the **Water System** mains. Upon successful installation and initial testing, the Cornell University Pipe Shop (or its designates) shall schedule the on-going annual testing and coordinate the maintenance of the backflow prevention devices protecting the **Water System** mains at the customer's expense.

IV. REQUIREMENTS FOR NEW WATER SERVICES (DOMESTIC OR FIRE) OR MODIFICATIONS TO EXISTING INSTALLATIONS

A. CORNELL UNIVERSITY WATER SYSTEM

1. Upon request to the **Water System** for any type or size of new water service, the customer will be given information describing the procedures and requirements for approval and installation of backflow prevention devices for containment of the premises.
2. The **Water System** will determine the potential for cross connections and the degree of hazard for any existing or proposed service connection. The customer will be notified of the need to comply with the requirements for installation of the backflow prevention devices. Included with the notification will be information describing the requirements for approval and installation of backflow prevention devices for containment of the premises.
3. If the **Water System** determines at any time that an immediate threat to public health exists, the water service will be terminated.
4. The **Water System** or its designated representative will meet with customers and perform a physical inspection of the premises as needed.

B. CUSTOMER

1. The customer shall provide the **Water System** any and all information concerning facilities, process, water usage, existing backflow prevention devices and other information as required by the **Water System**.

a. Application Routing Instructions.

i. Send the following enclosures in the application packet (4 copies of each):

1. DOH-347 Form
2. Engineering Report
3. Drawings, including ¼" scale plan and elevation
4. Site Plan, showing boundaries, water mains, and services, etc.
5. Check for Tompkins County Health Department (for domestic service devices and "hazardous" fire service devices)
 - a. \$160 application fee (as of 1/1/15)
 - b. \$50 each device

ii. For Cornell University **Water System** application packets, send to:

1. Christopher L. Bordlemay Padilla
Cornell University
Water Filtration Plant
101 Caldwell Road
Ithaca, NY 14850
Phone: 255-1408

2. The customer is responsible for all internal cross connection control. Only the primary backflow prevention devices (which protect the public main) require applications. No others within the building require applications. The customer will be responsible for the installation, initial and on-going testing and maintenance of all internal backflow prevention devices.

3. The **Water System** will review and forward completed application packets to the NYSDOH for approval.

4. The customer, after receiving notification from the **Water System** of the need to contain premises with backflow prevention devices and after obtaining **Water System** and NYSDOH approval of the design of such, shall at customer's expense install, modify, inspect, maintain, replace and conduct initial tests as required, any and all backflow preventers on his premises used to protect the **Water System** mains.

5. The customer shall install only those backflow preventers approved by the New York State Department of Health.

6. The Pipe Shop or its designates, in conjunction with the customer, shall arrange for subsequent testing of all approved primary backflow prevention devices, to be performed at the customer's expense. All primary containment backflow prevention devices shall be tested at least annually or more frequently if required by the **Water System**. All testing shall be performed by New York State certified backflow prevention device testers. Any device which fails a test must be repaired or replaced immediately and notification must be sent to the **Water System**. Upon completion of repairs or replacement, the backflow prevention device must be retested by a certified tester to ensure proper operation and notification must be sent to the **Water System** regarding the results of the retest.
7. The customer, via the Pipe Shop or its designates, shall submit New York State Department of Health Form DOH-1013, Report of Test and Maintenance of Backflow Prevention Device, to the **Water System** within 45 days of the installation of a backflow prevention device, and yearly thereafter not exceeding one year from the date of the previous test.
8. The customer shall install backflow preventers only as approved by the **Water System (See Section IX below)**. No unauthorized modifications to the approved design are allowed. If uninterrupted water service is required, multiple backflow preventers shall be installed to allow for testing and maintenance. The customer shall not install an unprotected bypass around any backflow preventer. The customer shall not modify any backflow preventer in any way without the approval of the **Water System**.
9. The customer shall ensure that all drains and drain ports are clear and operating for all backflow preventers. The customer shall ensure that all backflow preventers have adequate security measures.

V. EXISTING BACKFLOW PREVENTION DEVICES IN SERVICE

- A. Existing backflow preventers will be allowed to continue in service by the **Water System** if the existing backflow prevention device is determined to be adequate and effective protection for the degree of hazard of the premises. All periodic testing and maintenance records of existing backflow prevention devices shall be made available to the **Water System** upon request.
- B. If an existing backflow prevention device is determined by the **Water System** to be inadequate or ineffective protection for the degree of hazard of the premises, the **Water System** will request to the Customer that the backflow prevention device be replaced or retrofitted to meet current Cornell University standards.

VI. TESTING AND RECORD KEEPING

- A. The Pipe Shop (or its designates) will keep and maintain records of installed primary backflow prevention devices and records of periodic tests. The records shall be made available to the **Water System** at all times.
- B. High hazard situations will not be allowed to continue operating unprotected if the backflow preventer fails the periodic test and cannot be repaired or replaced immediately. Parallel installation of multiple backflow prevention devices is recommended where uninterrupted services are required.

VII. PUBLIC FIRE HYDRANTS

- A. No person, except as specifically authorized by the **Water System**, will be allowed to use any fire hydrant for any use whatsoever other than for firefighting purposes. The use of public fire hydrants for washing streets, flushing sewers, construction activities, or other needs will be done through a backflow-protected meter assembly issued by the **Water System** or its designates.

VIII. DEGREE OF HAZARD

- A. Domestic Water Service
 - 1. Domestic services on the Cornell University **Water System** are considered Hazardous and require a Reduced Pressure Zone (RPZ) installation.
- B. Fire Protection Service
 - 1. Cornell University is a dynamic environment where personnel and building functionality change frequently. The Cornell University **Water System** recommends that all Fire Service connections install an approved RPZ, regardless of Class, Low Hazard or Aesthetically Objectionable determination. Exceptions to this may be considered on a case-by-case basis for Class I and Class II fire systems and require a double check valve assembly (DCVA) and a UL-Listed Alarm Valve to provide cross connection control by containment. If the following conditions are not met, an RPZ is absolutely required.
 - i. No provision for chemical addition at time of installation or in the future.
 - ii. No connections to a secondary water supply or fire department connection.
 - iii. Not within 1,700 feet of an auxiliary water supply such as a pond, lake, river or creek.
 - iv. No booster pump.

- C. All other types of service connections are considered hazardous and require a reduced pressure zone (RPZ) backflow preventer to provide cross connection control by containment.

IX. DESIGN AND INSTALLATION OF BACKFLOW PREVENTION DEVICES

- A. For all backflow prevention installations:

- 1. All proposed installations shall be approved by the **Water System** and NYSDOH (when applicable) prior to the start of construction and designed in accordance with Cornell University Design and Construction Standards, #15XXX (<http://cde.fs.cornell.edu/toc.cfm>).

X. ENFORCEMENT

- A. Failure, refusal or inability on the part of the customer to comply with these requirements will result in denial of new service requests for new customers and termination of service for existing customers.
- B. The decision of the **Water System** regarding the need for backflow prevention is final.
- C. The **Water System** reserves the right to revise these requirements and to allow exceptions on a case-by-case basis.

XI. REFERENCES

- A. United States Environmental Protection Agency, "*Cross Connection Control Manual*"
- B. New York State Sanitary Code, Subpart 5-1 Public Water Supplies
- C. New York State Department of Health Public Water Supply Guide, "*Cross Connection Control*"
- D. NYSDOH "*Guidelines for Designing Backflow Prevention Assembly Installations*", Supplement to 1981 "*Cross Connection Control*", January, 1992.
- E. Cornell University Design and Construction Standards, Section 15XXX
- G. American Water Works Association, Manual M14, "*Recommended Practice for Backflow Prevention and Cross Connection Control*", 3rd Edition.

