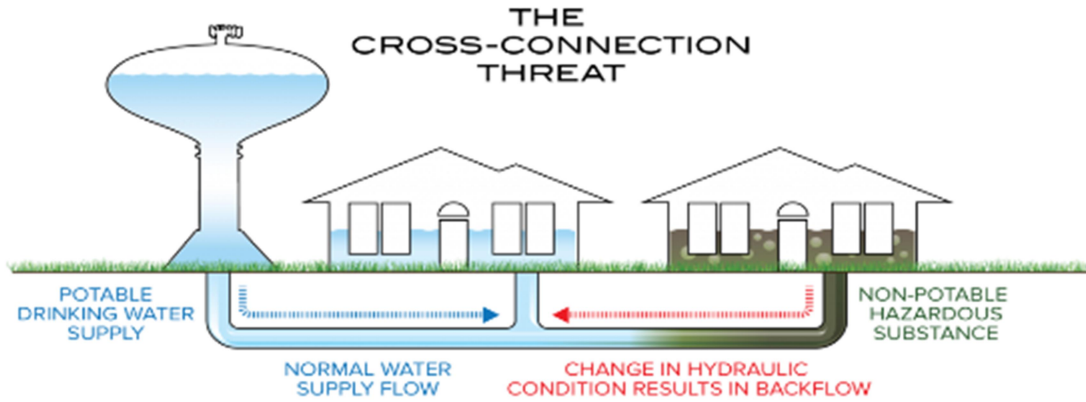


**NEW BRITAIN
BOARD OF
WATER COMMISSIONERS
BACKFLOW
PREVENTION
DEVICES**

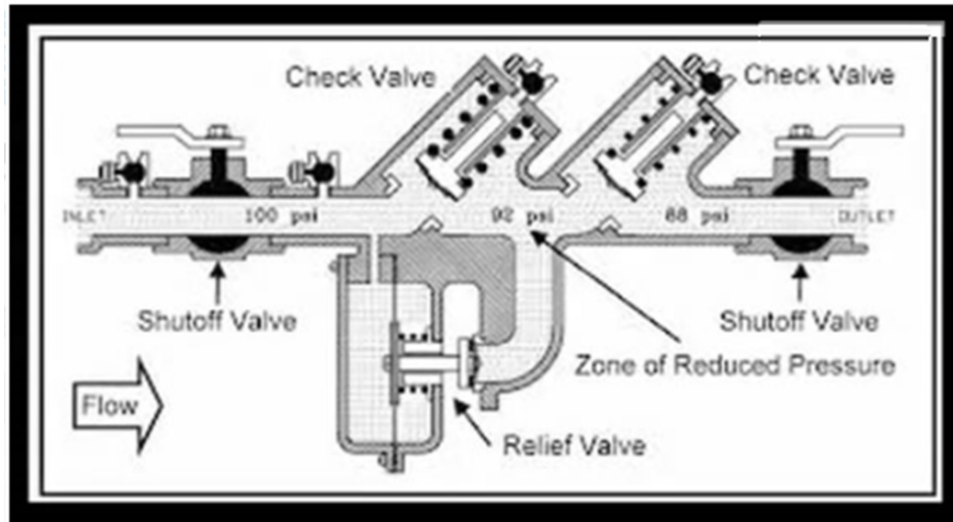


BACKFLOW PREVENTION DEVICES

- 1. THE CROSS CONNECTION THREAT**
- 2. RATES**
- 3. STANDARDS**
- 4. NEW BRITAIN INSTALLATION GUIDELINES**
- 5. DEFINITIONS**



Backflow is the reversal of flow in a water system from the normal or intended direction of flow. Backflow prevention is necessary to prevent any potential contaminants or pollutants from entering the water distribution system from private plumbing systems; either from back pressure or back siphonage.



Backflow Preventers (also known as Reduced Pressure Devices) are essential in protecting the drinking water. They limit water traveling from your property back into the City's water system so that the system can provide clean, safe drinking water to you and all of our customers..

Backflow may occur due to reduced pressure in the water system that causes the water in your pipes to flow back into the City's system. The pressure reduction may be caused by a system break, or when a fire hydrant is opened for use. Because pressure is lost during these events, water can actually flow backwards and seep back into the main water supply line. It does that by two check valves that stop the water from moving in a reverse direction and also a relief valve at the bottom. When this happens, backflow can contaminate the public drinking supply with:

- Fertilizers/pesticides
- Human waste
- Chlorine from pools/spas
- Soap from sinks/dishwashers/showers

And that's where a backflow prevention system comes in handy. Let's take a closer look at how a backflow prevention system works.

STATE MANDATORY ANNUAL BACKFLOW PREVENTION DEVICE TEST RATES:

<u>Total # of Devices per premises</u>	<u>New fee per test</u>	
1-5	\$75.00	
6-10	\$65.00	
Greater than 10	\$50.00	
Additional test rates are per test.	\$75.00	
Retests		
• first retest	free	} See below
• any additional retests	\$75.00	

EFFECTIVE July 1, 2019, fees for a BACKFLOW PREVENTION DEVICE test were increased by 5%.

STANDARDS:

- If there is no Siamese fire department connection, and there are no chemicals being used, the line must have a double check valve assembly on the line at the point of the service entry.
- All RPDs and Double Check Valve Assembly devices **MUST** be tested EACH year by certified Utility Division Water staff. ANY EXCEPTIONS MUST BE APPROVED BY THE PUBLIC WORKS/UTILITY DIVISION.
- If chemicals are introduced into the Fire System, installation of an **RPD is REQUIRED**.
- A facility with a 'stagnant' line **MUST** have a backflow preventer; without one they are considered 'unsafe' and may impact water quality.
- If a device fails its annual testing, the first retest visit is at no charge; subsequent visits will be charged at the regular individual rate of \$75.00 per retest.
- In New Britain, all Fire Protection Lines will be classified as "**Class 3**",
 - All work must be done by a certified installer.
 - The customer is responsible for maintaining proper functioning of the devices.
 - Periodic testing will be performed *of the Fire Protection Lines*; valves, as well, will be inspected periodically by Utility Division/Water staff.
 - All devices must have reasonable accessibility to facilitate testing and/or repair.
 - From the **Rules and Regulations for Water Service**:
 - **Class 3** systems **require** minimum protection (a double check valve assembly) to prevent stagnant waters from back-flowing into the public potable water system.
 - In all cases, the State of Connecticut Guidelines are to be referenced
 - The State of Connecticut Cross Connection Control Manual:
https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/drinking_water/pdf/XCMANUALpdf.pdf?la=en

- Connecticut State Fire Prevention Code: <https://portal.ct.gov/DAS/Office-of-State-Building-Inspector/Building-and-Fire-Code-Adoption-Process//media/DAS/Office-of-State-Building-Inspector/2018-CSFPC---Code-Packet.pdf>
- NFPA 1, Fire Codes and Standards – Fire Protection Systems: <https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/List-of-Codes-and-Standards?topic=4>
- **ANY DEVIATION FROM THESE GUIDELINES MUST BE APPROVED BY THE UTILITIES DIVISION/WATER.**

City of New Britain Installation Guidelines

1. Backflow preventers shall be installed close as possible to the service inlet within the building.
2. Devices shall be installed in a well-lit accessible location. Height requirement to avoid working off ladders.
3. All piping materials, valves and fittings installed before the backflow device shall be approved for potable use and meet system working pressure requirements.
4. Installation, repair and maintenance are the responsibility of the building owner. Backflow devices should be protected from freezing temperatures.
5. Backflow preventers shall not be installed below grade –neither in a pit nor a vault.
6. Systems with chemical introduced need to have a Reduced Pressure Device installed.
7. R.P.D. installations shall have a properly sized drain installed with air gap. To handle relief discharge to avoid flooding.
8. All installations shall meet State of Ct. DPH ,Plumbing Code requirements & N.F.P.A. standards.
9. Outstanding Cross Connection violations shall be subject to termination of water service.
10. Any deviation from these guidelines must be approved by the Public Works/Utility Division Superintendent.

DEFINITIONS

- Air gap - The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or outlet supplying water to a tank, plumbing fixture, or other device and the flood level rim of the receptacle. The vertical physical separation shall be at least two times the inside diameter of the water inlet pipe above the flood rim level but shall not be less than one inch.
- Air vent type backflow preventer - A device containing two independently operating check valves separated by a chamber which can automatically vent to the atmosphere if backflow occurs.
- Approved water supply - A water supply which is monitored by the State Department of Public Health as a public water system.
- Backflow - The reverse flow of any liquid or substance in the distributing pipes of a public water supply.
- Backpressure - Backflow resulting from pressures greater than the public water supply pressure.
- Back-siphonage - Backflow resulting from negative pressures in the distributing pipes of a public water supply.
- Contamination - Any physical, chemical, biological or radiological foreign substance that tends to degrade water quality so as to constitute a hazard or to impair its usefulness.
- Cross Connection – An actual or potential connection between a public water system and any other source or system through which it is possible to introduce into the water system any contamination or polluting agent.
- Double check valve assembly (DCVA) - A device which contains two independently acting check valves located between two tightly closing shut-off valves and fitted with properly located test cocks.
- Fire Sprinkler System - An integrated system of underground and overhead piping designed to provide fire protection for a building or structure. The installation includes one or more automatic water supplies. The portion of the sprinkler system aboveground is a network of specially sized or hydraulically designed piping installed in a building, structure, or area generally overhead, and to which sprinklers are attached in a systematic pattern. The valve controlling each system riser is located in the sprinkler riser or its supply piping. Each sprinkler system riser includes a device for actuating an alarm when the system is in operation. The system is usually activated by heat from a fire and discharges water over the fire area.
- Siamese Connection - An inlet equipped with one or more couplings to which a fire hose can be attached and through which water can be delivered by a fire department pumper to a sprinkler system.
- Sprinkler system - A plumbing system design to spray a water source for fire protection, irrigation or cooling
- Toxic or objectionable substance - Any compound which could affect the public health, the potability, or the aesthetic quality of the water.
- “Air gap” means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or outlet supplying water to a tank plumbing fixture, or other device, and the flood level rim of the receptacle. The vertical physical separation shall be at least two times the inside diameter of the water inlet pipe above the flood rim level but shall not be less than one inch;
- “Air vent type backflow preventer” means a device containing two independently operating check valves separated by a chamber which can automatically vent to the atmosphere if backflow occurs;
- “Reduced pressure principle backflow preventer” (RPD) means a device containing within its structure a minimum of two independently acting, approved check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the system pressure a predetermined amount so that during normal flow and a cessation of normal flow the pressure between the checks shall be less than the system pressure. In case of leakage of either check valve, the differential relief valve, by discharging to atmosphere, shall operate to maintain the pressure between the checks less than the system pressure. The unit shall include tightly closing shut-off valves located at each end of the device and each device shall be fitted with properly located test cocks;

BACKFLOW PREVENTION DEVICE GUIDELINES

- A reduced pressure principle backflow preventer (RPD) is required on a line to all facilities where toxic or objectionable substances are used in addition to the required air gap, vacuum breaker or RPD on individual pieces of equipment unless the public water system has determined that an RPD is not necessary. Where such substances are used in a specific area, an RPD on the line to that area may be used in place of the RPD on the line to the facility.