

Existing Water Service Connection

The City of Kingsport Water Quality Control Specialist will inspect existing water service connections as scheduled or warranted for unprotected cross connections.

If, upon completion of this inspection, a backflow prevention assembly is required, notification will be sent to the owner/responsible person of the premises depicting the backflow assembly to be installed and the location required. The backflow prevention assembly will need to be installed, per installation criteria, within sixty (60) days of receiving this notification. Failure to install the required backflow prevention assembly inside the specified time will result in termination of water service to the unprotected premises.

Installation Requirements

*only persons holding a current Certificate of Competency issued by the State of Tennessee or the Tennessee Association of Utility Districts shall install, repair, replace, or test a Backflow Prevention Assembly installed for the purpose of protecting the City of Kingsport's Public Water Distribution System.

MINIMUM INSTALLATION REQUIREMENTS are underlined, all others are suggestions or items to consider:

- A. RP assemblies should never be subject to flooding; therefore should:
1. Never be located in a pit or other area subject to flooding
 2. Avoid piped drains for enclosures housing the units whenever possible. Provision should be made for discharging water (maximum design discharge) directly through the wall of the enclosure housing the unit at a slightly higher elevation than surrounding ground level or maximum flood level. If a drain is to be considered, a representative of the City of Kingsport's Water Technical Services Division is to be consulted on the construction and will become part of any and all future inspections of the assembly.
 3. The lowest part of the relief valve discharge port should be a minimum of 12 inches above either:
 1. The ground
 2. Top of the opening(s) in enclosure wall
 3. Maximum flood level

Whichever is highest, in order to prevent any part of the assembly from becoming submerged.

B. All new backflow prevention assemblies being installed in Tennessee for the protection of a public water system should be included on the latest listing of "Approved Backflow Prevention Assemblies" maintained by the Division of Water Supply, listed as Approved by the University of Southern California's Foundation for Cross-Connection Control and Hydraulic Research, and the City of Kingsport.

- C. Assemblies should be installed where the units can be easily tested and repaired.
1. Installation of assemblies must retain a minimum of six inch clearance from all walls.
 2. Assemblies installed in stationery enclosures should have at least a 2 ft. clearance on each side of the assembly to facilitate testing and servicing. Adequate drainage must be provided. Enclosures with access panels are preferred but not required and are allowed variance to the 2 ft. clearance requirement.
 3. Assemblies should not be installed higher than 4 ft. (48in) from the floor/ground to the center line of the assembly unless safe permanent access is provided for testing and servicing.
 4. Assemblies shall be installed a minimum of 12" above floor level.
 5. All backflow assembly installations shall meet all Confined Space Requirements of OSHA/TOSHA.
 6. Double Check Valve Assemblies will only be considered an acceptable means of protection in 'retro-fit' installations on existing, otherwise unequipped businesses known to the City of Kingsport, by means of a Cross Connection Inspection, to pose only a Low Degree of Hazard, on metered fire protection lines (Class I-III), and for internal usage by the City of Kingsport in specific instances.
 7. All Assemblies installed for the purpose of Fire Protection shall be NFPA approved and are further subject to approval by the City of Kingsport Fire Marshal.
 8. Dual Check Valves are approved for Residential use only. Please note that future surveys and inspections may warrant an increase in protection.

D. Pipelines altered or installed should be thoroughly flushed to remove foreign material and debris prior to the installation of an assembly. A strainer should be added on the inlet side of the assembly before installation. Assemblies installed on dedicated fire protection lines will be allowed variance to this requirement. Should a customer prefer a strainer be installed on a dedicated fire protection line, approval will be subject to NFPA verification and a ruling from the City of Kingsport Fire Marshal.

- E. Installation of backflow prevention assemblies will not allow any unprotected or uninspected connections in front of the backflow prevention assembly.
- F. Backflow preventers should be installed with unions and isolation valves on both ends of the assembly to allow removal of the assembly for repair or replacement.
- G. Provisions shall be made to protect the assemblies from freezing. Insulating materials shall not restrict the relief valve discharge or accessibility to test cocks or name plate of the unit. All enclosures housing Reduced Pressure Principle Assemblies shall be of a design that will provide for adequate draining of the relief valve.
- H. The relief valve of an RP shall never be plugged, restricted, subject to submersion, or solidly piped to a drain, ditch or pump. Rigidly secured, manufacturer approved air-gap baskets may be used to direct discharges away from the unit so long as an approved air-gap separation (Please see Line 'Q' of this listing) is provided at the relief valve discharge and again at the discharge end of the drainpipe. An adequate area drain is recommended to handle the maximum relief valve flow to prevent flooding.
- I. The test cocks, valve stems, or name plates shall not be painted or removed. Their accessibility and operation of legibility shall not be hampered nor the relief valve discharge passage be restricted by insulation or other coverings.
- J. The assemblies shall be installed in an approved position as listed in the Latest Approved List and special supports added if needed. Horizontally mounted assemblies are preferred. Please call to verify an assembly is approved for Vertical installation prior to installing the assembly.
- K. For applications where water temperatures exceed 110°F (43°C) only approved hot water devices are to be used.
- L. Prior to completing the installation, temperature pressure relief valves on heating vessels (water heaters, etc.) should be properly installed and in good working condition. If needed, a thermal expansion tank, or other thermal expansion control device, should be installed.
- M. No unprotected bypasses or connections are to be made between the assembly and meter.
- N. Assemblies placed on Fire Lines are to be installed with OS&Y valves. No 'Butterfly' valves or other appurtenance that could interfere with flow are to be installed on Fire Lines.
- (1) Where jockey (low volume-high pressure) pumps are utilized to maintain elevated pressure, as in a fire protection system, the discharge of the pump shall be on the downstream side of any backflow prevention device. Where the supply for the jockey pump is taken from the upstream supply side of the backflow prevention device, an assembly of the same type as required on the main fire line shall be installed on the supply line.
- (2) Fixed position, high volume fire pumps shall be equipped with a suction limiting control to modulate the pump if the residual line pressure reaches 20 psi. Such pumps should draw from an on-site reservoir fed by several supply lines. If any of the supply lines have a source other than the public water supply, all supply lines must have air gap discharges into the reservoir.
- O. Backflow prevention assemblies installed for seasonal irrigation purposes are allowed to be taken out during freezing weather and reinstalled every season. Please notify a Water Quality Control Specialist prior to removing or reinstalling an assembly as retesting will need to be performed.
- P. Fire Hydrant drains shall not be connected to any sanitary sewer, nor shall any fire hydrant be installed in such a manner as to allow backflow through the drain.
- Q. Certain hazards may be prevented by means of "air-gap separation". Contact a Water Quality Control Specialist prior to employing this method, as the Air-gap must be inspected and approved. An Air-gap must be rigidly installed, and maintained.
1. Must be at least twice the internal diameter of the supply line. Installations near vertical walls may increase this requirement.
 2. Shall be inspected annually by a representative of this Division.
 3. Shall never be altered in any way that could create an actual or potential cross connection.
 4. Any alteration or repair to an approved Air-gap separation will negate the approval granted by this Division. The Air-gap separation must be re-inspected following any repair or alteration. Please call a Water Quality Control Specialist should a situation requiring repair or alteration arise.
- R. **The City of Kingsport recommends installing Reduced Pressure Principle Assemblies outside, in an enclosure, and in an area not subject to flooding. These assemblies are designed to discharge in a potential backflow situation and may cause water damage.**

Existing assemblies not meeting the minimum requirements above, with the exception of being installed in an area that may allow flooding of the assembly, may be allowed variances by the City of Kingsport Water Technical Services Division, however, no variance may be allowed that will compromise the protection of the assembly or potentially allow contaminants be introduced into the distribution system. Documentation of allowed variances will be recorded and entered into the Tokay database and hard copies will be kept on file as well.