

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION MANUAL
Last Revised June 1, 2011



**Post Office Box 2555
Lexington, South Carolina 29071
Phone: (803) 359-8373
Fax: (803) 359-6553**

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

**CROSS-CONNECTION CONTROL PROGRAM
BACKFLOW PREVENTION**

Preface:

In accordance with the South Carolina Department of Health and Environmental Control regulations and the Environmental Protection Agency guidelines, the Joint Municipal Water and Sewer Commission currently maintain a Cross Connection Control Program. Through the Commission's Staff Engineer the Commission ensures that all potential sources of contamination are protected from backflow and back siphonage with properly installed and operating backflow prevention assemblies. This program keeps up with information pertaining to the location, type of device, degree of hazard and test records of all backflow prevention assemblies located on the Commission's system. This program is also responsible for identifying potential hazards and ensuring backflow prevention devices are installed where there is not currently a device.

The Commission will keep on file a list of the South Carolina Department of Health and Environmental Control approved devices as well as a list of all certified testers located within Lexington County.

A list of South Carolina Department of Health and Environmental Control approved devices are located within this manual. It should be noted that all newly installed devices must be approved by the Commission Engineer or a representative of his/her staff prior to installation.

All questions concerning backflow prevention devices should be directed to the Commission's Staff Engineer or a representative of his/her staff.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

SELECTION OF BACKFLOW PREVENTION ASSEMBLIES

The Commission's Backflow Coordinator will make a determination of the type of device to be installed based on Cross-Connection Control Questionnaire.

Air Gap Air gap separation offers the highest level of protection from backflow and may be necessary in the following applications:

- Tankers
- Agricultural & Commercial Fill Stations
- Hydro-Seeders

This form of protection is highly desired for our Transient Hydrant Usage Policy.

Vacuum Breaker Can only provide protection against back siphonage. Use of these devices is highly encouraged by the Commission for the purposes of internal protection, but is not to be the sole form of protection.

Residential Dual Check Residential Dual Checks are installed on all ¾" and 1" meters by the Commission. (where the Commission does not have a DCVA installed.) These devices are routinely checked for damage or signs of improper functioning.

Double Check Valve Assembly All DCVA's shall be on the SCDHEC's list of approved devices. These devices shall be installed on the following:

- All commercial buildings
- Churches
- Mobile Home Parks
- Interconnects with other water systems
- Dedicated Fire Lines
- Lawn Irrigation Systems installed after June 13, 2000

The Commission will install, test and maintain DCVA's on all new meters/services installed on new residential services after July 1, 2004.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

SELECTION OF BACKFLOW PREVENTION ASSEMBLIES (CONT.)

Reduced Pressure Assembly All Reduced Pressure Assemblies shall be on the SCDHEC list of approved devices. These devices shall be installed at all high hazard connections, as determined by the Commission's Backflow Coordinator. Examples of high hazards include, but are not limited to:

- Carwashes
- Funeral Homes
- Hospitals
- Industries

All backflow prevention devices must be approved by the Commission's Backflow Coordinator prior to installation.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

NEW RESIDENTIAL SERVICES/METERS INSTALLED AFTER JULY 1, 2004

Installation of Assembly On all residential services/meters installed after July 1, 2004 the Commission will install a SCDHEC approved DCVA. The device will be installed in a standard meter box on the customer's side of the meter. The device will be installed at the same time as the initial meter set. This device will offer protection to the Commission's system against any potential household hazards.

Testing of Assembly The Commission will be responsible for the initial and annual testing of all devices installed by the Commission. The device will be tested by a representative of the Commission within fifteen working days of the initial installation, as well as at least once annually.

Repair of Assembly The Commission will be responsible for the repair/replacement of all devices installed by the Commission. This device will be repaired immediately once the device is found to be functioning improperly. All repaired/replaced devices will immediately be retested.

Schedule of Rates

New Device Installation – Builder/Homeowner setting up initial service will be responsible for payment of \$175 backflow fee. This fee will pay for installation of new device and the initial testing of the device.

Monthly Fee – All customers under this program will be charged a monthly fee of \$5.50. This fee will pay for annual testing of the device, as well as any repair/replacement of the device. The fee will be reflected on the customer's bill under the designation of "Backflow Protection Charge."

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

INSTALLATION OF COMMERCIAL BACKFLOW PREVENTION ASSEMBLIES

Air Gap shall be installed assuring the vertical distance between the supply pipe and the receiving vessel must be at least twice that of the diameter of the supply pipe.

Vacuum Breakers shall be installed as per the manufacturer's recommendations.

Residential Dual Checks are installed on the Commission's side of all meters inside the meter box.

Double Check Valve Assembly 2" and Smaller Must be placed prior to any branch or connection to the distribution system. The device may be installed utilizing the following options:

1. Inside Installation: Shall be installed with adequate space to facilitate maintenance and testing. A minimum space of 12" shall be allowed on all sides for maintenance, testing and repair. The assembly shall be protected from freezing temperatures. Assembly shall be installed as per manufacturer's recommendations.
2. In-Ground Installation: Shall be installed in an adequately sized box to allow for proper testing of the device. The device shall have a minimum clearance of 6" on all sides. There must be a minimum of 6" of clean gravel placed in the bottom of the box. Assembly shall be placed in a traffic grade box when located within any area subject to vehicular traffic. Assembly shall be installed as per manufacturer's recommendations.

Double Check Valve Assembly Larger than 2" Must be place prior to any branch or connection to the distribution system. The device may be installed utilizing the following options:

1. Inside Installation: Shall be installed with adequate space to facilitate maintenance and testing. A minimum space of 12" shall be allowed on all sides for maintenance, testing and repair. The valve shall be protected from freezing temperatures. Assembly shall be installed as per manufacturer's recommendations.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES (CONT.)

2. In-Ground Installation: Shall be installed in an adequately sized vault to allow for proper testing of the device. The vault shall be equipped with a minimum of a 24" x 24" top opening hatch. Walls may be precast concrete, reinforced poured in place concrete or filled block. The vault shall be sized to meet the minimum clearances as noted on the drawing labeled "Double Check Valve Assembly Underground Installation Larger Than 2" as shown herein (see detail B-3). There must be a minimum of 12" of clean gravel placed in the bottom of the box. Vault is to be constructed as to prevent the retention of water. Assembly shall be placed in a traffic grade box when located within any area subject to vehicular traffic. Assembly shall be installed as per manufacturer's recommendations.

3. Above-Ground Installation: Shall be installed in an adequately sized enclosure to allow for proper testing of device. The sides of the vault shall be made of concrete filled block and shall be equipped with a removable top. The top shall be securely fastened to the vault. The vault shall be sized to meet the minimum clearances as noted on the drawing labeled "Double Check Valve Assembly Underground Installation Larger Than 2" as shown herein (see detail B-3). The backflow assembly shall be adequately protected from freezing. Assembly shall be installed as per manufacturer's recommendations.

Reduced Pressure Assembly Must be placed prior to any branch or connection to the distribution system. The Commission strongly recommends that all reduced pressure assemblies be placed inside. At no time shall this device be installed below grade. The device may be installed utilizing the following options:

1. Inside Installation: Shall be installed with adequate space to facilitate maintenance and testing. A minimum space of 12" plus the nominal size of the device shall be allowed on all sides for maintenance, testing and repair. The valve shall be protected from freezing temperatures. Assembly shall be installed as per manufacturer's recommendations.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

INSTALLATION OF BACKFLOW PREVENTION ASSEMBLIES (CONT.)

2. Above-Ground Installation: Shall be installed in an adequately sized enclosure to allow for proper testing of device. The sides of the vault shall be made of concrete filled block and shall be equipped with a removable top. The top shall be securely fastened to the vault. The vault shall be sized to meet the minimum clearances as noted on the drawing labeled "Reduced Pressure Principle Assembly Above Ground Enclosure" as shown herein (see detail B-4). The backflow assembly shall be adequately protected from freezing. Assembly shall be installed as per manufacturer's recommendations.

All backflow prevention devices must be approved by the Commission's Backflow Coordinator prior to installation.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

SPECIAL PROVISIONS

Dedicated Fire Lines: All dedicated fire lines are to be equipped with a **minimum** of a double check backflow prevention assembly. All valves placed on a dedicated fire line must be equipped with a bypass meter to detect flow through the assembly. The assembly shall be installed as close to the connection with the Commission's existing system as possible. At no time shall the assembly be placed within SCDOT or County right-of-way. There shall be no connections installed prior to the installation of the backflow prevention device.

Uninterrupted Flow: Where flow cannot be interrupted for the purposes of the testing and repair of a backflow prevention device, a bypass main must be utilized. This bypass shall also be equipped with an approved backflow prevention device. All installed devices must offer equal protection. All branches and parallel piping shall be installed in a common vault/area.

Alternate Sources of Water: Where a residence or commercial building utilizes alternate sources of water for the purposes of irrigation, fire systems or any other purposes, a minimum of a double check valve assembly must be installed at the meter. (Residences that are on file as being granted waivers will be allowed to continue service without a device.)

All backflow prevention devices must be approved by the Commission's Backflow Coordinator prior to installation.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

TESTING OF RESIDENTIAL DEVICES

New Assemblies All new assemblies installed by the Commission will be tested within fifteen working days of installation. Homeowners will be notified of the completion of the testing of their device with a door tag notification. (See Appendix E)

Existing Assemblies As per SCDHEC requirements, all backflow prevention assemblies must be tested annually by a certified tester. The Commission will be responsible for the annual testing of all residential devices. Homeowners will be notified of the completion of the testing of their device with a door tag notification. (See Appendix E)

Schedule of Rates All residential customers under this program will be charged a monthly fee of \$5.50. This fee will pay for the annual testing of the device as well as any repair/replacement of the device. The fee will be reflected on the customer's bill under the designation "Backflow Protection Charge."

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

TESTING OF COMMERCIAL DEVICES

New Assemblies All newly installed commercial assemblies shall be tested by a certified tester immediately after installation and once each subsequent year. All costs associated with the testing of the assembly shall be the responsibility of the owner. If test results of this device are not provided to the Commission within the allotted time as prescribed in a written letter from the Commission, then the device will be tested by the Commission or a representative thereof and all costs associated with the testing of this device will be charged to the owner's account.

Existing Assemblies As per SCDHEC requirements, all backflow prevention assemblies must be tested annually by a certified tester. All costs associated with the testing of the assembly shall be the responsibility of the owner. Copies of these test results are to be furnished to the Commission.

Notification of Testing The Commission will notify all commercial owners of backflow prevention assemblies thirty (30) days prior to the due date of the test report. If this report is not received by the given due date, a second letter will be sent to the owner allowing for fifteen more days. If test results are not received by the second due date, the existing device will be tested by the Commission, or a representative of thereof, and all costs associated with the testing of this device charged to the owner's account as per the Commission's Commercial Backflow Testing Rate Schedule.

Certified Tester A list of all persons who hold an up-to-date backflow prevention assembly tester certification card issued by the SCDHEC can be found at <http://www.scdhec.gov>.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

BACKFLOW PREVENTION DEVICE REPAIR

Commercial: When a commercial/industrial backflow prevention device is found to be malfunctioning, the device must be repaired immediately. The test results of the repaired device must be provided to the Commission within fifteen days of the date that the malfunctioning device was discovered. Failure to repair this device may result in a termination of water service.

Residential: When a residential device is found to be malfunctioning, the device will be repaired immediately by the Commission. Information concerning repairs to the device will be kept of file at the Commission.

BACKFLOW PREVENTION REMOVAL

At no time shall a backflow prevention device be removed or straight piped. Doing so will result in an immediate termination of water service by the Commission.

TAMPERING OF BACKFLOW DEVICE OWNED BY THE COMMISSION

At no time shall any individual tamper or remove a backflow device maintained by the Commission. Tampering with this device may result in a fine of up to \$200 per occurrence.

**JOINT MUNICIPAL
WATER AND SEWER COMMISSION**

BACKFLOW PREVENTION ASSEMBLY MANUAL

INSPECTION OF EXISTING SERVICES WITH AND WITHOUT DEVICES

The Commission will constantly review existing services to determine if they are meeting compliance requirements of the Commission's Cross Connection Control Program.

No Existing Device If the Commission determines that a service is a potential hazard and there is no form of backflow prevention, then the owner/customer will be notified immediately of his/her non-compliance. The owner will be given thirty (30) days to install the required device and provide the test reports of this device to the Commission. If the owner/customer is still in non-compliance after thirty days, a certified letter will be sent to the owner/customer allowing fifteen (15) additional days to meet compliance. Costs will be applied to the owners account for the issuance of this second notice. If the owner remains in non-compliance, water service will be terminated until requirements are met.

Improper Device If the Commission determines that a facility has an improper device, then the owner/customer will be notified immediately of his/her non-compliance. The owner will be given thirty (30) days to install the appropriate device and provide the test reports of this device to the Commission. If the owner/customer is still in non-compliance after thirty days, a certified letter will be sent to the owner/customer allowing fifteen (15) additional days to meet compliance. Costs will be applied to the owners account for the issuance of this second notice. If the owner remains in non-compliance, water service will be terminated until requirements are met.

Improper Installation of Device If the Commission determines that a facility has an improper installation of a device, then the owner/customer will be notified immediately of his/her non-compliance. The owner will be given thirty (30) days to correct the device and provide the test reports of this device to the Commission. If the owner/customer is still in non-compliance after thirty days, a certified letter will be sent to the owner/customer allowing fifteen (15) additional days to meet compliance. Costs will be applied to the owners account for the issuance of this second notice. If the owner remains in non-compliance, water service will be terminated until requirements are met.

APPENDIX A
CROSS CONNECTION CONTROL QUESTIONNAIRE

JOINT MUNICIPAL WATER AND SEWER COMMISSION CROSS CONNECTION CONTROL QUESTIONNAIRE

New Meter _____

Existing Meter _____

JMWSC Account Number _____

RESIDENTIAL SERVICE

Date: _____

Customer Name: _____

Service Address: _____

Is this service location for a residence only? Yes ____ No ____

If this is for residential only, please answer questions on Lawn Irrigation / Sprinkler Services

LAWN IRRIGATION / SPRINKLER SERVICES

Do you have a lawn irrigation system? Yes ____ No ____

Was your irrigation system installed **BEFORE** June of 2000 ____ or **AFTER** June of 2000 ____

Do you use an alternate source for irrigation such as a pond or well? Yes ____ No ____

Is the alternate water source connected to the distribution system? Yes ____ No ____

I understand that if an alternate water source is connected to the household distribution system that I must install the appropriate backflow prevention device and that the Commission will be notified immediately.

COMMERCIAL OR INDUSTRIAL SERVICES

Business Name _____

Service Type (PLEASE CHECK ONE)

Type of business: medical, restaurant, catering, video rental/sales, auto detail shop, clothing, office, commercial, industrial, gas station, Laundromat, grocery/deli, dry cleaners, other:

(Please Define Business) _____

Will water be used for any of the following? (Please check each category that applies)

cooking/drinking ____ boilers ____ chillers ____ cooling tower ____ equipment ____

What type of equipment, please define: _____

I understand that the backflow prevention assembly must be tested annually by a certified tester and that the Commission shall be furnished with the results of this testing. I authorize the Commission to perform the annual testing of my device(s) and understand that costs associated with these tests will be in accordance with their standard rate structure and accessed to my account. Yes ____ No ____

I hereby certify that all information furnished is complete and correct. I further acknowledge that incomplete or incorrect information may result in additional or different requirements for a Backflow Prevention Assembly at the water service connection.

Applicant Name PLEASE PRINT _____

Applicant Signature _____

Date: _____ Telephone: Work _____ Home _____

FAX _____ Mobile _____ Pager _____

JMWSC USE ONLY

_____ Inch Air Gap

_____ Inch Reduced Pressure Principle Assembly

_____ Inch Double Check Valve Assembly

_____ Inch Pressure Vacuum Breaker

_____ No Backflow Preventer Required

JMWSC Reviewer's Signature _____ Date: _____

Additional Notes: _____

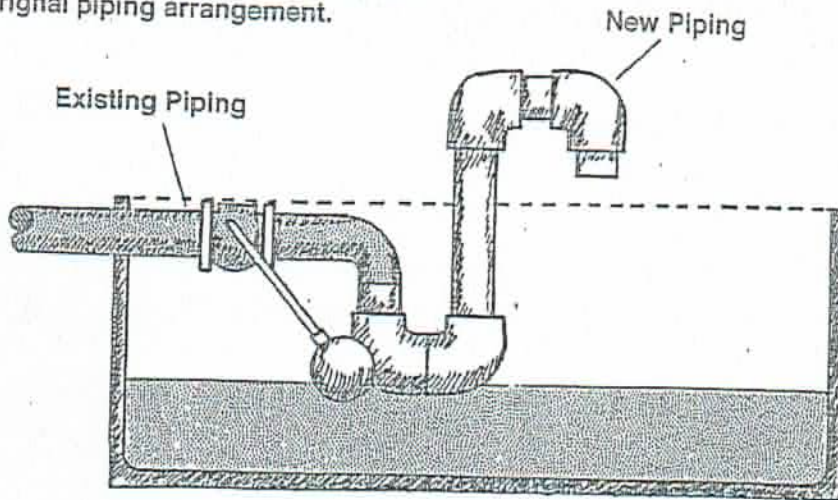
Joint Municipal Water and Sewer Commission
Cross Connection Control
PO Box 2555
Lexington, SC 29071
Phone 359-8373 Fax 359-6553

06/23/05 -09/21/07-10/18/10-06/01/11

APPENDIX B
BACKFLOW INSTALLATION
DRAWINGS

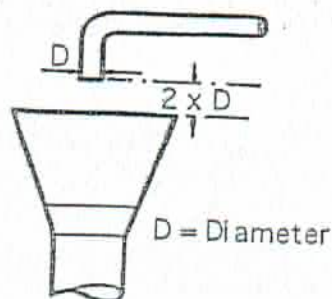
SUBMERGED INLET CONVERTED TO AIR GAP

An existing submerged inlet can often be converted to an approved air gap simply by adding some additional piping. This approach negates the need to alter the ball cock or original piping arrangement.

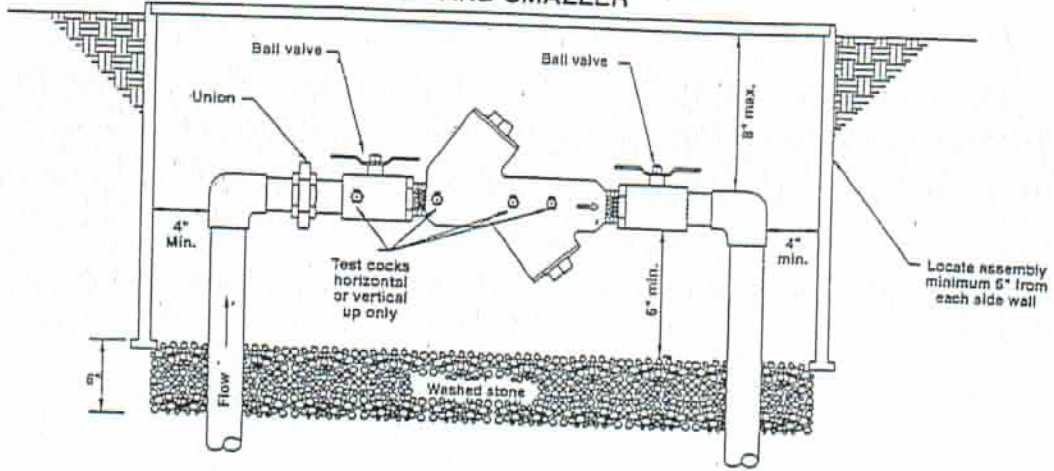


Air gaps must be measured between the supply pipe and the flood level rim of the receiving vessel, and not between the supply pipe and water level or overflow. The only constant or positive overflow is the flood level rim.

The vertical distance between the supply pipe and the receiving vessel must be at least twice that of the diameter of the supply pipe.

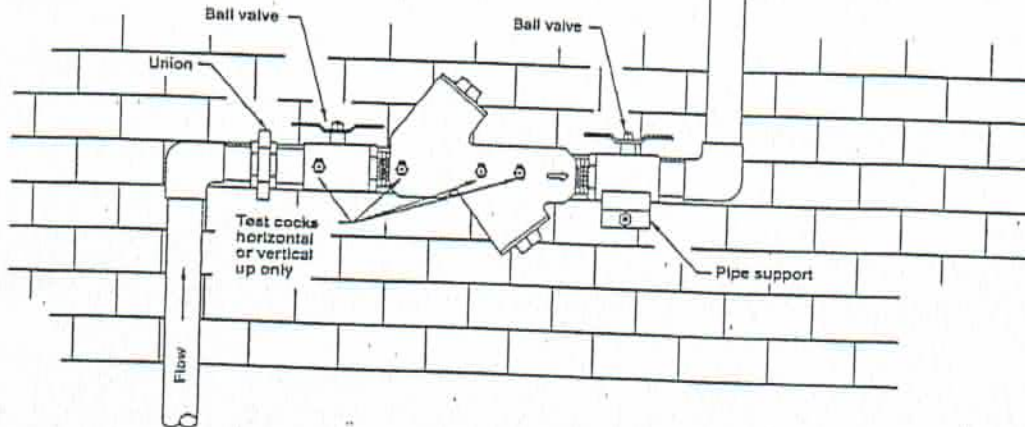


**DOUBLE CHECK VALVE ASSEMBLY
BELOW GROUND VAULT
2" AND SMALLER**



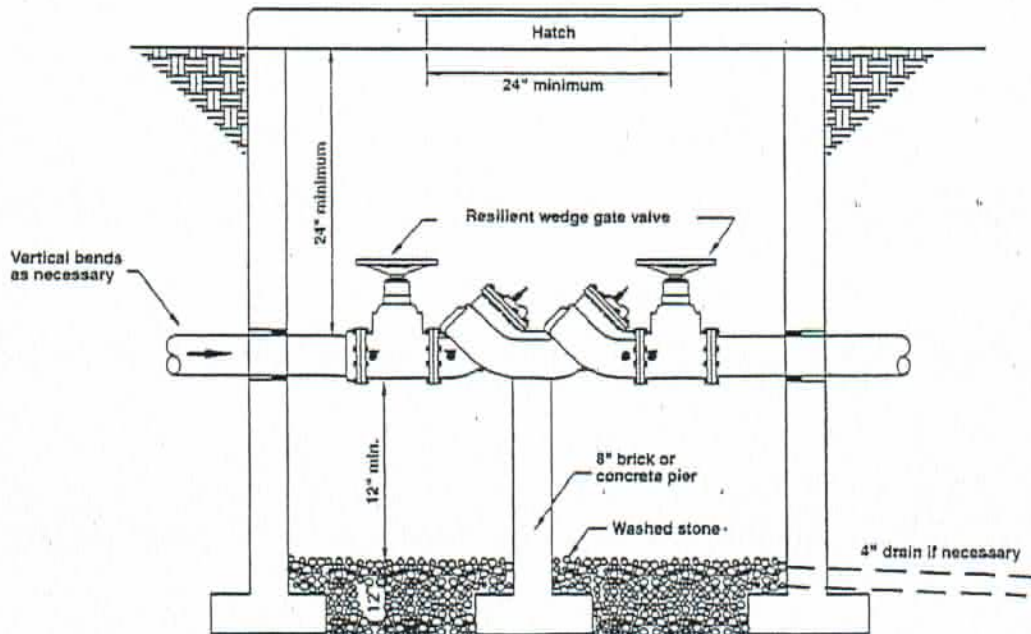
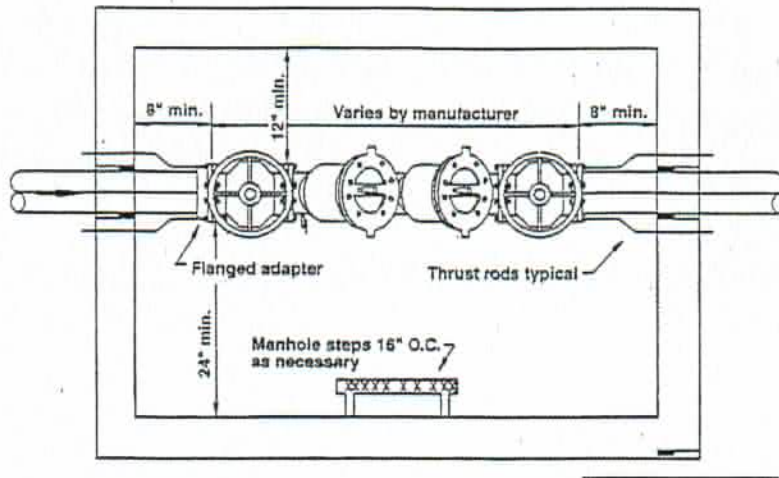
Notes:
Box shall be constructed at owners discretion of suitable material with removable access cover capable of handling traffic load that it may be subject. Also it shall be vandal resistant and provide protection from weather elements.

**DOUBLE CHECK VALVE ASSEMBLY
INSIDE BUILDING
2" AND SMALLER**



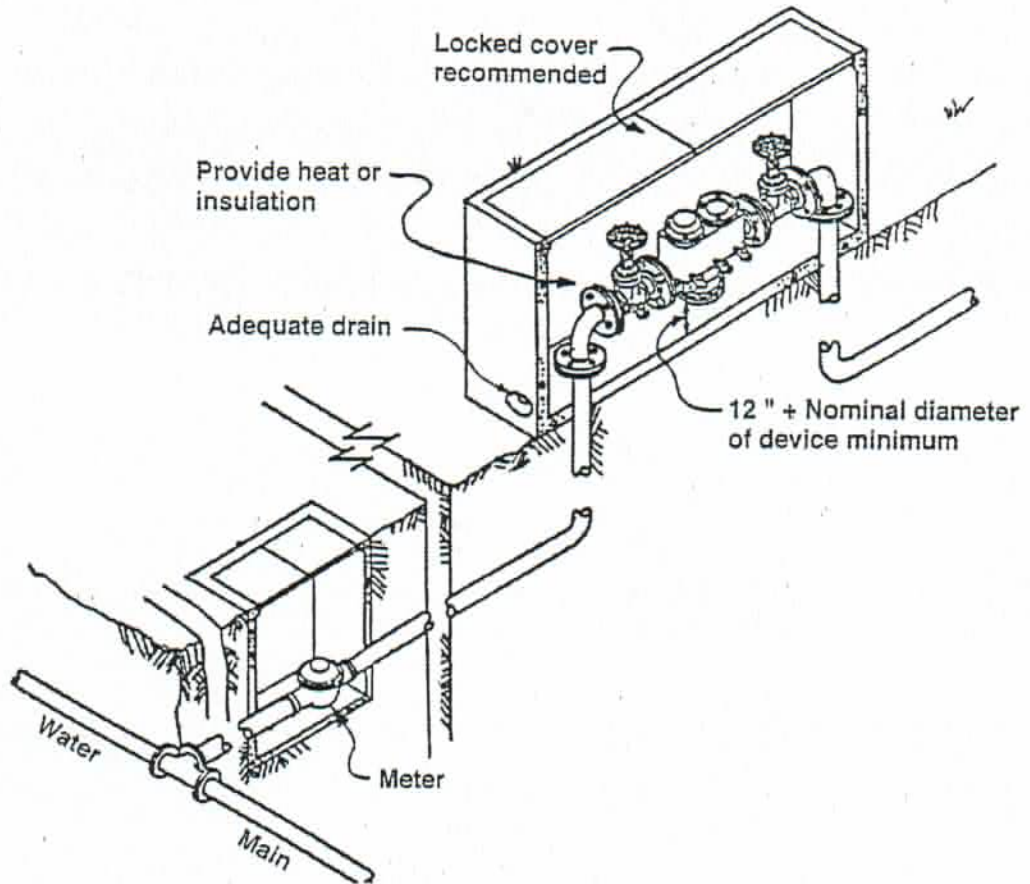
Note:
Assembly to be a minimum of 6" from wall and 12" (min.) off floor.

DOUBLE CHECK VALVE ASSEMBLY UNDERGROUND INSTALLATION LARGER THAN 2"

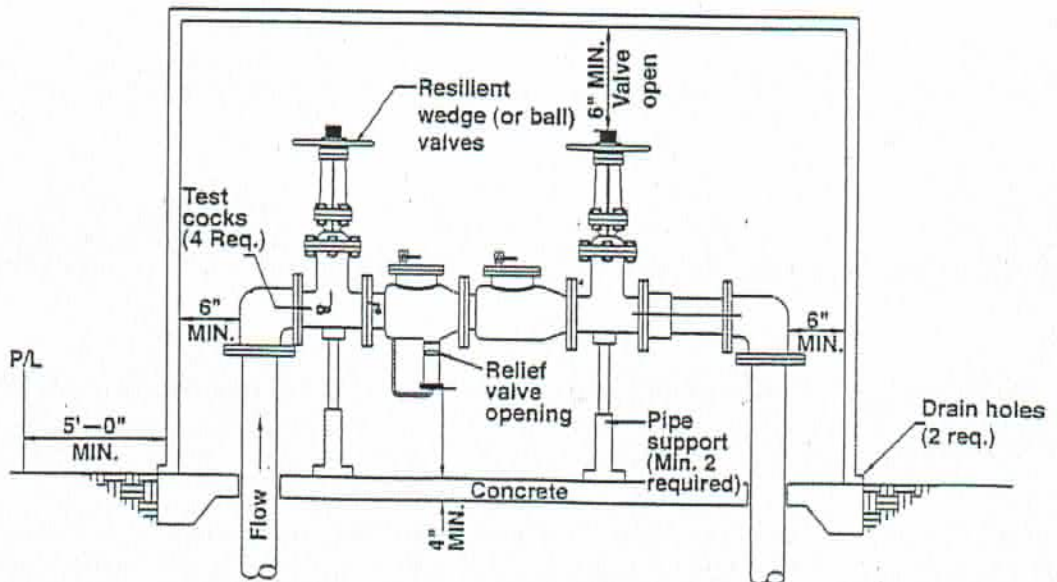


- Notes:**
- * Walls may be precast concrete, reinforced poured in place concrete, filled block or brick.
 - * Top may be reinforced concrete, reinforced poured in place concrete, steel plate with epoxy coating, or aluminum plate.
 - * Hatch shall be manufactured steel or aluminum door, cast iron manhole ring and cover equal to sumter machine MF-11 frame and MF-18 cover, or fabricated steel or aluminum opening suitable to owner.
 - * Wall sleeves P.V.C., cast iron, steel or core drilled concrete.

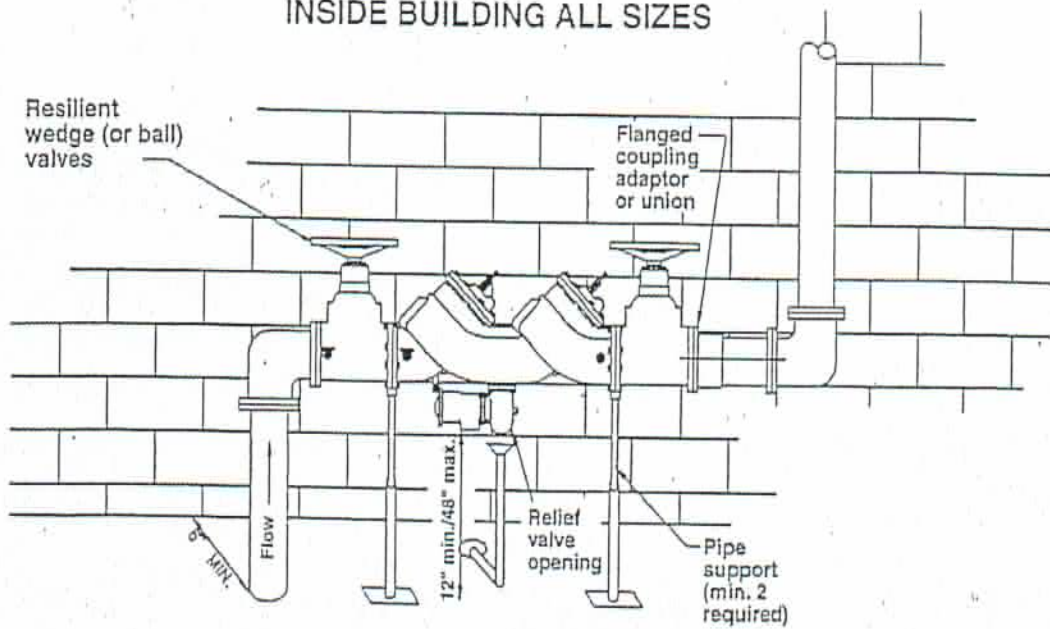
TYPICAL INSTALLATION OF
REDUCED PRESSURE PRINCIPLE DEVICE



REDUCED PRESSURE PRINCIPLE ASSEMBLY
ABOVE GROUND ENCLOSURE
ALL SIZES, ALSO ENCLOSURE CAN BE
USED FOR DOUBLE CHECK VALVE ASSEMBLY



REDUCED PRESSURE ASSEMBLY
OR DOUBLE CHECK VALVE ASSEMBLY
INSIDE BUILDING ALL SIZES



APPENDIX C
SOUTH CAROLINA DHEC
APPROVED BACKFLOW DEVICES

May 3, 2011

**NOTICE OF APPROVED BACKFLOW
PREVENTION ASSEMBLIES FOR SOUTH CAROLINA**

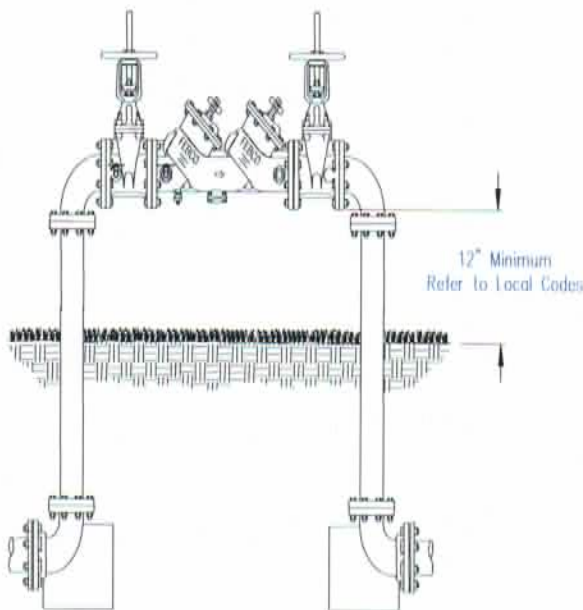
Enclosed is the revised list of approved backflow prevention devices and a list of backflow equipment representatives.

The following should be considered before selecting a particular device:

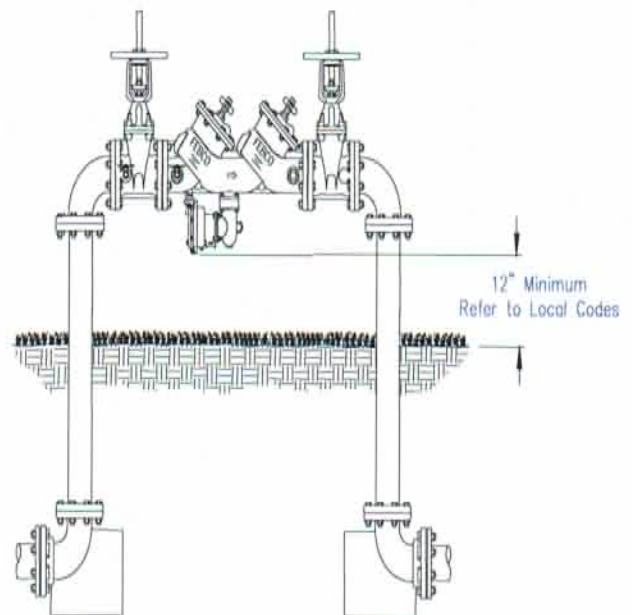
1. All local plumbing laws and regulations must be adhered to.
2. Manufacturer's installation instructions shall be strictly adhered to.
3. Reduced pressure principle assemblies shall be installed so that the relief port will never become submerged. This prohibits installation in a pit that cannot be drained by gravity to the surface of the ground. Also, RPPA are not acceptable for the vertical orientation unless approved by the University of Southern California's Foundation for Cross Connection Control & Hydraulic Research.
4. The operating performance of these devices varies among manufacturers; therefore, it is suggested that local water authorities be contacted to assist in selecting a device which is best suited for that particular system.
5. The South Carolina Department of Health and Environmental Control reserves the right to add or to remove from the approved list any reduced pressure principle assembly, pressure vacuum breaker, or double check valve assembly.
6. It is a requirement that backflow prevention devices be tested immediately after installation and at least once a year thereafter. If a serious defect is discovered at the time of the first (immediate inspection after installation) inspection or after any subsequent inspections, it is requested that the Department of Health and Environmental Control be notified so prompt action can be taken to review the approved status of the device.
7. By-pass piping is not permitted unless the by-pass piping is equipped with an approved backflow prevention assembly similar to the main line device. In many instances it will be desirable, or necessary to install two approved backflow prevention devices in order that water service will not be interrupted during the testing or repair of the device.

8. Some manufacturers market, as non-standard equipment, devices capable of withstanding elevated temperatures. The high temperature devices should be ordered from the manufacturer to include documentation certifying their ability to withstand high temperatures.
9. Any reduced pressure principle assembly, pressure vacuum breaker, or double check valve assembly on this list of approved devices must be equipped with either resilient seated ball valves or resilient wedged gate valves. Butterfly valves are acceptable on backflow devices as long they are approved by the University of Southern California's Foundation for Cross Connection Control & Hydraulic Research.
10. If a manufacturer markets a prefabricate "manifold" series it will be approved as long as both of the devices in the manifold are from the approved list.
11. If a manufacturer markets a double detector check valve assembly or a reduced pressure principle detector assembly it will be approved as long as both devices are from the approved list.

All devices on this approval list must be equipped with resilient seated ball valves or resilient wedged gate valves. Butterfly valves are acceptable on backflow devices as long as they are approved by (USCFCCC&HR).



Double Check Assembly
Outdoor Installation - OS&Y Gates



Reduced Pressure Assembly
Outdoor Installation - OS&Y Gates

SCDHEC

LIST OF APPROVED BACKFLOW PREVENTION DEVICES

DOUBLE CHECK VALVE ASSEMBLIES

DCVA's are approved for use when protecting the potable water system from backflow when a low degree of hazard is involved. A low degree of hazard is one which may cause an actual or potential threat to the physical properties of the water system or the potability of the public or consumer's potable water system. However, a low degree of hazard would not constitute a health or system hazard. The maximum degree or intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable.

<u>COMPANY</u>	<u>MODEL</u>	<u>SIZE</u>
Ames	2000B	½", ¾", 1", 1¼", 1½", 2"
	2000 (Epoxy)	4", 6", 8", 10"
	2000SS	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10", 12"
	2000SE	2½", 6", 8"
	2001SS	3", 4", 6", 8"
	2001SSN	3", 4", 6", 8"
	2001SSZ	3", 4", 6", 8"
	Colt200	2½", 3", 4", 6", 8", 10"
	Colt200A	2½", 3", 4", 6", 8", 10"
	Colt200N	2½", 3", 4", 6", 8", 10"
	Colt200Z	2½", 3", 4", 6", 8", 10"
	Maxim200	2½", 3", 4", 6", 8"
	Maxim200A	2½", 3", 4", 6", 8"
	Maxim200N	2½", 3", 4", 6", 8"
	Maxim200Z	2½", 3", 4", 6", 8"
Beeco-Hersey	#2	3", 4", 6", 8", 10"
	FDC	¾", 1", 1½", 2"
	HDC	¾", 1", 1½", 2"
Buckner	24100 thru 24104	¾", 1", 1¼", 1½", 2"
Cla-Val	D2	¾", 1", 1¼", 1½"
	D4	2", 2½", 3", 4", 6", 8", 10"
	DC6LB	¾", 1", 1½", 2"
	DC6LW	¾", 1", 1½", 2"
	DC7LW	2½", 3", 4", 6", 8", 10"
	DC7LY	2½", 3", 4", 6", 8", 10"
	DC8LW	2½", 3", 4", 6", 8", 10"
	DC8LY	4", 6", 8"

DOUBLE CHECK VALVE ASSEMBLIES CONTINUED:

<u>COMPANY</u>	<u>MODEL</u>	<u>SIZE</u>
Cla-Val	DC8NW	2½", 3", 4", 6", 8", 10"
	DC8NY	2½", 3", 4", 6", 8"
	DC8VW	2½", 3", 4", 6"
	DC8VY	2½", 3", 4", 6"
Conbraco/Apollo	4S	½"
	40-100 Series	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	40-104 A2T thru	
	40-108 A2T	¾", 1", 1¼", 1½", 2"
	4S-100 Series	2½", 3", 4", 6", 8", 10"
	4SG-100	2½", 3", 4", 6", 8"
Febco	805	¾", 1", 1½", 2", 3", 4",
	805Y	¾", 1", 1½", 2", 2½", 3", 4", 6", 8", 10"
	805YB & YR	¾", 1"
	805YD	2½", 3", 4", 6", 8", 10"
	850	¾", 1", 1½", 2", 2½", 3", 4", 6", 8"
	870	2½", 3", 4", 6", 8", 10"
	870V	2½", 3", 4", 6", 8", 10"
	830	4", 6", 8"
	830H	4", 6"
	Flomatic	DCV
DCVE		¾", 1", 1½", 2"
Watts	709QT	¾", 1", 1½", 2", 2½", 3", 4", 6", 8", 10"
	709	2½", 3", 4", 6", 8", 10"
	719QT	¾", 1", 1¼", 1½", 2"
	007	½", ¾", 1", 1¼", 1½", 2", 3"
	007M1&M2QT	¾", 1", 1¼", 1½", 2"
	007M3QT	¾"
	770	4", 6", 8"
	772	4", 6", 8", 10"
	774	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	774X	2½", 6", 8"
	775QT	½", ¾", 1", 1¼", 1½", 2"
	775	3", 4", 6", 8"
	N775	3", 4", 6", 8"

DOUBLE CHECK VALVE ASSEMBLIES CONTINUED:

<u>COMPANY</u>	<u>MODEL</u>	<u>SIZE</u>
Wilkins	757A	2½", 3", 4", 6", 8", 10"
	757N	2½", 3", 4", 6", 8", 10"
	767A	2½", 3", 4", 6", 8"
	767N	2½", 3", 4"
	350	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10", 12"
	350A	4", 6", 8"
	350AST	2 ½", 3", 4", 6"
	450	2½", 3", 4", 6", 8", 10"
	550	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	950	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	950XLT	¾", 1", 1¼", 1½", 2"
	950XL	¾", 1", 1¼", 1½", 2"
	950XLU	¾", 1", 1½", 2"

The following devices are Double DETECTOR Check Valve Assemblies and Reduced Pressure Principle DETECTOR Assemblies. These devices are made up from approved DCVA's and RPPA's which are approved elsewhere on this list. Therefore, they are approved devices. These devices are mainly designed for FIRE LINE use. If a Double Detector Check Valve Assembly or Reduced Pressure Principle Detector Assembly is prescribed for a given facility on your system, it should be done with an understanding of this purpose, as well as the fact that its meter will have to be read periodically in order to be of any value. Don't forget that when the annual testing is done, both of these devices are required to be tested.

DOUBLE DETECTOR CHECK VALVE ASSEMBLIES ARE:

AMES - 3000SS, 3000SE, (3001SS & 3001SSN & 3001SSZ 3"-8"),
(Colt300 2½"-10") (Colt300A 2½"-10"), (Colt300N 2½"-10"),
(Maxim300 2½"-8"), (Maxim300N 2½"-8")
BEECO-HERSEY - DDCII
CLAVAL - DD7LY, DD8LY, DD8NY
CONBRACO/APOLLO - 40-600, 40-60A, 40-60C, 40-60E, 40-60G,
4SG-600 2½"-8", DA4S 10"
FEBCO - 806YD, 856, 876, 876V, (831 4"-8"), (831H 4"-6")
WATTS - 007DCDA, 709DCDA, 770DCDA, 772DCDA, 774DCDA, and
774XDCDA, (775DCDA & N775DCDA 2½"-10"), (757DCDA 2½"-10")
(757NDCDA 2½"-10"), (767NDCDA 2½"-4")
WILKINS – (950DA 2½"-10"), (350DA 2½"-10"), (350ADA 4"-8"),
(350ASTDA 2 ½"-6"), (450DA 4"-10")

REDUCED PRESSURE PRINCIPLE DETECTOR ASSEMBLIES ARE:

AMES- 5000SS, (5001SS & 5001SSN & 5001SSZ 3"-6"), (Colt500 2½"-
10") (Colt500A 2½"-10"), (Colt500N 2½"-10"), (Maxim500 2½"-8")
(Maxim500A 2½"-8"), (Maxim500N 2½"-8")
BEECO-HERSEY- 6CMDA
CLAVAL- RD7LY
CONBRACO/APOLLO- 40-700, 40-70A, 40-70C, 40-70E, 40-70G
FEBCO- 826YD
WATTS- 009RPDA, 909RPDA, 990RPDA, 992RPDA, (957RPDA 2½"-
10"), (957NRPDA 2½"-10"), (967NRPDA 2½"-3")
WILKINS- (975DA 2½"-10"), (375DA 2½"-10"), (375ADA 4"-8"),
(375ASTDA 2 ½"-6), (475DA 4"-8"), (475DAV 4"-8")

SCDHEC

LIST OF APPROVED BACKFLOW PREVENTION DEVICES

REDUCED PRESSURE PRINCIPLE ASSEMBLIES

Approved for use to protect the potable water system from backflow when there is an actual or potential health hazard. The terms "health hazard" shall mean an actual or potential threat of contamination or pollution of a physical or toxic nature to the public potable water system or the consumer's potable water system to such a degree of intensity that there would be a danger to health.

<u>COMPANY</u>	<u>MODEL</u>	<u>SIZE</u>
Ames	4000B	½", ¾", 1", 1¼", 1½", 2"
	4000-RP	4", 6", 8", 10"
	4000SS	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	4001SS	3", 4", 6"
	4001SSN	3", 4", 6"
	4001SSZ	3", 4", 6"
	Colt400	2½", 3", 4", 6", 8", 10"
	Colt400N	2½", 3", 4", 6", 8", 10"
	Colt400Z	2½", 3", 4", 6", 8", 10"
	Maxim400	2½", 3", 4", 6", 8", 10"
	Maxim400N	2½", 3", 4", 6", 8"
	Maxim 400Z	2½", 3", 4", 6", 8"
	Beeco-Hersey	6CM
6CM-Bronze		2½", 3", 4", 6", 8"
FRP-II		¾", 1", 1¼", 1½", 2"
Buckner	24000 thru 24004	¾", 1", 1¼", 1½", 2"
Cla-Val	RP-2	¾", 1", 1¼", 1½"
	RP-4	2", 2½", 3", 4", 6", 8", 10"
	RP-4V	4"
	RP6LW	¾", 1", 1¼", 1½", 2"
	RP6VW	¾", 1", 1½", 2"
	RP7LW	2½", 3", 4", 6", 8", 10"
	RP7LY	2½", 3", 4", 6", 8", 10"
	RP8LW	2½", 3", 4", 6", 8", 10"
	RP8LY	2½", 3", 4", 6", 8"
	RP8NW	2½", 3", 4", 6", 8", 10"
	RP8NY	2½", 3", 4", 6", 8"
	RP8VW	2½", 3", 4", 6", 8", 10"
	RP8VY	2½", 3", 4", 6"

REDUCED PRESSURE PRINCIPLE ASSEMBLIES CONTINUED:

<u>COMPANY</u>	<u>MODEL</u>	<u>SIZE</u>
Conbraco/Apollo	40-200 Series	¼", ⅜", ½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	Stainless {40-204-A2S	¾"
	Steel {40-205-A2S	1"
Febco	825	2½", 3", 4", 6", 8", 10"
	825D	2½", 3", 4", 6", 8", 10"
	825Y	¾", 1", 1¼", 1½", 2", 2½"
	825YD	2½", 3", 4", 6", 10"
	825YA & YR	¾", 1", 1½", 2"
	835B	¾", 1", 1½", 2"
	860	¾", 1", 1½", 2", 2½", 3", 4", 6", 8"
	880	2½", 3", 4", 6", 8", 10"
	880-V	2½", 3", 4", 6", 8", 10"
Flomatic	RPZ	¾", 1", 1½", 2", 2½", 3", 4", 6", 8"
	RPZII	½", ¾"
	RPZE	¾", 1", 1½", 2"
Watts	909	2½", 3", 4", 6", 8", 10"
	909QT	¾", 1", 1¼", 1½", 2"
	919QT	½", ¾", 1", 1¼", 1½", 2"
	009	2½", 3", 4", 6"
	009QT	¼", ⅜", ½", ¾", 1", 1¼", 1½", 2"
	009M1 & M2QT	¾", 1", 1¼", 1½", 2"
	009M3QT	¾"
	990	4", 6", 8"
	992	4", 6", 8", 10"
	994	¾", 1", 1½", 2", 2½", 3", 4", 6", 8", 10"
	995	¾", 1", 1¼", 1½"
	957	2½", 3", 4", 6", 8", 10"
	957N	2½", 3", 4", 6", 8", 10"
	957Z	2½", 3", 4", 6", 8", 10"
967	2½", 3", 4", 6", 8"	
Wilkins	375	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	375XL	¾", 1", 1¼", 1½", 2"
	375A	4", 6", 8"
	375AST	2 ½", 3", 4", 6"
	375MS	2½", 3", 4", 6", 8", 10"

REDUCED PRESSURE PRINCIPLE ASSEMBLIES CONTINUED:

<u>COMPANY</u>	<u>MODEL</u>	<u>SIZE</u>
Wilkins	475	2½", 3", 4", 6", 8", 10"
	475V, VMS, & MS	2½", 3", 4", 6", 8", 10"
	575	¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	975XLST	3/8", ½"
	975XL	¼", 3/8", ½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 6", 8", 10"
	975XLV	¾", 1"
	975XLU	¾", 1", 1½", 2"
	975XLSE & XLSEU	¾", 1", 1¼", 1½", 2"
	975XLTCU & XLBMS	¾", 1", 1¼", 1½", 2"
	975MS & BMS	2½", 3", 4", 6", 8", 10"
	975XLMS	¾", 1", 1¼", 1½", 2"

SCDHEC

LIST OF APPROVED BACKFLOW PREVENTION DEVICES

PRESSURE VACUUM BREAKERS

PVB's are approved for use when protecting the potable water system from backsiphonage only when a health hazard or non-health hazard is involved. The term "health hazard" shall mean an actual or potential threat of contamination or pollution of a physical or toxic nature to the potable water system or the consumer's potable water system to such a degree of intensity that there would be a danger to health. It is very important to understand that the PVB is not designed for backpressure. Also, the PVB must be installed 12" above any downstream plumbing.

<u>COMPANY</u>	<u>MODEL</u>	<u>SIZE</u>
Ames	A200	½", ¾", 1", 2"
Buckner	24199 thru 24204 24199/25 thru 24204/25	½", ¾", 1", 1¼", 1½", 2" ½", ¾", 1", 1¼", 1½", 2"
Conbraco/Apollo	40-503-02 thru 40-508-02 4V 4A	½", ¾", 1", 1¼", 1½", 2" ½", ¾", 1", 1¼", 1½", 2" 1"
Febco	765 745	½", ¾", 1", 1¼", 1½", 2" ¾", 1"
Flomatic	PVB	¾", 1"
Rain Bird	PVB-075-R thru 200-R	¾", 1", 1¼", 1½", 2"
Watts	800QT 800MQT 800CMQT 800M2QT 800M3QT 800M4FR 800M4QT	¾", 1", 1¼", 1½", 2" ½", ¾" ½", ¾" ½", ¾", 1", 1¼", 1½", 2" ½", ¾" ½", ¾", 1", 1¼", 1½", 2" ½", ¾", 1", 1¼", 1½", 2"
Wilkins	720A 420	½", ¾", 1", 1¼", 1½", 2" ½", ¾", 1"

BACKFLOW EQUIPMENT REPRESENTATIVES

Conbraco / Apollo

Mr. Larry Castleberry / Mr. Joey Smith
Pro Marketing, Inc
110 Corporate Dr / Suite L
Spartanburg SC 29303
864-578-4334 / 864-415-8696

TMS

Mr. Rick Wade / Mr. Donnie Johnson
3540 Rutherford Rd
Taylors SC 29687
864-268-2891
800-476-2212

BAVCO

Mr. Jim Purzycki
20435 South Susana Rd
Long Beach, CA 90810
800-458-3492
310-639-5231

Beeco - Hersey

Mr. Tod Little
Mueller Company
1437 Heins Rd
Blythewood SC 29016
803-691-9431

American Backflow Products

Mr. Mark Inman
7580-A West Tennessee Street
Tallahassee, FL 32303
800-575-9618 / 850-576-1814

Febco

Mr. M. C. Sorrell / Mr. Bob Buddo
SPC Marketing
P.O. Box 675
Monroe, NC 28111
704-283-8554

Watts & Ames

Mr. Joel Golmont / Mr. Mike Davis
Smith & Stevenson
P. O. Box 240009
Charlotte, NC 28224
800-225-9895 / 704-525-3388

Wilkins

Mr. Craig Birchfield
Quality Marketing
3500-C Woodpark Blvd
Charlotte, NC 28206
704-599-9407

Flomatic

Mr. Josh Amon / Mr. John Amon
Preferred Sources
930 Culp Road
Pineville NC 28134
704-504-3111

Cash-Acme / Flomatic

Mr. Dan Hunt / Mr. Allen Scott
3401 Woodpark Blvd Suite B
Charlotte NC 28206
704-921-8422

If you should have any questions concerning this list or need any assistance concerning backflow prevention or cross connection control, please call or write:

Mr. John Watkins, Cross Connection Control Program Coordinator
SCDHEC / Bureau of Water
2600 Bull Street
Columbia, SC 29201
803-898-3567 phone
803-898-2893 fax

SCDHEC backflow web page: www.scdhec.net/environment/water/dwbflow.htm

APPENDIX D
JOINT MUNICIPAL WATER AND SEWER
COMMISSION TEST FORM

JOINT MUNICIPAL WATER AND SEWER COMMISSION

TEL: (803) 359-8373

FAX: (803) 359-6553

ALL FIELDS MUST BE COMPLETED

Date: _____

Account Name: _____

Account Address: _____

Account Number: _____ Meter Number: _____

Device Name: _____ Model Number: _____

Serial Number: _____ Size: _____

Device Location: _____

Tested by (PRINT): _____

	Check No. 1	Check No. 2	Air-Inlet Or Relief Valve	# 1 Gate or Ball (Circle One)	#2 Gate or Ball (Circle One)
Test Before Repairs	(Mark One) Leaked _____ Closed _____ Tight _____	(Mark One) Leaked _____ Closed _____ Tight _____	Opened at _____ LBS. Differential Pressure	(Mark One) Leaked _____ Closed _____ Tight _____	(Mark One) Leaked _____ Closed _____ Tight _____
	Diff Press	Diff Press			
Repairs And New Materials					
Test After Repairs	(Mark One) Leaked _____ Closed _____ Tight _____	(Mark One) Leaked _____ Closed _____ Tight _____	Opened at _____ LBS. Differential Pressure	(Mark One) Leaked _____ Closed _____ Tight _____	(Mark One) Leaked _____ Closed _____ Tight _____
	Diff Press	Diff Press			

Above data certified to be correct.

Tester Signature: _____ Certification Number: _____

Company Name: _____ Company Telephone Number: _____

Category: _____ General _____ Limited _____ Inspector Tester

Method of Testing: _____ Test Kit Used: _____

Comments: _____

APPENDIX E
BACKFLOW TEST NOTIFICATION
DOOR TAG

**JOINT MUNICIPAL WATER AND SEWER
COMMISSION**

PO BOX 2555
LEXINGTON, SC 29071
(803) 359-8373

Street Address:
2546 Two Notch Road
Lexington, SC 29072

Office Hours Mon. – Thu. 7:30 – 5:00
Fri. 8:00 – 4:30

PLEASE BE ADVISED

**THE BACKFLOW DEVICE
FOR THE FOLLOWING
SERVICE LOCATION HAS
BEEN SUCCESSFULLY
TESTED**

Address: _____

DATE: _____

If you have any questions, please contact
our office at 359-8373.

APPENDIX F
BACKFLOW PREVENTION ANNUAL TESTING AGREEMENT

**JOINT MUNICIPAL WATER AND SEWER COMMISSION
BACKFLOW PREVENTION
ANNUAL TESTING AGREEMENT**

www.lcjmwsc.com

Tel: (803) 359-8373 Fax: (803) 359-6553

Date: _____

Business Name: _____

Address: _____

Account #: _____

I request that the Joint Municipal Water and Sewer Commission perform the testing of my backflow prevention assembly on an annual basis. I understand that charges associated with this testing will be charged to my account in accordance with the Commission's rate schedule. I also understand that if the backflow test results come back with a failed device, it will be my responsibility to have the device repaired and then retested from another Backflow Tester of my choice. The Commission will not be held responsible for any cost incurred in repairing or testing a failed device.

Authorized Signature

APPENDIX G

**JOINT MUNICIPAL WATER AND SEWER COMMISSION
COMMERCIAL BACKFLOW TESTING RATE SCHEDULE**

Joint Municipal Water and Sewer Commission

Commercial Backflow Testing Rates

Double Check Valve Assembly -	\$90.00
Fire Line DCVA -	\$125.00
Reduced Pressure Principle Assembly -	\$125.00

***Customer will be assessed a \$35.00 Administration Fee should the customer not contact the Commission to test the device prior to the expiration of time allowed by second notice.**

**** Should the device fail, then customer will be notified that the device shall be repaired and tested by SCDHEC Certified Tester. The Commission will not perform any repairs on commercial devices. Charges will still apply to accounts where the device fails.**