

ORDINANCE NO. 2743

AN ORDINANCE PROVIDING FOR A CROSS CONNECTION CONTROL PROGRAM AND REPEALING ORDINANCE NO. 2396

THE CITY OF **ST. HELENS** ORDAINS as follows:

I. DEFINITIONS

- A. **Approved backflow prevention assembly or backflow assembly or assembly** - means an assembly to counteract backpressure or prevent backsiphonage. This assembly must appear on the list of approved assemblies issued by the Oregon Health Division.

Reduced pressure principle backflow prevention assembly or reduced pressure principle assembly or RP assembly or RP - shall mean an assembly containing two independently acting approved check valves together with a hydraulically-operated, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The assembly shall include properly located test cocks and tightly closing shut-off valves at the end of the assembly.

Reduced pressure principle detector backflow prevention assembly or reduced pressure detector or RPDA - means an assembly composed of a line-size approved reduced pressure principle assembly with a bypass containing a specific water meter and an approved reduced pressure principle backflow prevention assembly. The meter shall register accurately for very low rates of flow.

Double check valve backflow prevention assembly or double check assembly or double check or DC - means an assembly which consists of two independently operating check valves which are spring-loaded or weighted. The assembly comes complete with a gate valve on each side of the checks, as well as test cocks to test the checks for tightness.

Double check detector backflow prevention assembly or double check detector or DCDA - means an assembly composed of a line-size approved double check assembly with a bypass containing a specific water meter and an approved double check valve assembly. The meter shall register accurately for very low rates of flow.

Pressure vacuum breaker backflow prevention assembly or pressure vacuum breaker or PVB - An assembly which provides protection against backsiphonage, but does not provide adequate protection against backpressure backflow. The assembly is a combination of a single check valve with an AVB and can be used with downstream shut-off valves. In addition, the assembly has suction and discharge gate valves and test cocks which allow the full testing of the assembly.

Spill-resistant pressure vacuum breaker or SVB - An assembly containing an independently operating, internally loaded check valve and independently operating, loaded air inlet valve located on the discharge side of the check valve. This assembly is to be equipped with a properly located test cock and shut-off valves on the suction and discharge ports of the assembly.

- B. **Air gap** - A physical separation between the free flowing discharge end of a potable water supply piping and/or appurtenance and an open or non-pressure receiving vessel, plumbing fixture or other device. An *approved air-gap separation* shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel, plumbing fixture, or other device — in no case less than one inch.
- C. **Atmospheric vacuum breaker backflow prevention device or atmospheric vacuum breaker or AVB** - A device used to prevent backsiphonage in non-health hazard conditions.
- D. **Auxiliary supply** - means any water source or system other than the public water system, that may be available in the building or on the property.
- E. **Backflow** - means the flow in the direction opposite to the normal flow or the introduction of any foreign liquids, gases, or substances into the water system of the City's water.
- F. **Backpressure** - any elevation of pressure in the downstream piping system (by any means) above the supply pressure at the point of consideration which would cause, or tend to cause, a reversal of the normal direction of flow and the introduction of fluids, mixtures, or substances from any source other than the intended source.
- G. **Backsiphonage** - the flow of water or other liquids, mixture, or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by a sudden reduction of pressure in the potable water supply system.
- H. **Boresight or Boresight to daylight** - means providing adequate drainage for backflow prevention assemblies installed in vaults through the use of an unobstructed drain pipe.
- I. **Certified tester** - means a person who is a certified backflow prevention assembly technician approved by the Oregon Health Division.
- J. **Contamination** - means the entry into or presence in a public water supply system of any substance which may be deleterious to health and/or quality of the water.
- K. **Cross connection** - means any physical arrangement where a potable water supply is connected, directly or indirectly (actual or potential), with any other non-drinkable water system, used water system or auxiliary water supply, sewer, drain conduit, swimming pool, storage reservoir, plumbing fixture, swamp cooler, air conditioner unit, fire protection system, or any other assembly which contains, or may contain, contaminated water, sewage, or other liquid of unknown or unsafe quality which may be capable

of imparting contamination to the public water system as a result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or changeover assemblies, or other temporary or permanent assemblies through which, or because of which, backflow may occur are considered to be cross connections.

- L. **Degree of hazard** - means the low or high hazard classification that shall be attached to all actual or potential cross connections.

High hazard - means the classification assigned to an actual or potential cross connection that potentially could allow a substance that may cause illness or death to backflow into the potable water supply.

Low hazard - means the classification assigned to an actual or potential cross connection that potentially could allow a substance that may be objectionable but not hazardous to one's health to backflow into the potable water supply.

Health hazard - means an actual or potential threat of contamination of a physical or toxic nature to the public potable water system or the consumer's potable water system that would be a danger to health.

Plumbing hazard - means an internal or plumbing-type cross connection in a consumer's potable water system that may be either a polluttional or a contamination-type hazard.

Polluttional hazard - means an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer's potable water system but which would not constitute a health or system hazard, as defined. The maximum degree of intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

System hazard - means an actual or potential threat of severe danger to the physical properties of the public or consumer's potable water supply or of a pollution or contamination that would have a detrimental effect on the quality of the potable water in the system.

- M. **Non-residential use** - shall include all uses not specifically included in "residential uses" defined in subsection S.
- N. **Point-of-use isolation** - means the appropriate backflow prevention within the consumer's water system at the point at which the actual or potential cross connection exists.
- O. **Potable water supply** - means any water supply intended or used for human consumption or other domestic use.
- P. **Premises** - means any piece of real or personal property to which water is provided, including all improvements, mobile structures, and structures located on it.

- Q. **Premises isolation** - means the appropriate backflow prevention at the service connection between the public water system and the water user.
- R. **Public Works or City or The City** - means the Public Works Department of the City of St. Helens or designee.
- S. **Residential use** - shall include single family dwellings, duplexes, multiplex, housing and apartments where the individual units are each on a separate meter, or, in cases where two or more units are served by one meter, the units are dwellings.
- T. **Service connection** - is the point of delivery at which the City loses control of the water.
- U. **Used water** - means water supplied by a public water system to a water user's system after it has passed through the service connection.

II. **PURPOSE**

The purpose of this ordinance is to protect the water supply of the City of St. Helens Public Works Department from contamination or pollution due to any existing or potential cross connection.

III. **CROSS CONNECTION PROHIBITED**

No cross connections shall be created, installed, used, or maintained within the water service area served by the City of St. Helens by any water user except in accordance with this ordinance.

IV. **BACKFLOW PREVENTION ASSEMBLY REQUIREMENT**

A backflow assembly will be required in each of the following circumstances:

- A. The nature and extent of any activity on the premises, or the materials used in connection with any activity on the premises, or materials stored on the premises, could contaminate or pollute the potable water supply.
- B. Premises having any one or more cross connections as that term is defined in Section I.K. are identified or are present.
- C. Internal cross connections are present that are not correctable.
- D. Intricate plumbing arrangements are present that make it impractical to ascertain whether cross connections exist.
- E. There is a repeated history of cross connections being established or re-established.
- F. There is unduly restricted entry so that inspections for cross connections cannot be made with sufficient frequency to assure that cross connections do not exist.
- G. Materials are being used such that, if backflow should occur, a health hazard could result.

- H. Installation of an approved backflow prevention assembly is deemed to be necessary to accomplish the purpose of these regulations in the judgment of the City of St. Helens.
- I. An appropriate cross connection survey report form has not been filed with Public Works.
- J. A fire sprinkler system using non-potable piping material is connected to the City's water system.
- K. All new construction if deemed necessary in the plan review. The type of assembly will be commensurate with the degree of hazard as determined by the City.
- L. When a building is constructed on commercial premises, and the end use of such building is not determined or could change, a reduced pressure principle backflow prevention assembly may be installed at the service connection that supplies water for public domestic use.
- M. All facilities that require continuous, uninterrupted water service and are required to have a backflow assembly must make provisions for the parallel installation of assemblies of the same type so that testing, repair, and maintenance can be performed.
- N. Any used water return system.
- O. In the event a point-of-use assembly has not had the testing or repair done as required by this ordinance, a premises isolation assembly will be required.
- P. If it is determined that additions or rearrangements have been made to the plumbing system without obtaining proper permits as required by the City.
- Q. All multistory buildings or any building with a booster pump or elevated storage tank.
- R. Retrofitting will be required on all high hazard connections and wherever else the City deems necessary to retrofit.

V. MOBILE UNITS

- A. Any mobile unit or apparatus must obtain a permit from the City of St. Helens before using any City water. These mobile units will include, but are not limited to, carpet-cleaning vehicles, water-hauling vehicles, street-cleaning vehicles that use water, potable toilet-hauling and water service vehicles, septic tank-cleaning vehicles that use water. A fixed air gap or backflow assembly mounted either on the truck or piping system may be required.
- B. The City reserves the right to revoke the permit if the owner fails to comply with above procedures.

VI. RIGHT OF WAY ENCROACHMENT

- A. No person shall install or maintain a backflow prevention assembly upon or within any City right of way unless approved by the City.

VII. MULTIPLE CONNECTIONS

Any premises requiring multiple service connections for adequacy of supply and/or fire protection will be required to install a backflow assembly on each of the additional service lines to the premises. The assembly will be commensurate with the degree of potential hazard that could occur in the event of an interconnect between any of the buildings on the premises.

VIII. ACCESS TO PREMISES

Every water user provided water service by the City directly or indirectly shall, during the hours of 8:00 a.m. to 5:00 p.m., permit the City or its agents to enter the premises and building for examination of pipes and fixtures and the manner in which the water is used, and refusal may result in a disconnect or termination of water service from the City.

IX. INSTALLATION REQUIREMENTS

To ensure proper operation and accessibility of all backflow prevention assemblies, the following requirements shall apply to the installation of these assemblies.

- A. Backflow prevention assemblies shall be installed in accordance with the current Oregon Health Division regulations and this ordinance. The assembly installer must obtain the required plumbing permits and have the installation inspected by the City.
- B. No part of the reduced pressure principle backflow prevention assembly shall be submerged in water or installed in a location subject to flooding. If a double check valve assembly is installed in a vault, brass pipe plugs are required in the test ports at all times and adequate drainage shall be provided.
- C. Assemblies must be installed at the point of delivery of the water supply. Such installation of the assembly must be before any branch in the line and on private property located just inside the boundary between the City right of way and the landowner's property. City may specify other areas for installation of the assembly.
- D. The assembly must be protected from freezing and other severe weather conditions.
- E. All backflow prevention assemblies shall be of a type and model approved by the City.
- F. All vertical installations of backflow assemblies must be approved by the City.
- G. The assembly shall be readily accessible with adequate room for maintenance and testing. Assemblies 2" and smaller shall have at least 6"

clearance on all sides of the assembly. All assemblies larger than 2" shall have a minimum clearance of 12" on the back side, 24" on the test cock side, 12" below the assembly and 36" above the assembly. "Y" pattern double check valve assemblies shall be installed so that the checks are horizontal and the test cock face upwater (see Installation Standards, Section 5:01). These clearance standards apply to all assemblies installed in vaults, enclosures, and meter boxes (see Standard Detail 5:01-1 and 5:01-4).

- H. If permission is granted to install the backflow assembly inside of the building, the assembly shall be readily accessible for inspection during regular working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday.
- I. If an assembly is installed inside of the premises and is 4" or larger and is installed 5' above the floor, it must be equipped with a rigidly and permanently installed scaffolding acceptable to the City. This installation must also meet the requirements set out by the U.S. Occupational Safety and Health Administration and the Oregon Health Division.
- J. RP assemblies may be installed in a vault only if relief valve discharge can be drained to daylight through a "boresight" type drain. The drain shall be of adequate capacity to carry the full rated flow of the assembly and shall be screened on both ends.
- K. An approved air gap shall be located at the relief valve orifice of RP assemblies.
- L. Upon completion of installation, the City shall be notified and all assemblies must be inspected and tested. All backflow assemblies must be registered with the City. Registration shall consist of date of installation, manufacturer, model, type, size, serial number of the backflow assembly, and initial test report.

X. TESTING OF ASSEMBLIES

- A. The City shall inspect and test, or cause to be inspected and tested, all assemblies in each of the following circumstances:
 - 1. immediately after installations;
 - 2. whenever the assembly is moved;
 - 3. a minimum of once a year;
 - 4. immediately after repairs.

Assemblies may be required to be tested more frequently if the City deems necessary.
- B. All assembly testing shall be performed by a state-approved certified backflow prevention assembly tester, in accordance with Oregon Health Division procedures.
- C. The City shall not be liable for damage to a backflow prevention assembly that occurs during testing.

XI. MAINTENANCE OF ASSEMBLIES

- A. A person who owns, operates, or manages premises where required backflow prevention assemblies are installed, shall maintain such assemblies in proper working order at all times, including repair as required.
- B. Backflow prevention assemblies shall be maintained in a manner which allows them to be tested by a method that has been approved by the Oregon Health Division.
- C. It is the responsibility of the property owner to have all assemblies repaired in accordance with this ordinance.

XII. PRESSURE LOSS

Any reduction in water pressure caused by the installation of a backflow assembly is not the responsibility of the City. The City will give reasonable assistance to the owner regarding information on adequate sizing of assemblies and proper plumbing practices to provide for required pressure and flows for fire protection.

XIII. COST OF COMPLIANCE

The cost of complying with these regulations is the responsibility of the property owner. These costs include but are not limited to purchasing, installation, testing, repair of the assembly, and thermal expansion, if necessary. These costs are to also include point-of-use and premises isolation assemblies.

XIV. INSTALLATION STANDARDS AND SPECIFICATIONS

- A. Reduced Pressure Principle Backflow Prevention Assembly (RP)

RPs may be utilized at premises where a substance is handled that would be hazardous to health if introduced into the potable water system. The RP is normally used in locations where an air gap is impractical. The RP is effective against both backsiphonage and backpressure.

1. RPs must be sized to provide an adequate supply of water and pressure for the premises being served. Flow characteristics are not standard. Consult manufacturer's specifications for specific performance data.
2. Premises where interruption of water supply is critical should be provided with two assemblies installed in parallel. They should be sized in such a manner that either assembly will provide the maximum flow required.
3. Bypass lines are prohibited. Pipe fittings which could be used for connecting a bypass line must not be installed.
4. The assembly must be readily accessible for testing and maintenance and must be located in an area where water damage to building or furnishings would not occur from relief valve discharge. An approved air gap funnel assembly may be used to direct minor discharges away from the assembly; this assembly will not control

flow in a continuous relief situation. Drain lines to accommodate full relief valve discharge flow should be considered.

RPs are typically installed above grade in well drained areas, but may be installed below grade (ground level) if a boresight drain to daylight, sized to accommodate the full discharge rate of the relief valve, is provided (see Standard Detail 4:01-2). The owner shall be responsible for keeping these vaults free of silt and debris.

Enclosures shall be designed for ready access and sized to allow for the minimum clearances established below. Removable protective enclosures are typically installed on the smaller assemblies. Daylight drain ports must be provided to accommodate full pressure discharge from the assembly.

Assemblies 2 inches and smaller shall have at least 3-inch clearance on both sides and on top of the assembly, and 12 inches below and behind the assembly. All assemblies larger than 2 inches shall have a minimum of 12 inches on the back side, 24 inches on the test cock side, and the relief valve opening shall be at least 12 inches plus nominal size of assembly above the floor or highest possible water level. Headroom of 6 feet 0 inches is required in vaults without a fully removable top. A minimum access opening of 36 inches square is required on all vault lids.

Assemblies that are larger than 4 inches and installed more than 5 feet above floor level must have a suitable platform for use by testing or maintenance personnel.

5. The assembly must be protected from freezing and other severe weather conditions.
6. Vertical installation is prohibited.
7. Lines should be thoroughly flushed prior to installation. A strainer with blowout taping may be required ahead of assembly.
8. The property owner assumes all responsibility for any damage caused by water discharge from an RP assembly.
9. All RP assemblies must be tested in accordance with this ordinance. Tests are the responsibility of the assembly owner. The owner must notify the City of St. Helens Public Works Department upon installation of any backflow prevention assembly.
10. Variances from these specifications will be evaluated on a case-by-case basis.

XV. REDUCED PRESSURE PRINCIPLE DETECTOR BACKFLOW PREVENTION ASSEMBLY (RPDA)

Reduced pressure detector assemblies may be utilized in all installations requiring a reduced pressure principle backflow prevention assembly and detector metering.

- A. RPDA's shall comply with the installation requirements applicable for reduced pressure principle backflow assemblies (RP).
- B. The line-size RP assembly and the bypass RP assembly must each be tested. A separate test report for each assembly must be completed by the certified tester.

XVI. DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY (DC)

Double check valve assemblies may be utilized at premises where a substance is handled that would be objectionable but not hazardous to health if introduced into the potable water system.

- A. DCs must be sized to provide an adequate supply of water and pressure for the premises being served. Flow characteristics are not standard. Consult manufacturer's specifications for specific performance data.
- B. Premises where interruption of water supply is critical should be provided with two assemblies installed in parallel. They should be sized in such a manner that either assembly will provide the minimum water requirements while the two together will provide the maximum flow required.
- C. Bypass lines are prohibited. Pipe fittings which could be used for connecting a bypass line shall not be installed.
- D. The assembly shall be readily accessible with adequate room for testing and maintenance. DCs may be installed above grade, providing all test cocks are fitted with brass pipe plugs. All vaults shall be well drained, constructed of suitable materials, and sized to allow for the minimum clearances established below.

Assemblies 2 inches and smaller shall have at least 3-inch clearance below and on both sides of the assembly, and if located in a vault, the bottom of the assembly shall be not more than 24 inches above grade. All assemblies larger than 2 inches shall have a minimum clearance of 12 inches on the back side, 24 inches on the test cock side, and 12 inches below the assembly. Headroom of 6 feet 0 inches is required in vaults without a fully removable top. A minimum access opening of 36 inches square is required on all vault lids.

Assemblies that are larger than 4 inches and are installed more than 5 feet above floor level must have a suitable platform for use by testing or maintenance personnel.

- E. Vertical installations are allowed on sizes up to and including 4 inches that meet the following requirements:
 - 1. Internally spring-loaded check valves;

2. Flow is upward through assembly;
 3. Manufacturer states their assembly can be used in a vertical position.
- F. The assembly must be protected from freezing and other severe weather conditions.
 - G. Lines should be thoroughly flushed prior to installation. A strainer with blowout tapping may be required ahead of the assembly.
 - H. The water user or owner assumes all responsibility for any damages resulting from installation, operation, and/or maintenance of backflow assembly. The owner shall be responsible for keeping all backflow prevention assembly vaults reasonably free of silt and debris.
 - I. All DCs must be tested in accordance with this ordinance. Tests are the responsibility of the assembly owner. The owner must notify the City of St. Helens Public Works Department upon installation of any backflow prevention assembly.
 - J. Variances from these specifications will be evaluated on a case-by-case basis.

XVII. DOUBLE CHECK DETECTOR BACKFLOW PREVENTION ASSEMBLY (DCDA)

Double check detector valve assemblies may be utilized in all installations requiring a double check valve assembly and detector metering.

- A. DCDA's shall comply with the installation requirements applicable for double check valve assemblies (DCs).
- B. The line-size DC assembly and the bypass DC assembly must each be tested. A separate test report for each assembly must be completed by the certified tester.

XVIII. PRESSURE VACUUM BREAKER BACKFLOW PREVENTION ASSEMBLY (PVB)

PVBs may be utilized as point-of-use protection only and where a substance is handled that would be objectionable but not hazardous to health if introduced into the potable water system. PVBs protect against backsiphonage only and shall not be installed where there is potential for backpressure.

- A. The assembly shall be installed a minimum of 12 inches above the highest downstream piping.
- B. PVBs shall not be installed in an area subject to flooding or where damage would occur from water discharge.
- C. The assembly must be protected from freezing.
- D. The assembly shall be readily accessible for testing and maintenance, with a minimum clearance of 12 inches all around the assembly.
- E. A strainer with blowout tapping may be required ahead of the assembly.

- F. All PVBs must be tested in compliance with this ordinance. Tests are the responsibility of the assembly owner. The owner must notify the City of St. Helens Public Works Department upon installation of any backflow prevention assembly.
- G. Variances from these specifications will be evaluated on a case-by-case basis.

XIX. AIR GAP SEPARATION

Air gap separations provide maximum protection from backflow hazards and may be utilized at premises where a substance is handled that would be hazardous to health if introduced into the potable water system.

- A. An air gap separation shall be at least twice the diameter of the supply pipeline measured vertically above the top rim of the receiving vessel - in no case less than 1 inch.
 - If splashing is a problem, tubular screens may be attached or the supply line may be cut at a 45° angle. The air gap distance is measured from the bottom of the angle. Hoses are not allowed.
- B. Air gap separations shall not be altered in any way without prior approval from the City of St. Helens Public Works Department and must be available for inspection at all reasonable times.
- C. Side walls, ribs or similar obstructions do not affect air gaps when spaced from the inside edge of the spout opening a distance greater than three times the diameter of the effective opening for a single, or a distance greater than four times the effective opening for two intersecting walls.
- D. The effective opening shall be the minimum cross-sectional area at the seat of the control valve or the supply pipe or tubing which feeds the assembly or outlet. If two or more lines supply one outlet, the effective opening shall be the sum of the cross-sectional areas of the individual supply lines or the area of the single outlet, whichever is smaller.

XX. FIRE SYSTEMS

An approved double check detector backflow prevention assembly (DCDA) shall be the minimum protection for fire sprinkler systems using piping material that is not approved for potable water use and/or that does not provide for periodic flow-through during each twenty-four (24) hour period, unless a variance has been issued in writing from the City. A reduced pressure principle detector backflow prevention assembly (RPDA) must be installed if any solution other than the potable water can be introduced into the sprinkler system.

XXI. RESPONSIBILITIES

It is the responsibility of all property owners and their renters to abide by the conditions of this ordinance. In the event of any changes to the plumbing system, it is the responsibility of the property owners to notify the City.

XXII. CONSTITUTIONALITY AND SAVING CLAUSE

If any provision, section, sentence, clause, or phrase of this ordinance is for any reason held to be unconstitutional, void, invalid, or for any reason unenforceable, the validity of the remaining portions of this ordinance or its application to other persons or circumstances shall not be affected thereby.

XXIII. TERMINATION OF SERVICE

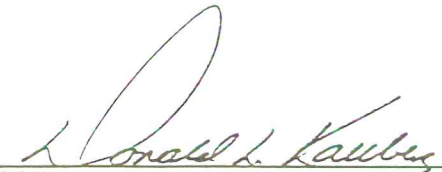
Failure on the part of any water user to discontinue the use of all cross connections and to physically separate cross connections or otherwise violate any provision of this ordinance is sufficient cause for the immediate termination of water service to the premises (OAR 333-061-0070[1][b]).

Read the first time:	January 15, 1997
Read the second time:	January 15, 1997
Read the third time and passed:	February 5, 1997
Approved by the Mayor:	February <u>5</u> , 1997

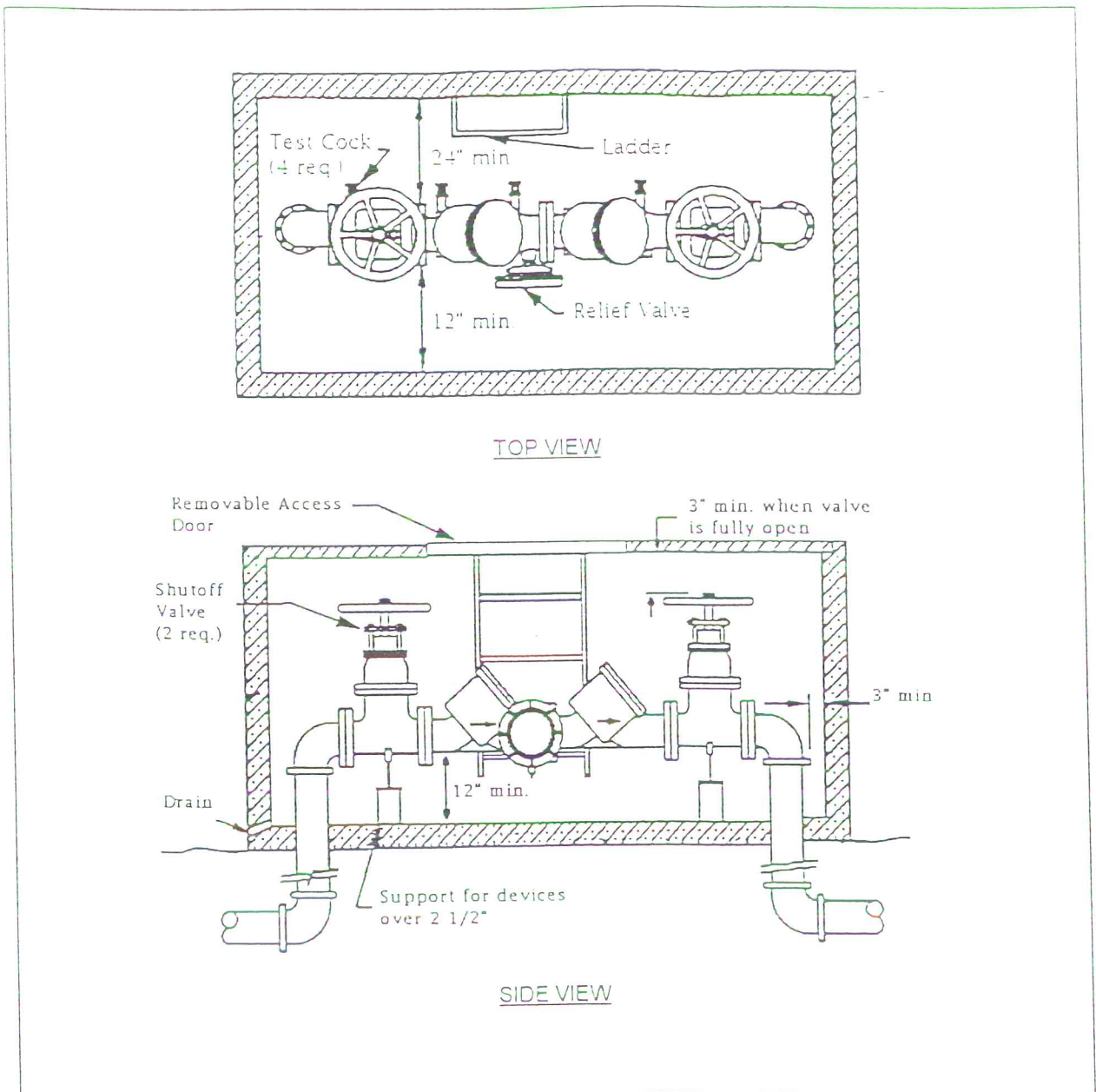
ATTESTED BY:



City Recorder



Mayor

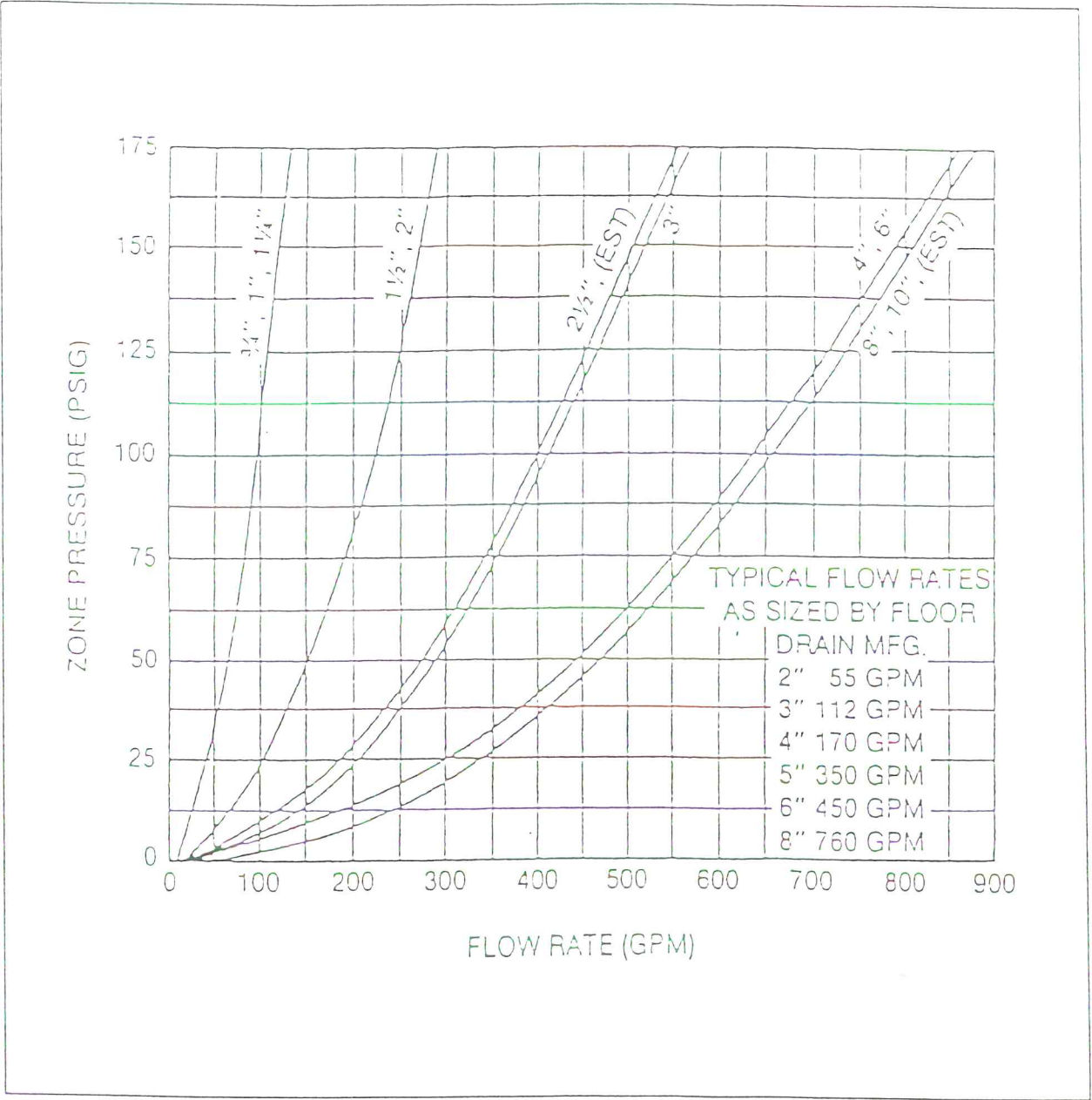


REDUCED PRESSURE PRINCIPLE LARGE ASSEMBLY

Standard Detail No. 4:01-1

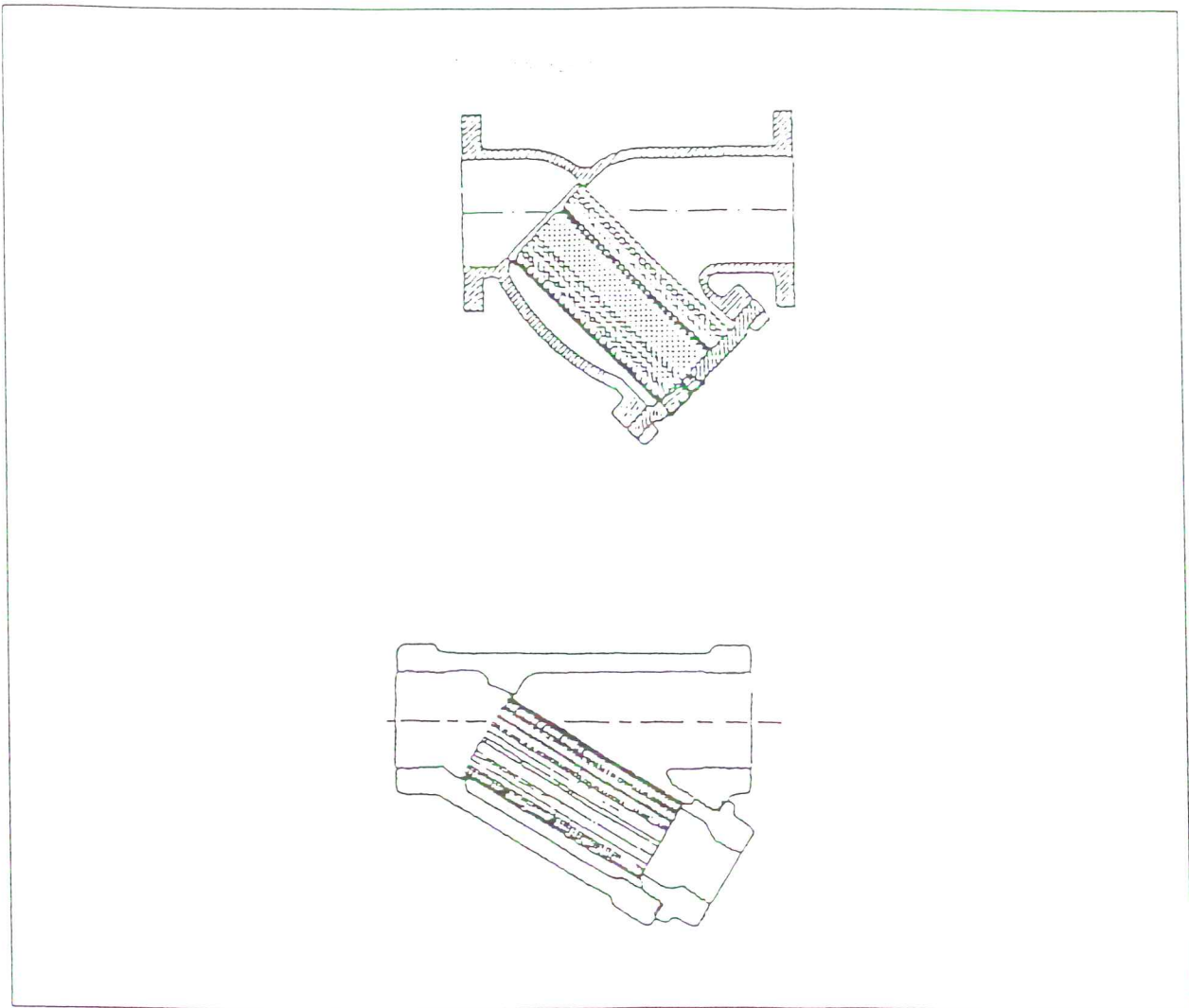
NOTES

- 1) LARGE ASSEMBLIES ARE THOSE THAT ARE 2 1/2" AND LARGER
- 2) ASSEMBLY SHALL NOT BE SUBJECT TO FLOODING
- 3) DRAIN LINES SHALL BE SIZED TO ACCOMMODATE FULL RELIEF VALVE DISCHARGE FLOW SEE FLOW CHART 4:01-2
- 4) REDUCED PRESSURE BACKFLOW ASSEMBLIES ARE TYPICALLY INSTALLED ABOVE GRADE IN WELL DRAINING AREAS BUT MAY BE INSTALLED BELOW GRADE IF AN ADEQUATE DRAIN TO DAYLIGHT IS PROVIDED
- 5) THE INSTALLATION ON THE SUPPLY LINE (AHEAD OF ASSEMBLY) OF A STRAINER WITH TAPPING BLOWOUT MAY BE REQUIRED SEE STANDARD DETAIL 4:01-3



RELIEF VALVE DISCHARGE RATES
FOR REDUCED PRESSURE BACKFLOW ASSEMBLIES

Standard Detail 4:01-2

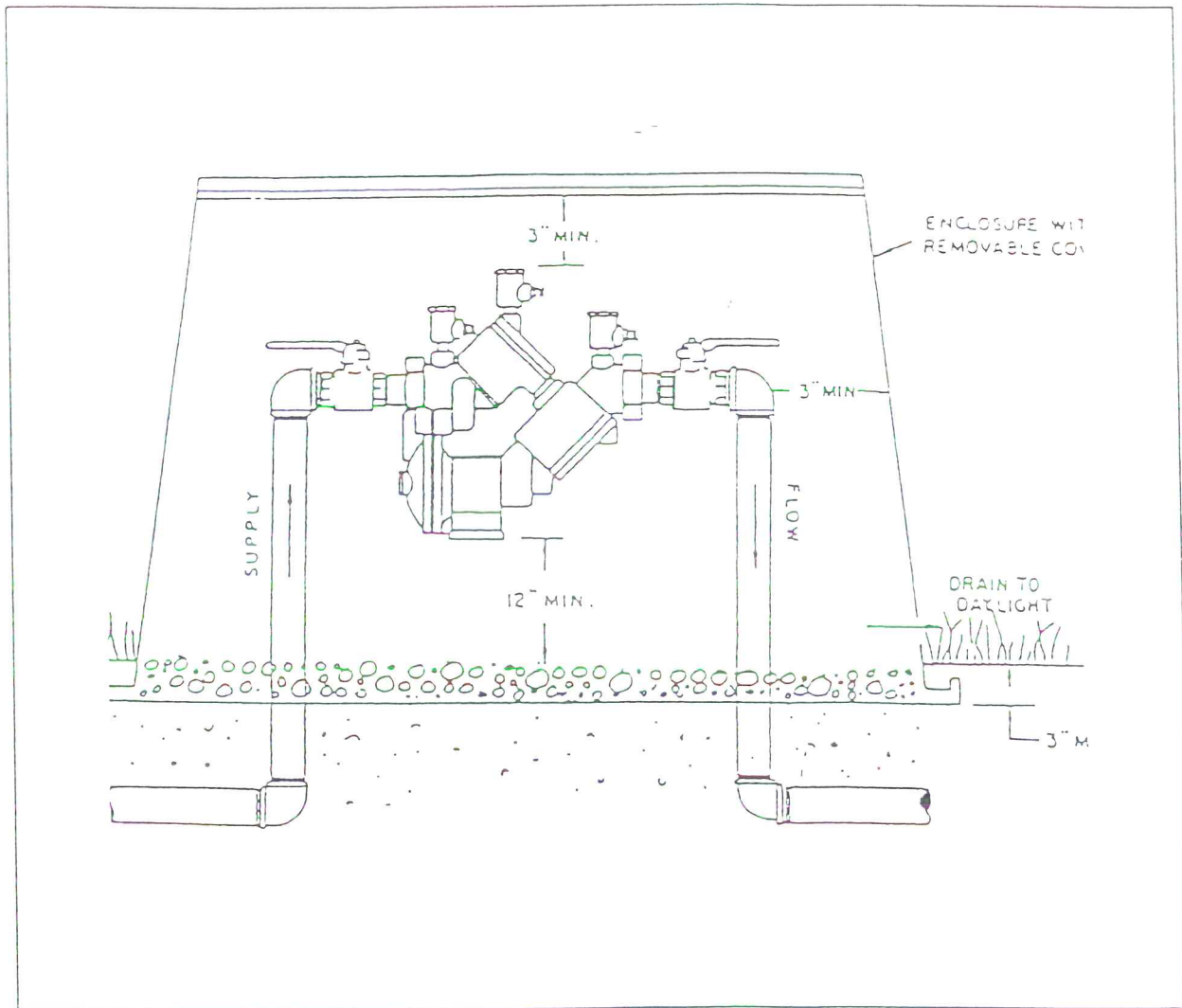


STRAINERS

Standard Detail No. 4:01-3

One of the most common causes of backflow prevention assembly failure is the accumulation of sand, scale, or debris trapped in the assembly. This debris can cause the assembly to fail its required testing and can contribute to a shorter working life span of the assembly.

To minimize maintenance and repairs, it is recommended that a strainer with removable screen is installed immediately upstream on the supply line of the assembly. Also, periodically remove and clean strainer screens.

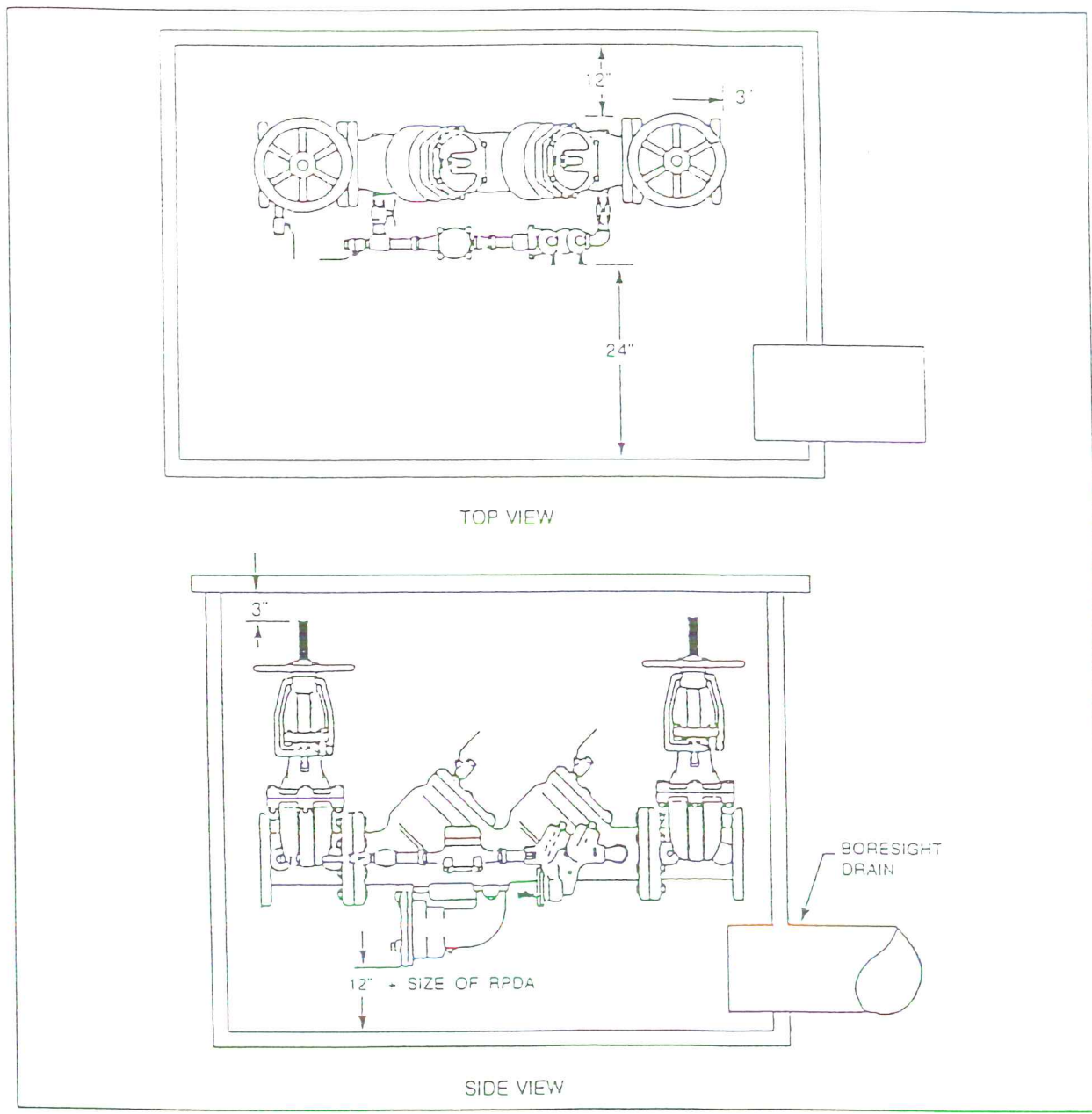


REDUCED PRESSURE PRINCIPLE SMALL ASSEMBLY

Standard Detail No. 4:01-4

NOTES

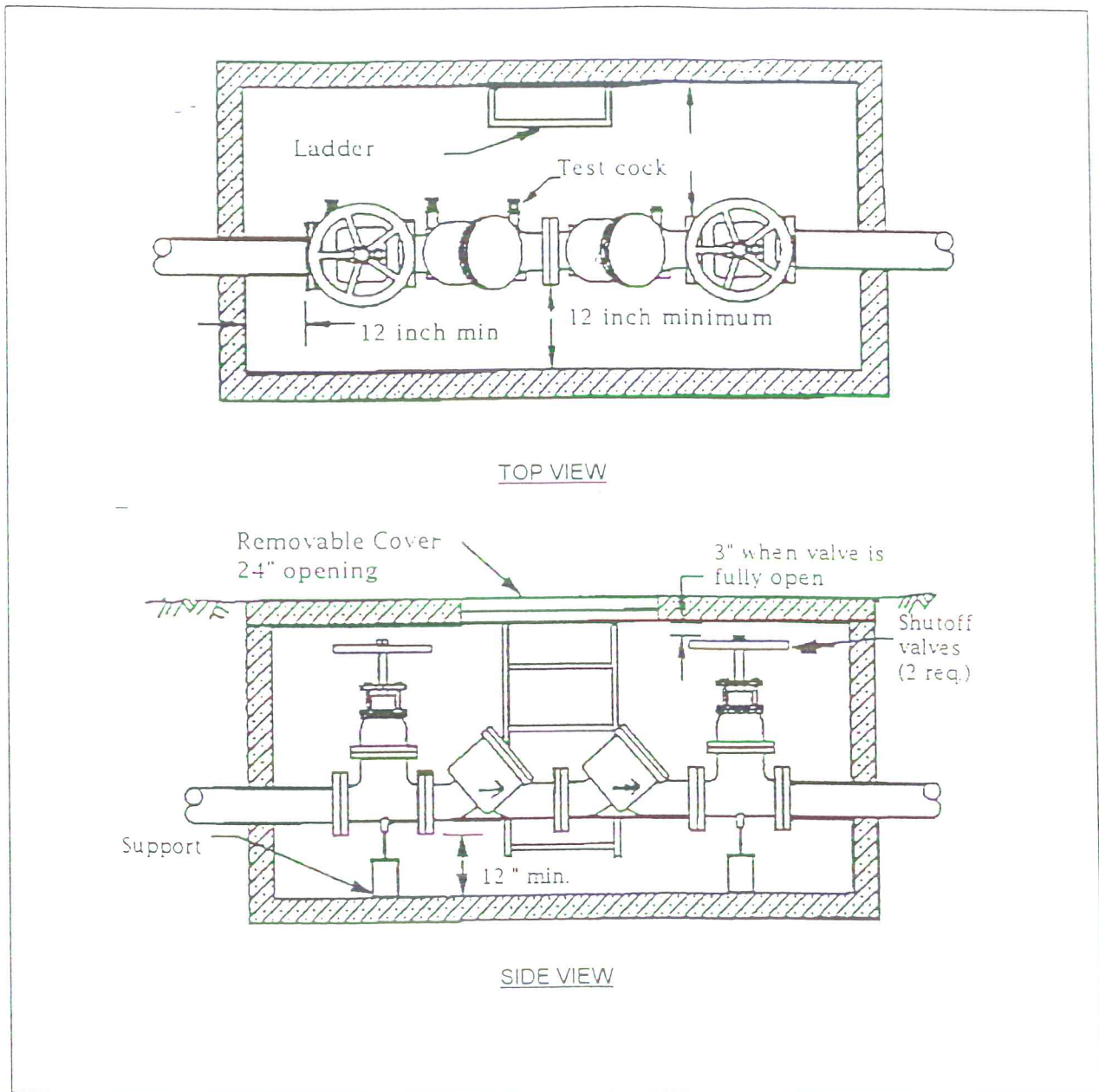
- 1) ASSEMBLY MUST BE PROTECTED FROM FREEZING
- 2) REMOVABLE INSULATED COVERS CAN BE USED.
- 3) ENCLOSURES MUST BE IN AREA NOT SUBJECT TO FLOODING
- 4) THE INSTALLATION ON THE SUPPLY LINE (AHEAD OF ASSEMBLY) OF A STRAINER WITH TAPPING BLOWOUT IS RECOMMENDED SEE STANDARD DETAIL NO 4:01-3



REDUCED PRESSURE PRINCIPLE DETECTOR ASSEMBLY Standard Detail No. 4:01-5

NOTES

- 1) ASSEMBLY SHALL NOT BE SUBJECT TO FLOODING.
- 2) DRAIN LINES SHALL BE SIZED TO ACCOMMODATE FULL RELIEF VALVE DISCHARGE FLOW SEE FLOW CHART 4:01-2
- 3) REDUCED PRESSURE BACKFLOW ASSEMBLIES ARE TYPICALLY INSTALLED ABOVE GRADE IN WELL DRAINING AREAS, BUT MAY BE INSTALLED BELOW GRADE IF AN ADEQUATE DRAIN TO DAYLIGHT IS PROVIDED
- 4) THE INSTALLATION ON THE SUPPLY LINE (AHEAD OF ASSEMBLY) OF A STRAINER WITH TAPPING BLOWOUT MAY BE REQUIRED SEE STANDARD DETAIL 4:01-3

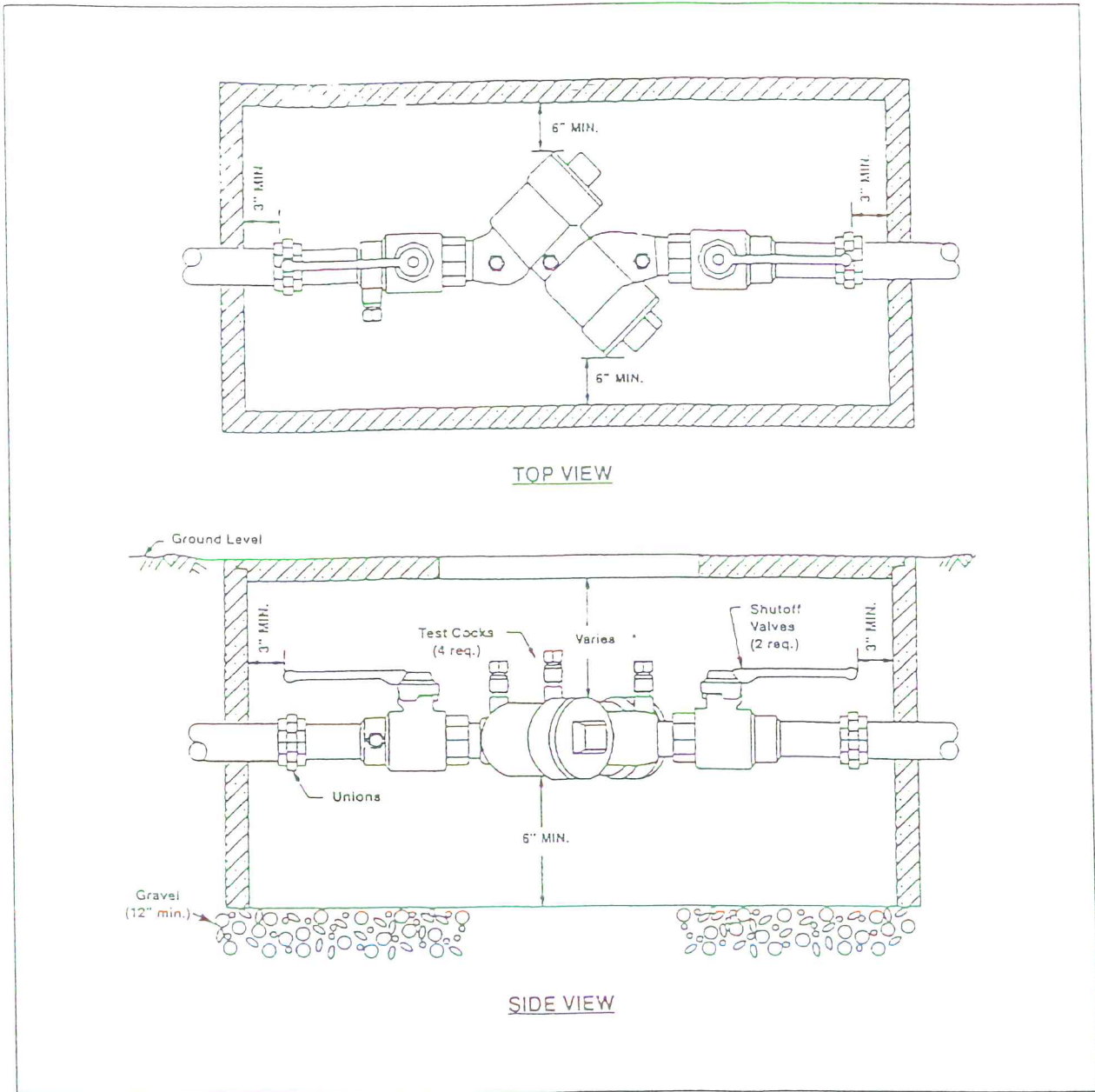


DOUBLE CHECK VALVE LARGE ASSEMBLY

Standard Detail No. 4:02-1

NOTES

- 1) LARGE ASSEMBLIES ARE THOSE THAT ARE 2 1/2" AND LARGER
- 2) VAULT INSTALLATIONS REQUIRE THE USE OF BRASS PIPE PLUGS IN ALL TEST COCKS
- 3) THE INSTALLATION ON THE SUPPLY LINE (AHEAD OF ASSEMBLY) OF A STRAINER WITH TAPPING BLOWOUT MAY BE REQUIRED SEE STANDARD DETAIL NO. 4:02-3

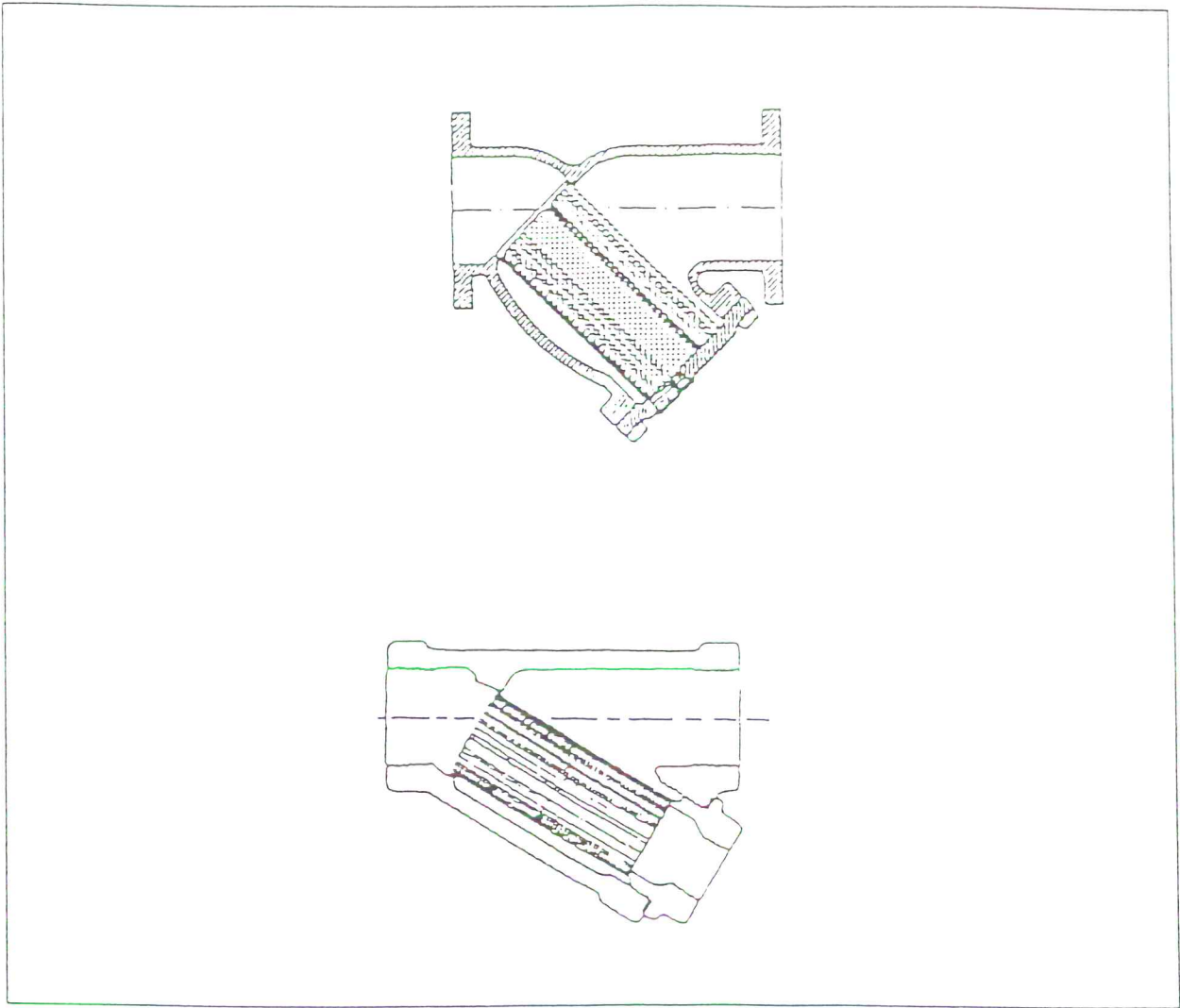


DOUBLE CHECK VALVE SMALL ASSEMBLY

Standard Detail No. 4:02-2

NOTES

- 1) ADEQUATE SPACE MUST BE ALLOWED FOR TESTING AND MAINTENANCE
- 2) AREA AROUND ASSEMBLY MUST DRAIN WELL.
- 3) VAULT INSTALLATIONS REQUIRE THE USE OF BRASS PIPE PLUGS IN ALL TEST COCKS
- 4) "Y" PATTERN ASSEMBLIES MUST BE INSTALLED SO THAT THE TEST COCKS ARE POINTED UP (SEE DRAWING ABOVE)
- 5) THOROUGHLY FLUSH THE LINES PRIOR TO INSTALLATION OF THE ASSEMBLY
- 6) STRAINERS ARE RECOMMENDED SEE STANDARD DETAIL NO. 4:02-3

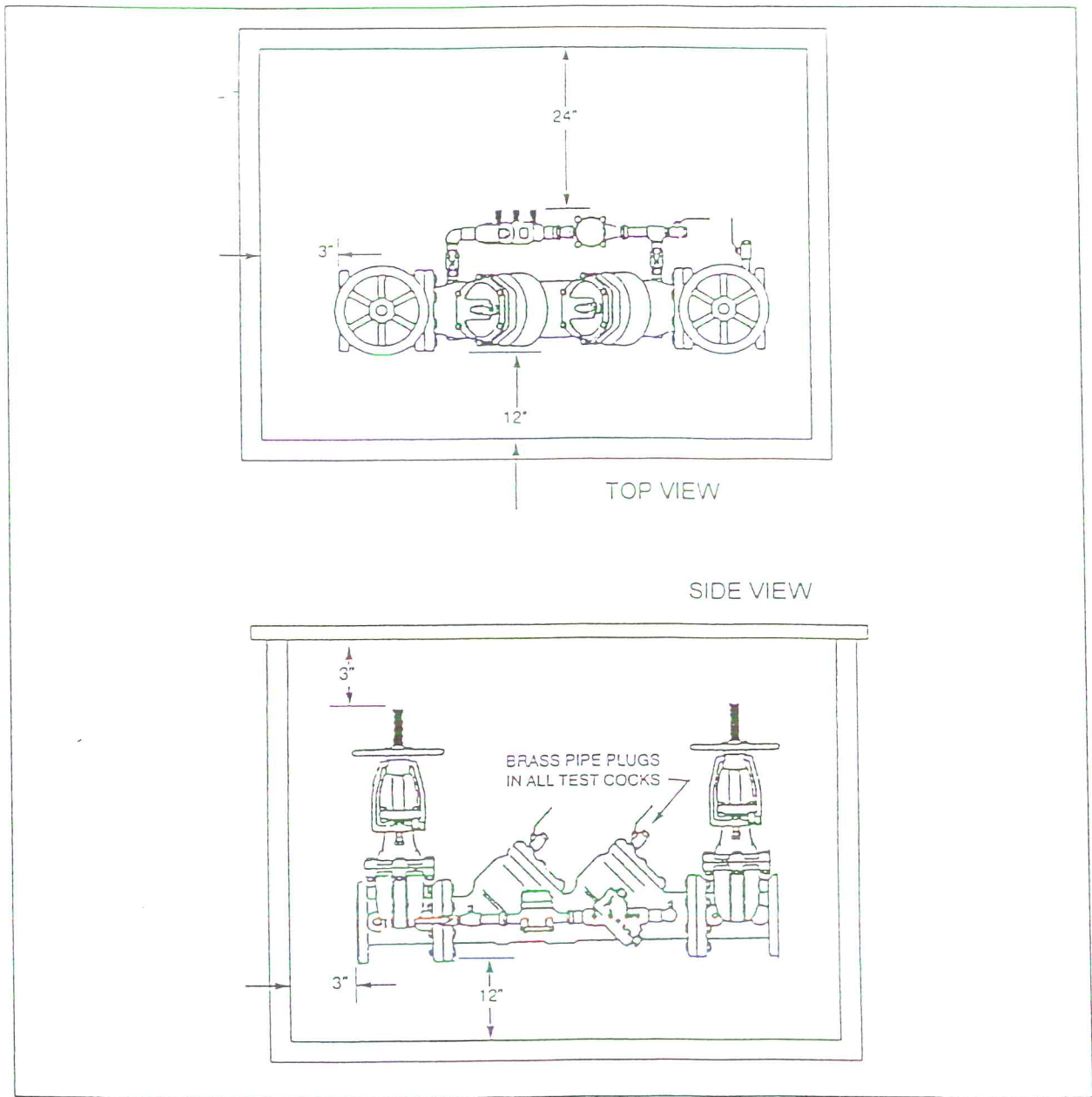


STRAINERS

Standard Detail No. 4:02-3

One of the most common causes of backflow prevention assembly failure is the accumulation of sand, scale, or debris trapped in the assembly. This debris can cause the assembly to fail its required testing and can contribute to a shorter working life span of the assembly.

To minimize maintenance and repairs, it is recommended that a strainer with removable screen is installed immediately upstream on the supply line of the assembly. Also, periodically remove and clean strainer screens.

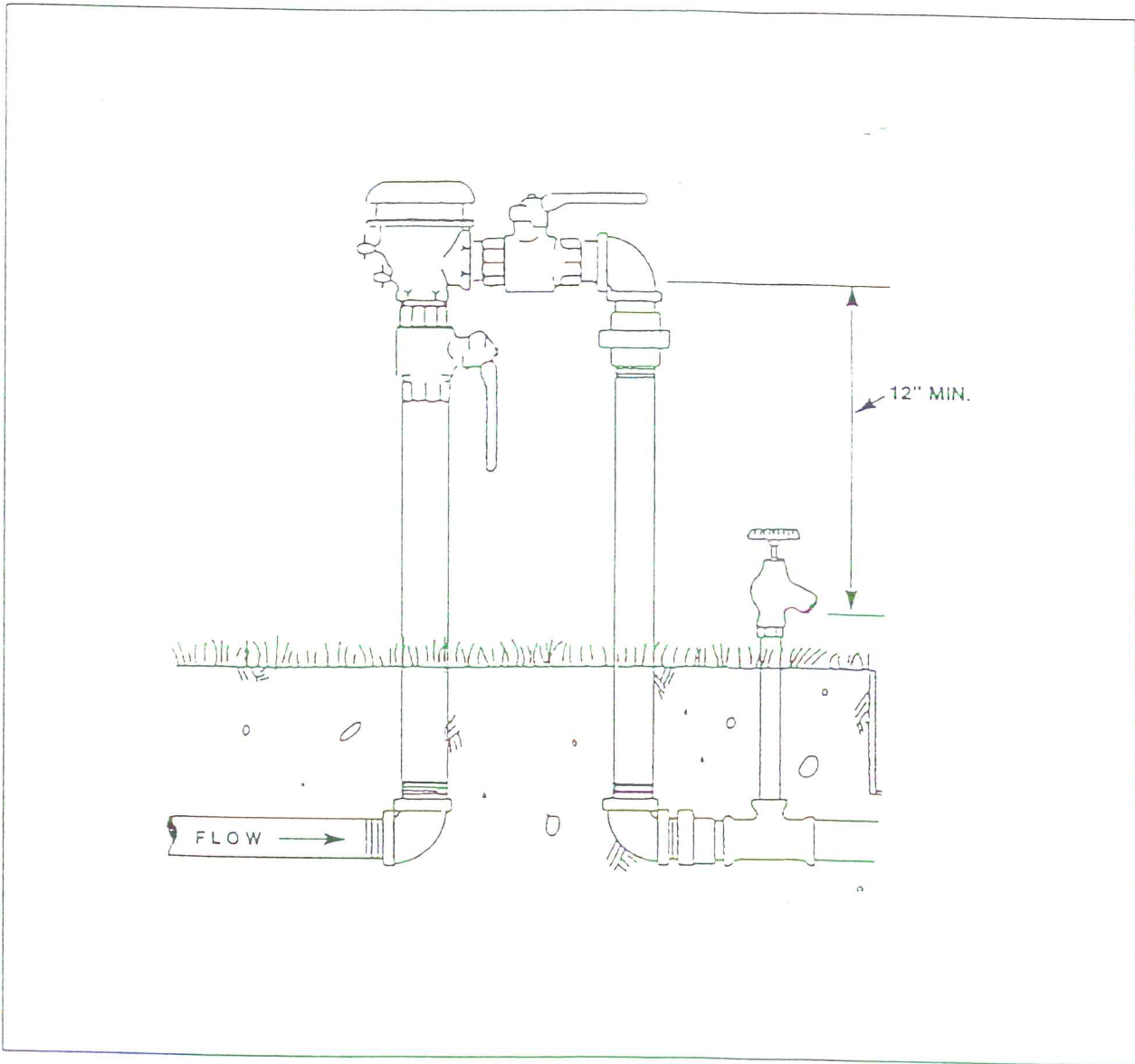


DOUBLE CHECK DETECTOR ASSEMBLY

Standard Detail No. 4:03-1

NOTES

- 1) ASSEMBLIES 2" AND SMALLER SHALL HAVE 3" CLEARANCE BELOW AND ON SIDES
- 2) VAULT INSTALLATIONS REQUIRE THE USE OF BRASS PIPE PLUGS IN ALL TEST COCKS
- 3) THE INSTALLATION ON THE SUPPLY LINE (AHEAD OF ASSEMBLY) OF A STRAINER WITH TAPPING BLOWOUT MAY BE REQUIRED SEE STANDARD DETAIL NO 402-3

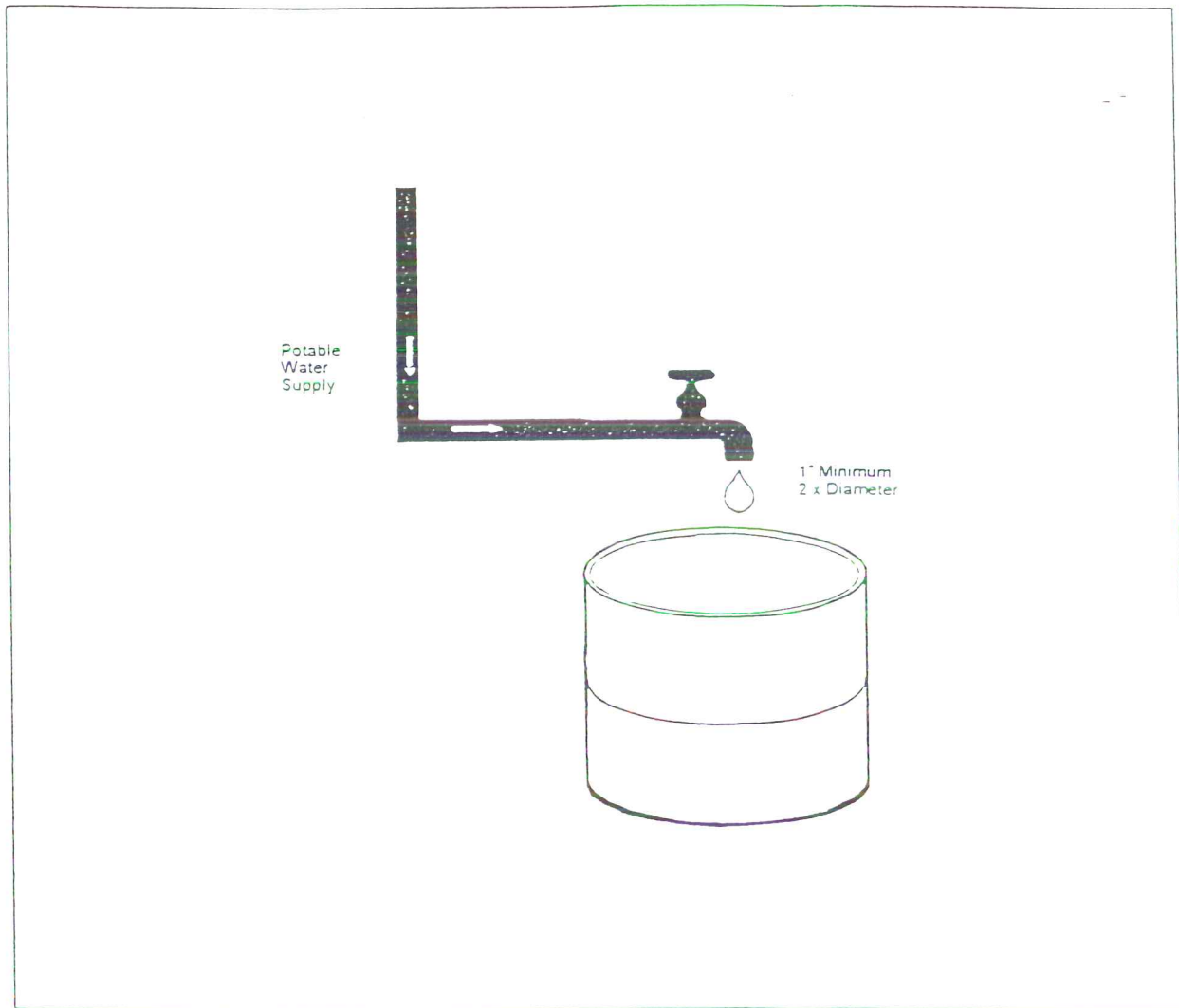


PRESSURE VACUUM BREAKER

Standard Detail No. 4:04-1

NOTES

- 1) DOWNSTREAM CONTROL VALVES OR SHUT-OFFS ARE ALLOWED
- 2) INSTALL ASSEMBLY AT LEAST 12" ABOVE HIGHEST DOWNSTREAM PIPING
- 3) NO PUMPS OR BACKPRESSURE SOURCE ALLOWED
- 4) NO CHEMICAL ADDITION INTO SYSTEM ALLOWED
- 5) PRESSURE VACUUM BREAKERS MUST BE TESTED BY A CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER UPON INSTALLATION AND ANNUALLY THEREAFTER, ALSO WHEN MOVED OR REPAIRED



AIR GAP SEPARATION

Standard Detail No. 4:05-1

NOTES:

- 1) PROVIDES MAXIMUM PROTECTION.
- 2) THE VERTICAL, PHYSICAL SEPARATIONS MUST BE AT LEAST TWICE THE DIAMETER OF THE INLET PIPE BUT NEVER LESS THAN ONE INCH.

ORDINANCE NO. 2396

AN ORDINANCE REGULATING WATER SUPPLY CROSS CONNECTION HAZARDS

WHEREAS, State Health Division rules require water suppliers to undertake programs for controlling and eliminating conditions that could result in backflow of harmful substances from water users' premises into the distribution lines of public water systems; and

WHEREAS, State Health Division rules and training prioritize water users by risk categories for potential hazards; and

WHEREAS, the City has made significant modifications of its own high risk water uses to protect the system; and

WHEREAS, City ordinances currently lack an enforcement mechanism for these state required modifications;

THE CITY OF ST. HELENS DOES ORDAIN:

Section 1. Prohibited Cross-Connections. It is unlawful for the owner of property or the user of City water to introduce or permit the introduction of pollution or contamination of any kind into the City water supply system. Whenever cross-connection to other water supply into the City system is found or whenever any other condition is found which presents the possibility of contamination or pollution, the water supply to such premises and/or other premises from which cross-connection is made shall be discontinued immediately until the cross-connection is eliminated or the condition remedied.

Section 2. Water Connection Modifications. The control or elimination of cross-connections shall be in accordance with any manuals of standard practice pertaining to cross-connection control approved by the Public Works Director, and any requirements set forth by the "U.S. Environmental Protection Agency" as authorized by the "Safe Drinking Water Act" PL 93-523 and subsequent applicable legislation. The Public Works Director (hereinafter "Director") shall require a backflow prevention device of pattern, design, and size which it approves as reasonably adequate to prevent contamination, if the Director determines that a complete physical separation from the City water system is not practicable or necessary, or that adequate inspection for cross-connection cannot readily be made, or that such backflow prevention device is necessary because of existing or possible backflow resulting from special conditions, use or

equipment. The Director shall also regulate the location, installation, and testing of such device.

Section 3. Costs of Modifications. Any corrective measure, disconnection or change on private property shall be at the sole expense of the person in control of such property. The cost of any change required in the City system outside the property or between the meter and the supply line or distribution system and any charges for cut-off or disconnection shall be added to the charges for water against the premises necessitating the expenditures.

Section 4. Notice of Violation. A person in violation of this ordinance shall be served with written notice stating the nature of the violation and providing a reasonable time limit for correction. This notice may be served personally or by regular mail.

Section 5. Penalties. A person who shall continue any violation of this ordinance beyond the time limit for correction in the notice of violation shall, upon conviction, be fined an amount not to exceed \$500 for each violation. Each day in which any such violation shall continue shall be deemed a separate offense.

Read the first time:	July 7, 1982
Read the second time:	July 7, 1982
Read the third time and passed:	July 21, 1982
Approved by the Mayor:	July 21, 1982


Mayor

Attested by:


City Recorder