



CITY OF  
TUCSON  
TUCSON WATER  
DEPARTMENT

## Tucson Water Standard Specifications and Details 2011 Edition – Engineering Directive 03-2014

Effective Date: January, 2014

**SUBJECT: Revise Standard Specifications – SD-1801,1802,1803,1804,1805,1806,1807,1808**

### STATEMENT OF PURPOSE

This Directive shall define revisions to the 2011 Tucson Water Standard Specifications for Standard Details (SD), SD-1801 Backflow Prevention Potable Water fire Hydrant or Standpipe Water Service, SD-1802 Backflow Prevention Reduced Pressure Assembly (RPA) Installation, SD 1803 Backflow Prevention Pressure Vacuum Breaker Assembly (PVB) Installation, SD-1804 Backflow Prevention Reduced Pressure Detector Assembly (RPDA) Installation, SD-1805 Backflow Prevention Double Check Valve Assembly (DCVA) Installation, SD-1806 Backflow Prevention Double Check Detector (DCDA) Installation, SD-1807 Backflow Prevention Spill Resistant Pressure Vacuum Breaker Assembly (SVB) Installation, and SD-1808 Backflow Prevention Reduced Pressure Detector Assembly (RPDA) Installation.

### REVISIONS

- **SD-1801 Backflow Prevention Potable Water Fire Hydrant or Standpipe Water Service.**  
Sheet 1 of 1, at the top of the page remove the text “Hydrant Mounted RP Backflow Assembly and Water Meter” and add the text “Tucson Water Owned and Maintained Water Meter with Tucson Water Owned and Maintained RP Backflow Assembly.” At the bottom of the page remove the text “Hydrant Mounted RP Backflow Assembly and Remote Meter” and add the text “Contractor Owned and Maintained Water Meter with Contractor Owned and Maintained RP Backflow Assembly.”
- **SD-1802 Backflow Prevention Reduced Pressure Assembly (RPA) Installation.**  
Sheet 1 of 1, remove notes 2, 3, 4, 5, 6, 7, 8, 9, and 10 and replace with the following notes:
  2. A list of approved backflow assemblies is maintained by Tucson Water.
  3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized.  
(right-of-ways are not private property)
  4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.

Page 1 of 2



5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
  6. Installations shall be left exposed until inspected and approved by Tucson Water.
  7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
  8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
  9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
  10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
  11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
  12. For additional information contact the Backflow Prevention Section at (520) 791-2650.
- **SD-1803 Backflow Prevention Pressure Vacuum Breaker Assembly (PVB) Installation.**  
Sheet 1 of 1, remove notes 2, 3, 4, 5, 6, 7, 8, 9, and 10 and replace with the following notes:
    2. A list of approved backflow assemblies is maintained by Tucson Water.
    3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
    4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
    5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
    6. Installations shall be left exposed until inspected and approved by Tucson Water.
    7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
    8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
    9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
    10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
    11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
    12. For additional information contact the Backflow Prevention Section at (520) 791-2650.



- **SD-1804 Backflow Prevention Reduced Pressure Detector Assembly (RPDA) Installation.**

Sheet 1 of 1, remove notes 2, 3, 4, 5, 6, 7, 8, 9, and 10 and replace with the following notes:

2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

- **SD-1805 Backflow Prevention Double Check Valve Assembly (DCVA) Installation.**  
Sheet 1 of 1, remove notes 2, 3, 4, 5, 6, 7, 8, 9, and 10 and replace with the following notes:

2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.



8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

- **SD-1806 Backflow Prevention Double Check Detector Assembly (DCDA) Installation.**

Sheet 1 of 1, remove notes 2, 3, 4, 5, 6, 7, 8, 9, and 10 and replace with the following notes:

2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.



- **SD-1807 Backflow Prevention Spill Resistant Pressure Vacuum Breaker Assembly (SVB) Installation.**

Sheet 1 of 1, remove notes 2, 3, 4, 5, 6, 7, 8, 9, and 10 and replace with the following notes:

2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

- **SD-1808 Backflow Prevention Reduced Pressure Detector Assembly (RPDA) Installation.** Delete SD 1808 it is redundant with SD 1804.

## **AUTHORITY**

Arizona State Regulations, City of Tucson Ordinances, Tucson City Code and other enabling legislation which affect the production, treatment, distribution and control of potable and reclaimed water.

## **PROCEDURE**

New water system designs shall reflect these requirements.



**PROCEDURAL RESPONSIBILITY**

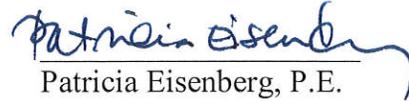
The Engineering Administrator for Tucson Water and /or designated representative(s) are responsible for the enforcement of this Directive and the associated standards.

**RECOMMEND**



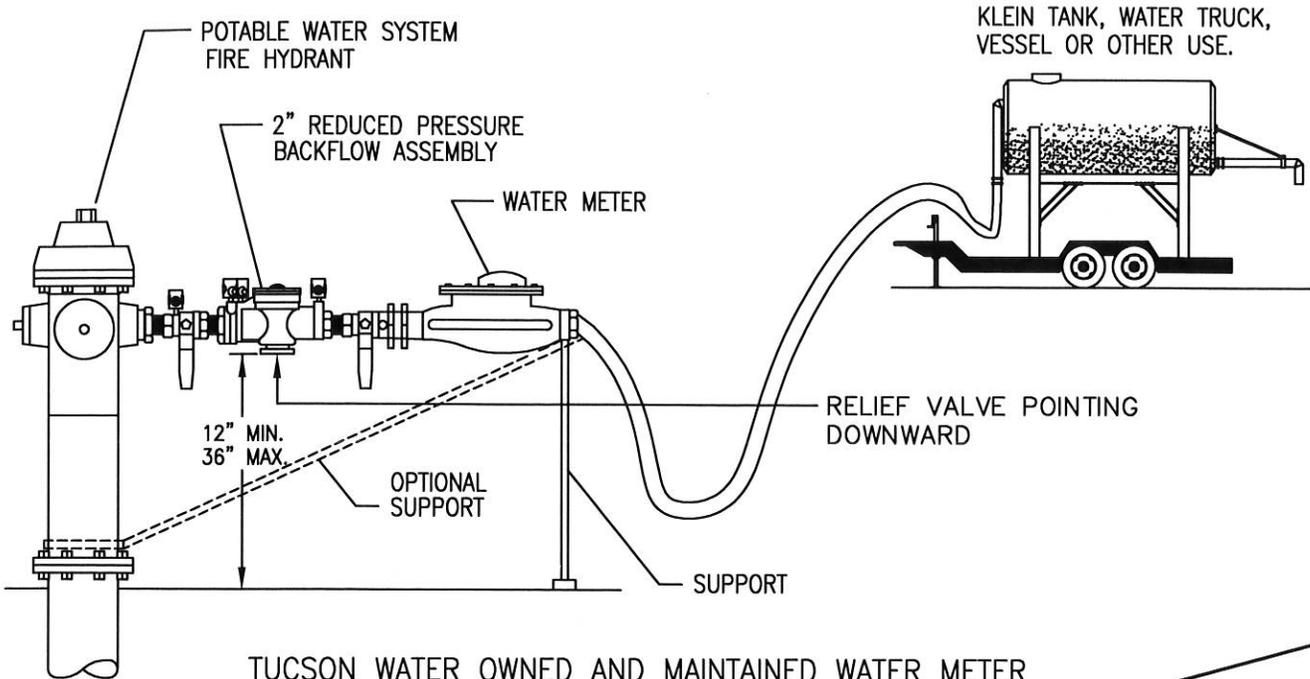
Jeffrey Drumm, P.E.  
Construction Section Manager  
Planning & Engineering Division

**CONCUR**

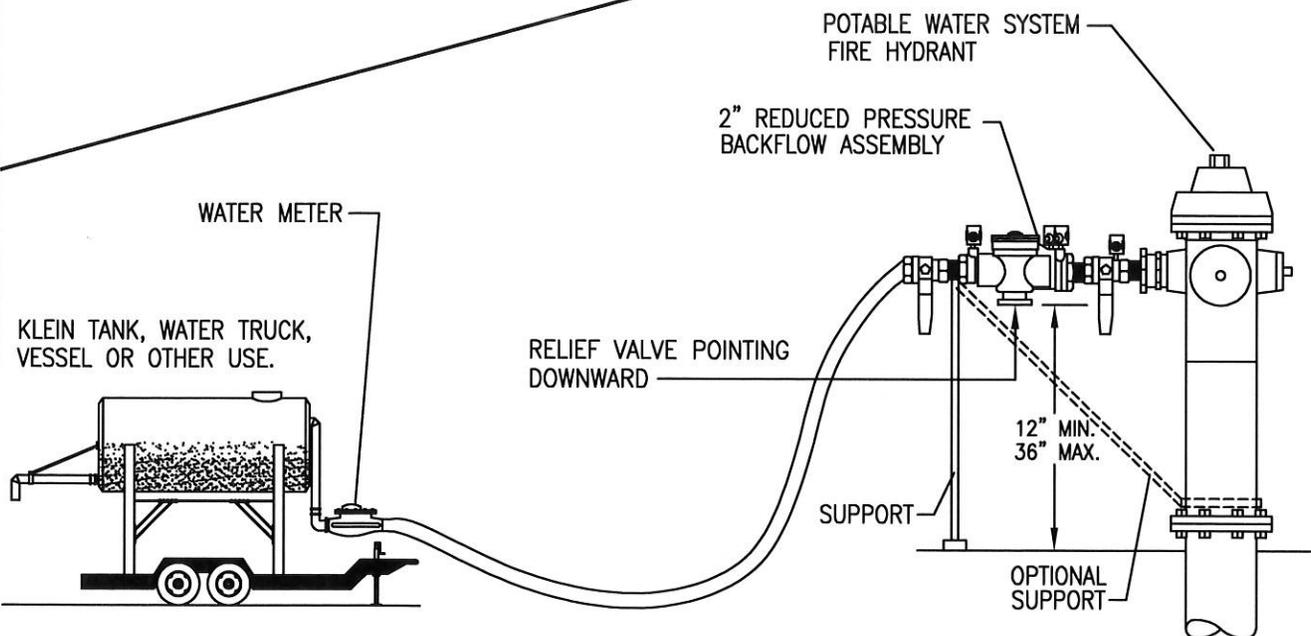


Patricia Eisenberg, P.E.  
Chief Engineer  
Planning & Engineering Division





TUCSON WATER OWNED AND MAINTAINED WATER METER  
WITH TUCSON WATER OWNED AND MAINTAINED  
RP BACKFLOW ASSEMBLY

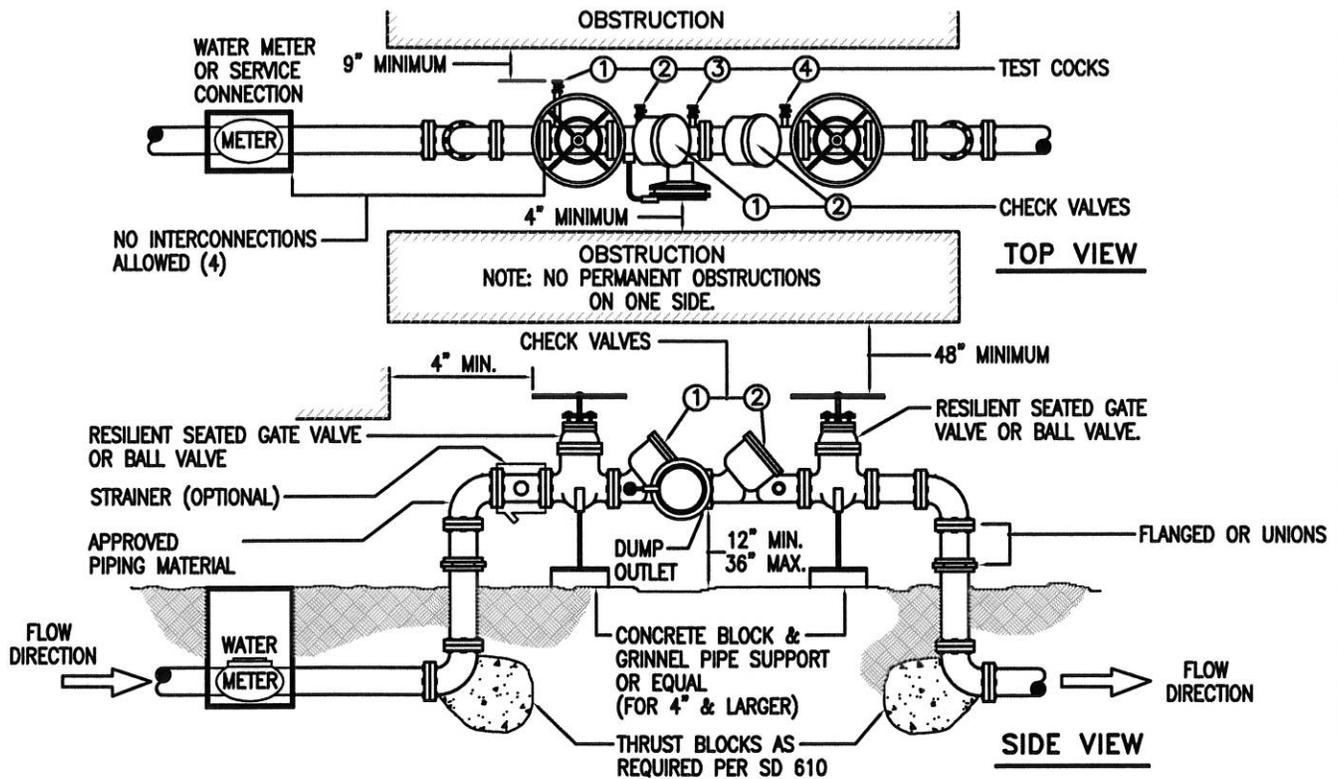


CONTRACTOR OWNED AND MAINTAINED WATER METER  
WITH CONTRACTOR OWNED AND MAINTAINED  
RP BACKFLOW ASSEMBLY

Notes:

1. All backflow assemblies shall be installed, maintained and tested in accordance with regulations.
2. Only one connection per hydrant is allowed unless otherwise authorized by Tucson Water.
3. For a list of approved backflow assemblies or further information contact the Backflow Section at (520)791-2650.

ISSUED:		<b>STANDARD DETAIL BACKFLOW PREVENTION POTABLE WATER FIRE HYDRANT OR STANDPIPE WATER SERVICE</b>		DETAIL NO.
8/00				SD-1801
REVISED:				SHEET 1 OF 1
10/13				

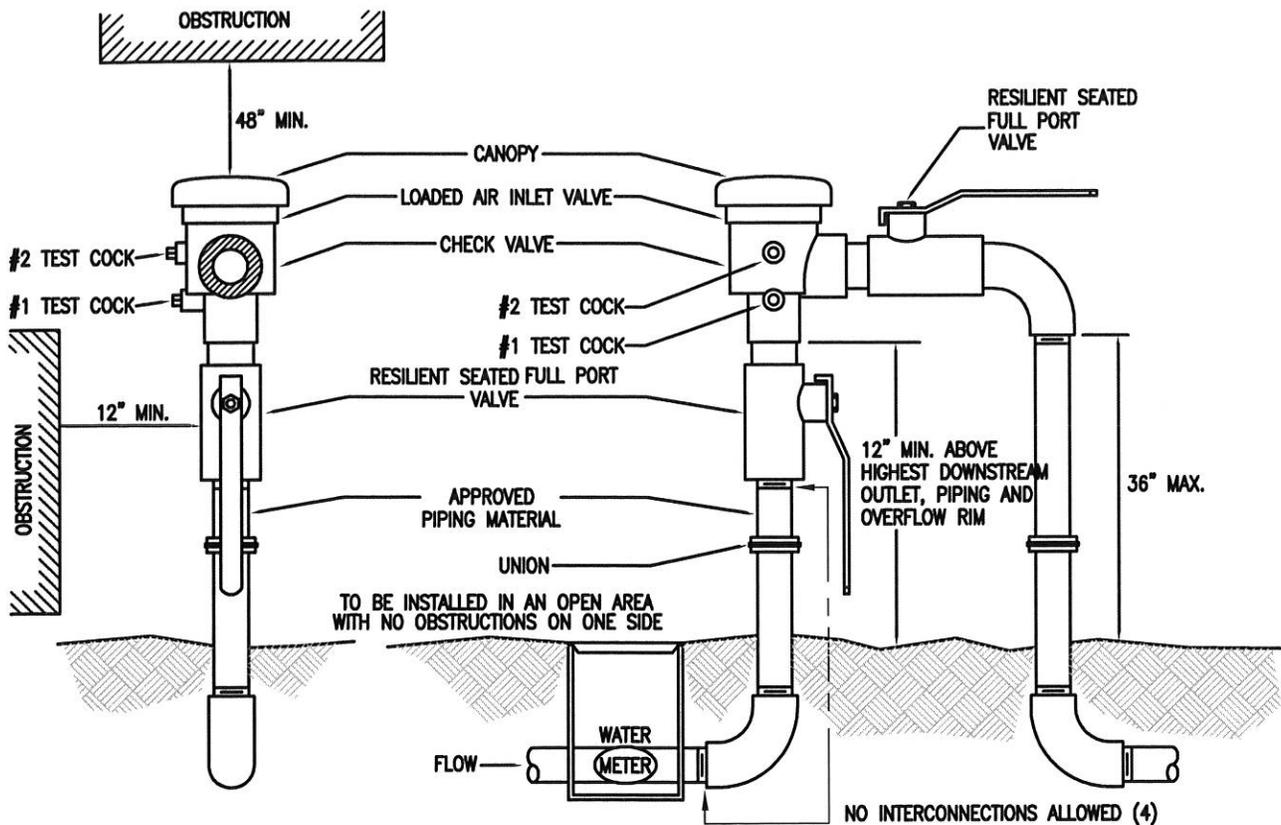


### SD-1802 - REDUCED PRESSURE ASSEMBLY (RPA) INSTALLATION

These specifications are to be followed for all water service protection installations utilizing a RPA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

<b>ISSUED:</b>		<b>STANDARD DETAIL</b>		<b>DETAIL NO.</b>
12/97		<b>BACKFLOW PREVENTION</b>		<b>SD-1802</b>
<b>REVISED:</b>		<b>REDUCED PRESSURE</b>		<b>SHEET 1 OF 1</b>
10/13		<b>ASSEMBLY (RPA)</b>		
		<b>INSTALLATION</b>		

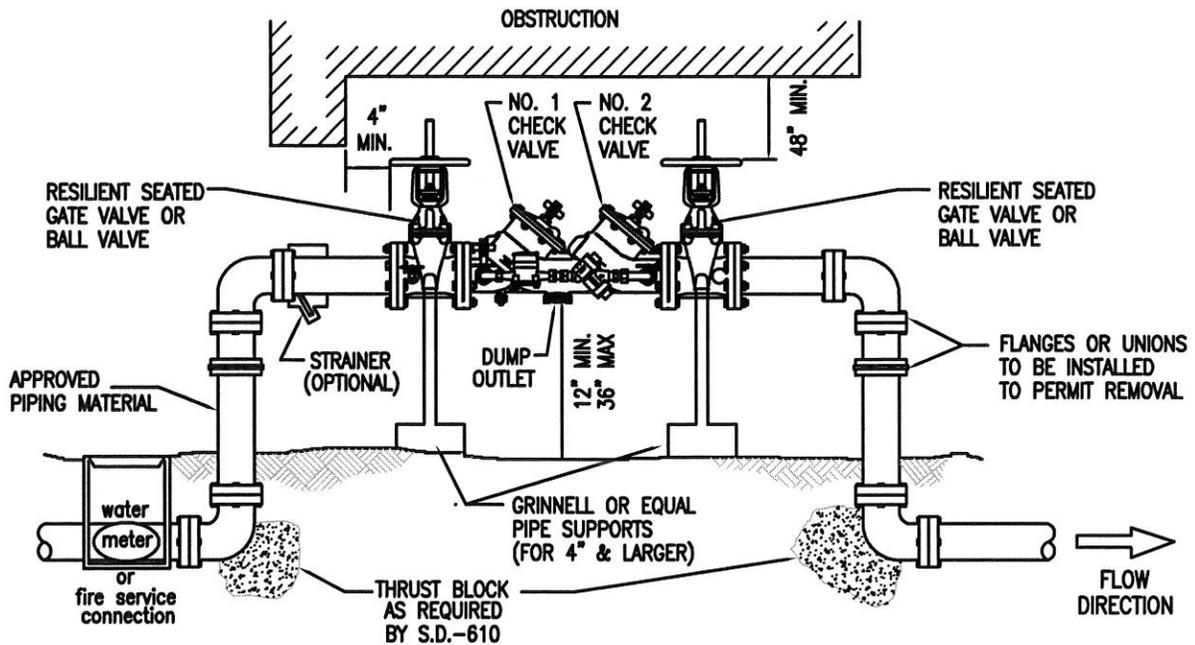
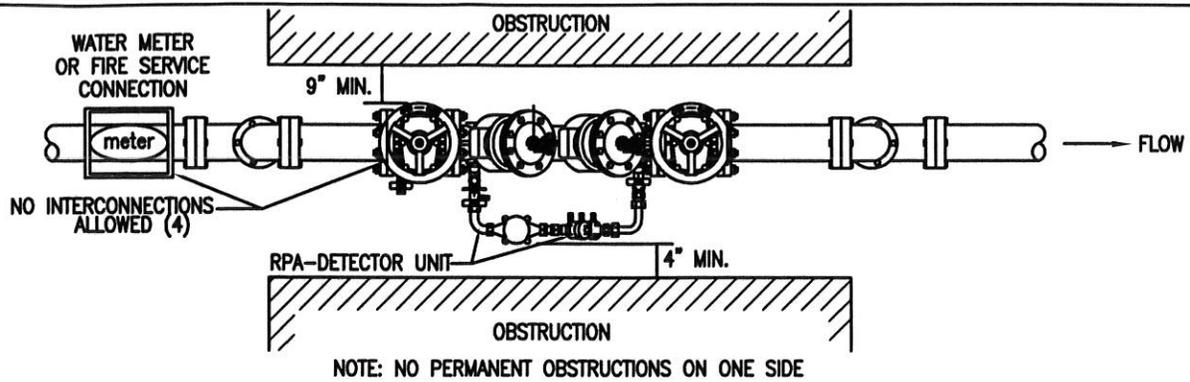


**SD-1803 - PRESSURE VACUUM BREAKER ASSEMBLY (PVB) INSTALLATION**

These specifications are to be followed for all water service protection installations utilizing PVB.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

<b>ISSUED:</b>		<b>STANDARD DETAIL</b>		<b>DETAIL NO.</b>
6/97		<b>BACKFLOW PREVENTION</b>		<b>SD-1803</b>
<b>REVISED:</b>		<b>PRESSURE VACUUM BREAKER</b>		
10/13		<b>ASSEMBLY (PVB)</b>		
		<b>INSTALLATION</b>	<b>SHEET 1 OF 1</b>	

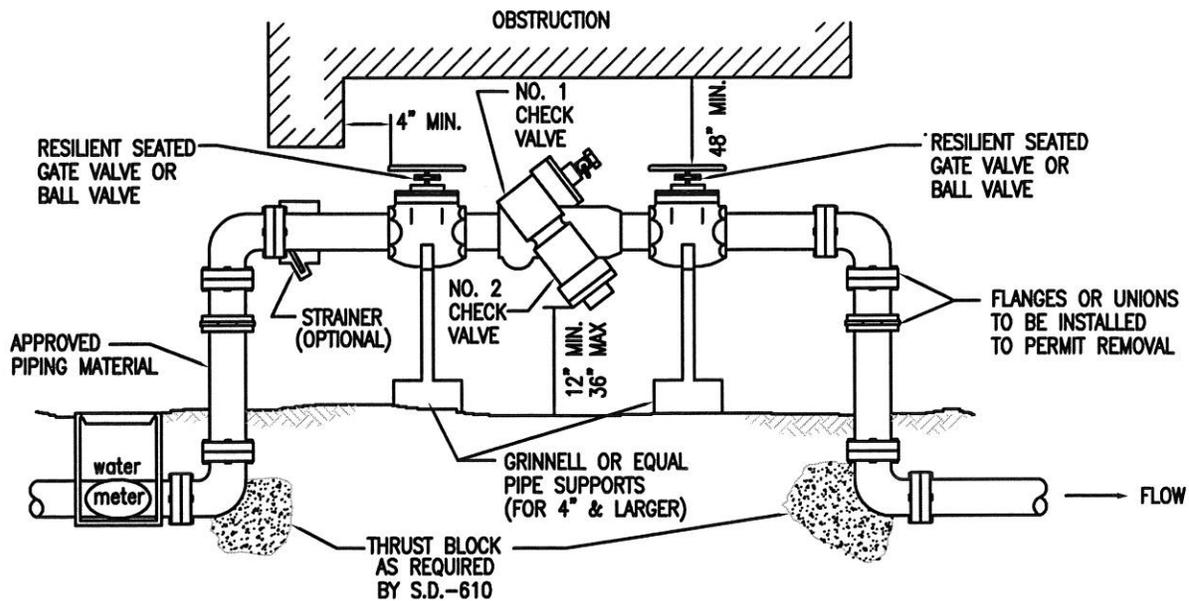
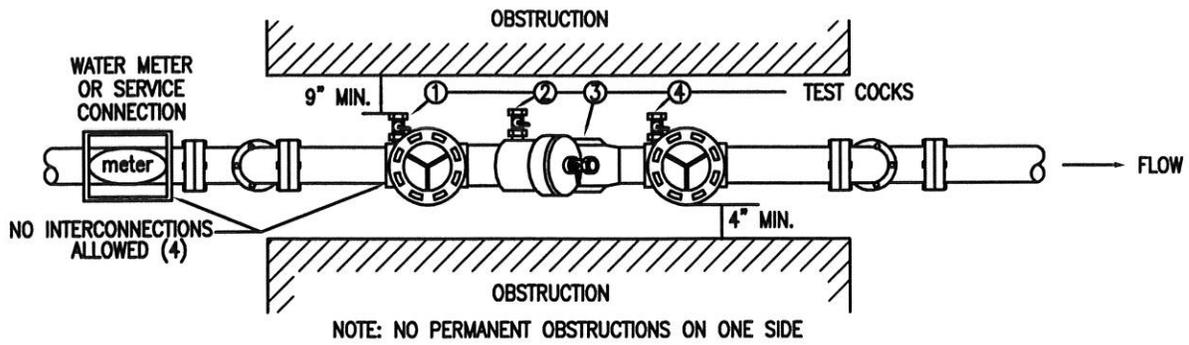


### REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) INSTALLATION

These specifications are to be followed for all water service backflow protection installations utilizing a RPDA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

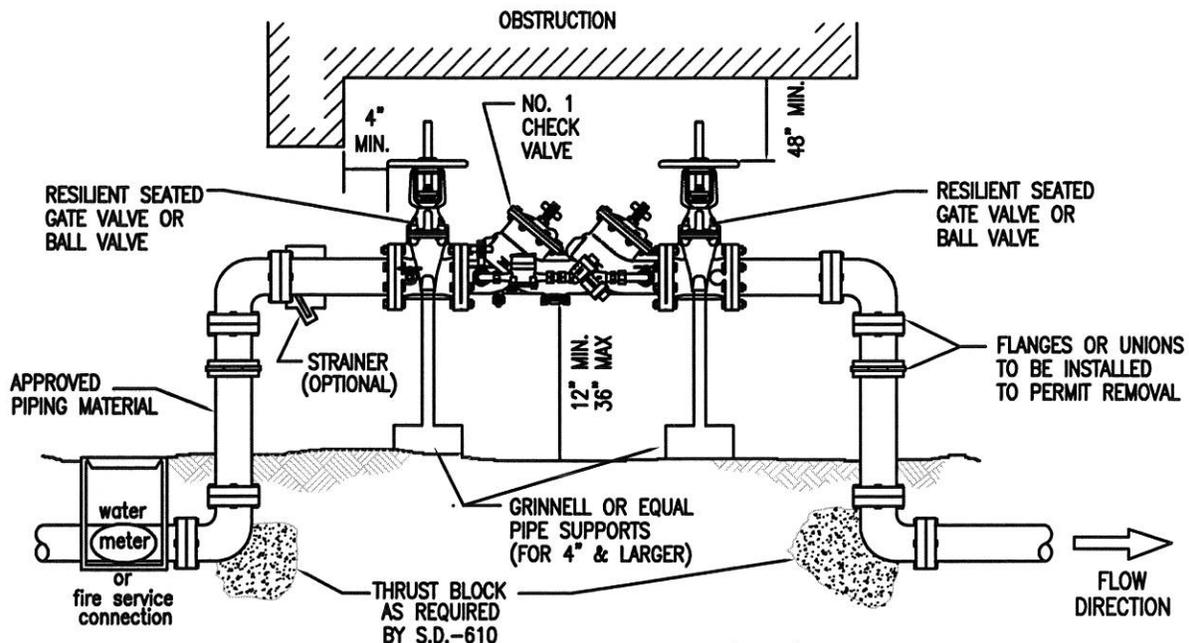
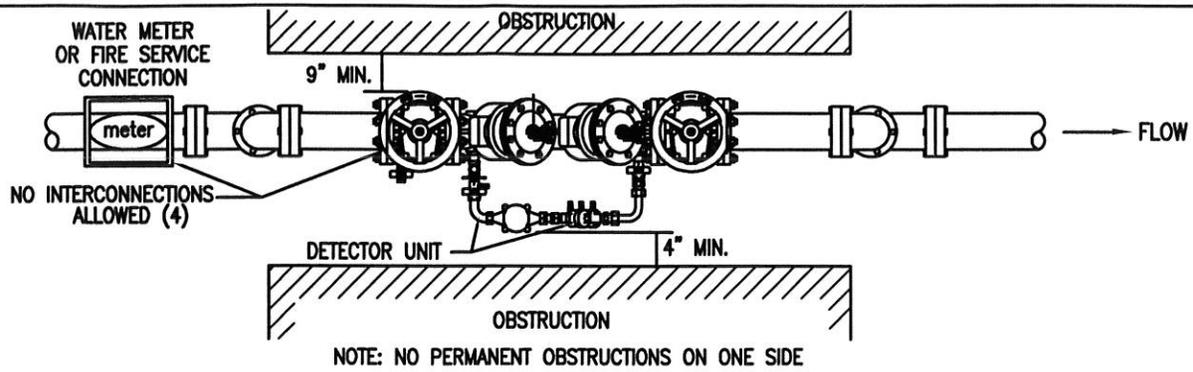
ISSUED:		<b>STANDARD DETAIL</b>		DETAIL NO.
9/04		<b>BACKFLOW PREVENTION</b>		SD-1804
REVISED:		<b>REDUCED PRESSURE</b>		
10/13		<b>DETECTOR ASSEMBLY (RPDA)</b>		<b>INSTALLATION</b>



**DOUBLE CHECK VALVE ASSEMBLY (DCVA) INSTALLATION**  
 These specifications are to be followed for all water service protection installations utilizing a DCVA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

<b>ISSUED:</b>		<b>STANDARD DETAIL BACKFLOW PREVENTION DOUBLE CHECK VALVE ASSEMBLY (DCVA) INSTALLATION</b>		<b>DETAIL NO.</b>
6/97				SD-1805
<b>REVISED:</b>				<b>SHEET 1 OF 1</b>
10/13				

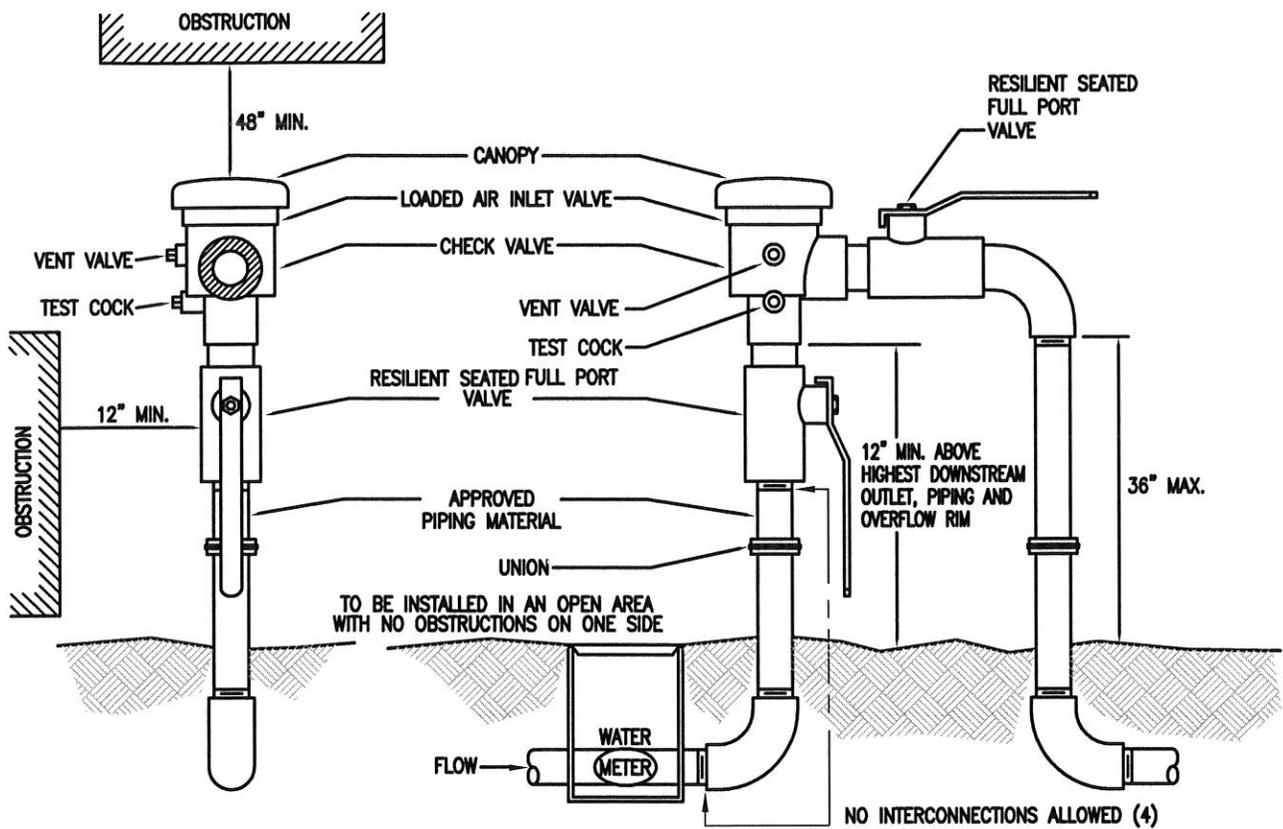


### DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) INSTALLATION

These specifications are to be followed for all water service backflow protection installations utilizing a DCDA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

<b>ISSUED:</b>		<b>STANDARD DETAIL BACKFLOW PREVENTION DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) INSTALLATION</b>		<b>DETAIL NO.</b>
8/02				<b>SD-1806</b>
<b>REVISED:</b>		10/13		



**SD 1807 - SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY (SVB) INSTALLATION**

These specifications are to be followed for all water service protection installations utilizing a SVB.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
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7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

<b>ISSUED:</b>		<b>STANDARD DETAIL</b>		<b>DETAIL NO.</b>
9/04		<b>BACKFLOW PREVENTION SPILL</b>		<b>SD-1807</b>
<b>REVISED:</b>		<b>RESISTANT PRESSURE VACUUM</b>		<b>SHEET 1 OF 1</b>
10/13		<b>BREAKER ASSEMBLY (SVB)</b>		
<b>INSTALLATION</b>				