

**TOWN OF PAYSON
WATER DEPARTMENT**

**BACKFLOW PREVENTION
PROGRAM**



**CUSTOMER INFORMATION
PACKAGE**

TOWN OF PAYSON

Backflow Prevention Program

Developers, Contractors and Payson Residents:

An approved backflow prevention assembly may be required on your water service line(s) to protect the public water system from the possibility of contamination. The assemblies, required by State and local regulations are not needed on most single family residential water services, but are required for most industrial, commercial, irrigation and fire sprinkler service connections.

This information package is designed to explain the Town of Payson's Backflow Prevention Program and provide you with information you will need to install and test your backflow prevention assemblies.

Inside you will find the following information:

- **Cross Connections Can Create Health Hazards:** General backflow prevention information.
- **Program:** Outlines customer and Payson Water Department's responsibilities for backflow prevention.
- **Installation & Testing:** Lists steps necessary for installation and testing.
- **Freeze Protection:** A list of manufacturers who produce heating devices and locking enclosures to safeguard your assemblies.
- **Closed Water System Information:** an explanation of hot water heater leak, rupture or explosion hazard
- **Test Procedures:** general information about selecting a certified tester
- **Fire:** Special information relating to fire services and systems.
- **Standard Details and Approved Assemblies:** Payson Water Department Standard Details for assembly installation and information on currently approved assemblies.
- **Testers:** A directory of Payson Water Department approved Certified Backflow Testers. This list is presented in random order. You may want to verify current registration of the contractor with the Payson Water Department before work is performed.

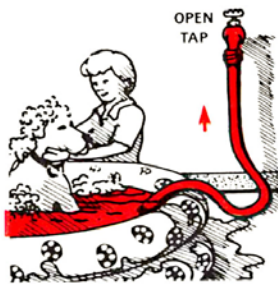
If you have any questions about the Backflow Prevention Program, please call (928) 472-5103.

Cross Connections Can Create Health Hazards

The Town of Payson Water Department is committed to the delivery of safe and healthful water that we all expect to find throughout our community. Through a carefully managed process we treat and test the water supply so that it is always clean and safe to drink before it is delivered to our homes, schools, medical facilities and businesses.

Drinking water systems may become contaminated in the distribution system through uncontrolled "cross connections". A cross connection means any actual or potential physical connection between a public water system or the consumer's water system and any source of non-potable liquid, solid or gas that could contaminate the potable water supply by backflow.

Backflow is the flow of water (or other solid, liquid, or gas from any source) back into the potable water system. Backflow may be due to either "backsiphonage" or "backpressure". Backsiphonage is backflow caused by a negative pressure (vacuum or partial vacuum) in the supply piping. This occurs when system pressure is reduced below atmospheric pressure. The effect is similar to sipping water through a straw. Backpressure is backflow caused by pressure in the customer's plumbing being greater than the pressure in the water supply piping. The high pressure in the customer's plumbing may be from a booster pump, heating boiler, etc.



Cross connections are possible in all plumbing systems. It is important that each cross connection be identified and evaluated as to the type of backflow protection required to protect the drinking water supply. Some plumbing fixtures have built-in backflow protection in the form of a

physical air gap. However, most cross connections will need to be controlled through the installation of an approved mechanical backflow prevention device or assembly. Some common cross connections found in plumbing and water systems include:

1. Wash basins and service sinks.
2. Outside spigots.
3. Irrigation sprinkler systems.
4. Auxiliary water supplies/private wells.
5. Laboratory and aspirator equipment.
6. Photo developing equipment.
7. Processing tanks.
8. Boilers.
9. Water recirculation systems.
10. Swimming pools.
11. Solar heat systems.
12. Fire sprinkler systems.

Plumbing codes and State drinking water regulations require cross connections to be controlled by approved methods (physical air gap) or approved mechanical backflow prevention devices or assemblies. The various types of mechanical backflow preventers include: reduced pressure backflow assembly (RPBA), reduced pressure detector assembly (RPDA), double check valve assembly (DCVA), double check detector assembly (DCDA), pressure vacuum breaker assembly (PVBA), spill resistant vacuum breaker assembly (SVBA) and atmospheric vacuum breaker (AVB).

For a backflow preventer to provide proper protection, it must be approved for backflow protection, designed for the degree of hazard and backflow it is controlling, installed correctly, tested annually by a State-certified tester, and repaired as necessary. Some states require mandatory backflow protection on certain facilities where high risk, health hazard cross connections are normally found.

The Town of Payson Water Department's backflow prevention program has been established to inform customers when a backflow assembly device is necessary and to supply information for proper installation and annual testing of the devices. If you have any questions or need additional information, you may contact us at (928) 472-5103.

BACKFLOW PREVENTION PROGRAM

Customer Responsibilities

- Installation of Approved Backflow Assembly
- Maintenance, Repair and Annual Testing of Assembly

Payson Water Department Responsibilities

- Protection of Water System
- Enforcement of Laws, Ordinances and Codes
- Maintenance of Backflow Prevention Program
- Inspections and Surveys of Customer Water Systems
- Maintain Inventory and Service Records of All Backflow Prevention Assemblies

INSTALLATION & TESTING

INSTALLATION OF A BACKFLOW PREVENTION ASSEMBLY REQUIRES THE FOLLOWING ITEMS:

STEP 1) Inspections Required:

Install required assemblies and call the Backflow Prevention Staff at (928) 472-5103, to schedule an inspection.

a) Inspection by the Payson Water Department for correct installation by customer of the required backflow device (Use Attached Town of Payson Standard Details).

b) Inspection for adequate clearance from obstructions to permit proper testing.

* The Town of Payson will specify what types of assemblies are needed to protect each service connection during the plan review process. Specific locations of installed assemblies must be reported to the Water Department for testing and recordkeeping purposes. Assemblies must be installed as close to the service connection (downstream side of the water meter) as practical, unless an alternate installation location has been approved by the Payson Water Department. (Town of Payson code, Chapter 50, Section 50.31.) [State of Arizona Administrative Code - Title 18, R18-4-115]

STEP 2) Testing Requirements:

a) After the installation inspection and approval, each backflow prevention assembly must be tested by a certified contractor prior to active use (refer to attached list of backflow prevention assembly general testers). Water service will be discontinued if backflow assemblies are not properly tested prior to occupancy!

b) Submit test reports to the Payson Water Department after completion of the tests (Use Attached Form) at the following address:

Attention: Backflow Prevention Program
Town of Payson Water Department
303A North Beeline Highway
Payson, Arizona 85541

c) Annual testing of each assembly is required. Reminder notices will be sent by the Water Department.

FREEZE PROTECTION FOR BACKFLOW PREVENTION ASSEMBLIES

If a backflow prevention assembly is installed in a location subject to freezing weather or damage, it **must** be protected to prevent damage and to ensure proper operation. Several manufacturers of enclosures designed to protect assemblies from freeze and theft damage are listed below:

- 1) **Bud's Plumbing**
(928) 474-4441
- 2) **Central Arizona Supply**
(928) 474-3516
- 3) **Backflow Prevention Device InnClosures**
1-800-266-5411
- 4) **Hot Box from Hot Box-NFE, Inc.**
1-800-736-0238
- 4) **G & C Enclosures**
1-888-753-6565

Facility owners may install assemblies inside the building with approval from the Backflow Prevention Section of the Payson Water Department at (928) 472-5103.

CLOSED WATER SYSTEM INFORMATION

WARNING - HOT WATER HEATER LEAK, RUPTURE OR EXPLOSION HAZARD!

Normally, cold water flows into your facility from your water service line and fills your hot water heater. Then, as the water is heated, it expands and flows back out through the pipe towards the water meter. As long as the flow of the expanded water is not blocked, the water pressure in the service line remains normal. However, when a backflow preventer is installed, the hot expanded water can no longer escape out through the water meter. In this case, the only way to prevent excessive heat and pressure from building up in the service line is to install a temperature and pressure (T&P) relief valve on the water heater and an expansion tank to the water system (1991 Uniform Plumbing Code- Section 1007). Other forms of added protection include toilet tank relief valves and in-line relief valves.

The T&P relief valve should be checked regularly to ensure that it is functioning properly. This test should be performed on an annual basis when the backflow prevention assembly is tested.

If you have any questions, please contact the Backflow Prevention Office at (928) 472-5103.

TOWN OF PAYSON BACKFLOW PREVENTION ASSEMBLY TEST PROCEDURES

Selecting A Certified General Tester

A list of certified testers recognized by the Town of Payson has been attached to assist you in selecting a qualified contractor to test your assemblies. These contractors have submitted copies of Town of Payson Business Licenses, general tester certificates, and test equipment calibration records that are filed at the Payson Water Department. Although every effort is made by Town staff to update this list on a regular basis, it may not include recent changes. Therefore, ask the contractor about their current registration with the Payson Water Department before work is performed.

You are responsible for selecting a qualified contractor and for submitting the test results for your assemblies on time to the Town of Payson Water Department. Prices charged for installation, testing and/or repair of assemblies could vary widely between contractors. So, for your own protection, carefully check service costs and qualifications before employing a contractor for your assemblies. Generally, testing costs range from approximately \$40 - 90 for each assembly. If needed, repairs are usually provided at an additional cost.

Test Report Forms

For every assembly that is tested, the **original** report form must be returned to this office at the address listed below:

Town of Payson Water Department
Backflow Prevention Department
303A North Beeline Highway
Payson, Arizona 85541
(928) 472-5103

Reports that are incomplete, illegible or incorrect will not be accepted.

New Assembly Installations

All new backflow prevention assemblies used for service protection must be installed at the service connection (generally, immediately downstream of the water meter) or near the property line and in all cases before the first branch leading off the service line. A certified tester must test all new assemblies before the Town will issue any final inspection approvals. Return the **original** test report to this office at the address listed above. The pink copy is for the customer and the yellow copy is for the certified tester.

FIRE SERVICES AND SYSTEMS

- Class 1 and 2 fire systems are not currently required to have any backflow prevention equipment at the service connection other than the equipment that is required for those systems under the state fire code standards.
- Class 3 fire systems may be converted to Class 1 or 2 systems by removing the tank. However, you must have the approval of the fire authority. Contact your fire authority prior to making any changes to your existing fire system. If the system cannot be modified, a backflow assembly will be required.
- Class 4 and 5 must comply with backflow requirements. Class 5 includes those fire systems that use antifreeze or other additives (RPDA required).
- Class 6 fire systems require an on-site review to determine backflow requirements.

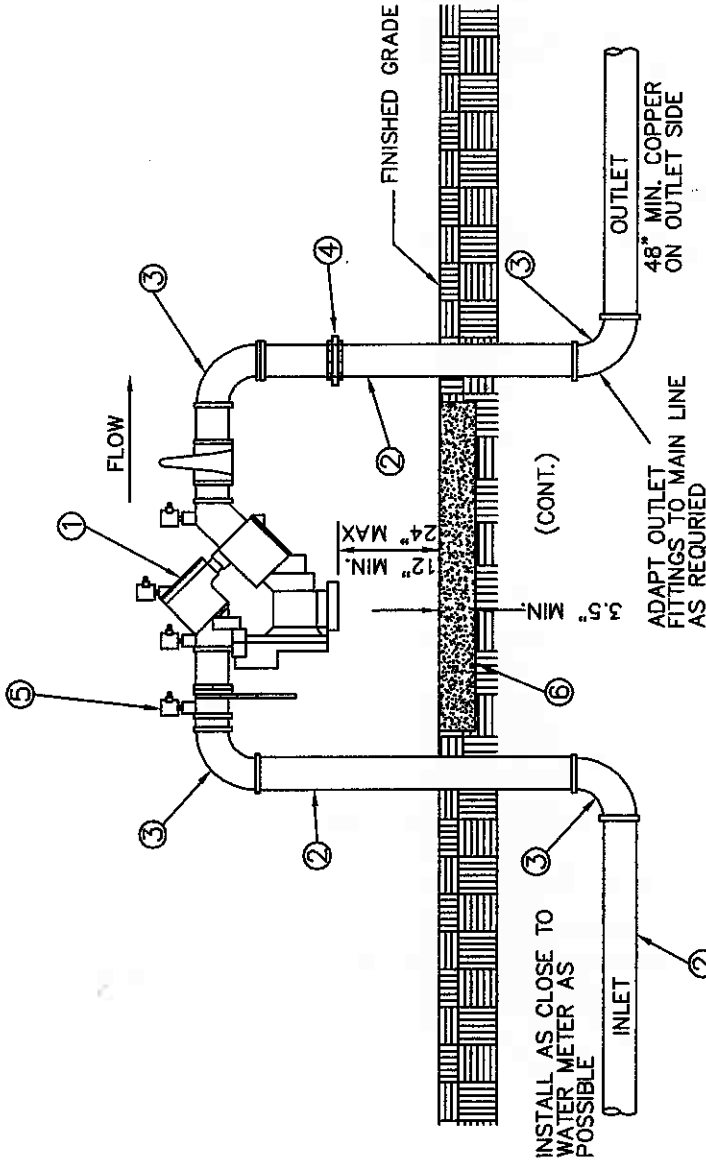
TOWN OF PAYSON WATER DEPARTMENT



STANDARD DETAILS BACKFLOW PREVENTION ASSEMBLIES

GENERAL NOTES

1. Contact Town of Payson Water Department for latest list of approved backflow preventers and certified testers
2. Backflow preventers must be tested by a certified tester before a final approval is issued.
3. Copper fittings shall be connected with lead free solder joints.
4. Install a brass pipe plug in each test cock on the assembly.
5. Finished grade under the backflow preventer shall be compacted to 95% of maximum density.
6. Provide 12 inch minimum clearance between backflow prevention assembly and permanent structures or landscape vegetation.
7. A permit is required from the Town of Payson for this installation.
8. Contractor is to call the Town of Payson for inspection prior to backfilling trench.
9. All assemblies installed outdoors shall have adequate freeze protection.
10. No interconnections, taps or bypass lines are permitted between the service connection and the backflow assembly.



REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
OUTDOOR INSTALLATION ONLY

LIST OF MATERIALS

- | | |
|--|---|
| <p>① APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY. BALL VALVES INCLUDED</p> <p>② PIPE SPOOLS TYPE "L" COPPER PIPE 3/4" THRU 2 1/2"</p> <p>③ 90° ELL. COPPER PIPE, 3/4" THRU 2 1/2"</p> <p>④ PIPE UNION, BRASS OR COPPER.</p> | <p>⑤ RESILIENT SEATED TEST COCKS WITH BRASS PLUGS INSTALLED (4 REQUIRED).</p> <p>⑥ 12" WIDE CLASS "B" FORMED CONCRETE PAD</p> |
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REVISED 6-28-06
EFFECTIVE 3-14-98

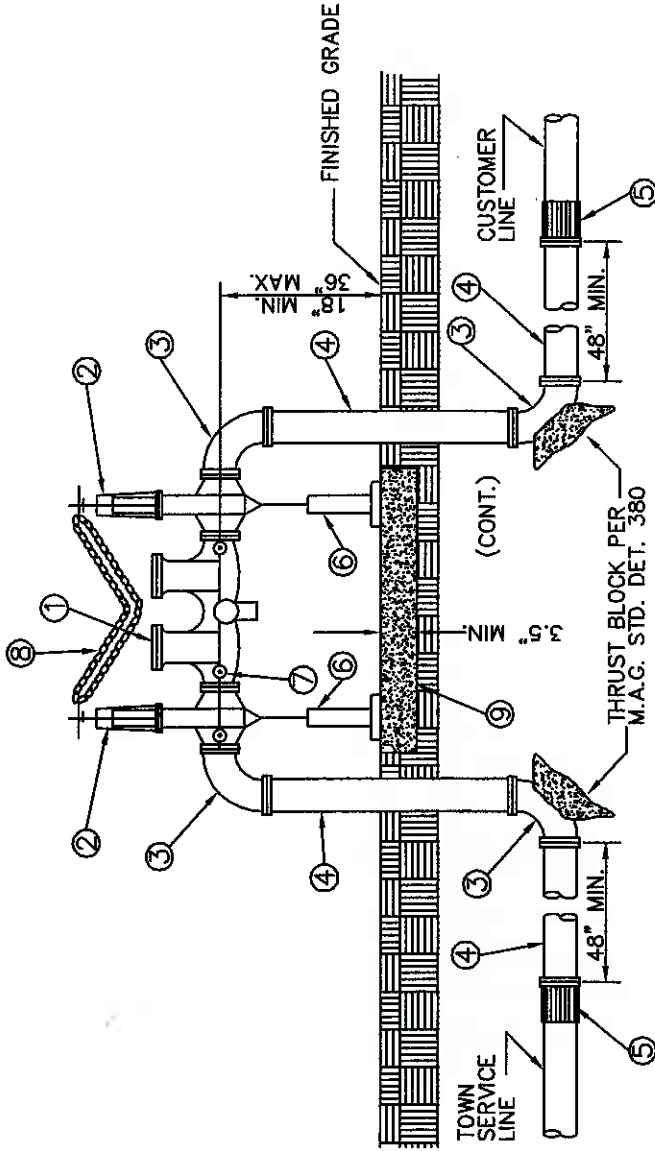
**OUTDOOR REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
2 1/2 INCHES AND LESS**

TOWN OF PAYSON

DETAIL NO.
W1-04

GENERAL NOTES

1. Contact Town of Payson Water Department for latest list of approved backflow preventers and certified testers
2. Backflow preventers must be tested by a certified tester before a final approval is issued.
3. Backflow preventers shall be painted light tan or a color to match the building. Do not paint the name plate or any brass parts of the assembly.
4. Install a brass pipe plug in each test cock on the assembly.
5. All backflow preventers shall be protected by guardposts. See M.A.G. Std. Det. 140
6. Finished grade under the backflow preventer shall be compacted to 95% of maximum density.
7. Backflow preventers on fire lines may require tamper switches on the shut off valves. Contact Town of Payson Fire Department for specific requirements.
8. Provide 24 inch minimum clearance between backflow prevention assembly and permanent structures.
9. Contractor is to call the Town of Payson for inspection prior to backfilling trench.
10. A permit is required from the Town of Payson for this installation.
11. All assemblies installed outdoors shall have adequate freeze protection.
12. No interconnections, taps or bypass lines are permitted between the service connection and the backflow assembly.



REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

LIST OF MATERIALS

- | | |
|--|---|
| <ol style="list-style-type: none"> ① APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY. ② RESILIENT SEATED GATE VALVE, O. S. & Y. (FIRE LINE CONNECTION) N.R.S. (NON FIRE LINE) ③ 90° ELL. FLANGED D.I.P. 3" THRU 10" ④ PIPE SPOOL. FLANGED D.I.P. 3" THRU 10" ⑤ FLANGED ADAPTER (WHEN REQUIRED) ⑥ ADJUSTABLE METAL PIPE SUPPORTS. (ASSEMBLIES 4" AND LARGER) | <ol style="list-style-type: none"> ⑦ RESILIENT SEATED TEST COCKS WITH BRASS PLUGS INSTALLED (4 REQUIRED). ⑧ CHAIN AND LOCK (FIRE LINE ONLY) ⑨ 12" WIDE CLASS "B" FORMED CONCRETE FOOTING |
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REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
3 INCHES AND LARGER

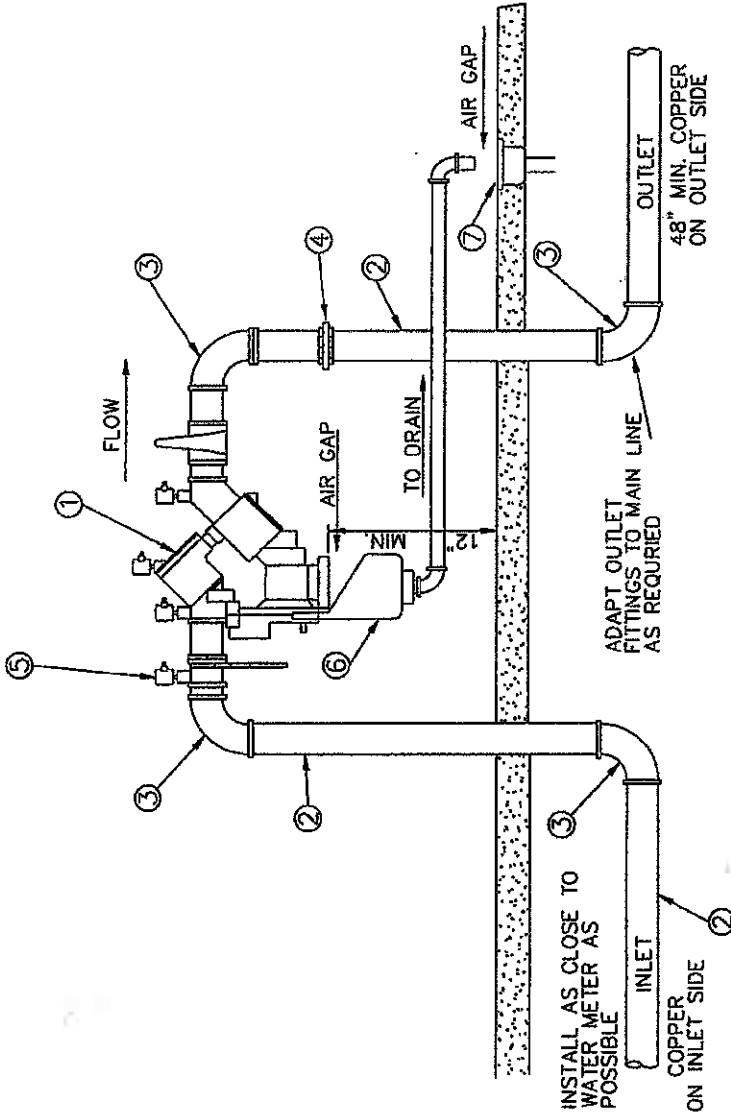
TOWN OF PAYSON

DETAIL NO.
W1-01

REVISED 6-26-06
EFFECTIVE 3-14-08

GENERAL NOTES

1. Install as necessary to meet building plumbing requirements.
2. Contact Town of Payson Water Department for latest list of approved backflow preventers and certified testers
3. Backflow preventers must be tested by a certified tester before a final approval is issued.
4. Copper fittings shall be connected with lead free solder joints.
5. Install a brass pipe plug in each test cock on the assembly.
6. Provide 12-inch minimum clearance between backflow prevention assembly and permanent structures or landscape vegetation.
7. A permit is required from the Town of Payson for this installation.
8. Contractor is to call the Town of Payson for inspection prior to backfilling trench.
9. Proper air gap must exist between the bottom of the relief valve part of the assembly and the top of the drain funnel. Proper air gap must also exist between the lower end of the drain pipe and the overflow rim of the floor drain.
10. No interconnections, taps or bypass lines are permitted between the service connection and the backflow assembly.
11. Installations elevated more than five (5) feet above the floor or grade shall be provided with a permanent platform capable of supporting a tester or maintenance person.



**REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
INDOOR INSTALLATION ONLY**

LIST OF MATERIALS

- | | |
|---|---|
| <ol style="list-style-type: none"> ① APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY. BALL VALVES INCLUDED ② PIPE SPOOLS TYPE "L" COPPER PIPE 3/4" THRU 2 1/2" ③ 90° ELL. COPPER PIPE, 3/4" THRU 2 1/2" ④ PIPE UNION, BRASS OR COPPER. | <ol style="list-style-type: none"> ⑤ RESILIENT SEATED TEST COCKS WITH BRASS PLUGS INSTALLED (4 REQUIRED). ⑥ DRAIN FUNNEL ⑦ FLOOR DRAIN |
|---|---|

EFFECTIVE 3-14-96

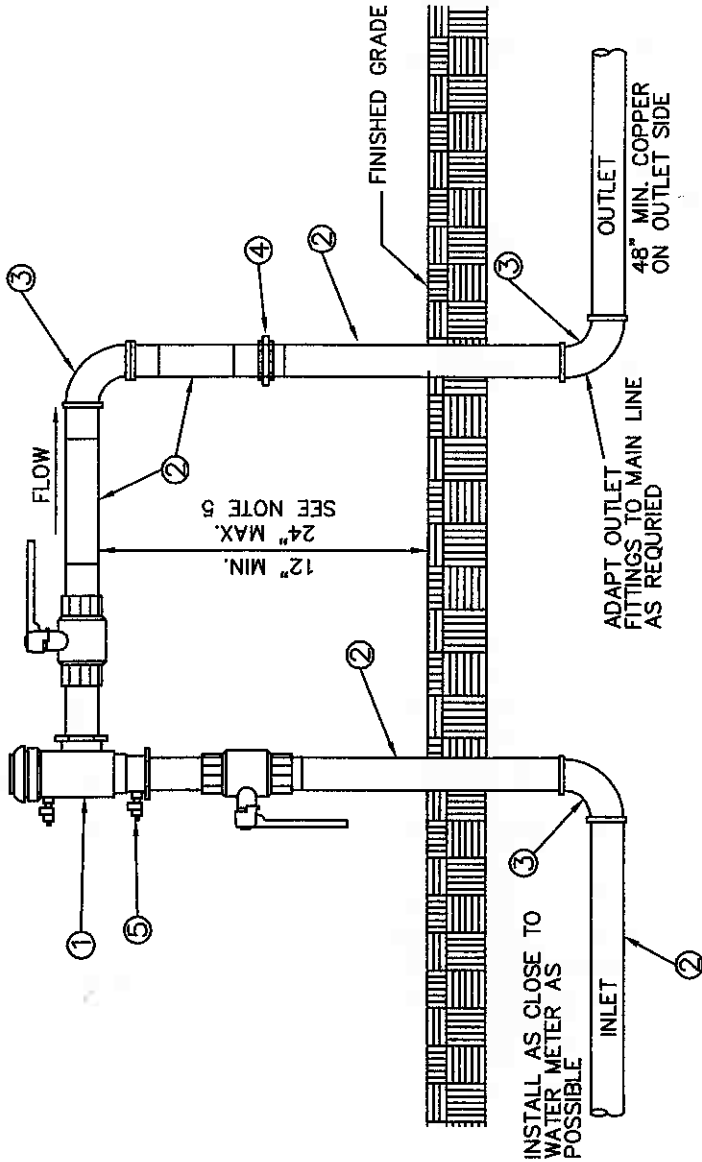
**INDOOR REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY
2 1/2 INCHES AND LESS**

TOWN OF PAYSON

DETAIL NO.
W1-03

GENERAL NOTES

1. Contact Town of Payson Water Department for latest list of approved backflow preventers and certified testers
2. Backflow preventers must be tested by a certified tester before a final approval is issued.
3. Copper fittings shall be connected with lead free solder joints.
4. Install a brass pipe plug in each test cock on the assembly.
5. Pressure vacuum breakers must be installed at least 12-inches above all downstream piping and the highest outlet on the system if this distance exceeds 24-inches a reduced pressure principle backflow prevention assembly must be utilized. See T.O.P. Detail W1-04
6. Finished grade under the backflow preventer shall be compacted to 95% of maximum density.
7. Provide 12 inch minimum clearance between backflow prevention assembly and permanent structures or landscape vegetation.
8. A permit is required from the Town of Payson for this installation.
9. Contractor is to call the Town of Payson for inspection prior to backfilling trench.
10. All assemblies installed outdoors shall have adequate freeze protection.
11. No interconnections, taps or bypass lines are permitted between the service connection and the backflow assembly.



PRESSURE VACUUM BREAKER ASSEMBLY

LIST OF MATERIALS

- ① APPROVED PRESSURE VACUUM BREAKER ASSEMBLY, BALL VALVES INCLUDED.
- ② TYPE "L" COPPER PIPE 3/4" THRU 2 1/2"
- ③ 90° ELL. COPPER PIPE, 3/4" THRU 2 1/2"
- ④ PIPE UNION, BRASS OR COPPER.
- ⑤ RESILIENT SEATED TEST COCKS WITH BRASS PLUGS INSTALLED (2 REQUIRED).

EFFECTIVE 3-14-96

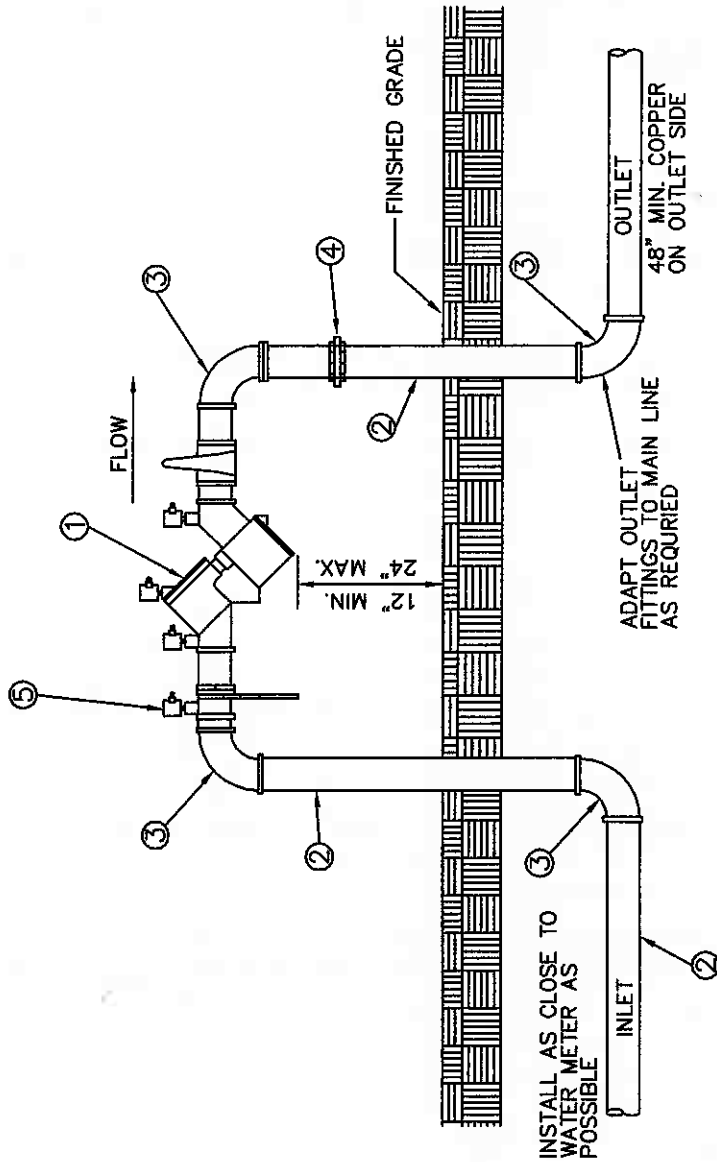
PRESSURE VACUUM BREAKER ASSEMBLY
2 1/2 INCHES AND LESS

TOWN OF PAYSON

DETAIL NO.
W1-06

GENERAL NOTES

1. Contact Town of Payson Water Department for latest list of approved backflow preventers and certified testers
2. Backflow preventers must be tested by a certified tester before a final approval is issued.
3. Copper fittings shall be connected with lead free solder joints.
4. Install a brass pipe plug in each test cock on the assembly.
5. Finished grade under the backflow preventer shall be compacted to 95% of maximum density.
6. Provide 12 inch minimum clearance between backflow prevention assembly and permanent structures or landscape vegetation.
7. A permit is required from the Town of Payson for this installation.
8. Contractor is to call the Town of Payson for inspection prior to backfilling trench.
9. All assemblies installed outdoors shall have adequate freeze protection.
10. No interconnections, taps or bypass lines are permitted between the service connection and the backflow assembly.



DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY

LIST OF MATERIALS

- ① APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY. BALL VALVES INCLUDED
- ② TYPE "L" COPPER PIPE 3/4" THRU 2 1/2"
- ③ 90° ELL. COPPER PIPE, 3/4" THRU 2 1/2"
- ④ PIPE UNION, BRASS OR COPPER.
- ⑤ RESILIENT SEATED TEST COCKS WITH BRASS PLUGS INSTALLED (4 REQUIRED).

EFFECTIVE 3-14-96

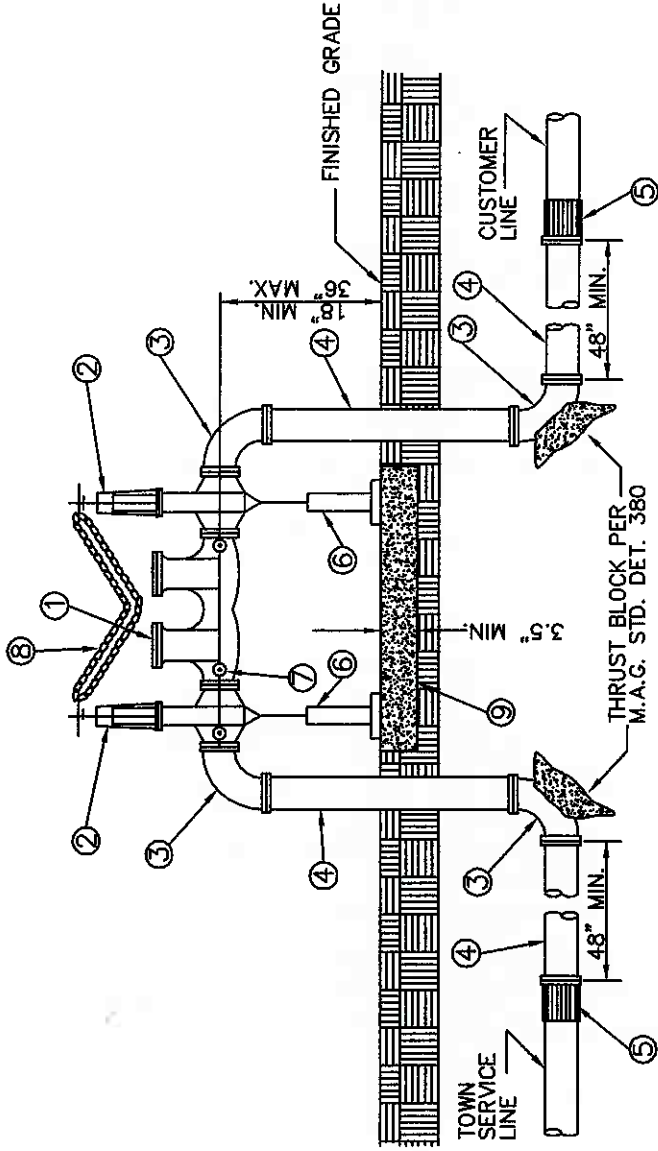
DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY
2 1/2 INCHES AND LESS

TOWN OF PAYSON

DETAIL NO.
W1-05

GENERAL NOTES

1. Contact Town of Payson Water Department for latest list of approved backflow preventers and certified testers
2. Backflow preventers must be tested by a certified tester before a final approval is issued.
3. Backflow preventers shall be painted light tan or a color to match the building. Do not paint the name plate or any brass parts of the assembly.
4. Install a brass pipe plug in each test cock on the assembly.
5. All backflow preventers shall be protected by guardposts. See M.A.G. Std. Det. 140
6. Finished grade under the backflow preventer shall be compacted to 95% of maximum density.
7. Backflow preventers on fire lines may require tamper switches on the shut off valves. Contact Town of Payson Fire Department for specific requirements.
8. Provide 24 inch minimum clearance between backflow prevention assembly and permanent structures or landscape vegetation.
9. Contractor is to call the Town of Payson for inspection prior to backfilling trench.
10. A permit is required from the Town of Payson for this installation.
11. All assemblies installed outdoors shall have adequate freeze protection.
12. No interconnections, taps or bypass lines are permitted between the service connection and the backflow assembly.



DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY

LIST OF MATERIALS

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|---|---|
| <ul style="list-style-type: none"> ① APPROVED DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY. ② RESILIENT SEATED GATE VALVE, O. S. & Y. (FIRE LINE CONNECTION) N.R.S. (NON FIRE LINE) ③ 90° ELL. FLANGED D.I.P. 3" THRU 10" ④ PIPE SPOOL. FLANGED D.I.P. 3" THRU 10" ⑤ FLANGED ADAPTER (WHEN REQUIRED) ⑥ ADJUSTABLE METAL PIPE SUPPORTS. | <ul style="list-style-type: none"> ⑦ RESILIENT SEATED TEST COCKS WITH BRASS PLUGS INSTALLED (4 REQUIRED). ⑧ CHAIN AND LOCK (FIRE LINE ONLY) ⑨ 12" WIDE CLASS "B" FORMED CONCRETE FOOTING |
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REVISED 6-26-08
EFFECTIVE 3-14-08

DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY
3 INCHES AND LARGER

TOWN OF PAYSON

DETAIL NO.
W1-02