Backflow Bulletin #1

FIRE PROTECTION SYSTEMS

- **Chemicals in the System**
  Anti-Freeze, Foam, Corrosion Inhibitors, etc.

- **Chemicals in the System – Glycerin**
  Glycerin or similar food-grade non-toxic additive

- **Siamese Fitting or Similar External Water Connection**
  Allows for potential non-potable water entering the system

- **Looped System (Domestic Water)**
  No longer than a 3’ dead end or branch to any sprinkler head

- **Basic Wet Fire Protection System**
  Clean water only with no exterior connections

- **Single Head off of Domestic Water**
  No longer than a 3’ run from the domestic water line to the head

- **Multiple Heads off of Domestic Water – Remote Location**
  Water piping must be looped. Maximum run to a head is 3’

- **Multiple Heads off of Domestic Water – Remote Location**
  Piping not looped...has dead-ends. No chemical additives.

- **Multiple Heads off of Domestic Water – Remote Location**
  Piping not looped...has dead-ends. With chemical additives.

- **Dry Fire System**
  No Chemicals, Foam, External Connections (Siamese fittings), etc

- **Residential Fire System**
  Same as above. Generally a DC at the domestic water connection.

Miscellaneous:
- ALWAYS check with your local Water Purveyor, Building Department, and/or Fire Department
- MANY communities require “Detector Assemblies,” not simply a DC or RP
- MANY communities allow a DC or DCDA even though Plumbing Code requires an RP. This is done mostly on retrofit projects where pressure head loss, lack of an adequate floor drain, etc are issues.
- ALL backflow preventers must be tested annually.
- RP installations must be high enough above the floor or ground to allow for an air gap below the relief valve.
- Backflow preventers shall be installed no higher than 5’ and shall have full access for testing and repairs.

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YOUR ILLINOIS SECTION AWWA BACKFLOW COMMITTEE PROFESSIONALS
Backflow Bulletin #2

BOILERS & PRESSURE VESSELS

Hydronic Heating

- Commercial Boiler – High Pressure...above 30psi
  Must have a break tank
- Commercial Hot Water Boiler - No Chemicals
  Low pressure, hot water boiler, no additives or means to add chemicals
- Commercial Hot Water Boiler - No Chemicals But Has the Capability
  May not have chemicals but has provisions to add chemicals
- Commercial Hot Water Boiler - Chemicals
  Contains anti-freeze, corrosion inhibitors, cleaners, has a snow melt system, etc
- Commercial Steam Boiler - Chemicals or No Chemicals
  Almost all steam boilers require additives to keep the water from surging.
- Commercial Boiler with Solar Panels
  Heat exchanger should be double-walled per Plumbing Code. If not, must be RP (anti-freeze)
- Residential Steam Boiler - Chemicals or No Chemicals
  Almost all steam boilers require additives to keep the water from surging.
- Residential Hot Water Boiler with Solar Panels
  Heat exchanger should be double-walled per Plumbing Code. If not, must be RP (anti-freeze)
- Residential Hot Water Boiler with Snow Melt
  Generally will have anti-freeze in the system (toxic chemicals require an air gap/break tank)
- Residential “Small” Hot Water Boiler without Snow Melt
  Under 200,000 btu, no chemicals or means to put chemicals into the boiler
- Residential “Large” Hot Water Boiler without Snow Melt
  Over 200,000 btu, no chemicals (toxic chemicals require an air gap/break tank)

Air Gap/Break Tank | DuC | RP
--- | --- | ---
√ |  |  |
√ |  |  |
√ | (v) |  |
√ |  | (v)
√ |  | (v)
√ |  |  |
√ | none req’d | none req’d

Protection is not req’d but is recommended

Note that an air gap or break tank is always best!

Miscellaneous:
- ALWAYS check with your local Water Purveyor, Building Department, and/or Inspection Department
- MANY communities have stricter policies, regulations and/or ordinances
- ALL backflow preventers must be tested annually.
- RP installations must be high enough above the floor or ground to allow for an air gap below the relief valve.
- Backflow preventers shall not be installed in pits, be no higher than 5’ and shall be fully accessible

NOTE: The reference code for Chicago is 18-29-608 and its sub part. Chicago is much more stringent

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YOUR ILLINOIS SECTION AWWA BACKFLOW COMMITTEE PROFESSIONALS
**Backflow Bulletin #3**

### Regulatory Standards for Backflow Protection

<table>
<thead>
<tr>
<th>Required Backflow Protection</th>
<th>Fixture Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASME A112.1.2, ASME A112.1.3</td>
<td>Water Softener Drain</td>
</tr>
<tr>
<td>ASSE 1001, ASSE 1011, ASSE 1052</td>
<td>Laundry Tub/Mop Basin w hose threads</td>
</tr>
<tr>
<td>ASSE 1011, ASSE 1052</td>
<td>Indoor Hose Bibb(s)</td>
</tr>
<tr>
<td>ASSE 1011, ASSE 1052, ASSE 1053</td>
<td>Outdoor Hose Bibb(s)</td>
</tr>
<tr>
<td>ASSE 1012, 1015 -- No Chemicals</td>
<td>Boiler or similar</td>
</tr>
<tr>
<td>ASME A112.1.2**, ASSE 1012**</td>
<td>Humidifier</td>
</tr>
<tr>
<td>ASSE 1002</td>
<td>Toilet(s)</td>
</tr>
<tr>
<td>ASSE 1013</td>
<td>Lawn Irrigation</td>
</tr>
<tr>
<td>ASME A112.18.1, ASSE 1014</td>
<td>Hand Held Showers/Hose Sprayers</td>
</tr>
<tr>
<td>ASSE 1013**</td>
<td>Water Powered Sump Pump</td>
</tr>
<tr>
<td>ASME A112.1.2**, ASSE 1001**, ASSE 1013, ASSE 1018</td>
<td>Pool/Spa/Hot Tub/Water Feature/Pond/Fountain</td>
</tr>
<tr>
<td>ASME A112.18.1</td>
<td>Kitchen Faucet(s)</td>
</tr>
<tr>
<td>ASME A112.1.2**, ASSE 1012**</td>
<td>Non-Carbonated Beverage</td>
</tr>
<tr>
<td>ASSE 1032</td>
<td>Carbonated Beverage</td>
</tr>
<tr>
<td>ASME A112.1.2, ASME A112.1.3, ASSE 1001, ASSE 1013, ASSE 1012**</td>
<td>Developer...Photo, X-Ray, etc</td>
</tr>
</tbody>
</table>

**State Plumbing code may allow other backflow protection under certain hydraulic/pumping/hazard conditions**

1. **ASME A112.1.2** Air Gap – The unobstructed vertical distance between the lowest point of any pipe, faucet or fixture and the FLOOD LEVEL RIM of the receptor onto which it is discharging.
2. **ASME A112.1.3** Air Gap Fittings – for use with plumbing fixtures and appliances.
3. **ASME A112.18.1** Plumbing Supply Fittings.
4. **ASSE 1001** Atmospheric Vacuum Breaker – Critical Level of AVB must be installed at least 6” above all downstream piping with NO valves downstream.
5. **ASSE 1002** Anti-Siphon Fill Valves (Ballcock) for Gravity Water Closet Flush Tanks.
6. **ASSE 1011** Hose Bibb Vacuum Breaker (for indoor use).
7. **ASSE 1011** Anti-Frost Hose Bibb Vacuum Breaker – For use on outdoor hose bibs where it could be exposed to freezing.
8. **ASSE 1012** Vented Dual Check Valve – For supplies to untreated boilers with less than 15 psig steam or maximum water pressure of 30 psig, or other non-health hazard fixtures.
9. **ASSE 1013** Reduced Pressure Principle Backflow Prevention Assembly – Requires annual testing.
10. **ASSE 1014** Vacuum breaker for handheld showers.
11. **ASSE 1015** Double Check Valve Backflow Prevention Assembly - Requires annual testing.
12. **ASSE 1019** Vacuum Breaker wall hydrants, freeze resistant automatic draining type.
13. **ASSE 1020** Pressure Vacuum Breaker – Requires annual testing: This assembly is NOT allowed in Illinois.
14. **ASSE 1032** Carbonated Beverage Backflow Preventer Dual Check Valve.
15. **ASSE 1052** Hose Connection Backflow Preventers.
16. **ASSE 1053** Dual Check Backflow Preventer Wall Hydrant Freeze Resistant Type.

*These backflow preventers can be found at hardware stores. A local plumbing permit may be required for installation.*

**ALWAYS CHECK WITH YOUR WATER UTILITY, INSPECTORS, AND CITY OR COUNTY STAFF FOR LOCAL REQUIREMENTS**

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# Backflow Bulletin #3.1

## Regulatory Standards for Backflow Protection

<table>
<thead>
<tr>
<th>Bulletin</th>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>ASME A112.1.3</td>
<td>Air Gap Fittings – for use with plumbing fixtures and appliances such as water softener drains or similar.</td>
</tr>
<tr>
<td>4</td>
<td>ASSE 1001</td>
<td>Atmospheric Vacuum Breaker – Critical Level of AVB must be installed at least 6” above all downstream piping with NO valves downstream.</td>
</tr>
<tr>
<td>5</td>
<td>ASSE 1002*</td>
<td>Anti-Siphon Fill Valves (Ballcock) for Gravity Water Closet Flush Tanks.</td>
</tr>
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<td>6</td>
<td>ASSE 1011, 1052*</td>
<td>Hose Bibb Vacuum Breaker (for indoor use).</td>
</tr>
<tr>
<td>7</td>
<td>ASSE 1011, 1052*</td>
<td>Anti-Frost Hose Bibb Vacuum Breaker – For use on outdoor hose bibs where it could be exposed to freezing.</td>
</tr>
<tr>
<td>8</td>
<td>ASSE 1012</td>
<td>Vented Dual Check Valve – For supplies to untreated boilers with less than 15 psig steam or maximum water pressure of 30 psig, or other non-health hazard fixtures.</td>
</tr>
<tr>
<td>9</td>
<td>ASSE 1013</td>
<td>Reduced Pressure Principle Backflow Prevention Assembly – Requires annual testing. Can be used on used on high (health) or low hazard connections.</td>
</tr>
<tr>
<td>10</td>
<td>ASSE 1014</td>
<td>Vacuum breaker for handheld showers or similar.</td>
</tr>
<tr>
<td>11</td>
<td>ASSE 1015</td>
<td>Double Check Valve Backflow Prevention Assembly – Requires annual testing. Use on low hazard (pollutant) connections only.</td>
</tr>
<tr>
<td>12</td>
<td>ASSE 1019*</td>
<td>Vacuum Breaker wall hydrants, freeze resistant automatic draining type.</td>
</tr>
<tr>
<td>13</td>
<td>ASSE 1020</td>
<td>Pressure Vacuum Breaker – Requires annual testing. Can be used on used on high (health) or low hazard connections. This assembly is <strong>NOT allowed in Illinois</strong>.</td>
</tr>
<tr>
<td>14</td>
<td>ASSE 1032</td>
<td>Carbonated Beverage Backflow Preventer Dual Check Valve.</td>
</tr>
</tbody>
</table>

*These backflow preventers can be found at hardware stores. A local plumbing permit may be required for installation.

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YOUR ILLINOIS SECTION AWWA BACKFLOW COMMITTEE PROFESSIONALS
Backflow Bulletin #4

RESTAURANTS & FOOD SERVICE
Connections to look for and recommended protection

• Dishwasher, Glasswasher, or Mop Basin - No Chemicals
Backflow protection is not required but is recommended.

• Dishwasher, Glasswasher, or Mop Basin – W/Chemicals
Direct or indirect chemical injection

• 3 Compartment Sink or Sink w/Pre-Rinse Faucet – No Chemicals
Fixed height without a spring or pull-down with a spring

• 3 Compartment Sink or sink w/Pre-Rinse Faucet – W/Chemicals
Fixed height without a spring or pull-down with a spring. Chemical injection

• Garbage Disposer with Rim Rinse
Direct water connection below the bowl. If VB, it must be above the rim.

• Ice Machine – Built-in or free standing
Water cooled and non-water cooled

• Beverage Dispenser - Non-carbonated
Includes coffee, tea, juice, cappuccino, etc. Any unit connected to the water

• Beverage Dispenser - Carbonated
(copper piping is not allowed!)
A carbonated beverage backflow preventer (ASSE 1032) should be installed.

• Trap Primer (Floor Drain)
Generally the primer is located under a sink or behind a wall access cover

• Food Equipment
Such as: Steamer, Food Warmer, Rethermalizer, Combi unit, WOK, etc

• Chemical Dispenser – Wall hung or free standing.
Look for ANSI or ASSE approved backflow protection sticker, VB, RP, etc

<table>
<thead>
<tr>
<th>VB</th>
<th>DuC</th>
<th>RP</th>
<th>AG</th>
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<tbody>
<tr>
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Miscellaneous:
► Hose bibs, mop basin/janitor sink/laundry tubs...ALL faucets with a garden hose thread require VB or similar.
► ALL food prep sinks, 3-compartment sinks, ice machines, water softeners, etc shall have an AG on the drain.
► Testable backflow preventers shall be tested annually and results get submitted to the purveyor or agent.
► Non-testable devices shall be inspected regularly and repaired/replaced as observed and per state codes.
► ALWAYS check with your local Water Purveyor, Building Dept, Health Dept, and/or Inspection Department.

* VB = Atmospheric Vacuum Breaker (PVb not allowed)
* DuC = Dual Check Valve w/Atmospheric Vent (ASSE 1012 or ASSE 1022)
* RP (aka RPZ) = Reduced Pressure Zone Backflow Preventer
* AG = Air Gap (ASSE 1055 or similar)