1 **Intent**

1.1 Buildings should have the strongest assurance that the potable water is free of contamination, including contaminants generated inside the building.

2 **Buildings without Laboratories or Other Sources of Internal Contamination:**

2.1 For an office, dormitory, or similar building, where the risk of internal contamination is low, then a single potable water system is run to all plumbing fixtures.

2.2 Such a system requires a duplex double check back flow preventer.

3 **Laboratory Buildings**

3.1 In laboratories, research facilities, or similar buildings with a high risk of internal contamination we have two separate water distribution systems: a potable domestic and an isolated laboratory distribution system.

*Note: This method of separation was developed in the 1990's in line with NIH standards.*

3.2 The potable domestic water system will have a limited distribution within the building, used only in fixtures specifically use for human consumption or sanitation such as:

- Water fountains
- Coffee bars and snack areas
- Food preparation and kitchen areas
- Lavatories and restrooms

3.2.1 The potable domestic water system will include both hot and cold water.

3.2.2 The potable domestic water system requires a duplex double check back flow preventer premise protection.

3.2.3 Color and labeling code:

<table>
<thead>
<tr>
<th>Item</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe</td>
<td>Light blue</td>
</tr>
<tr>
<td>Label</td>
<td>Green background with white letters</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>“Isolated Lab PCW” for cold,</td>
</tr>
<tr>
<td></td>
<td>“Isolated Lab PHW” for hot</td>
</tr>
</tbody>
</table>

3.3 The isolated laboratory water system is for water that is delivered to general laboratory areas, fume hoods, cage washers, autoclaves, vivarium hose stations, and any other fixture not supplied by the “potable domestic water” system.

3.3.1 The isolated laboratory water system will include both hot and cold water in a distribution system independent of the “potable domestic water” system.

3.3.2 The isolated laboratory water system requires duplex reduced pressure backflow preventer premise protection and fixtures must still be protected with point of use vacuum breakers where appropriate.

3.3.3 Color and labeling code:

<table>
<thead>
<tr>
<th>Item</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe</td>
<td>Light blue</td>
</tr>
<tr>
<td>Label</td>
<td>Green background with white letters</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>“Isolated Lab PCW” for cold,</td>
</tr>
<tr>
<td></td>
<td>“Isolated Lab PHW” for hot</td>
</tr>
</tbody>
</table>

4 **Backflow Preventers**

4.1 Since all backflow preventers must be periodically tested a design goal is for a building to have the minimum number of backflow stations.

4.2 Systems where service interruptions during testing are a problem require duplex preventers in a parallel arrangement.

4.3 Backflow preventers need a strainer located between the isolation valves.

*Note: We have had good success with the following manufacturers:*

**Reduced Pressure Manufacturers:**
- Febco Model 860
- Watts Series 909
- Wilkins 975 for sizes 2” and smaller
- Wilkins 300 Series for 2-1/2” and larger

**Double Check Manufacturers:**
- Febco Model 850
- Watts Series 709
- Wilkins 950 for sizes 2” and smaller
- Wilkins 300 Series for 2-1/2” and larger