

Connecticut Cross Connection Regulations

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“Who’s Involved with Cross Connection Control”

- 💧 Public Water Systems (PWSs)
 - 💧 Device Testers, Cross Connection Inspectors
 - 💧 Operators
 - 💧 Plan Review
 - 💧 Management
- 💧 Local Health Department (LHD) Officials
 - 💧 Certified Food Service Inspectors, Registered Sanitarians, Directors of Health
 - 💧 www.dph.state.ct.us/local_health/localmap.asp
- 💧 CT DPH
- 💧 Contracted Testers, Inspectors
- 💧 Building Officials
- 💧 Plumbers

Goals

- 💧 Review of Connecticut's Regulations that Deal with Cross Connection Control
- 💧 Promote the Use of the Connecticut Cross Connection Control Manual as a Resource in Dealing with Cross Connection Issues

Agenda

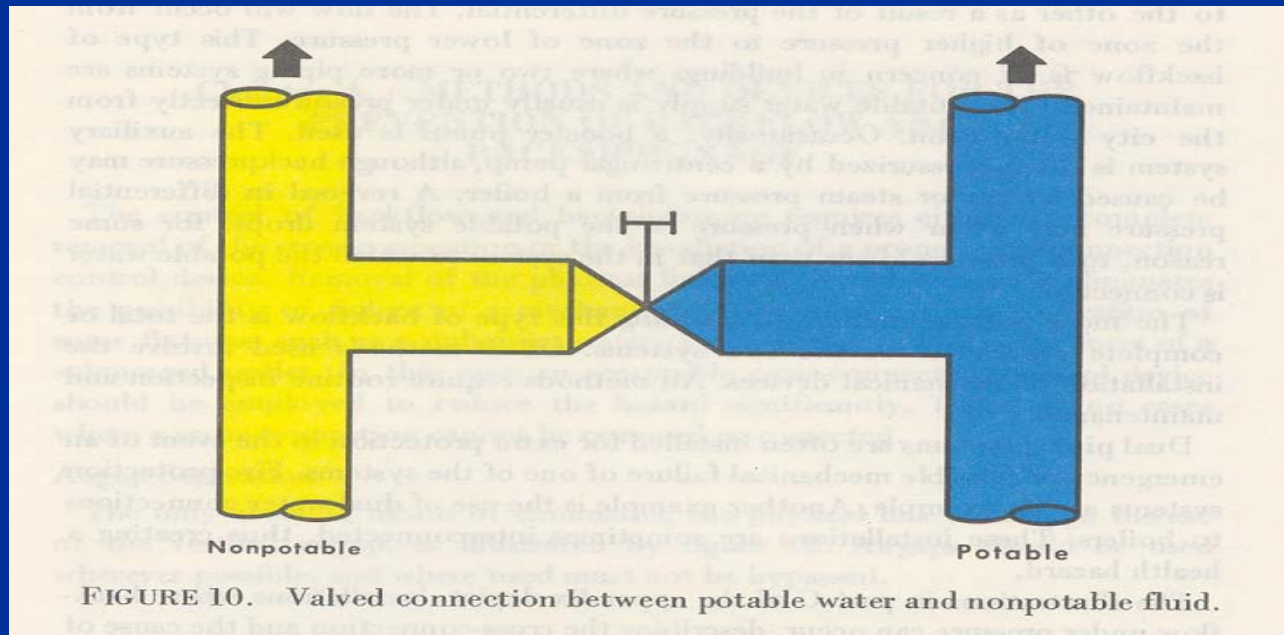
- 💧 Vocabulary
- 💧 Backflow Basics
- 💧 Public Water Systems
- 💧 Review of the Regulations of Connecticut State Agencies (RCSA) that Deal with Cross Connection Control (Chap. 3 of Manual)
- 💧 Review of the State of Connecticut Cross Connection Control Manual (Manual)

Vocabulary

- 💧 Cross Connection
- 💧 Backsiphonage, Backpressure
- 💧 Testers, Inspectors
- 💧 Devices, Testable Devices
- 💧 Consumer Premise
- 💧 Categories of Concern

Backflow Basics

- 💧 **Cross Connection** – an actual or potential connection between a PWS and any other source or system through which it may be possible to introduce any contamination or pollution agent



Backflow Basics (cont.)

💧 Backflow

The reverse flow of any liquid or substance in the distribution pipes of a public water system.

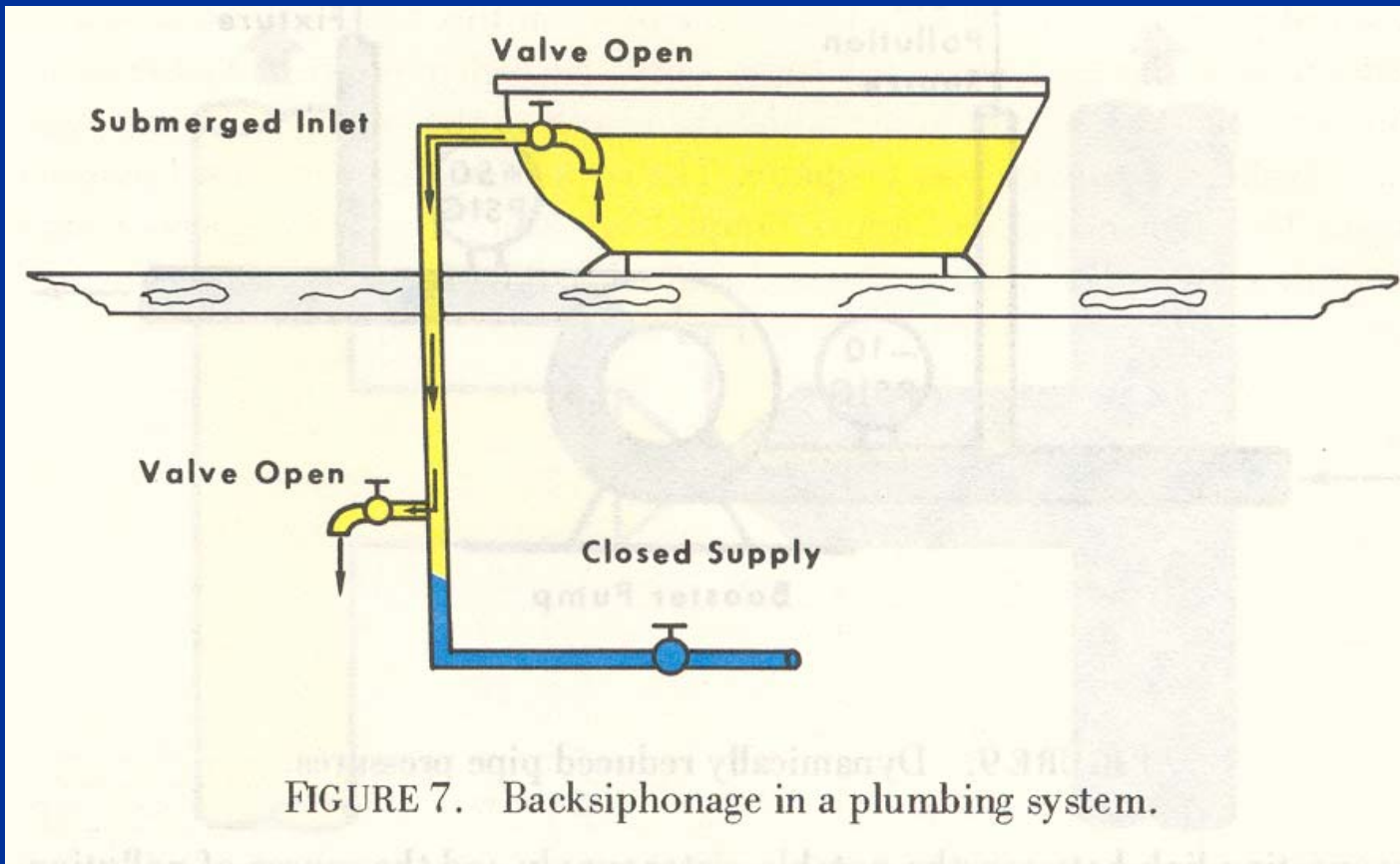
💧 Backpressure Backflow

💧 Backflow resulting from pressures greater than the public water supply pressure.

💧 Backsiphonage Backflow

💧 Backflow resulting from negative pressures in the distribution pipes of the public water system.

Backsiphonage Backflow



Backsiphonage Backflow

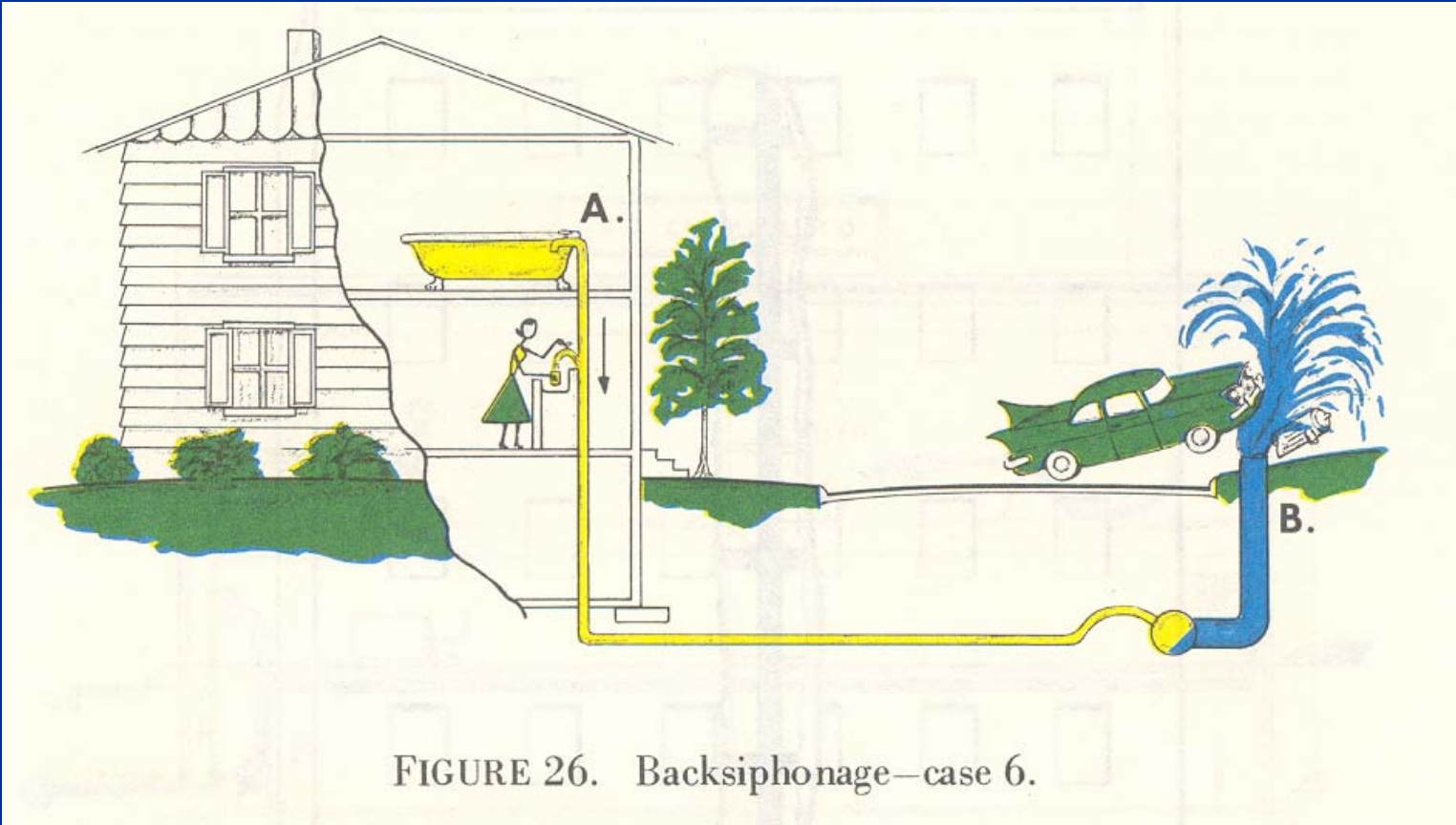
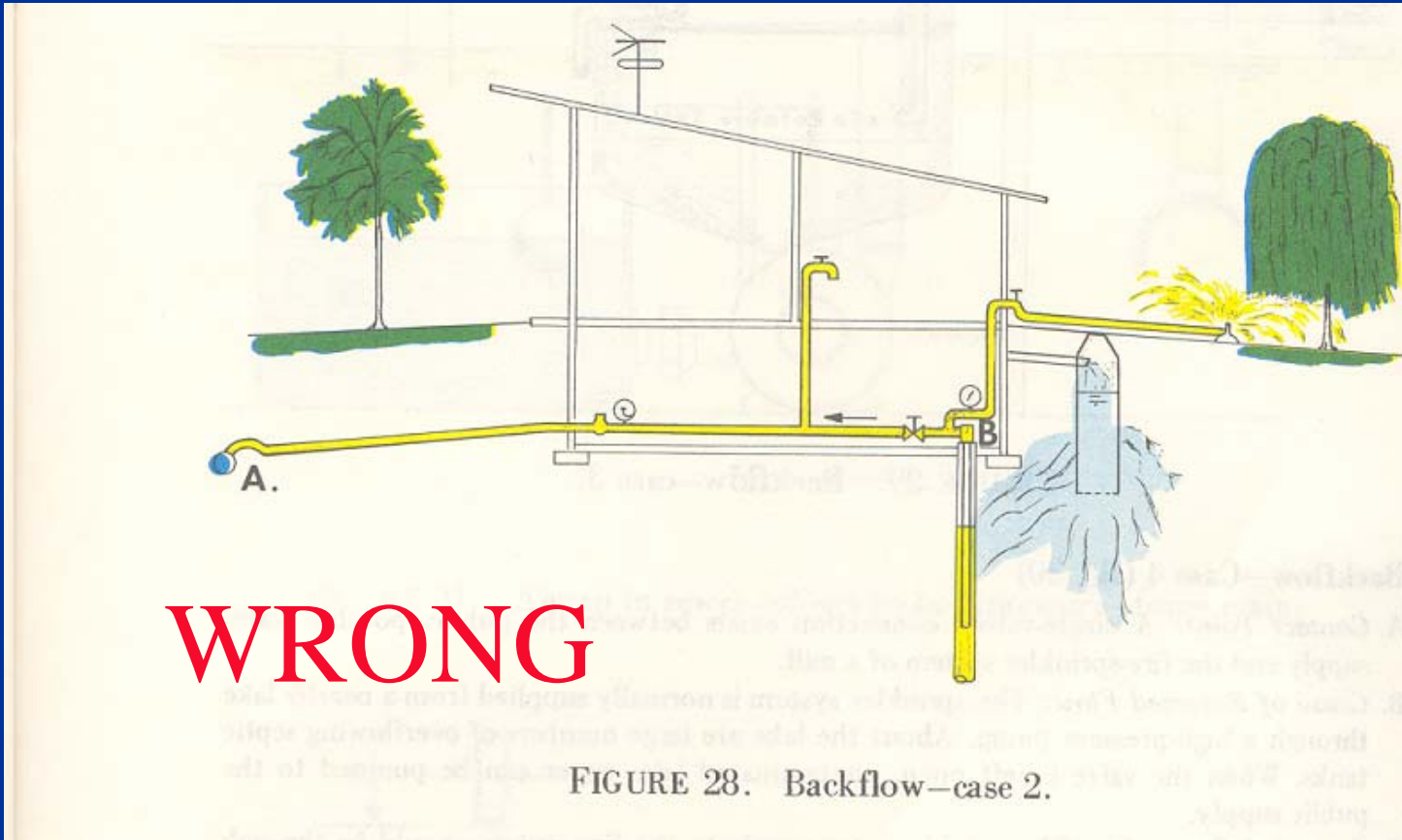


FIGURE 26. Backsiphonage—case 6.

Backpressure Backflow



Contamination by cross connection does occur

- 💧 Case Histories, Review Manual, Chap. 8, p. 82

Review of the Regulations (RCSA) that Deal with Cross Connection Control (Manual, Chap. 3)

- 💧 Section 25-32-11(e) of the RCSA
- 💧 Section 19-13-B38a. of the RCSA
- 💧 Section 25-32-11 of the RCSA
- 💧 Section 19-13-B102(f) of the RCSA
- 💧 Section 19-13-B37 of RCSA
- 💧 Section 19-13-B51c of the RCSA
- 💧 Section 19-13-B39 of the RCSA
- 💧 Section 19-13-B45 of the RCSA
- 💧 Section 19-13-B37a-1 of the RCSA

Inspectors

Section 25-32-11(h)

- 💧 PWS are required to have cross connection inspections performed by a “person who has completed and passed a course on cross connection inspections administered or approved by the Department.”
- 💧 Larger CPWS have inspectors on staff
- 💧 List of testers and/or Inspectors who are available for contract work
- 💧 www.ct.gov/dph and clicking on Drinking Water then Backflow Prevention and Cross Connection Control.

Cross Connection Inspections

19-13-B102(f)

- 💧 Cross Connection Inspections are required where one or more of the categories of concern are known to exist.
- 💧 A survey report, which summarizes the cross connection inspections and tests of backflow prevention devices is required to be submitted annually by the PWS.

Categories of Concern

Section 19-13-B102(f) (cont.)

Categories of Concern

- 💧 (1) **Any water supply source** other than that of the public water system is known to exist.
- 💧 (2) **Toxic or objectionable chemical or biological substances** are used in water solution on public, commercial or industrial premises.
- 💧 (3) **Water pressure is raised by pumping** on other than residential premises above that furnished by the supplier.
- 💧 (4) There is a **water storage tank, public swimming pool or water filter**, for other than residential use.
- 💧 (5) There is known to be a **sprinkler system for either fire protection or irrigation**.

SURVEY YEAR _____

CROSS CONNECTION SURVEY REPORT FORM

PAGE ____ OF ____

Community Public Water Systems Serving 1,000 persons or less and Non-Community Public Water Systems

PUBLIC WATER SYSTEM: _____

PUBLIC WATER SYSTEM ID#: _____

TOWN: _____

You may copy this form if additional consumer premises (more than 4) are to be listed.

A)

Name of Tester(s) / Inspector(s)	Certificate #	Expiration date	I certify that the information in this report is substantially correct (Signature)

B) Consumer Premise	C) Categories of concern	D) Date of most recent inspection	E) Violations		F) Testing Backflow Prevention Devices				
			Number found	Number uncorrected	Device type ¹	Number of Devices			
						Total	Tested	Failed	Repaired
1					PVB				
					DCVA				
					RPD				
2					PVB				
					DCVA				
					RPD				
3					PVB				
					DCVA				
					RPD				
4					PVB				
					DCVA				
					RPD				

¹ PVB = Pressure Vacuum Breaker, DCVA = Double Check Valve Assembly, RPD = Reduced Pressure Principle Device

B) Consumer Premise (as numbered above)	G) Status of Uncorrected Violation
1	
2	
3	
4	

Testers

Section 25-32-11(e)

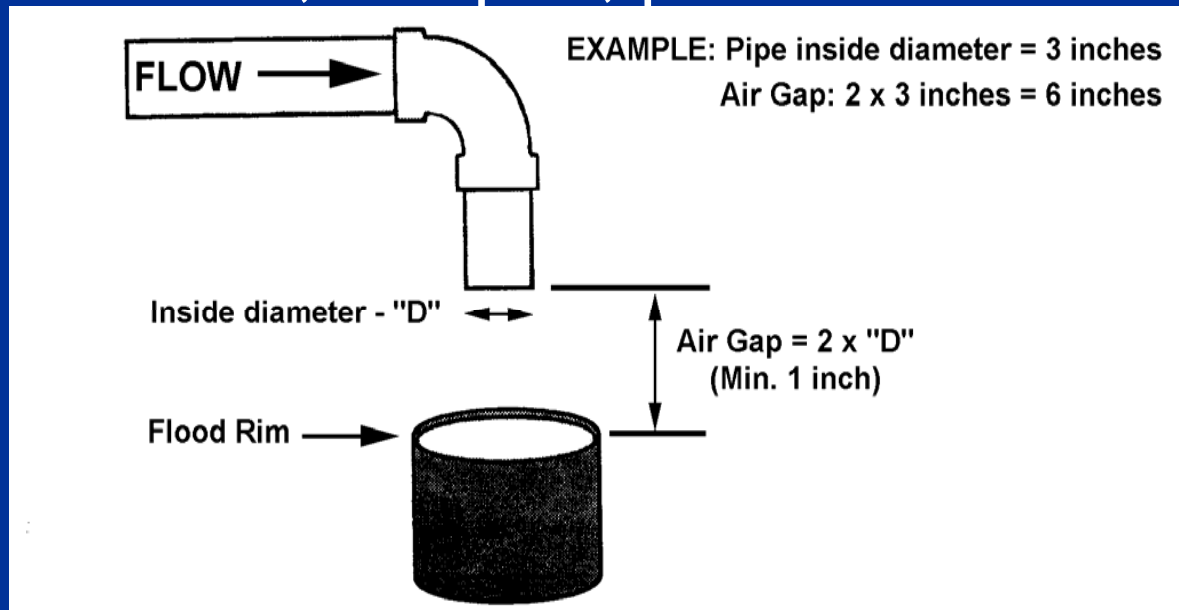
- 💧 PWSs are required to have testable backflow prevention devices tested by a “person who has completed and passed a course on the testing of backflow preventers administered or approved by the Department.”
- 💧 List of testers and/or Inspectors who are available for contract work
- 💧 www.ct.gov/dph and clicking on Drinking Water then Backflow Prevention and Cross Connection Control.

Backflow Prevention Devices Section 19-13-B38a. (Chap. 3)

- 💧 See Manual Chap. 4,
- 💧 Identifies the acceptable device
 - 💧 explains operation of each device,
 - 💧 installation requirements
 - 💧 typical uses of each device
 - 💧 Standard(s) the devices must meet (ASSE, AWWA)
 - 💧 Applicable code requirement

Devices (cont.)

- 💧 **Air Gap:** required between potable water lines and equipment or systems, which may be subject to contamination
- 💧 see Manual, Chap. 4, p. 11

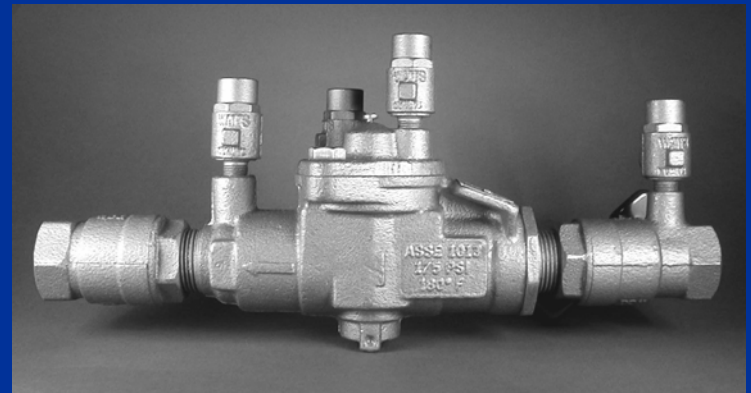


Devices (cont.)

from Section 19-13-B38a. (chap. 3)

- 💧 **Reduced pressure principle backflow preventer (RPD):** required on the line to all facilities where toxic or objectionable substances are used (containment language) in addition to the required air gap, vacuum breaker or RPD on individual pieces of equipment (isolation language) unless the PWS determines that an RPD is not necessary.

- 💧 See Manual, Chap. 4, p. 31



Devices (cont.)

from Section 19-13-B38a. (chap. 3)

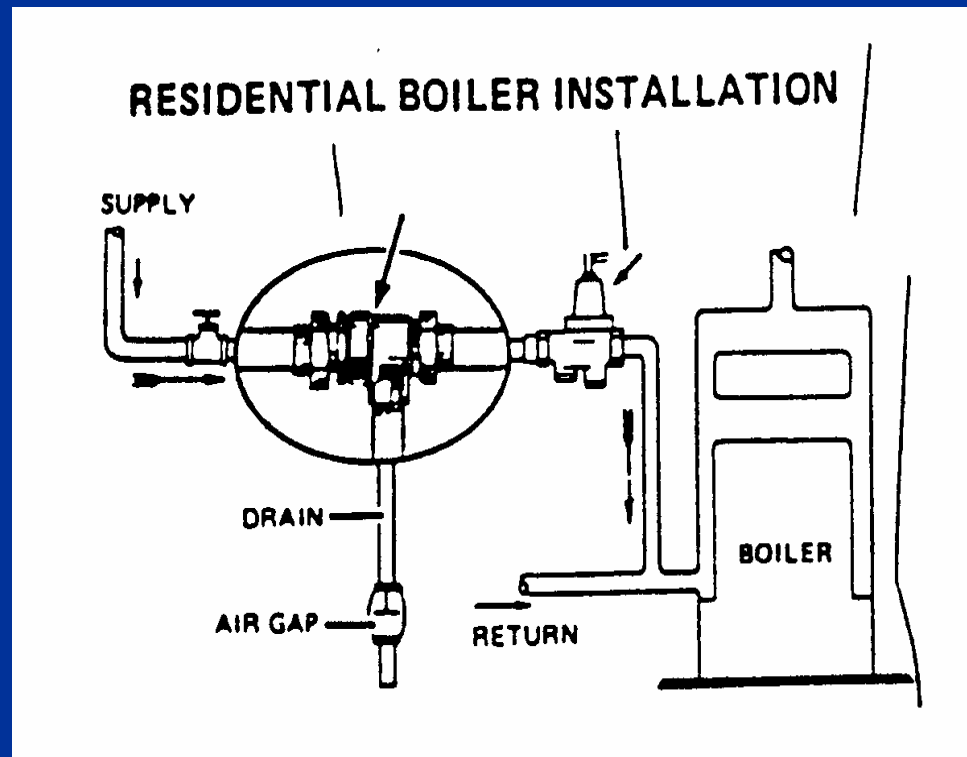
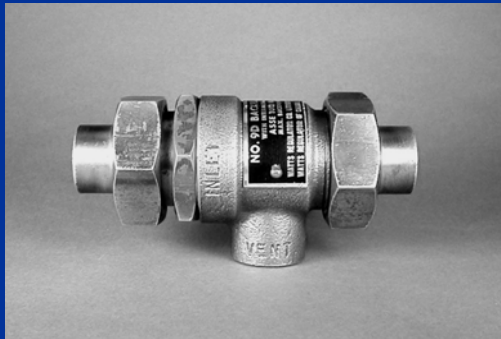
- 💧 RPD is required on lines to the following:
 - 💧 Fire or irrigation sprinkler systems with chemicals,
 - 💧 car wash facilities where pressure is boosted,
 - 💧 Boiler systems where chemicals are added
 - 💧 Heat exchangers where chemicals are added
 - 💧 Line to plating tanks or areas
 - 💧 No potable use downstream of RPD

Devices (cont.) from Section 19-13-B38a. (chap. 3)

- 💧 **Air vent type backflow preventer:** required to be installed on water supply lines to:
 - 💧 All boiler systems where chemicals are not added
 - 💧 Carbonators for beverage machines, water conditioning systems and commercial ice making equipment
 - 💧 Solar heating systems and heat exchangers where chemicals are not added
 - 💧 Storage tanks used for fire protection where chemicals are not added

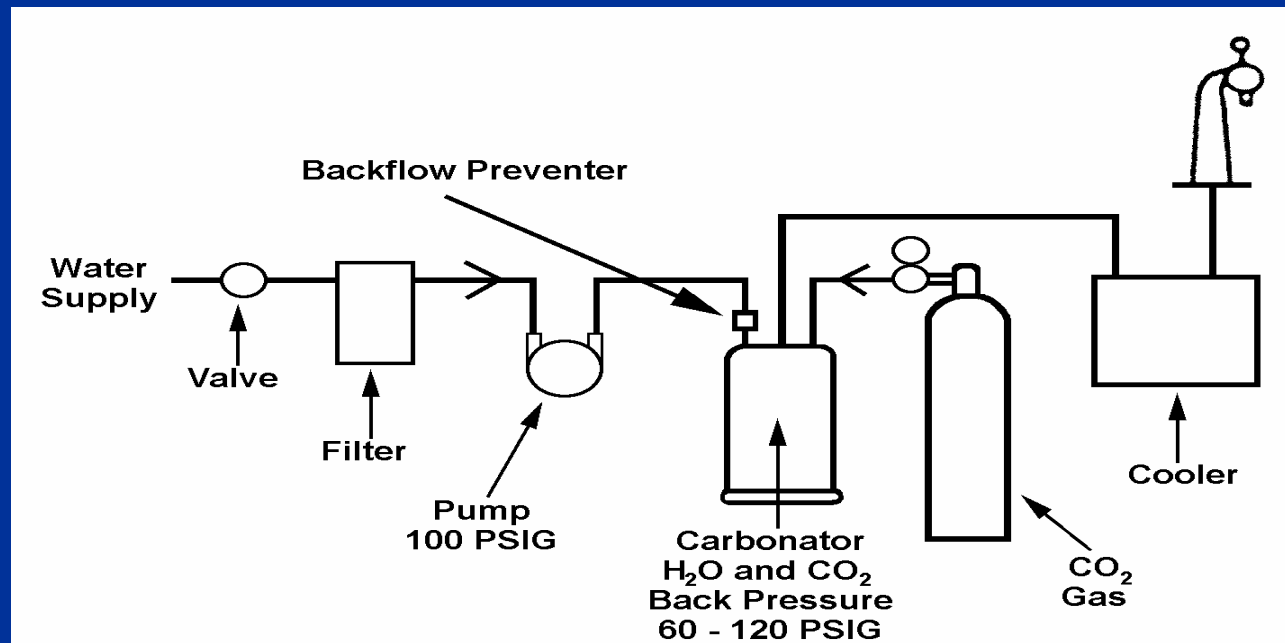
Devices (cont.)

- 💧 **Air vent type backflow preventer, see Manual, Chap. 4, p. 24, ASSE 1012**



Devices (cont.)

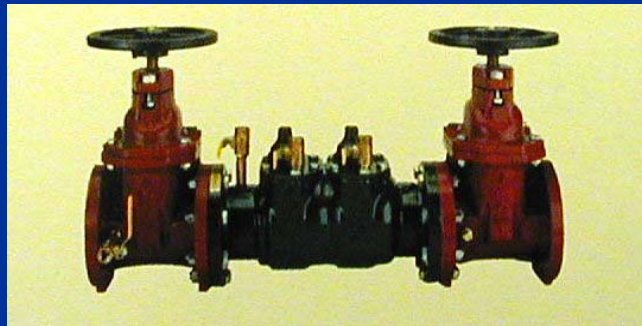
- 💧 Air vent type backflow preventer, see Manual, Chap. 4, p. 26 (ASSE 1022)
- 💧 See Appendix B, p. 85 (2001 Updated Guideline for Correcting Plumbing Hazards and Cross Connections in Food Establishments)



Devices (cont.)

from Section 19-13-B38a. (chap. 3)

- 💧 **Double check valve assembly (DCVA):**
required to be installed on public water supply lines to fire sprinkler systems with siamese connections unless chemicals are added
- 💧 An RPD may be used instead of a DCVA on the line to a fire sprinkler system with a siamese connection
- 💧 See Manual, Chap. 4, p. 27



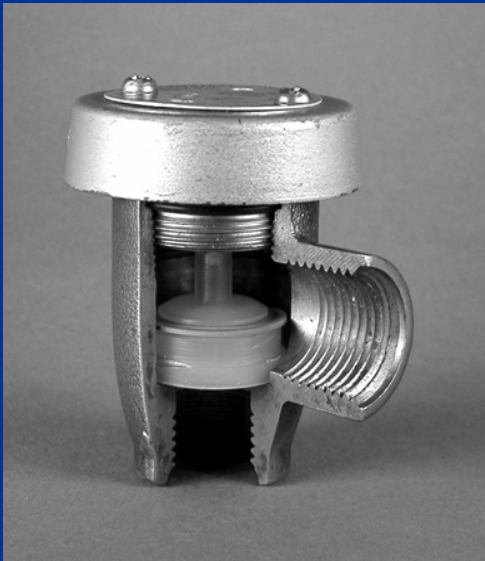
Devices (cont.) from Section 19-13-B38a. (chap. 3)

- 💧 **Vacuum breaker (atmospheric vacuum breaker or pressure vacuum breaker):**
required to be installed in the following instances:
 - 💧 Irrigation or lawn sprinkler systems where chemicals are not added
 - 💧 Flush valve toilets
 - 💧 Inlets which are or may become submerged, except where an RPD is required
 - 💧 At marinas and docks on all hose bibs or other outlets to which a hose may be connected

Devices (cont.)

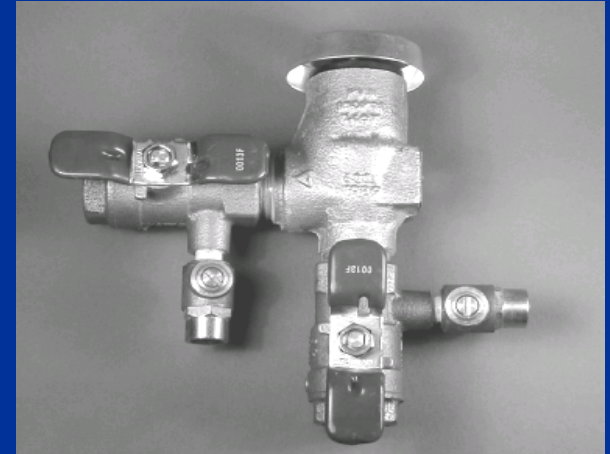
💧 Vacuum Breakers, see Manual, Chap. 4,
p. 13 & 18

Atmospheric Vacuum
Breaker



Hose Bib Vacuum
Breaker

Pressure Vacuum
Breaker



Cross Connections Between Water Supplies Prohibited

Section 19-13-B37

- 💧 No physical connection between a PWS and that of any other water supply is permitted
- 💧 PWS shall not provide water service where a connection to another source exists
- 💧 Upon written order by LHD or CT DPH a PWS shall terminate service to a site where a connection to another source of water exists or if site is not in compliance with Section 19-13-B38a

No Interconnections

Section 19-13-B51c

- 💧 No physical connection between piping carrying water from a PWS and piping carrying water from another source shall be permitted unless other water supply is of safe, sanitary quality and interconnection is approved by the commissioner of health

Quality of Water Supplies Made Available for Public and For Employees.

Section 19-13-B39

- 💧 If a water supply has not been approved by the CT DPH for drinking purposes and is used for industrial or fire protection systems, that water supply shall be distributed through independent piping having no connection with the systems for drinking and for other domestic use.
- 💧 Regulation applies to: industrial plant, mercantile establishment, work hotel, lodging or boarding house, tenement house, hospital, theatre, park or public building, or outdoor or construction

Minimum Requirements for Drainage and Toilet Systems. Section 19-13-B45

- 💧 Construction requirements for plumbing and drainage systems: “to avoid contamination of safe drinking water supplies”
- 💧 Not piped to refrigeration, air conditioning or other mechanical equipment provided with direct connection to drains

Notification of Sprinkler Installation. Section 19-13-B37a-1

- 💧 The fire sprinkler installer must notify the PWS of the installation of or modification to an automatic fire extinguishing system.

Where to Get More Information

- 💧 Other training sessions
- 💧 OCP Web Site
- 💧 Public Water System Cross Connection Inspectors, Backflow Device Testers
- 💧 Devices which meet the ASSE Standards: <http://www.asse-plumbing.org/sealprogram.html>