

TABLE 22-1

Types of Backflow Prevention Devices Required: Subject to the provisions of 310 CMR 22.22(10), Table 310 CMR 22-1 shall serve as the guide for the type of protection required.

AG - Air Gap

RPBP - Reduced Pressure Backflow Preventer

DCVA - Double Check Valve Assembly

AVB - Atmospheric Vacuum Breaker

PVB - Pressure Vacuum Breaker

BPIAV - Backflow Preventer with Intermediate Atmospheric Vent

<i>Acceptable Types of Backflow Preventers</i>							
Types of Hazard on Premises	AG	RPBP	DCVA	AVB	PVB	BPIAV	Comments*
1. Sewage Treatment Plant	X	X					
2. Sewage Pumping Station	X	X					
3. Food Processing	X	X	X*				* If no health hazard exists
4. Laboratories	X	X	X*				* If no health hazard exists
5. Fixtures with hose threads on inlets	X	X	X	X			In addition to an air gap separation, all fixtures that have a threaded hose type connection shall at a minimum, be equipped with a AVB in accordance with 248 CMR 2.14
6. Hospitals, Mortuaries, Clinics	X	X					
7. Plating Facilities	X	X					
8. Irrigation Systems	X	X		X*	X**		Each case should be evaluated individually. * An AVB can be used if no back pressure is possible and no health hazard exists. ** Pressure Vacuum Breakers can be installed if back pressure is not possible
9. Systems or Equipment Using Radioactive Material	X	X					
10. Submerged Inlets	X	X		X*			* If no health hazard exists and no back pressure is possible
11. Dockside Facilities	X	X					
12. Valved outlets or fixtures with hose attachments	X	X		X*			Each case should be evaluated individually * If no health hazard exists and no back pressure is possible
13. Commercial Laundries and Dry Cleaners	X	X					
14. Commercial Dishwashing Machines	X	X		X*			* If no health hazard exists
15. High and Low Pressure Boilers	X	X*					* If chemicals are added
16. Low Pressure Heating Boilers						X	Residential and small commercial, having no chemicals added
17. Photo Processing Equipment	X	X					
18. Reservoirs – Cooling Tower Re-circulating Systems	X	X					
19. Fire Protection Systems: For cross connection control, fire protection systems may be classified on the basis of water source and arrangement of supplies as follows:							

19. Fire Protection Systems (continued)							
19.a. <u>Class 1</u> : Direct connection from public water system mains only; no pumps, tanks, or reservoirs; no physical connection from other water supplies; no antifreeze or other additives of any kind; all sprinkler drains discharge to atmosphere, dry wells, or other safe outlets. These systems may or may not have fire department connections. Refer to 310 CMR 22.22(9)(d)1.	X	X	X				A backflow prevention assembly does not have to be installed on existing fire protection systems installed prior to March 21, 1997, provided that the fire protection system is registered with the public water system, equipped with a UL listed alarm check valve that is properly maintained in accordance with NFPA 25 and has not undergone substantial modification defined within 310 CMR 22.22(9)(d)3. Alarm check maintenance records must be available for inspection by the Department, its designee or the public water system
19.b. <u>Class 2</u> : Same as Class 1 except that booster pumps may be installed in the connections from the street mains. These systems may or may not have fire department connections. Refer to 310 CMR 22.22(9)(a).	X	X	X				A backflow prevention assembly does not have to be installed on existing fire protection system installed prior to March 21, 1997, provided that the fire protection system is registered with the public water system and equipped with a UL listed alarm check valve that is properly maintained in accordance with NFPA 25. Alarm check maintenance records must be available for inspection by the Department, its designee or the public water system
19.c. <u>Class 3</u> : Direct connection from public water system mains, plus one or more of the following: elevated storage tanks; fire pumps taking suction from aboveground covered reservoirs, or tanks; and pressure tanks.	X	X*	X*				* RPBP or DCVA contingent on evaluation of auxiliary supply and on-site system in accordance with 310 CMR 22.22(9)(d)1.
19.d. <u>Class 4</u> : Directly supplied from public water system mains, similar to Class 1 and Class 2 with an auxiliary water supply dedicated to fire department use and available to the premises, such as a non-potable water source located within 1700 feet of the fire department connection, (FDC).	X	X*					* RPBP on evaluation of auxiliary supply and on-site system in accordance with 310 CMR 22.22(9)(d)1.
19.e. <u>Class 5</u> : Directly supplied from public water system mains, and interconnected with auxiliary supplies, such as pumps taking suction from reservoirs exposed to contamination, or rivers and ponds; driven wells; mills or other industrial water systems; or where antifreeze or other additives are used.	X*	X*					* RPBP or air gap contingent on evaluation of auxiliary supply and on-site system. Refer to 310 CMR 22.22(9)(d)1.
19.f. <u>Class 6</u> : Combined industrial and fire protection systems supplied from the public water mains only, with or without gravity storage or pump suction tanks.	X	X*			X	X	* RPBP contingent on evaluation of on-site water system Refer to 310 CMR 22.22 (9)(d)1.
19.g. Residential fire protection systems for one and two family detached dwellings and manufactured homes only. Fire protection systems in three family dwellings meeting NFPA 13D requirements as provided in 780 CMR, Chapter 9, are included in this section.	X	X	X				Non testable devices and flow through systems should be used whenever possible. Systems are typically designed and installed in accordance with NFPA 13D: "Installation of Sprinkler systems in One and Two Family Dwellings and manufactured homes." These systems are authorized to use food grade antifreeze with no additional requirements when potable piping (PB, CPVC, and copper tube) is employed. If non-grade antifreeze is utilized, the system may be classified as a class 5. If a fire department connection is used, the requirements for a class 1 or 2 apply.
19.h. Residential fire protection systems for other than those described in Table 22-1-19.g.	X	X	X				Fire protection system in this category shall comply with the requirements set forth in class 1 through 4 as appropriate.
20. Solar Energy Systems	X	X				X*	Residential and small commercial having no chemicals or only USP Glycenne added to water
21. Single Jacketed Heat Exchangers	X	X					Each case should be evaluated individually