



January 29, 2020

**Backflow Protection on an Emergency Eye Wash, Body Drench Station,
Animal Wash Basins, Mani/Pedicure Bowls near sink**

Code: 2018 Plumbing Code

Section(s): P202, P405.1, P608.5, P608.13, P608.13.2, P608.13.5, P608.13.6, P608.13.7, P608.15.4.1

Question:

Do I need to install a AVB, PVB, or an RP on an emergency shower, pull-out style drench hose, Animal wash basin, mani/pedicure bowls and/or eyewash stations at a sink/lavatory/service sink?

Answer:

Well, it depends. Does the station have continuous water pressure? Will the sink potentially receive waste consisting of chemicals, biohazards, and/or other high hazard applications? Does the station have an integral sprayer? Is there a fixed air gap between the outlet and any nearby sink, pits, and any other areas that would allow the outlet to be submerged? All of these variable and more, come into play when trying to determine what type of backflow protection is required on these types of stations at or near a sink. The type of faucet you use and how it is installed determines the type of backflow preventer that is required. These backflow requirements shall be determined during the CCC plan review process of the Building permit application using the MEP drawings. Compliance will be confirmed during the CO approval process by the CCC Inspector. The following shall be taken into consideration with choosing a system;

P202 – Definitions

Air Gap (Drainage System). The unobstructed vertical distance through the free atmosphere between the outlet of the waste pipe and the *flood level rim* of the receptacle into which the waste pipe is discharging.

Air Gap (Water Distribution System). The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the *flood level rim* of the receptacle.

Backpressure. Pressure created by any means in the water distribution system that by being in excess of the pressure in the water supply mains causes a potential backflow condition.

Backsiphonage. The flowing back of used or contaminated water from piping into a potable water-supply pipe because of a negative pressure in such pipe.

Flood-Level Rim. The edge of the receptacle from which water overflows.

P405.1 Water supply protection. The supply lines and fittings for every plumbing fixture shall be installed so as to prevent backflow.

P608.5 Chemicals and other substances. Chemicals and other substances that produce wither toxic conditions, taste, odor or discoloration in a potable water system shall not be introduced into, or utilized in, such systems.

P608.13 Backflow Protection. Means of protection against backflow shall be provided in accordance with Sections 608.13.1 through 608.13.10.

The following are also listed in the NC 2018 Plumbing code however the text has been shortened to make each backflow easier for comparison. Also, important key works have been bolded and underlined;

P608.13.2 Reduced pressure principle backflow prevention assembly (RP). This type of backflow is permitted to be installed where subject to continuous pressure (12 hours or more). This type backflow protects against high hazard. This backflow protects against both backpressure and backsiphonage. The relief opening shall discharge by an air gap and shall be prevented from being submerged.

P608.13.5 Pressure vacuum breaker assemblies (PVB). This type of backflow is permitted to be installed where subject to continuous pressure. This type backflow protects against high hazard. This backflow protects only against backsiphonage. The critical level of a PVB shall be set at not less than **12 inches above the highest elevation of downstream piping** and the flood level rim of the fixture or device.

P608.13.6 Atmospheric-type vacuum breakers (AVB). This type of backflow is not permitted to be installed where subject to continuous pressure. This type backflow protects against high hazard. This backflow protects only against backsiphonage. Vacuum breakers shall be installed with the **outlet continuously open to the atmosphere**. The critical level of the AVB shall be set at not less than **6 inches above the highest elevation of downstream piping** and the flood level rim of the fixture or device.

P608.13.7 Double check backflow prevention assemblies (DC). This type of backflow is permitted to be installed where subject to continuous pressure. This type backflow does not protect against high hazard. This backflow protects against both backpressure and backsiphonage.

P608.15.4.1 Deck-mounted and integral vacuum breakers. Approved deck-mounted or equipment-mounted vacuum breakers and faucets with integral atmospheric vacuum breakers or spill-resistant vacuum breaker assemblies **shall be installed in accordance with the manufacturer's instruction** and the requirements for labeling with the critical level not less than 1 inch above the flood level rim.

It is important to note when determining where the flood level rim is to also take into consideration the air gap which is the "opening from any pipe or faucet supplying water" especially when you are proposing to use a pull-out type faucet, one handle single pulldown faucet, or any faucet where the water outlet can be pulled out and/or moved into a container, sink, pit, tub, or other receptacle resulting in the elimination of the air gap. Also, since the majority of faucets and/or water outlets have a shut-off valve downstream, an AVB cannot be used.

Keywords: Emergency eye wash, body wash, lab sink, integral sprayer, Drench hose, Flood level rim, dog sink, pedicure bowls, manicure bowls, animal wash basins

Revision: July 8th, 2020 – to include dog sinks, pedicure bowls, manicure bowls, lab sinks, dog wash basins, animal wash basins, or similar.

