



Air Gaps and Backflow Prevention

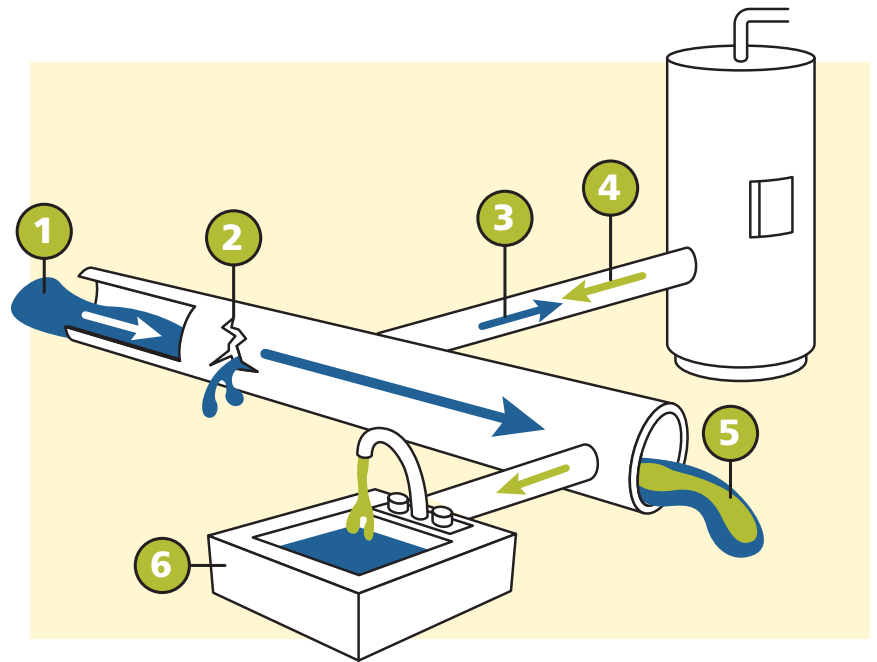
What you need to know

An air gap prevents contamination and protects health.

Drinking water (or potable water) and wastewater should flow through different pipes to avoid contamination. If negative pressure occurs in the water system, contaminated water can be pulled back into the drinking water supply line, which is known as “backflow.” Proper design, like an air gap, can prevent backflow.

How backflow can happen

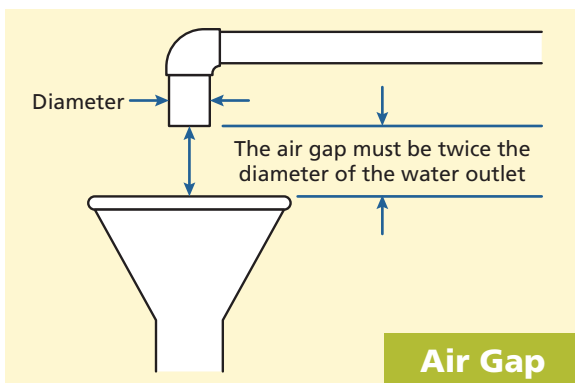
- 1 Your food establishment or business has a connection to a public water system that is not protected with a backflow prevention device.
- 2 Water pressure is suddenly reduced in the public water system by a main water line break or unexpected high demand for a fire response.
- 3 The sudden drop in water pressure causes negative pressure.
- 4 Negative pressure can pull contaminated water into the drinking water supply line.
- 5 If any contaminated water enters part of the drinking water supply line, it is a health risk for everyone drinking or using the water.
- 6 If backflow occurs, any food, water, or utensils within the sinks, dipper wells, steam kettles, and other equipment may become contaminated.



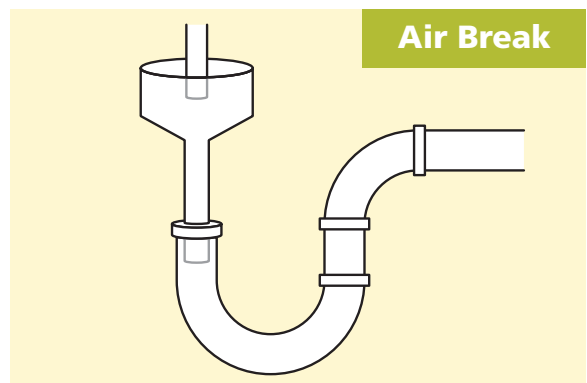
Providing an air gap between the water supply outlet and the flood level rim of a plumbing fixture or equipment prevents contamination that may be caused by backflow.

What is the difference between an air gap and an air break?

An **air gap** is an unobstructed vertical space between the water outlet and the flood level of a plumbing fixture. This design allows water to flow from the drinking water supply, but there is no way for water to flow into the drinking water system.



An **air break** is an indirect connection of a drain line to the drainage system where the drain line terminates below the flood level. An air break will not completely prevent backflow and is not allowed.

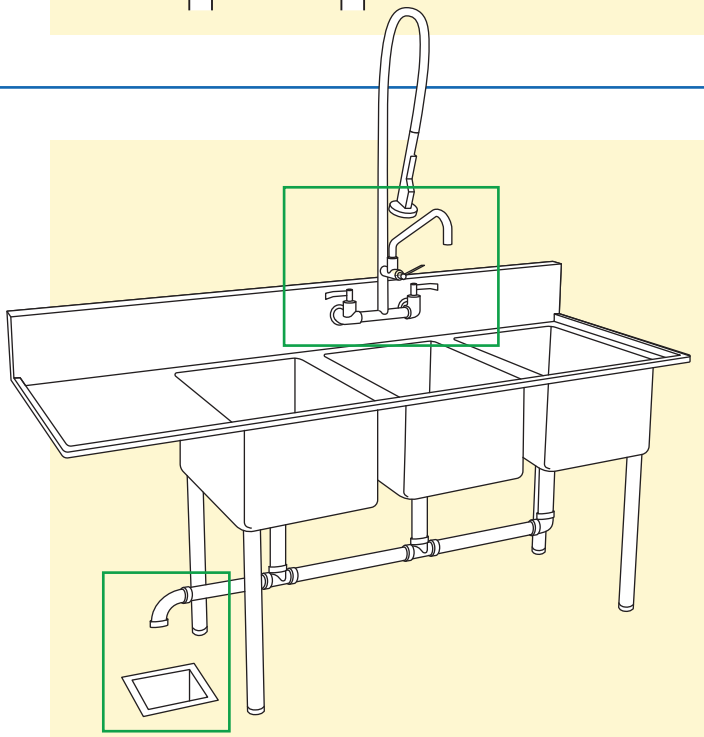
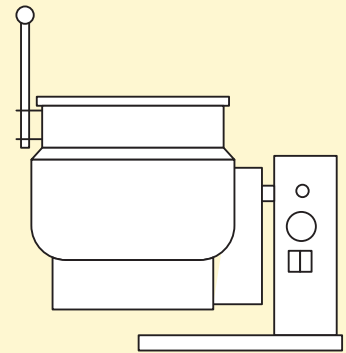
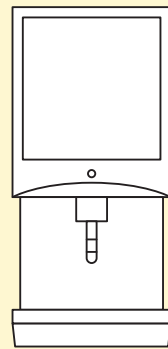
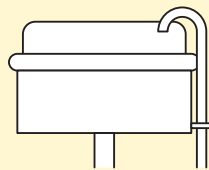
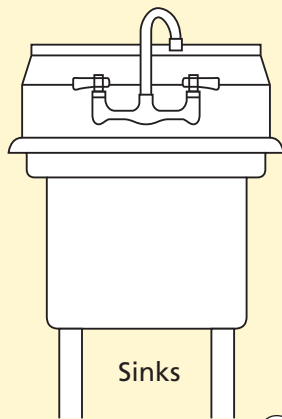


Air Gap Requirements for Food Establishments

Air gap requirements are fully explained in the [Rhode Island Food Code 5.203.15](#). The 2015 International Plumbing Code Chapter 8 establishes the standards for most local municipality codes and determines where and why indirect connections are required.

Food establishments must install a backflow device or have an air gap at each place where the plumbing system is connected to the drinking water system, often referred to as the “point of use” in the plumbing system. The water outlet (e.g., faucet or hose) of a drinking water system must be installed so that there is a gap between the water outlet and the flood level rim of the plumbing fixture, so that it cannot contact water in sinks, equipment, or other fixtures that use water.

Examples of Points of Use:



An air gap between the water supply inlet and the flood level rim of the plumbing fixture, equipment, or nonfood equipment shall be at least twice the diameter of the water supply inlet and may not be less than 25 millimeters (1 inch). See *Air Gap illustration on the previous page*.

The end of a spray flush hose on a drinking water line must be above the flood level rim of the plumbing fixture. If it falls below the flood level rim into a sink or container filled with contaminated water, it can contaminate the drinking water system.



Indirect waste plumbing design issues are common with three-compartment sinks, steam tables, ice machines, steam cookers, ice bins, walk-in refrigerator or freezer condensate and other similar fixtures.



Rhode Island Department of Health, Center for Food Protection
For more information, call 401-222-2750