



Required Levels of Backflow Protection for Non-potable Water Systems in the City and County of San Francisco

The type of backflow protection required for a municipal water service connection must be consistent with the degree of potential health hazard to the public water supply. The higher the potential health hazard, the higher the required level of protection. The required levels of backflow protection by hazard criterion are set forth by the San Francisco Public Utilities Commission Cross-Connection Control Program. Please see www.sfpuc.org/backflow for more info.

Buildings containing onsite water reuse systems in the City and County of San Francisco must install the following backflow prevention assemblies:

- **Rainwater Harvesting:**
 - Containment Reduced Pressure Principle Backflow Prevention (RP) within 25’ of the building’s water meter, and
 - Isolation RP **or** isolation air-gap at the point of potable make-up to the non-potable system.

- **Graywater, Blackwater, Foundation Drainage, and Stormwater:**
 - Containment RP within 25’ of the building’s water meter, and
 - Isolation air-gap at the point of potable make-up to the non-potable system.

What is an Air Gap?

An air gap is a physical break between a supply pipe and a receiving vessel. Air gaps can be fabricated from commercially available plumbing components or purchased as separate units and integrated into plumbing and piping systems, but they must be able to be visually verified during inspection. Requirements for air gaps are set forth in the California Plumbing Code, Chapter 6, Section 603 and include the following:

- The outlet of a pipe and the top of the reservoir (overflow rim) or drain must have a vertical separation of at least twice the inner diameter (ID) of the pipe upstream of the air gap or 1 inch, whichever is greater.

- If the air gap is near a wall, where “near” is defined as less than three times the ID of the pipe, the vertical separation must be at least three times the ID of the pipe or 1½ inches, whichever is greater.

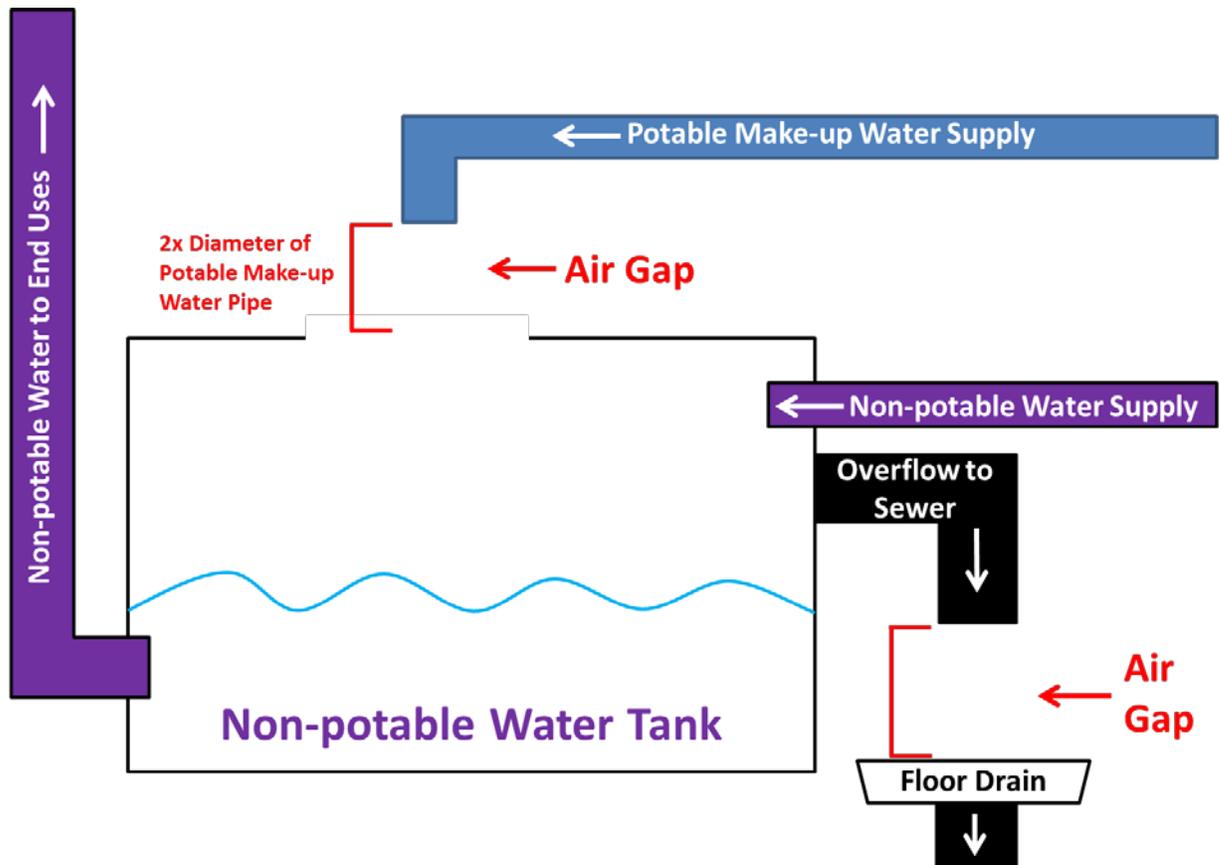
- If the air gap is near a corner, where “near” is defined as less than four times the ID of the pipe away from intersecting walls, the vertical separation must be at least four times the ID of the pipe, or 2 inches, whichever is greater.

- **An air gap cannot be located inside of a receiving vessel. It must be located outside of a tank and be visible for inspectors.**

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Vince Courtney
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 Commissioner
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 General Manager



Air Gap Example Drawing:



Additional requirements:

- All backflow prevention assemblies installed in San Francisco must be on the “Approved Backflow Prevention Assemblies” list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.
- After initial testing, backflow prevention assemblies must be tested annually.
- All projects installing non-potable water reuse systems that require dual plumbing must have a cross-connection test performed by the SFPUC, Water Quality Division. **To schedule a cross-connection test, please call (650) 652-3199. Please allow at least three weeks of lead time for a cross-connection test.**
- Dual-plumbed systems must be visually inspected annually and undergo a cross-connection test every four years.