installing your cistern for irrigation

permit requirements

All rainwater harvesting systems incorporating **cisterns** (defined as tanks over 100 gallons) must be permitted. The Department of Building Inspection (DBI), Plumbing Division, will inspect and permit systems on a case-by-case basis. To obtain a permit, each of the following steps must be completed:

- Contact the Plumbing Inspection Division by phone at 415.558.6088 between 7:30 am and 5:00 pm, Monday - Friday, or in person at 1660 Mission Street, third floor, front desk. Go to: http://sfgov.org/dbi for more information.
- Submit a water budget outlining the estimated supply and demand throughout the year for the proposed system (a Rainwater Harvesting Calculator can be found at: http://stormwater.sfwater.org in the Rainwater Harvesting section).
- Submit manufacturer instructions and specifications for all devices included in the system.
- Submit a site plan of existing and proposed site conditions and proposed system elements. Note that cistern installation requirements can vary based on site conditions and must include the basic elements discussed below.

basic requirements for cisterns

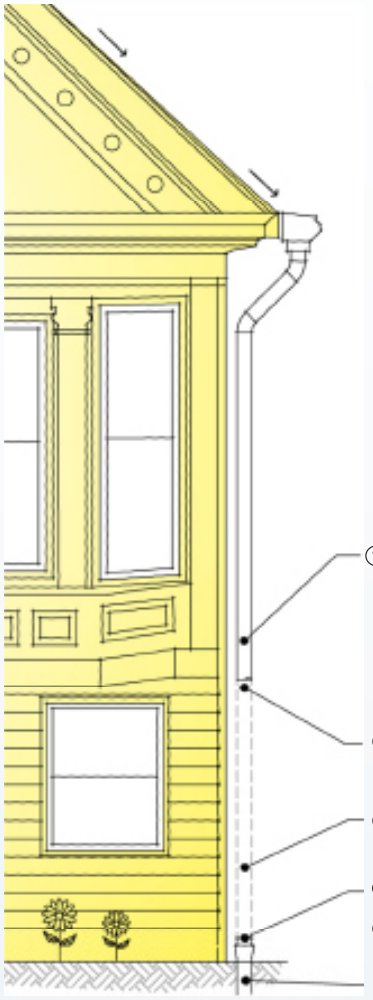
To ensure the safe installation, operation, and maintenance of your rainwater harvesting system, you'll need to implement the following set of requirements:

installation

- Tank must be sited in a **stable, flat area.**
- Tanks must not block the path of travel for **fire safety access.**
- If a **downspout is disconnected** from the combined sewer system, the sewer pipe must be fitted with a cast iron cap secured with no-hub bands (see diagram at right).

design

- Tanks must not exceed **height-to-width ratio of 2:1** if capacity is between 100 and 5,000 gallons (Section 11A.2 of the San Francisco Building Code, 2007); if capacity is over 5,000 gallons, licensed engineering of additional foundation and support is required.
- Tanks, tank liners, and tank coatings must be **food grade** or be approved for potable water storage.
- Tanks must be **opaque, water-tight, and vented**, with all openings screened with one millimeter or finer sized mesh.
- **Access to stored water** must be secured, such as by keyed spigots.
- For above-ground systems, **spigots and/or hose bibbs** must be at least two inches from bottom of tank.
- Tanks must have an **overflow device** equal in size to the total of all inlets (but not less than three inches); the overflow must lead to an approved discharge location with approved air gap to prevent sewer backup into tank.
- Tanks must have a self-draining **first-flush diverter** with a clean-out.



Representation of downspout disconnection and sewer standpipe capping. Note: your downspout connection may vary.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

basic requirements (cont.)

operation & maintenance

- Maintain all screens to **prevent mosquito breeding.**
- Ensure that **overflow** is **directed away from structures** and doesn't flow onto pavement or neighboring properties.
- Clean leaves and other material from roof gutters, the top of your cistern, and the cistern's overflow outlet to **prevent clogging.**
- Repair any leaks or holes in the gutter or your cistern.

safety considerations

By harvesting rainwater, you are helping to improve the health of your watershed. To ensure the health and safety of your household, follow these safety considerations:

- Keep the **maintenance hatch** on your cistern tight to prevent children from playing with stored water or falling into the cistern.
- DBI prohibits the use of rainwater harvested from roofs **covered with copper or treated with fungicides and herbicides.**
- There is no explicit limit on how long water can sit in your system for non-potable uses.

labels

- All pipes from cistern must be labeled with the word "NON-POTABLE."
- Tanks must be **labeled** with the following warnings:

Free labels are available in the SFPUC building lobby at 525 Golden Gate Avenue.

additional resources

- For more information on rainwater harvesting in San Francisco, please visit the SFPUC's website, http://stormwater.sfwater.org, and select the Rainwater Harvesting icon. There you can find a host of references, including:
  - Informational brochures and videos on how to build and install your own rainwater harvesting system.
  - Rainwater Harvesting System Sizing Calculator.
  - A FAQ and PowerPoint presentation.
- Visit us on facebook by searching "SF Urban Watersheds" and become a fan!
- For additional resources, including information on how other places around the world are harvesting their rainwater, take a look at the Rainwater Harvesting FAQ on our website.

questions? contact us

If you are interested in learning more about rainwater harvesting, please contact us:

San Francisco Public Utilities Commission
Urban Watershed Management Program
Email: greenstormwater@sfwater.org | Phone: 415.554.3289
http://stormwater.sfwater.org