

2b. Rainwater Harvesting

Definition. Rainwater harvesting systems store and release rainfall for future use. Rainwater that falls on a rooftop or other impervious surface is collected and conveyed into an above- or below-ground storage tank (also referred to as a cistern or rain tank), where it can be used for non-potable water uses and on-site stormwater disposal/infiltration. Non-potable uses may include landscape irrigation, exterior washing (e.g. car washes, building facades, sidewalks, street sweepers, fire trucks), flushing of toilets and urinals, fire suppression (sprinkler systems), supply for cooling towers, evaporative coolers, fluid coolers and chillers, supplemental water for closed loop systems, steam boilers, replenishment of water features and water fountains, distribution to a green wall or living wall system, laundry, and delayed discharge to the combined sewer system.

In many instances, rainwater harvesting can be combined with a secondary (down-gradient) stormwater practice to enhance stormwater retention and/or provide treatment of overflow from the rainwater harvesting system. Some candidate secondary practices include:

- Disconnection to a pervious or conservation area (see Section 3.3)
- Overflow to bioretention practices (see Section 3.5)
- Overflow to infiltration practices (see Section 3.7)
- Overflow to grass channels or dry swales (see Section 3.11)

Seven primary components of a rainwater harvesting system include:

- Drainage area
- Collection and conveyance system (i.e. gutter and downspouts)
- Pre-screening and first flush diverter
- Storage tank
- Water quality treatment (as required by TRAM)
- Distribution system
- Overflow, filter path or secondary stormwater retention practice

Volume Reduction Credit/Calculation

Depends on multiple variables related to storage tank size, planned (documented) water use, and outflow/drawdown configuration

2b. Rainwater Harvesting (continued)

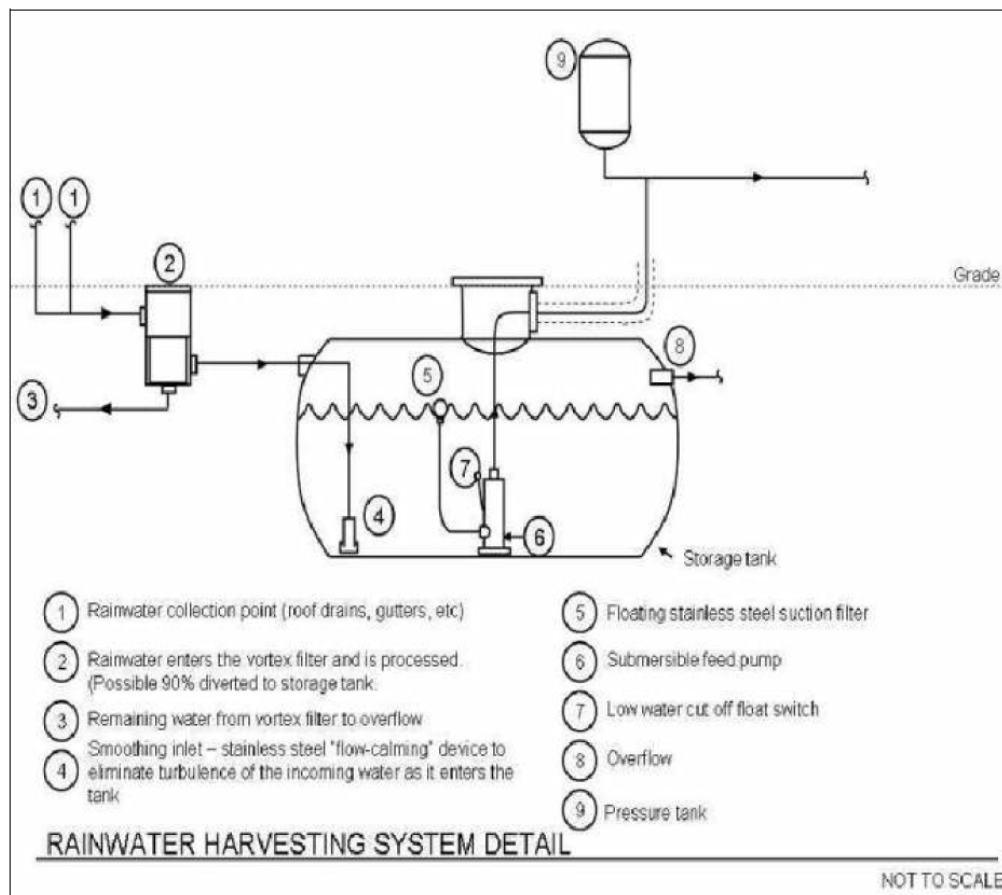


Table 3.2.2. Design specifications for rainwater harvesting systems.

Item	Specification
Gutters and Downspouts	<p>Materials commonly used for gutters and downspouts include polyvinylchloride (PVC) pipe, vinyl, aluminum, and galvanized steel. Lead should not be used as gutter and downspout solder, since rainwater can dissolve the lead and contaminate the water supply.</p> <ul style="list-style-type: none"> The length of gutters and downspouts is determined by the size and layout of the catchment and the location of the storage tanks. Be sure to include needed bends and tees.
Pre-Treatment	<p>At least one of the following (all rainwater to pass through pre-treatment):</p> <ul style="list-style-type: none"> First flush diverter Vortex filter Roof washer Leaf and mosquito screen (1 mm mesh size)
Storage Tanks	<ul style="list-style-type: none"> Materials used to construct storage tanks should be structurally sound. Tanks should be constructed in areas of the site where native soils can support the load associated with stored water. Storage tanks should be watertight and sealed using a water-safe, non-toxic substance. Tanks should be opaque to prevent the growth of algae. Reused tanks should be fit for potable water or food-grade products. Underground rainwater harvesting systems should have a minimum of 18 inches of soil cover and be located below the frost line. The size of the rainwater harvesting system(s) is determined through design calculations.

Note: This table does not address indoor systems or pumps.