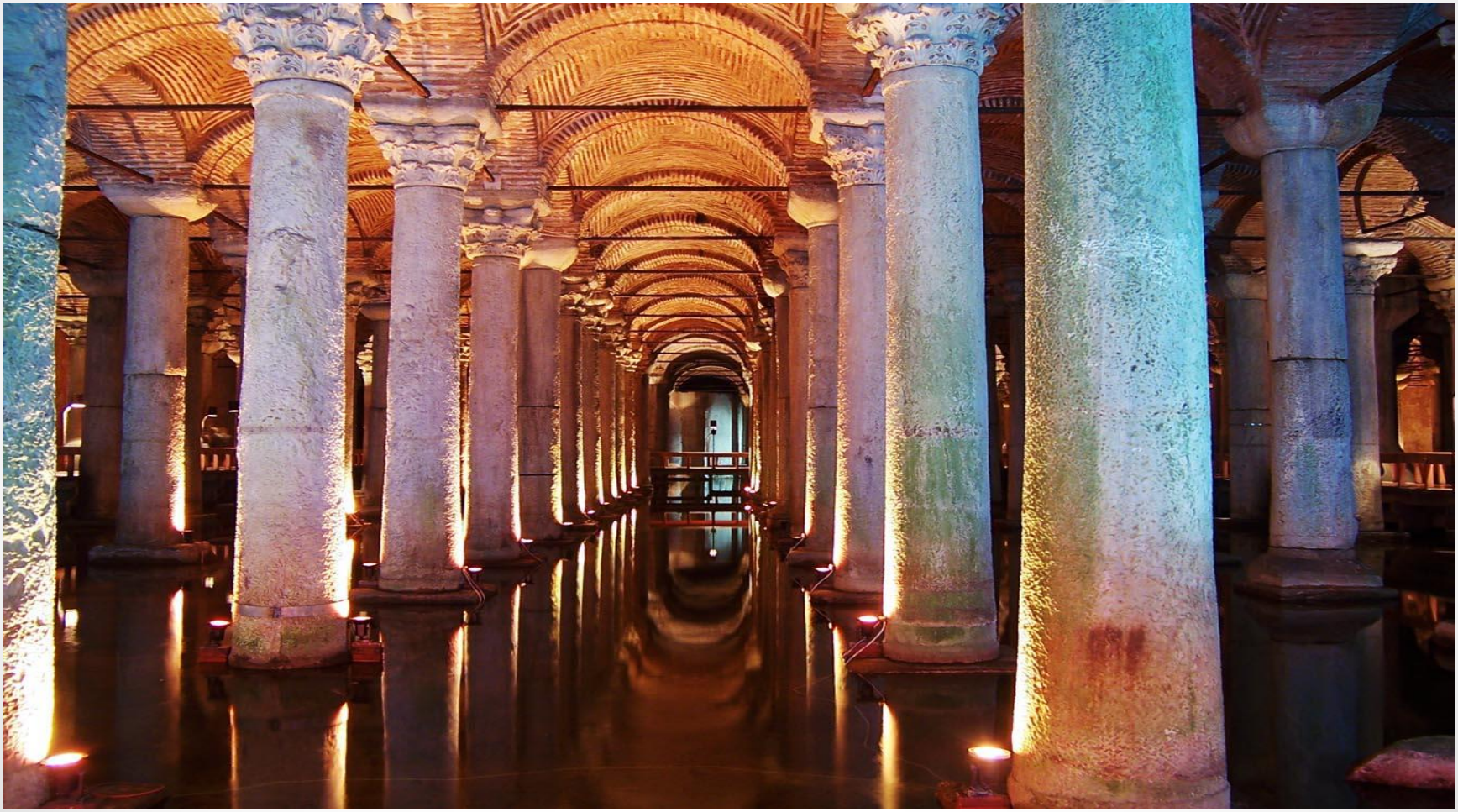
Chapter 3.2 Rain Water Harvesting

Yerebatan Sarayi—Istanbul, Turkey



A Short History

- Rain water harvesting can be traced back over 3,000 years
- Beginning systems were very basic.
  - Usually and excavated cistern which collected rain water.
  - Evidence found of an even simpler way to collect rain water using a large leaf and funneling the water into some type of container
- Roman Empire had atriums that were fed by cisterns. Commonly seen throughout the empire where some can still be found.
- The Yerebatan Sarayi (previous slide) in Istanbul, Turkey is so large that a boat can navigate through it.
    - Measures 453 x 212 feet (105,000 square feet)
    - 12 rows of 28 columns 30 feet high.
    - Can hold up 2.8 million cubic feet of water

Rainwater Uses

- Can be used for whatever we use water for…
  - Washing
  - Bathing
  - Gardening
  - Irrigation
  - Drinking
    - If used for drinking, it must be brought up to potable drinking water standards

How to Create the Complete Rain Harvesting System

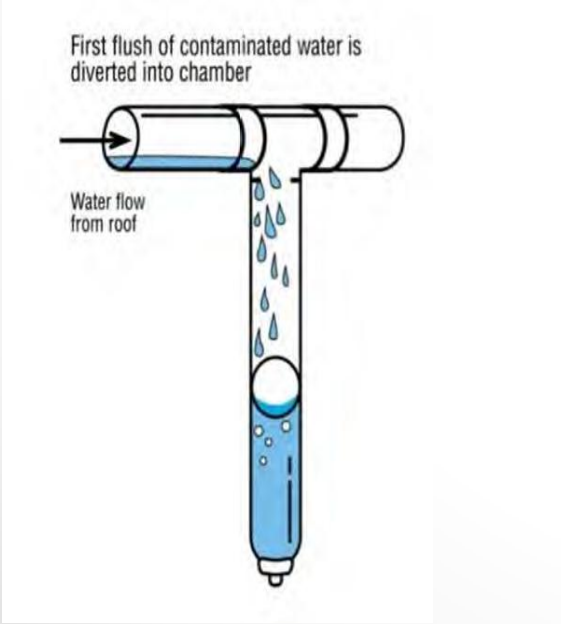
- Step #1
  - Check the roof's surface to see if it is suitable for collecting quality rainwater.
- Step #2
  - Install gutter mesh to prevent leaves and debris from blocking the gutters.
- Step #3
  - Gutter outlets, fits to the underside of the utter to prevent obstruction or water flow.

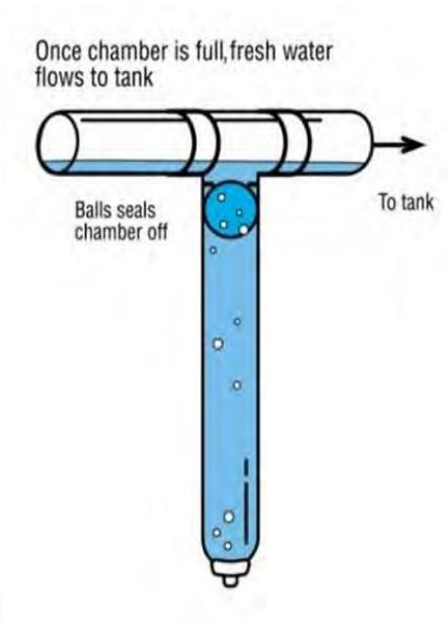
How to Create the Complete Rain Harvesting System

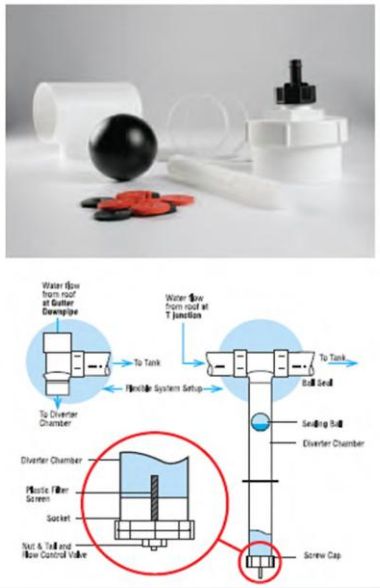
- Step #4
  - Rain Heads—deflect leaves and debris, keep mosquitoes out of the system.

How to Create the Complete Rain Harvesting System

- Step #5
  - First Flush Water Diverter/s—first water is diverted into the flush with any small debris from the roof. Sediment settles to the bottom where it is flushed before it enter the cistern. When the flush fills, clean water is sent to the tank.







How to Create the Complete Rain Harvesting System

- Step #6
  - Cistern Screen—installed at the tank to further help in keeping insects out of the cistern.
- Step #7
  - Cistern—Water containment tank.
- Step #8
  - Insect proof screen or flap valve, end of pipes to the tank, and ensures tank vented properly.
- Step #9
  - Cistern top off—if required, fills the tank with water when water level in the tank drops to a designated level.
- Step #10
  - Pump system—if required, distributes water.

How to Create the Complete Rain Harvesting System

- Step #11
  - Rainwater filter—installed downstream of the pump to help reduce sediment, color and order.
- Step #12
  - Water level monitor—monitors level of water in the tank. There are wireless monitors which display the tank level in the building.

DIAGRAM 1 - Hole size for tank fitting
Approximately 1"

DIAGRAM 2 - Maximum communication distance – Up to 150 feet in normal 'line of sight' conditions

DIAGRAM 3 - Continuous display on small LCD Panel of Receiver
10 bar graph level display

www.watercache.com/education/rainwater-how/