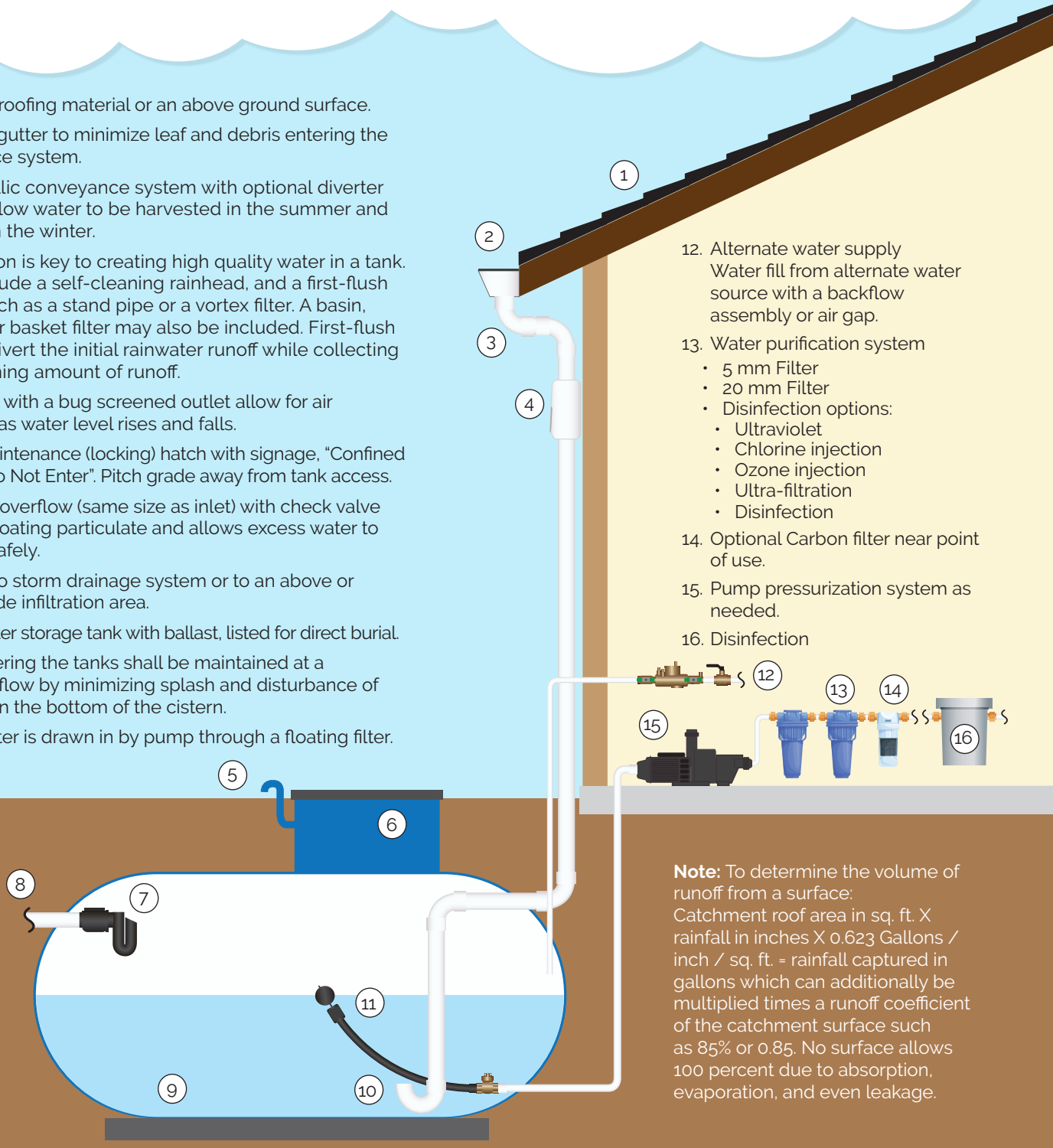
RAINWATER HARVESTING SYSTEM

Conceptual Drawing of an Underground Tank

Potable or non-potable application, underground tank in a non-freeze application. This system design is based on ARCSA/ASPE/ANSI Standard 63 Rainwater Catchment Systems and follows the ARCSA International Rainwater Harvesting Manual.

1. Non-toxic roofing material or an above ground surface.
2. Screened gutter to minimize leaf and debris entering the conveyance system.
3. Non metallic conveyance system with optional diverter valve to allow water to be harvested in the summer and diverted in the winter.
4. Pre-filtration is key to creating high quality water in a tank. It may include a self-cleaning rainhead, and a first-flush system such as a stand pipe or a vortex filter. A basin, cascade or basket filter may also be included. First-flush systems divert the initial rainwater runoff while collecting the remaining amount of runoff.
5. An air vent with a bug screened outlet allow for air exchange as water level rises and falls.
6. Cistern maintenance (locking) hatch with signage, "Confined Space – Do Not Enter". Pitch grade away from tank access.
7. Skimming overflow (same size as inlet) with check valve removes floating particulate and allows excess water to overflow safely.
8. Overflow to storm drainage system or to an above or below grade infiltration area.
9. Cistern water storage tank with ballast, listed for direct burial.
10. Water entering the tanks shall be maintained at a quiescent flow by minimizing splash and disturbance of sediment in the bottom of the cistern.
11. Clean water is drawn in by pump through a floating filter.



12. Alternate water supply
    Water fill from alternate water source with a backflow assembly or air gap.
13. Water purification system
    - 5 mm Filter
    - 20 mm Filter
    - Disinfection options:
      - Ultraviolet
      - Chlorine injection
      - Ozone injection
      - Ultra-filtration
      - Disinfection
14. Optional Carbon filter near point of use.
15. Pump pressurization system as needed.
16. Disinfection

Note: To determine the volume of runoff from a surface:
Catchment roof area in sq. ft. X rainfall in inches X 0.623 Gallons / inch / sq. ft. = rainfall captured in gallons which can additionally be multiplied times a runoff coefficient of the catchment surface such as 85% or 0.85. No surface allows 100 percent due to absorption, evaporation, and even leakage.

For more information visit www.arcsainternational.org