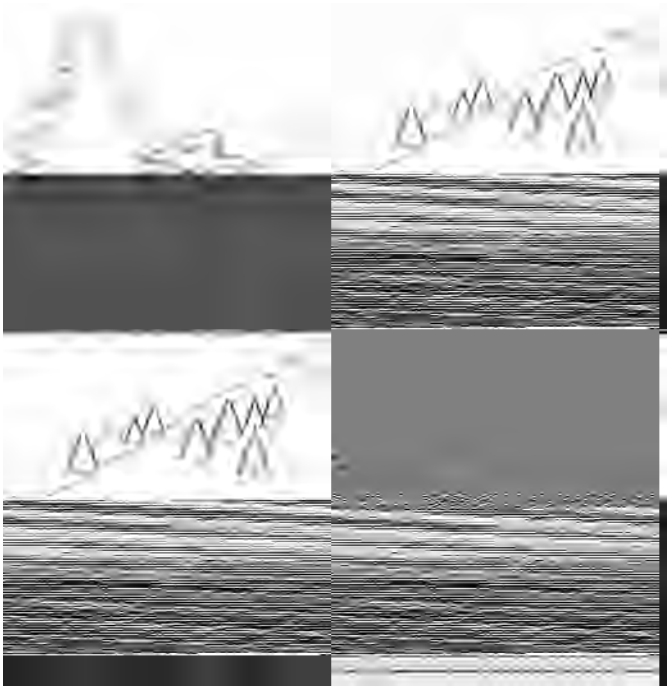
3.12 Rain Barrels and Cisterns

Source: Stormwater Manager's Resource Center



Source: City of Portland Code Guide

Description	A rain barrel is any above-ground container modified to receive, store, and distribute rooftop runoff for non-potable uses. Rain cisterns are similar systems designed for below-ground use, but typically provide much greater storage and more complex construction techniques. Rain barrels are ideal BMP applications for residential or small commercial sites. Both practices supply water for gardens, lawns, and flowerbeds. Homeowners with large gardens, or small businesses may want to consider installing a cistern, instead of a rain barrel, since they offer much greater storage capacity.
Effectiveness	Rainbarrels and Cisterns are effective in storing limited volumes of water from rooftops. Larger cisterns can provide effective volume reduction of runoff during storms. For example, a 0.1" rainfall event falling on a 1000 square foot roof produces about 60 gallons of runoff – more than enough to fill an average-sized 55-gallon rain barrel. These systems are not effective for removal of pollutants, and sediments may collect in the vessels that will have to be removed.
Advantages	• Reduces flow volumes, thereby reducing demands on stormwater management systems. • Provides free supply of water for non-potable uses, easing demands on potable drinking water sources. • Provides homeowners and small businesses with water for irrigation.

Disadvantages	• Rain barrels may not provide sufficient water in drier climates. • Rain cisterns are more expensive and require somewhat more complex design and construction.
Implementation Considerations	• Rain barrel should be sized to adequately capture runoff based on precipitation patterns in this area. • Occasional cleaning may be necessary to remove debris, such as leaves, coming off the rooftop. The barrel must also be sealed during warm months to avoid mosquito breeding, and should be drained prior to winter to prevent damage caused by freezing. • Water should be drained between rainfall events (for irrigation) to maximize effectiveness. • Rain barrels are most effective when they are designed to help meet demands for non-potable water, such as irrigation.
Cost	Low. Ready-made rain barrels range from $20 to $150. Homeowners can reduce costs by constructing their own.
Main Design Components	• Complete rain barrels can be purchased from a number of retailers, or they can be constructed relatively easily and economically. • Instructions for creating your own rain barrel can be found at Maryland Environmental Design Program Website. (http://www.dnr.state.md.us/ed/rainbarrel.html) • The main components of a rain barrel include tubing to connect the barrel to a downspout, a cover to prevent mosquitoes from entering, a faucet to allow regulated use of the captured water, and an overflow pipe to divert excess water once the barrel is filled. • The basic components of a rain cistern are much the same as with rain barrels, but with a much larger storage tank that is buried underground. This means a pump must also be installed to bring water out of the cistern.