

# Plentiful Harvest

## Rainwater Harvesting & Reuse for Irrigation



This 10,000 gallon storage tank was recently installed at one of our projects in St. Paul. Rainwater is captured from the site, held in the storage tank, then reused for irrigation purposes

Rainwater harvesting is not a new concept. In fact, it dates back to the earliest civilizations. Recently, the ancient technique has become increasingly popular due, in part, to an increased awareness of the need for water conservation and the increased cost and restrictions of municipal water supplies. Harvested rainwater has many uses in your yard, from irrigation to water features.

While we are fortunate in Minnesota to have an abundance of water in the forms of lakes and rivers, the need to protect these water sources has never been greater. As clean rainwater falls from the sky and onto the ground, it

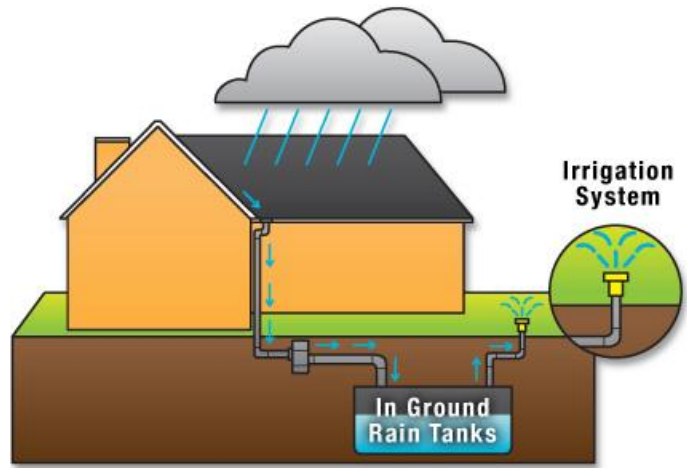
immediately picks up pollutants from pavement, roofs, and turf areas. This pollution is carried down the street, through our storm drains, and eventually ends up in our lakes and rivers or in an expensive treatment facility. "Harvesting" rainwater is collecting rainwater from roof top, turf, or hardscape areas in your yard via gutters, drainboxes, and other drains; and directing it to a storage tank for later use. This greatly reduces the volume and rate of runoff entering our storm sewer systems, and allows us to reuse water on our sites over and over again. Some cities have begun to charge "stormwater fees" associated with stormwater management. These fees can be reduced or even eliminated if stormwater is safely retained on site- a potentially huge cost savings for large home sites and businesses. In certain locations, grants or low interest loans are available to help cover part or all of the costs of installing the rainwater harvesting system.

Although rainwater harvesting systems can vary in size and complexity, they all generally consist of seven basic components:

- (1) A catchment area- the area being drained (ex. roof, driveway, or entire yard)
- (2) Gutters and or piping systems to channel water from the catchment to the storage area,
- (3) Catch basins and or filtration systems ,
- (4) A storage area, this can be something as simple as a 55 gallon barrel to a high capacity buried containment tank,
- (5) A conveyance system, usually a pump in a buried system or gravity-fed for above grade systems,
- (6) A circulation pump,
- (7) An overflow outlet.

The system essentially works like this:

Rain falls onto the roof of a house or a patio. The water is then directed down the drain pipe of the house and into a catch basin. The catch basin is designed so that water has to build up to a certain point before it can drain into an exit pipe. This separates the water from silt and other debris. The water then flows down the piping system and into the holding tank. The water needs to be circulated in the tank, as non-moving water can become stagnant. The recycled water is now available for irrigation or other uses.



This is a simple illustration of how rainwater capture and reuse works.

The use of rainwater for irrigation of lawn and garden areas is the most popular use of these systems, but it's not the only option. Ponds and water features are also able to run off of rainwater exchange systems. Rainwater capture and reuse reduces your monthly consumption of municipal water and exempts you from the odd-even watering restrictions imposed by most cities. Rainwater is naturally soft (low in calcium, magnesium, and iron), and will not leave rust or lime stains associated with most untreated well water. It is free of chemical treatments, contains almost no dissolved minerals or salts, and because we receive an average of approximately 30" of annual rain fall in the St. Paul/Minneapolis area, it is a reliable source of water. Studies have shown that plants respond to being irrigated with rainwater by increased growth and root development compared to tap water.

As the population of our country continues to grow, so will the demand for water. The pressures on our underground aquifers and rural water supplies, combined with greater environmental impacts associated with new projects, and an increase in government regulations, make rainwater harvesting one of the most promising alternatives for supplying fresh water and managing stormwater runoff. You will discover that once you start collecting and reusing your rainwater, you will begin to think more about how you use water in your other daily routines.



RainExchange systems are smaller scale systems that allow you to use rainwater for water features as well as irrigation.

If you would like to learn more about rainwater harvesting or stormwater control, please contact one of our experts at (651) 769-0010 or by email at [mail@landscaperenovations.com](mailto:mail@landscaperenovations.com).

**Calculate your site's Rainwater Harvesting Potential:**

$$\text{Site Area (sq ft)} \times \text{Annual Rainfall (inches)}^{***} = \text{Cu Ft}$$

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Rainwater

\*\*\*Twin Cities average 30" rainfall per year

$$\text{Cu Ft. of Rainwater} \times 7.43 = \text{Gallons of Rainwater per Year}$$