

Rain Garden: Beautiful Solution to Run-off Pollution

What is a Rain Garden?

A rain garden is a shallow depression planted with native flowers and grasses and positioned to receive runoff from roofs, sidewalks, driveways and lawns allowing water to slowly soak into the ground. As a water quality and conservation system, it works to; filter runoff from your roof and lawn, recharge the groundwater, gather, hold and then use rainwater thus saving precious water resources.

Why plant a Rain Garden?

Rain gardens are an inexpensive, simple to implement and environmentally sound solution to stormwater runoff.

A Rain Garden will:

- Reduce standing water in your yard & opportunities for mosquito breeding
- Filter runoff pollution
- Recharge local groundwater
- Create habitat for birds & butterflies
- Enhance sidewalk appeal
- Increase beneficial insects that eliminate pest insects
- Reduce potential of home flooding
- Improve water quality
- Protect rivers and streams
- Reduce garden maintenance and increase garden enjoyment
- Conserve water

Why is stormwater a problem?

The Environmental Protection Agency has determined that up to 70% of the pollution in our surface waters is carried there by stormwater runoff. One study showed that up to 50% of that pollution comes from things we do in our yards! When it rains, water runs off our roofs, parking lots, streets, and lawns, instead of soaking into the soil the way it did before development. This water along with salt from roads, pet waste, lawn nutrients, spilled gas, oil and other pollutants, ends up in storm sewers and ditches that discharge to streams, rivers and lakes.

In addition to carrying pollution, stormwater runoff is usually warm. Groundwater has a fairly cool temperature, which allows water to hold more oxygen and keeps the habitat stable. Many sensitive creatures such as trout cannot survive in a stream with fluctuating and warmer temperatures.

In a natural system, water enters a stream through a slow, steady release from groundwater. Stormwater runoff occurs all at once. The large volumes of warm water flushing downstream cause erosion and flooding, carry dam-forming debris, and scour the stream bed.

If you'd like to calculate how much rainwater runs off your roof each year, first figure out your roof's square footage, then multiply that number by 623. Next, divide the product by 1,000, and multiply the result by the number of annual inches of rainfall in your location (40 to 50 inches in Connecticut.) So over 33,000 gallons of rainwater pour off a 1200 square foot roof each year!

How do you build a Rain Garden?

1. Decide where to place your garden

Place the garden at least 10 feet away from your home to prevent flooding in your house. Do not locate the garden over a septic field or where water already ponds. Ponding indicates slow infiltration. Try to position the garden where downspouts or even a sump pump outlet can be used to direct rainwater into your garden. Choose a location in either full or partial sun. Consider the natural drainage of the yard so that overflow (during a heavy rain) flows away from the house and into the rest of your yard.

2. Determine size and depth of garden

Measure the length and width of your house and multiply the two numbers. Divide that number by the percentage of the roof that will feed the garden (if a house has 4 downspouts .25 would equal the amount from 1 of them.) Now multiply that number by .15 for sandy soil, .25 for silty soil, or .32 for clay soil*. This final number is the size of the garden in square feet. For example $40' \times 60' = 2400$ sq. feet. $2400 \times .25 = 600$ sq. feet of drainage area. $600 \times .15$ for sandy soil = 90 square feet.

If the slope of the lawn is less than 4% the depth should be 3-5 inches. If the slope is between 5 and 7% the depth should be between 6 and 7 inches. If the slope is between 8 and 12% the depth should be about 8 inches.

* This formula represents a garden that is less than 30 ft. from a downspout and 6-7 inches deep.

3. Start by creating a design

By planning your garden on paper, you will be able to get 3 seasons of bloom and create the best appearance possible. Keep the design simple. Choose a few types of plants and place them in groupings. You will need 1 plant every 1- 2 feet. To determine the number of plants you need, multiply the square footage by .75. If your garden is 100 square feet, you need approximately 75 plants.

4. Choose your plants

Native plants are suggested because they are best adapted for our climate. Choose plants that will grow well in both wet and dry areas because the rain garden will temporarily fill with rainwater from time to time. Choose plants that grow well under the site's conditions - sun, shade, or mixed. Combine different plants that will bloom throughout the spring, summer and fall season.

5. Lay out the shape of the garden

Lay out the shape and boundary of the garden with a hose or rope, based on the dimensions you calculated.

6. Dig a shallow depression

Before you dig verify that there are no underground utilities or septic system components (tank & leach fields) on the site.

Remove the turf grass and dig your garden approximately 6 inches deep and to the dimensions you calculated. Slope the sides of the edges and use the remaining soil to build a berm around the garden edges.

7. Prepare the soil

To amend your soil add a mixture of 50% sand, 20% - 30% organic matter (compost or fine mulch), and 20% - 30% top soil (what you just dug out of the garden).

8. Time to plant

Follow the design and place plants in the approximate positions. Plants should be placed about 1 foot apart from each other.

9. Mulch the garden

Use shredded woodchips that won't float or blow away. Apply the mulch about 2 inches deep. This helps to keep the moisture in and reduce weeds and heavy metals.

10. Watering and arranging downspouts

Water every other day for 2 weeks (if it doesn't rain) until the garden looks to be growing on its own. Keep an eye on it in hot days just in case. When placing downspouts make sure a grass buffer lies about 1-2 feet before the garden to prevent a rush of water from eroding the soil and washing out the new plants.

Another option: A rain barrel placed under a downspout will catch rain water and costs between \$35 and \$200.

Where can I get further information on Rain Gardens?

The following links provide detailed technical information, including; plants, diagrams, and photographs.

<http://dnr.wi.gov/org/water/wm/dsfm/shore/documents/rgmanual.pdf>
(Detailed Rain Garden Manual University of Wisconsin)

<http://www.raingardennetwork.com/>
(Rain Garden Network)

<http://www.neponset.org/raingarden.htm>
(Neponset River Watershed Association, Massachusetts)

http://www.nemo.uconn.edu/tools/stormwater/pdf/rain_garden_design_guide.pdf
(UConn Rain Garden Design)

<http://www.raingardens.org>
(Rain Gardens of West Michigan)

http://www.lowimpactdevelopment.org/raingarden_design/index.htm
(Rain Garden Templates)

http://www.ct.gov/dep/lib/dep/water/watershed_management/wm_plans/lid/what_is_a_rain_garden.pdf
(CT DEP Brochure)

