



# Designs in Bloom

LANDSCAPE DESIGNS FOR OUTDOOR LIVING

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## Rain Gardens Using Native Plants

A rain garden is a shallow depression that collects storm water runoff from hard surfaces. The soil in the depression is excavated and replaced with a loose soil mixture and planted with native vegetation with deep roots. A rain garden helps filter rain water on site before it reaches the water table, nearby natural areas, or city storm water systems. A rain garden is able to soak up most rainfall within 48 hours.

There are many design considerations that go into creating a rain garden since each site is different. The information below is for a very basic residential rain garden with a gentle slope. For more detailed information, please see Tip of the Mitt's website. <https://www.watershedcouncil.org/rain-gardens.html>

Consider consulting a professional if your site has steeper slopes, there is a need for more than one rain garden, your not sure were the water will go if the rain garden overflows, or your unsure what plants would work for your site.

### How to Calculate the Surface Size of a Rain Garden



You can be creative with your rain garden design. It can be any shape, as long as you provide for the surface square footage needed. Use the following formula to help decide what surface size your rain garden should be.

- ◆ First calculate the square feet of hard surface that storm water will run off and drain into your garden.  
**Determine** which hard surfaces (roofs, sidewalks, patios, and driveways) will produce the rainwater runoff for your rain garden. Different parts of your roof may drain to different downspouts – consider only the areas that will drain into your rain garden. Do not send more than one-half your roof runoff to a rain garden; you may need more than one rain garden.  
**Multiply** the width of your roof by the length of your roof to get the square footage. Do the same with paved areas. Add the numbers together for the total square footage of the "drainage area."
- ◆ Next identify your soil type – clay, sand, loam, etc. This will help determine the surface size of your rain garden.  
**For Sandy Soil:** Your rain garden should be 20% to 30% of the "drainage area" total square footage.  
*Example:* If your roof and driveway measure 1,200 square feet and you have sandy soil, your rain garden should be 20% - 30% of the square feet = 240 to 360 square feet (10 feet wide by 24 feet long would be good dimensions for a 240 square foot rain garden).  
**For Clay Soil:** Your rain garden should be 60% of the "drainage area" total square footage.  
*Example:* If your roof and driveway measure 1,200 square feet and you have clay, your rain garden should be 60% of the square feet = 720 square feet (15 feet wide by 48 feet long would be a good dimensions for a 720 square feet rain garden). If you have clay consider soil replacement since clay absorbs water very poorly.

### How to Determine the Depth of a Rain Garden



The shallow depression area should be about 6"-12" inches deep. You can vary the surface area needed for your rain garden by changing the depth of the depression. The deeper the garden the smaller the surface area needed.

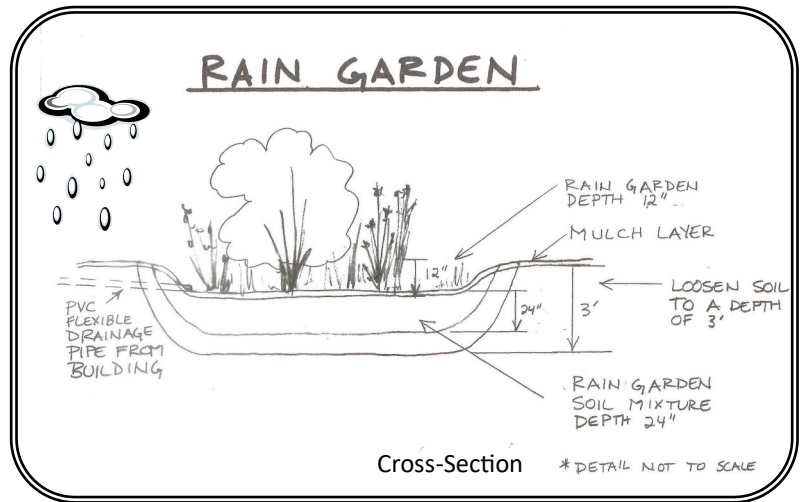
- \* To determine the final surface size of the rain garden take the hard surface area / by the depth of rain garden (in.)  
*Example:* 240 sq. ft. hard surface area / 6" depth = 40 sq. ft. of rain garden surface area.
- \* Create your rain garden with a flat bottom and gradual sloped sides so water can spread out and soak into the garden.

## Soil Mixture for a Rain Garden

- \* Excavate soil 18"-36" deep.
- \* Replace existing soil with a very loose mixture of 50% -60% sand, 20% - 30% topsoil, and 20% - 30% compost, mix well. **Do not compact soil!** Loose soil will soak up more water.

## Other Considerations

- ◆ Always Call MISS DIG (811) before digging!
- ◆ Do not create rain gardens in soggy areas or on steep slopes.
- ◆ Create rain gardens at least 10 feet away from any building. If you have a basement, add 2 feet more setback for each foot the basement extends deeper than 5 feet.
- ◆ Create a water overflow area at the lowest point along the edge of the rain garden, in case your rain garden can not handle all the water that it receives. Place rocks in this area to help prevent soil erosion. Make sure any water overflow runs to a street drain or another area on your site, not your neighbor's site.
- ◆ If you have a manicured mowed lawn that the water will pass over before reaching the rain garden then add some additional surface area.
- ◆ Add mulch to help retain moisture and help with weed prevention or use biodegradable soil erosion blanket.
- ◆ Even though it is a rain garden, remember to water new plants.



## Selection of Plants

Each rain garden site is different and is constantly changing due to the weather and the seasons. When selecting plants, use **native** plants. An advantage of installing native plants is their tolerance of local weather, soil, insect, and moisture conditions. Deep-rooted perennials and grasses work the best. Within one rain garden, there are a variety of moisture zones, from wet to wet-dry to dry. Remember to choose plant material that will do well in each of these zones. The rain garden may be fully emerged when it rains, so those plants need to withstand water until the ground dries out again.

## Before You Plant -

### Consider the Following Questions:

- \* How much sun will the site get?
- \* What type of subgrade soil do you have?
- \* How close is the groundwater table?
- \* What views do you want of the garden or through the garden?
- \* How high do you want the plants to get?
- \* Do you want to add trees and shrubs?



## Michigan Native Plants

The following list of Michigan native plants are **examples** of what will grow well in most rain gardens. The plants listed are all for sun to partial-shade and can withstand medium soil moisture. This is just a taste of what plants would work.

### Grasses

Indian Grass, *Sorghastrum nutans*  
Little Bluestem Grass, *Schizachyrium scoparium* — keep drier  
Switchgrass, *Panicum virgatum*

### Perennials

Canada Anemone, *Anemone Canadensis*  
Cardinal Flower, *Lobelia cardinalis*  
Blue Flag Iris, *Iris versicolor*  
Blue Vervain, *Verbena hastate*  
Bottle Gentian, *Gentiana andrewsii*  
Boneset, *Eupatorium perfoliatum*  
Culver's Root, *Veronicastrum virginicum*  
Foxgloved Beard-tongue, *Penstemon digitalis*  
Joe-pye Weed, *Eupatorium purpureum*  
Mountain Mint, *Pycnanthemum virginianum*  
Wild Strawberry, *Fragaria virginiana*

### Shrubs

American Cranberry Bush, *Viburnum trilobum*  
Meadowsweet, *Spiraea alba*  
Ninebark, *Physcarpus opulifolius*  
Red Twig Dogwood, *Cornus stolonifera*

### Trees

Northern White Cedar, *Thuja occidentalis*  
Red Maple, *Acer rubrum*  
Swamp White Oak, *Quercus bicolor*