How to Build a Rain Garden

Produced by University of Wisconsin – Extension & Wisconsin Department of Natural Resources
Places to Use Rain Gardens

Below roof downspouts
Places to Use Rain Gardens

Down-slope of any lawn area
Places to Use Rain Gardens

Boulevards
Places to Use Rain Gardens

Before

After

Road shoulder right-of-ways
Places to Use Rain Gardens

Parking lot planter islands (bioretention)
Places to Use Rain Gardens

Even industrial locations can have a rain garden
Deciding on the best spot to site your rain garden:

Your rain garden

- Should be at least ten feet from a foundation
- Integrate with your landscaping
- Sunny or partly sunny locations are best, but a shade garden is possible
- Should not be located where water ponds
- The flatter the site the better: less than 12% slope
- Do not locate over septic system
How to Size a Rain Garden

Questions to ask yourself:

What type of soil do I have?
How big is the area draining to the rain garden?
What is the slope?
What is the best size to fit my yard?
(smaller means deeper to hold the same amount of water)
Calculating Drainage Area

- Length of house 100 feet
- Width of house 20 feet
- L X W = 2000 sq ft
- 2000 sq ft ÷ 4 = 500 sq ft draining to rain garden
Determining Your Soil Type

• Some hints:
  • Soil feels gritty and coarse = sandy
  • Soil feels smooth not sticky = silty
  • Soil feels sticky and clumpy = clayey

• Have soil analyzed

• Use perc test
Importance of Soil Type

The higher the infiltration rate the smaller the rain garden can be:

- Infiltration Rate of Sandy Soils: 2.5 in/hr
- Infiltration Rate of Silty Soils: 0.5 in/hr
- Infiltration Rate of Clayey Soils: 0.3 in/hr
Slope Important: Bottom must be flat
Determining Size of Drainage

1. If less than 30 feet use Table 1

2. If greater than 30 feet use Table 2
Using Size Factor and Depth to Determine Final Rain Garden Size with 100% Control

<table>
<thead>
<tr>
<th>Type of Soil</th>
<th>3 to 5 Inches Deep</th>
<th>6 to 7 Inches Deep</th>
<th>8 Inches Deep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy</td>
<td>0.19</td>
<td>0.15</td>
<td>0.08</td>
</tr>
<tr>
<td>Silty</td>
<td>0.34</td>
<td>0.25</td>
<td>0.16</td>
</tr>
<tr>
<td>Clayey</td>
<td>0.43</td>
<td>0.32</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Less than 30 feet from downspout

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>All Depths Between 3 and 8 inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy</td>
<td>0.03</td>
</tr>
<tr>
<td>Silty</td>
<td>0.06</td>
</tr>
<tr>
<td>Clayey</td>
<td>0.10</td>
</tr>
</tbody>
</table>

More than 30 feet from downspout

Example 1: 500 sq ft x 0.25 = 125 sq ft rain garden
Example 2: 500 sq ft x 0.43 = 215 sq ft rain garden
Rain Garden Depth & Size

Balance between:

- drainage area
- slope
- soil
- desired garden size
Picking the Plants

- Decide on formal or informal look
- Choose plants for conditions: sunny – shady
- Choose plants for year-round interest
Time to get to work – a family affair!
From Start to Finish
Roger Bannerman’s rain gardens
Plant List for Backyard Rain Gardens

**Middle & Big Garden**
- Blue Flag Iris
- Purple Cone Flower
- Shooting Star
- Sweet Black-eyed Susan
- Smooth Penstemon
- Heartleaf Blue Aster
- Ohio Goldenrod
- Fire Pink
- Silky Wild Rye
- Northern Sea Oats

**Shade Garden**
- Jacobs Ladder
- Celandine Poppy
- Short’s Aster
- Zig-Zag Goldenrod
Add a weed barrier and mulch
Edgewood College, Madison
Formal look, integrated with existing perennials
Willy Street Co-op, Madison
Informal and formal looks
Cost of Rain Gardens

If you do the work but purchase plants, cost is about $3 to $5 per square foot.

Cost of landscape consultants in Wisconsin is about $10 to $15 per square foot. Includes design, construction, plants, and planting.

A 300 square foot rain garden costs between $1,000 and $4,500.
Remember These Steps

• Determine size and location
• Design shape and select plants
• Talk to neighbors
• Call diggers hotline 1-800-242-8511 before you dig!
Oops!
Mosquitoes?

- There shouldn’t be any if the garden is properly sited and designed. Rain gardens should drain in no more than five days.
- Mosquitoes have a 7 to 12 day life cycle from egg to adult.
- Mosquitoes that carry most diseases don’t live in ponds. They prefer small amounts of standing water such as holes in trees, old tires or bird baths.
Other Things to Consider

- Weed ordinances
  - Check the web, most communities have them under nuisances
  - Many communities use DNR noxious weed list
  - Sample language for modifying weed ordinances at Wild Ones: http://www.forewild.org/weedlaws/weedlaw.html

- Downspout disconnect ordinances
Thank You!

For more information:
http://clean-water.uwex.edu/pubs

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