

# Design

## Rain garden sizing

Rain garden sizing depends on the drainage area, media footprint, and excavation depth. Tables 3-5 show sizing for different media depths. **The recommended media depth is two feet.** Depth to groundwater (and the ability to dispose of soil, if doing a soil exchange) should be considered when choosing a media depth.

Figure 2 shows the media footprint used for sizing. Allow an additional five to ten feet of width and length to account for the ponding footprint (Table 6) and other common features such as a berm or wall. The available width must be approximately twice the available length.

**Residential rain gardens should be sized for 1.0 to 2.5 inches of rain. The minimum rain capture goal for a RainScapes Reward Rebate is 1.0 inch.** Overflow will occur less frequently if a rainfall depth greater than 1.0 inch can be captured.

### Using the sizing tables

1. Use the rain garden location guidelines to estimate the available media footprint. The media footprint is shown in Figures 2 & 3.
2. Measure the impervious area (e.g., roof and driveway) that can be directed to the rain garden. The roof drainage area to each downspout can be found by dividing the house footprint by the number of downspouts.
3. Table 4 is the recommended starting point. Across the top of the table, find the number closest to the impervious drainage area.
4. Look down the column. Find the number closest to the desired rainfall storage (at least 1.0 inch).
5. Look to the left side of the table to find the corresponding media footprint.
6. If the required area is larger than the available space, choose a smaller rainfall depth or repeat the process with three feet of media (Table 5).
7. Make a note of the final planting media depth and media footprint.

### Sizing example

Use Table 4 for a design with two feet of planting media. This table shows that a rain garden with a 30 sq. ft. media footprint and a 400 sq. ft. drainage area can capture 1.2 inches of rainfall.

*Note:* This rainfall capture calculation is conservative because it does not include drawdown into the underlying soil.

**Table 3.** Sizing table for 1 ft planting media

Inches of rain stored	Drainage area (square feet)					
	100	200	300	400	500	600
5	1.1	0.6	0.4	0.3	0.2	0.2
15	2.2	1.1	0.7	0.6	0.4	0.4
30	3.8	1.9	1.3	1.0	0.8	0.6
50	6.0	3.0	2.0	1.5	1.2	1.0
60	7.1	3.6	2.4	1.8	1.4	1.2
75	8.8	4.4	2.9	2.2	1.8	1.5
100	11	5.7	3.8	2.9	2.3	1.9
125	14	7.1	4.7	3.6	2.8	2.4

**Table 4.** Sizing table for 2 ft planting media

Inches of rain stored	Drainage area (square feet)					
	100	200	300	400	500	600
5	1.3	0.7	0.4	0.3	0.3	0.2
15	2.8	1.4	0.9	0.7	0.6	0.5
30	5.0	2.5	1.7	1.2	1.0	0.8
50	7.9	4.0	2.6	2.0	1.6	1.3
60	9.4	4.7	3.1	2.3	1.9	1.6
75	12	5.8	3.9	2.9	2.3	1.9
100	15	7.6	5.1	3.8	3.1	2.5
125	19	9.5	6.3	4.7	3.8	3.2

**Table 5.** Sizing table for 3 ft planting media

Inches of rain stored	Drainage area (square feet)					
	100	200	300	400	500	600
5	1.5	0.7	0.5	0.4	0.3	0.2
15	3.3	1.7	1.1	0.8	0.7	0.6
30	6.1	3.1	2.0	1.5	1.2	1.0
50	9.8	4.9	3.3	2.5	2.0	1.6
60	12	5.8	3.9	2.9	2.3	1.9
75	14	7.2	4.8	3.6	2.9	2.4
100	19	9.5	6.4	4.8	3.8	3.2
125	24	12	7.9	5.9	4.7	3.9