

## Where to Find Materials

**Trays** can be purchased online at Green Grid Roofs, Green Roof Blocks, Eco-Roofs, Advanced Green Roof, etc. Several tray suppliers give you the option of purchasing pre-vegetated modules, or, if you prefer the DIY approach, you can purchase the trays empty.

**Sedum**, also known as stonecrop, are drought tolerant succulents that don't require fertilization and can tolerate drought. Ask for them at a plant nursery or buy them online from Eco-Roofs or other suppliers.

**Growing media** ingredients are available at local hardware and garden supply retailers or online at Amazon, Gardener's Supply, Green House Mega Store, etc.

## Benefits of a Green Roof

**Runoff** from roofs and other impervious surfaces conveys nutrients, sediment, bacteria and other pollutants to lakes, streams, and wetlands. Urban rooftop drainage can contribute 15-20 percent of total annual runoff. Green roofs catch and retain precipitation that would otherwise pollute our waters.

The Modular Green Roof Retrofit System Development project was funded by a Section 319 Grant from the Minnesota Pollution Control Agency.

Project partners:

Shingle Creek Watershed  
Management Commission

West Mississippi Watershed  
Management Commission

City of Robbinsdale, MN

Three Rivers Park District

Minnesota Pollution Control Agency

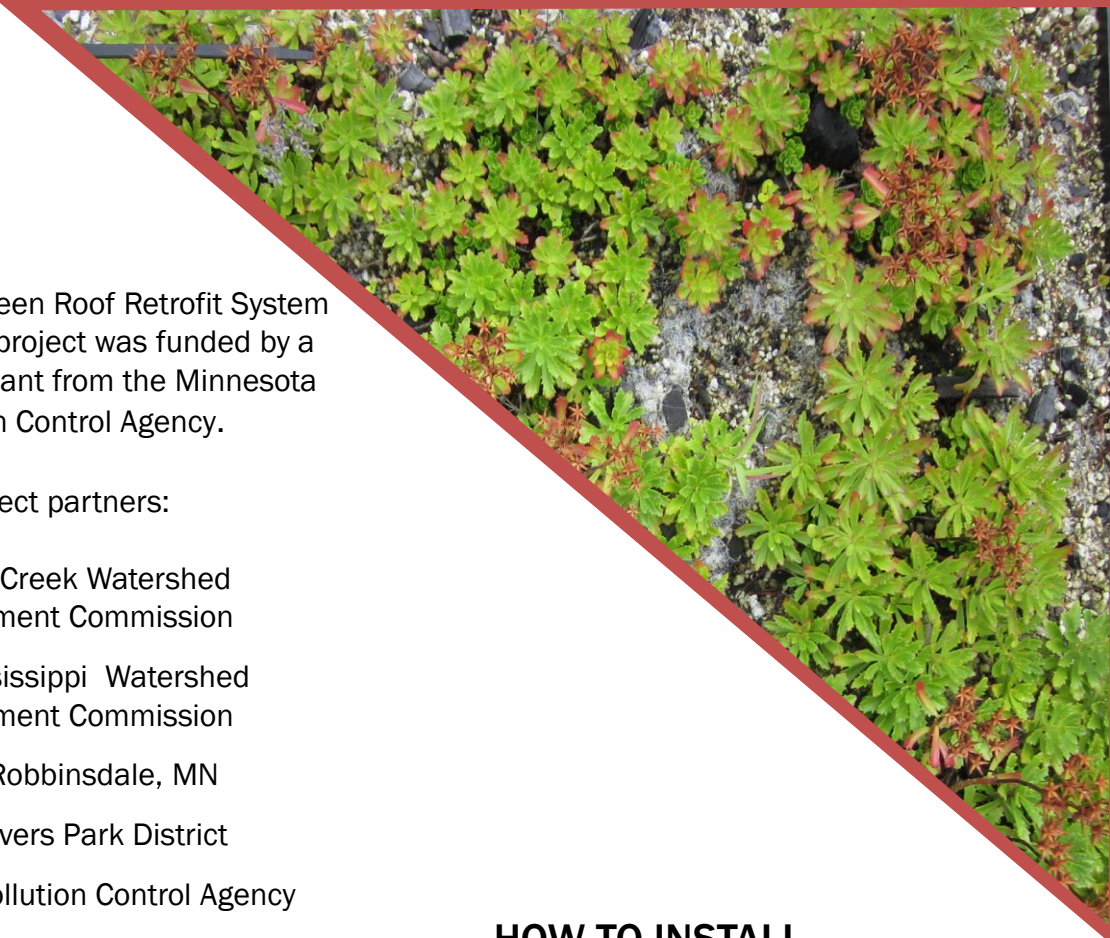
Questions?

Contact the Shingle Creek Watershed  
Management Commission at 763.553.1144  
or [www.shinglecreek.org](http://www.shinglecreek.org).



# HOW TO INSTALL AND MAINTAIN A MODULAR GREEN ROOF

A STEP-BY-STEP GUIDE



**STEP 1: Calculate the number of green roof modules to install.**

Modules can be placed on any area of a roof that is flat or gently sloping . Calculate the area available, and then calculate the number of 2' x 2' modules that will fit. If you use the recommended growing media and other materials, no structural reinforcements are needed.

**STEP 2: Purchase the materials.**

Purchase materials for the number of trays you plan to install. Listed below are several recommended recipes for the growing medium. You will also need plastic trays, seed protector mat, garden staples, and sedum plants. Choose low-growing sedum varieties. Plants in a 2" pot are less expensive, but 4" potted plants give you a head start on tray coverage. The suppliers used for this project are listed on the back panel.

*Don't use black dirt or garden soil in the modules. They'll be too heavy, especially when wet, and could damage your roof.*

**STEP 3: Mix the media , fill the trays, and add water.**

In a bucket or other container, mix the ingredients for the growing media, following one of the recommended recipes in the table below. Mix enough media to fill your trays to a depth of 4 inches. Dry weight should be 3-4 pounds per square foot, or 12 -16 pounds per tray.

Using a watering can or a spray attachment on a garden hose, wet the media until it is saturated. Allow to drain. Repeat these steps until the medium is moist throughout (like a wrung-out sponge). Wet weight will be 7.5 to 10 pounds per square foot, or 30 – 40 pounds per tray.

**STEP 4: Plant the trays and cover the medium with a protective mat.** Plant a minimum of nine sedums, preferably sixteen, in each tray, evenly spaced. Cover the medium with a protective mat to keep the medium in place. Cut holes in the mat around the plants so they can grow through. Staple the mat down with 4" garden staples.

**STEP 5: Install and maintain the modules.** Carefully lift or carry the modules onto the roof and place them close together. The plants should not need any watering unless there are periods of extended drought. Replace any plants that die.



*Clockwise from upper left: Protective mat placed on the medium and around a sedum; installation of test modules in 2013; modules in July 2015, two years after installation.*

Mix #	Perlite (cups)	Vermiculite (cups)	Compost (cups)	BioChar (cups)	Earthworm Casting (cups)	Hydrogel (tsp)	Organic Composition
1	2.75	8.33	1.1	1.1	0.5	~1	80% inorganic 20% organic
2	1.1	10	1.1	1.1	0.5	~1	80% inorganic 20% organic
3	5.9	5.9	0.83	0.83	0.41	~1	85% inorganic 15% organic
4	6.6	6.6	0.27	0.27	0.14	~1	95% inorganic 5% organic

### Green Roof Growing Media Recipes

The best mixes combine 80-85% inorganic material (perlite, vermiculite) and 15-20% organic material (compost, biochar, earthworm castings). Hydrogel increases the water-holding capacity of the mix without adding much weight and releases water gradually as the medium dries. Biochar increases soil fertility, raises productivity and has a unique ability to attract and hold moisture and nutrients.