

First Green Learning Station Feature Growing on Cottage Roof

– by Ryan Mooney-Bullock, Green Learning Station Program Manager



The Civic Garden Center's plant community grew by a whole lot of sedums in April. 1600 square feet of sedum carpet now makes its home atop the stone cottage adjacent to the CGC's main building. Cincinnati Parks gave us permission to build a green roof on one half of the cottage roof, replacing asphalt shingles on the side that faces

the covered walkway. The cottage roof is the first application of a living roof on a sloped surface in the Cincinnati region and is at eye level to passersby. It gives visitors a great view of features that are often out of reach and sight. This is the first piece of the Green Learning Station to be built and will educate visitors about why they might want to install a green roof on their property.

What good is a green roof?

A green roof is beautiful, home to wildlife, a sweater for your house, easy to care for, long-lived and quiet. It produces oxygen, removes carbon dioxide from the air and reduces the heat given off by typical roofs. Green roofs keep rainwater where it falls instead of letting it run into the storm sewer where it could add to combined sewer overflows.

How do you build a green roof?

The construction of our new green roof took place over two weeks in mid-April. Kramer and Sons Roofing installed a system by Tremco Roofing. Both companies included partial donations of time and material to help make our green roof an affordable reality.

Step 1: Remove old roofing material and repair sub roofing. We needed new plywood sub roofing.

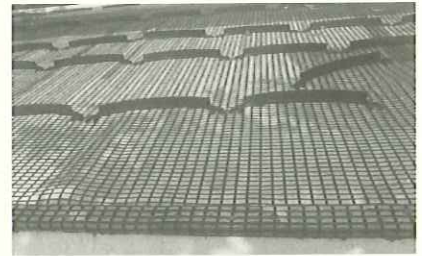
Step 2: Cover the sub roofing with an adhesive. Tremco uses a cold adhesive that doesn't have the fumes associated with hot adhesives. A waterproof membrane is rolled out on top of the adhesive and left to cure for a week, during which time the adhesive fuses with the membrane. The membrane is the dark grey layer in the photo.



Step 3: A root barrier is laid down (the white layer in the photo above). Plant roots can be adventurous, so this will keep them from penetrating the waterproof membrane and causing a leak in the roof.

Step 4: Because the roof is sloped, we had to install a system to keep the soil from sliding down hill when it rains. The Tremco solution to this problem is a plastic net that sits

on the roof and gets anchored at the top and bottom. Banana shaped plastic pieces get clipped onto the net, which stick up into the soil to hold it in place. The photo to the right shows this system looking down from the peak of the roof.



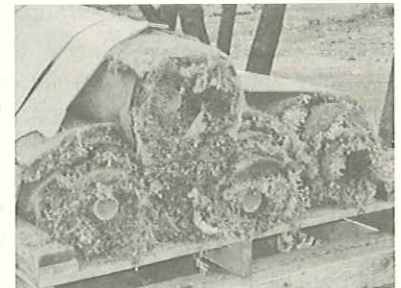
Step 5: A giant forklift lifts bags of specially formulated growing medium above the roof. The workers open a hole in the bottom of the bag and rake it around as it pours out. Rooftop growing medium needs to be as light as possible



while still providing structure and nutrients for growing plants, especially when you factor in the weight of the water that will be absorbed by the soil when it rains.

Step 6: Water the growing medium once it is all in place.

Step 7: Roll out the vegetated mat. The vegetated mat is a coconut fiber mat holding additional growing medium and the sedum plants which have been cultivated into it. The advantage of a sedum carpet is that your roof looks great right from the start and on a sloped roof the plants will help keep the soil from blowing away or eroding. The photo to the right shows the mats rolled up on a pallet. Our plants arrived on a rainy day so we let the rain water them in.



Step 8: Install gutter, flashing, downspout and rain barrel. The finished roof is beautiful and will keep approximately 70% of the water that falls on it annually from entering the combined sewer system.

