Up on the Roof, a World of Green

Nancy Maddox

The purple lovegrass, orange trumpet vine and black-eyed Susan are no longer in bloom at this time of year. Yet one of the most prized installations of the American Society of Landscape Architects (ASLA) is still receiving visitors: the rooftop garden above its headquarters in downtown Washington, DC.

Green roofs, it seems, are sprouting everywhere. And not just for their good looks. The ASLA figures its experimental “urban oasis” slashes its heating bill by 10% in winter months and captures three quarters of all precipitation hitting the roof, substantially reducing runoff into DC’s antiquated sewer system. Moreover, water that does reach the sewer contains fewer pollutants than typical city rainwater, having been filtered through the rooftop vegetation.

But life is not easy up on the roof.

“You have the worst extreme conditions,” Kays says. “A lot of wind. Extreme heat events in summer, extreme cold in winter. Basically, you’re trying to grow something that will grow in a semi-arid environment and also grow in a northern, almost frigid-like environment. It’s very wet at times and very dry at times.”

One plant, the water-storing sedum, is a green roof workhorse because it “can hang in a pretty wicked environment,” according to Kurt Horvath, owner of the company Intrinsic Landscaping. His company installs about 50 green roofs a year, ranging from a four-acre installation atop the FedEx sorting facility at O’Hare International Airport to rooftop gardens for environmentally conscious homeowners.

The benefits of vegetated rooftops are so many and so well established that DC aims to achieve 20% green roof coverage by 2020. Just last year, the DC metropolitan area added 1.3 million square feet of rooftop vegetation.

DC is not alone. Both Toronto and Chicago mandate at least some green roof coverage for certain types of new development or redevelopment within the cities. New York City and Portland, OR, offer tax incentives for green roof installations (as does DC). And even mid-size cities, such as Cincinnati, Nashville, and Baltimore, are growing significant green rooofscapes.

Sedum on a green roof in Lancaster, PA. Courtesy of the Chesapeake Bay Program.

By choosing the right plant species is far from the only consideration. Sedums, cacti, thymes, and other roof-hardy perennials depend upon a carefully engineered environment to survive the harsh conditions stories above street level.

While green roof plantings may recreate desert or prairie landscapes, there is little that is natural below the “ground.” A living roof installation is a multi-layered assembly of materials that are contrived to achieve specific results. From rooftop down, there is a roof slab for structural support, a layer of insulation, a water proofing/root barrier membrane, a water storage area (often resembling an egg carton), drainage material, a soil separator membrane, soil, a biodegradable covering to keep the soil from blowing away, and finally plants. Among all of