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## A Porch and Flowering Meadow, 6 Floors Up

By [ANNE RAVER](#)

DAVID PUCHKOFF, Eileen Stukane and their daughter, Masha, were sitting on their porch, looking out over a carpet of sedums topped with tiny yellow, white and purple flowers and watching storm clouds build over the Empire State Building.

Front porches are hardly the norm in high-rise Manhattan, nor are rooftop meadows, but the couple have managed to create both, inspired by a visit eight years ago to a friend in Elk Lake, Pa.

“We were sitting on the porch, the lake was only 20 feet away, and I said, ‘That’s what I want — I’d love to have a porch,’ ” said Mr. Puchkoff, who is in his mid-60’s.

Mr. Puchkoff, who lives with his family on the top floor of a six-story building on Greenwich Street in the West Village, went to an architect friend, Lawrence Tobe, and told him he wanted a porch. “David wanted a folly, something to take him away from New York,” Mr. Tobe said. “I’ve done some roof terraces, but nothing that cool.”

The porch is basically a glorified bulkhead over a hole punched in the ceiling of the family’s loft to make way for a nautical stairway that rises to a landing with a galley-like kitchenette, with two paned windows and a door that opens to the roof. Now, the couple — he is a developer, she is a writer — don’t have to leave the city to hear the slam of a screen door, or watch a flock of mourning doves pecking for insects and seeds across the meadow.

“What I find so wonderful about a green roof, as opposed to potted plants, is you really feel like you’re looking out at unbroken land and nature,” Ms. Stukane said. “And it’s restorative.”

This 1,200-square-foot meadow is planted with thousands of sedums. Native mostly to Europe and Asia, these fleshy plants thrive in heat and drought. (When it rains, they absorb water like a sponge.)

They grow here in about seven inches of a lightweight soil medium — 83 percent expanded shale, 17 percent compost — that does not strain the weight-bearing capacity of the roof.

A series of liners prevent both root penetration and water leakage. Drip irrigation lines, used only when needed, snake beneath the soil layer. And 2,200 plants, shipped from Emory Knoll Farms, a green-roof nursery in northern Maryland, were planted in three days in June 2005 by the family and two friends.

“I had a lot of fun doing that, probably because I got my hands dirty,” said Masha, 13, who loves to sit cross-legged among the plants, watching the monarch butterflies sipping nectar from the flowers. “It’s not bad

getting dirt between your fingers.”

Mr. Puchkoff, who has developed half a dozen small commercial and residential projects over the past 30 years, acted as his own contractor and did much of the labor himself, resulting in a cost of \$12 a square foot rather than the \$17 a square foot it might have been.

The benefits of a green roof are many: the plants insulate the building from heat in summer and cold in winter, and they reduce storm-water runoff by absorbing rain.

The family lives in the first building Mr. Puchkoff ever developed. The building, a former wicker and basket warehouse built in 1906, is brick, with stout wood girders and joists.

To begin this project, he went to a green roof symposium in 2003, offered by the Earth Pledge Foundation ([earthpledge.org](http://earthpledge.org)), where he picked up the basic principles of design and construction.

His biggest concern was that the roof would leak. But the layered construction, with sealants and barriers to root penetration, guards against that possibility.

To make sure it wouldn't collapse, he hired a structural engineer who calculated how much weight the roof could support. The answer was 35 pounds per square foot, dry weight, or 60 pounds per square foot, if saturated with rain.

That calculation limited Mr. Puchkoff's green roof to no more than eight inches of soil, so he chose seven, just to be safe, even building a little crest of a hill, over a lightweight polystyrene mound, “because I didn't want it perfectly flat,” he said.

He sealed the roof with a combination of polyethylene and woven polyester from the Andek Corporation, whose products he had used over the years to seal custom-built bathtubs. (Cost: \$1,500, including labor.)

Then he was ready to install the four-layered system he chose from American Hydrotech.

The layers consist of a five-millimeter polyethylene membrane that keeps roots from penetrating the roof; then a spongy moisture retention layer, which absorbs any water that overflows the next layer of “Floradrains,” from a German company named ZinCo. These are cup-like plastic units that look like upside-down egg cartons; when laid together, they hold water that seeps down through the layer of soil, which is laid over a filter that prevents sifting and clogging of the drains.

The multilayered system establishes not only a reservoir of water for plants, but also a backup supply, held by the moisture retention sponge, which evaporates slowly, in dry times, to moisten plant roots.

At the final stage, drip tubes are laid down on top of the soil filter, before the soil medium is spread. These drip lines, plus some early top-watering, supplied water to the young plants — which arrived as plugs with three-inch roots, and were planted eight inches apart — until they were well-established. (The Hydrotech system cost \$3,800, plus \$800 labor.)

The arrival of 2,400 pounds of soil (\$2,000), from Laurel Valley Soils, a company based in Avondale, Pa., was a family event. River Valley Organics, a company in Wrightsville, Pa., arrived with a truck and blew the soil mix up a five-inch tube snaked up the side of the building (\$4,000 for the entire job).

Six stories up, the family watched a river of soil pour onto their layered roof. The depth was kept consistent because Mr. Puchkoff had the foresight to collect two dozen chopsticks from Sushi on Hudson, a Japanese restaurant in the neighborhood, and mark them at seven inches.

Once the soil was in place, Mr. Puchkoff called Edmund Snodgrass, the owner of Emory Knoll Farms, a sedum nursery in Street, Md., to let him know the roof was ready; 2,200 succulents (\$1,100 plus \$500 labor) arrived two days later.

Sedums are ideal roof plants, because they can close their stomata, or pores, to reduce transpiration under a hot sun. They open them again at night, when temperatures cool, releasing oxygen and taking in carbon dioxide. Grasses and perennials can't do this, so they die a lot faster if they run out of water on a hot roof.

Sedums also grow well in shallow soil, needing no nutrients other than the compost of their own decomposing leaves. Other plants need deeper soil, which adds weight to the roof, and fertilizer, which leaches nitrates and phosphorus into storm water, and then into bodies of water.

The Puchkoffs never have to prune their sedums. Mr. Puchkoff just spends an hour or so, every other day, weeding. Fortunately he loves to weed.

"It's calming," he said. "And it brings me closer to the plants, which are beautiful."

Masha loves to watch *Talinum calycinum*, a drought-tolerant Great Plains native, one of the few plants on the roof that is not a sedum. It opens its delicate rosy-pink flowers with the sun, and closes at sundown.

She observes the ants and ladybugs, the bees and butterflies. But the birds may be her favorites.

"We have a mockingbird that sounds like a car alarm," she said. And this spring, she watched many birds flying off with bits of mulch, used to protect a small Japanese maple, for their nests. The maple will eventually form a mound over its boat-like container, blending into the landscape. Fragrant lilies follow spring daffodils in planters near the porch; there is a planter for basil and mint, and another for *Rosa rugosa*.

No matter what the weather, when Masha comes home and can't find her dad, she usually discovers him up here, on the roof.

"It's comforting," Mr. Puchkoff said, looking out at the rain. "I hadn't thought about the coziness of porches."