

[washingtonpost.com](https://www.washingtonpost.com)

Going Green to Reduce Energy Costs

Sandra Fleishman

6–7 minutes

In a very unlikely corner of the District--a gritty area framed by Pepco's Buzzard Point power plant, a bustling sand-and-gravel operation and the Anacostia River--a building technique new to America is taking root.

On top of a onetime Potomac Electric Power Co. pump house, a thin blanket of dirt and flowering plants has been carefully laid out one story above the ground by a team of earnest volunteer laborers.

The idea is not only that the 5,000 seedlings will blossom yearly into a mat of color, attracting birds and butterflies back to the neighborhood, but also that the "green roof" will cut storm water runoff into the river, reduce heat reflected into the atmosphere, improve air quality by naturally filtering out particulates, and cut heating and cooling costs for the building.

Too good to be true? Not according to Katrin Scholz-Barth, a

civil and environmental engineer with HOK National Planning Group, part of the world's largest architecture firm.

"The 'green roof' technology has been used this way in Germany for more than 20 years," said Scholz-Barth, whose company is donating its work on the pump house.

The technique builds on the Northern European tradition of using sod for insulation, but has been updated to capitalize on the potential of a thin layer of grass and vegetation to offer environmental benefits.

Now the same environmental and economic concerns are starting to sell the technology on this side of the Atlantic, according to national architectural magazines. A handful of projects are underway or have already been built in the United States, including one atop Chicago's landmark City Hall and another on a building in San Bruno, Calif., containing some of Gap Inc.'s corporate offices.

"When I came to the United States in 1992 and was talking about green roofs, I'd just get blank stares," said Scholz-Barth, a German native. But she successfully introduced the concept in Minneapolis and offered seminars. Now, she said, "interest is exploding."

The concept sold the Earth Conservation Corps, which is turning the pump house on the Anacostia into a community environmental education center with the help of a federal grant, business donations and "green building" in-kind

donations coordinated through the Sustainable Washington Alliance.

The U.S. Naval Mobile Construction Battalion 23 donated 3,000 worker-days in labor in renovating the building. The work is expected to be completed in March.

The conservation corps, a Washington-based nonprofit group that works with young urban adults to improve the Anacostia and offers them job training and scholarships in return, is looking for any way to clean up the river. The corps' efforts have run toward trash removal and replanting along the Anacostia's banks. Reducing runoff and improving shoreline air quality through roof plantings fit in with the group's goals.

With help from the city, the river has made such a comeback, said corps founder Robert Nixon, that a fisherman near the pump house recently hauled in a 30-pound catfish.

The pump house green roof, a 2,600-square-foot installation, is the first in the Washington area. It was completed this week. The 70-year-old facility on Half Street SW at one time screened Anacostia River water used to generate power for the whole city.

Unlike rooftop gardens popular for many years in Europe and America in upscale neighborhoods, the technique Scholz-Barth uses isn't meant to create showy retreats

planted with trees and shrubs.

The soil is only two to four inches deep rather than the 12 inches to six feet used in rooftop gardens, and only supports hardy, shallow-rooted plants such as succulents, thyme and sedum.

But just this thin carpet of nature can result in big benefits, Scholz-Barth said. A three-inch green roof can retain almost half of the water generated in a major storm. And it can provide quite a splash of color in a gray skyline.

The plantings, said Scholz-Barth, can also reduce the "urban heat island" phenomenon--the tendency of roofs to soak up and store solar radiation. Chicago's City Hall roof project, which covers 20,000 square feet, is part of a \$1.5 million municipal demonstration project on limiting urban heat islands.

Scholz-Barth says city roofs can reach temperatures substantially higher than those on the street. On a 90-degree day in Washington, she says, a roof can reach 170 degrees. That not only creates high concentrations of heat reflected back into the atmosphere, but also cuts the roof's lifespan.

Germany's main interest in green roofs has been in reducing runoff. The country is particularly challenged because of its dense urban populations and widespread paving of green spaces. In parts of Germany, green roofs are required on new commercial construction, Scholz-Barth said. And some

residential developers must add them to a percentage of the houses or to the garages or outbuildings they construct.

Costs for a green roof in the United States can run double those of a regular roof because of the labor involved, Scholz-Barth said. But competition in Germany has brought those costs down to nearly even. Pitched roofs, however, prove particularly expensive.

Scholz-Barth is also working on a much larger, 30,000-square-foot flat green roof for a former Montgomery Ward department store in Baltimore.

The idea of putting dirt on the roof of the pump house struck Anthony Satterthwaite, an Earth Conservation Corps founding member from Southeast Washington, as "crazy when I heard about it through the grapevine," but he's now interested in bringing the concept to his neighborhood.

"If you tell anybody in the city that you're going to plant some flowers on the roof, they won't understand," Satterthwaite said. "But if you can show how it will help with the electricity bill, that you can reap some benefits, it makes sense."