

Cool(er) Roofs

by Sam Williams

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Tar Beach, those black tarred rooftops where regular New Yorkers got their summer tans, is celebrated in song, in movies like "On The Waterfront" and in a well-known [quilt](#) and [children's book](#) by Faith Ringgold. But if they evoke the same kind of nostalgia as stoop ball and stick ball, those roofs turn out to be bad for the environment.

The asphalt and concrete trap sunlight and heat and contribute to what scientists call the ["urban heat island"](#) effect that makes the city as much as 10 degrees Fahrenheit hotter than the suburbs. The difference in temperature translates into some \$100 million in additional energy costs per year.

That is why a movement is growing to replace New York City's iconic rooftops with something cooler, literally.

A cool roof, or "white roof" -- as simple as a basic coating of light-colored water sealant -- is the roof of the future in New York, says Laurie Kerr, an architect in the [Office of Sustainable Design](#), the eco-conscious division of New York City's Department of Design and Construction. "The city controls maybe one in ten buildings in terms of square footage. Over the next 20 years, all of those buildings should have cool roofs."

But others are pushing an alternative -- a ["green roof,"](#) in effect a rooftop garden, with plants (even trees) atop a layer of soil.

Common in Europe, and growing more popular in American cities out West, green roofs remain a challenge in New York.

"Roof tops are an enormous wasted resource," says Leslie Hoffman, executive director of [EarthPledge](#), a Manhattan-based nonprofit that has helped build green roofs atop eight local buildings, including the Rheingold Gardens building in Bushwick, a 250-unit senior housing facility. Her organization's efforts are paralleled by

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[Sustainable South Bronx](#)

, the Hunts Point non-profit that recently opened a demonstration green roof project atop the American Banknote Building. In an

[interview with WNYC](#)

at the time of the installation, Bronx Borough President Adolfo Carrion said the borough was home to at least nine green roof installations. "We can't force anybody" to install green roofs, Carrion said, "but we are certainly creating incentives by saying we will be very supportive of your project."

Expanding that support to the rest of the city could take some time. Green roofs, while attractive to look at and useful when it comes to minimizing both heat and water runoff, are roughly five times as expensive as the typical roof installation.

Cool roofs demand less of an investment from private property owners and less paperwork for city contractors. With the recent signing of a new law mandating that all major city-funded construction and renovation projects meet energy conservation standards laid out by the

[U.S. Green Building Council](#)

, Kerr from the Office of Sustainable Design expects most projects to go with the easier white roof method.

The Case For Green Roofs

Green roof advocates, meanwhile, are working hard to boost the economic case for green roofs in the hopes of convincing city leaders to set up incentives for builders and property owners.

"The problem is the reflective roofs don't deliver one twentieth the benefits of a green roof," says Steven Peck, president of [Green Roofs for Healthy Cities](#), a Canadian advocacy group.

Peck points to green roof's ability to limit storm water runoff, something the city needs to do in order to bring its sewage system in compliance with the Clean Water Act. The largest green roof on record, a 10.4 acre installation at [Ford Motor Company's Rouge River truck factory](#), is expected to cut that facility's storm water runoff -- and the resulting sewer bill -- in half. If New York City were to take a cue from Portland and some European cities and charge building owners for the amount of storm water they send into local sewers, the return on investment issue would quickly balance out.

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Peck also points to green roofs' ability to filter pollutants and to remove carbon dioxide via photosynthesis. Like their counterparts in [urban forestry](#), green roof promoters are hoping to come up with models that put a dollar figure on such services.

Should those dollar figures become available, however, they might not be enough to convince individual building owners to make the switch, says Stuart Gaffin, a scientist at the Center for Climate System Research at NASA's Goddard Institute of Space Sciences. Earlier this year, Gaffin served as host of a graduate seminar on green roofs. In their attempt to put together a model on the environmental benefits of green roof installation, however, they found most of the benefits appearing at the societal level, as opposed to the individual property owner.

"You try to get the economic benefits to the owner and you run out of things pretty quickly," says Gaffin. "There aren't a lot of direct cost-benefit effects."

Gaffin says he has deals with two local schools -- one public, one private -- to install and monitor green roofs. With these plots, he hopes to build up local data which can then be used to convince the city council to offer additional incentives for green roof owners.

Gaffin and his students are joined in their effort by Diana Balmori, the architectural designer of the city's largest green roof, atop the Silvercup Studios facility in Long Island City. Built with the help of Earth Pledge and the New York Power Authority, the installation is the first of what Balmori expects to be two major installations in that neighborhood. Balmori plans to use rainwater data from both installations to push city leaders to follow in the footsteps of their Seattle and Chicago counterparts and add green roofs to the evolving "green building" concept.

"It would be really great if New York grew some industries around this, but it hasn't reached the critical mass to make it affordable enough for the majority of the population," Balmori says. "With just some minimum incentives, that turnaround could happen. All we need is that relatively small push."

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