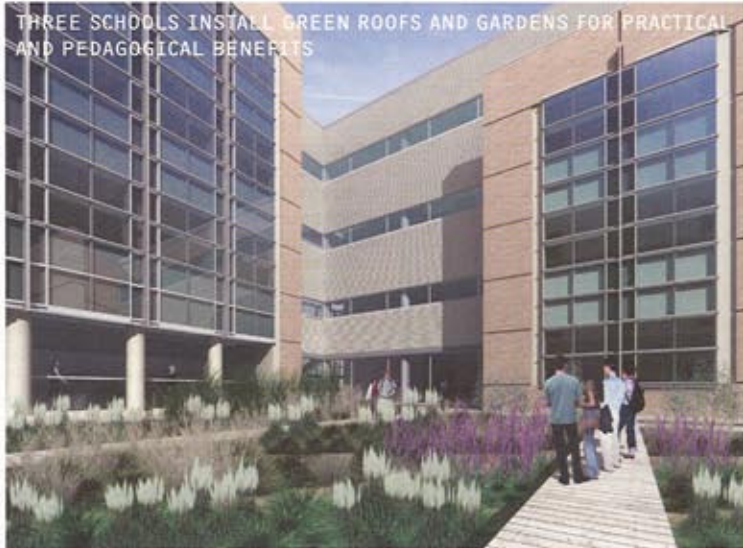


THREE SCHOOLS INSTALL GREEN ROOFS AND GARDENS FOR PRACTICAL AND PEDAGOGICAL BENEFITS



UP ON THE ROOF

Although Le Corbusier believed in hanging gardens for "reasons of comfort, sentiment, technique, and economy," the consensus for much of the last 80 years, sadly, has been that terraced rooftops were neither so economical nor so technically feasible. That consensus, however, is changing.

With the accelerating enthusiasm for environmentally sound design, architects are turning their eyes upward. While green roofs are hardly widespread enough to measure their impact on an urban scale, it is already evident that a top layer of greenery can add energy savings along with aesthetic appeal to individual buildings. Thanks to recent advances in building technology, green roofs are proving as practical as they are attractive, as borne out by a brace of new projects in New York City.

The centerpiece of a \$1 billion capital expansion, the proposed new Science Building for CUNY's Lehman College in the Bronx will have a green roof that does double duty. Architects Perkins+Will intend to perch a greenhouse atop the L-shaped facility covering 50 percent of the roof's surface, lining the remainder in solar thermal panels and a white

Pyramic "cool roof" coating. "Plant science is a part of the school's research," explained Tony Alfieri, an associate principal at Perkins+Will, "and obviously the roof has the best exposure to the sun—so the green roof emerged out of the program." But it was a programmatic feature that dovetailed perfectly with the goal of energy efficiency.

Since roofs tend to leak substantial quantities of heat during the colder months, the Science Building's greenhouse will act as an additional layer of insulation over much of the structure. The greenhouse itself, designed in consultation with the Ohio firm of Rough Brothers, will feature acrylic glazing rather than glass, allowing further gains

in heat conservation. Meanwhile the solar thermal panels are expected to provide for as much as five percent of the building's energy needs, a big help in Perkins+Will's quest for LEED Gold certification. But for Alfieri, the roof's greatest contribution is that there isn't much of it. "We made the building footprint, and the roof, occupy as small a percentage of the site as possible," leaving the grounds around it open for cultivation as an "urban wetland."

In Manhattan's Morningside Heights, Murphy Burnham & Buttrick have topped their renovation of St. Hilda's & St. Hugh's private school with another greenhouse, this one less LEED feature than learning



Facing page: The "urban wetland" at the heart of Lehman College's new science building; Right, top to bottom: rooftop greenhouse at St. Hilda's & St. Hugh's school; Adlai Stevenson high school's green roof; Model of the school; inside St. Hilda's & St. Hugh's greenhouse

tool. The ongoing refurbishment, underway for the last eight years, has been eco-minded from the start, incorporating reused and recycled building materials; but principal Mary Burnham puts this in the context, not just of the present green phenomenon, but of the school's mission: "The sustainability aspect has become an educational tool. The greenhouse is the latest effort to create spaces that nurture an understanding of the environment." Studying plant life in this simple, sunlit conservatory, featuring low-maintenance finishes and non-toxic materials, the children will develop a rapport with the natural world that will prepare them for the responsibility of environmental stewardship.

Innovation and collaboration are the hallmarks of Rafael Viñoly Architecture's Adlai Stevenson High School. A coalition including the School Construction Authority, the nonprofit Salvadori Center, and New Visions for Public Schools have singled out the South Bronx school for an ambitious experiment in green design. A lightweight, modular roofing system devised by engineer/architect Joe Hagerman will be filled with the Gaia Institute's GaiaSoil planting matrix. Hagerman's invention is simple in section, but padded out with enough insulation to ensure water retention for the plant beds above while providing energy savings for the building below. A planting scheme from the City of New York's Greenbelt Native Plant Center will stress local flora, as well as provide areas for student and teacher research. Viñoly and Hagerman have worked together in the past; but what makes the Stevenson project stand head and shoulders above previous green roofs is its sheer scale: at 70,000 square feet, it's sure to make a mark, putting paid to all the barren flat roofs of architecture past and giving a touch of color to New York's long-neglected roofscape.

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