

# A NEW DAY FOR THE ANACOSTIA



A NATIONAL MODEL FOR  
URBAN RIVER REVITALIZATION

DC APPLESEED

2011

## 1050 K Street Case Study

When developing the new office building at 1050 K Street, The Tower Companies and The Lenkin Company – two developers that tend to be long-term owners of their properties – wanted to build the most dynamic and environmentally-responsible property in downtown Washington, D.C. Designed by Hickok Cole Architects and described as an “11-story jewel-box office building,” 1050 K Street not only is certified LEED Gold, but employs cutting-edge techniques to control stormwater and reduce the need to draw from the public water supply.

The building uses a sophisticated combination of bioretention planters, a green roof, a condensate capture system, a large underground cistern, and water reuse. A bioretention system consisting of three large, attractive planters in the front of the building creates a sustainable drainage system that captures both rainwater and run-off from the sidewalks (which were re-graded to flow toward the planters). To install the planters, the owners were required, at their own expense, to move the underground utilities in the public right of way. The bioretention system allows the water either to be absorbed

back into the ground or to drain into a 5,000-gallon cistern in the basement of the building. The building also has an attractive green roof, consisting of a roof garden with a glass-sheltered open space. The roof thus absorbs and captures rainwater, and also serves as an attractive function space with great views of the city. Any water that is not absorbed by the green roof plantings drains into the cistern. The owners also installed a state-of-the-art system for capturing the condensation that is produced from the building’s heating and cooling system, which generates about 255 gallons of water per day on average, and as much as 680 gallons a day during the summer. This condensation also drains into the cistern, rather than the city’s stormwater sewer system.

The water collected in the cistern from these three sources is then re-circulated in the building’s non-potable uses, such as a water feature outside the lobby and additional irrigation for the green roof and the street planters. The cistern provides a double environmental benefit because it decreases the building’s need to draw water from the city supply, while also drastically decreasing the amount of water that would otherwise enter the city’s combined sewer system. (The building releases stormwater into the public sewer only when the cistern is full – an infrequent occurrence. The original plan had been to install a 7,500 gallon cistern underground in the public right of way, but the builder was unable to obtain a permit authorizing placement of the cistern in the right of way.) 1050 K Street’s green stormwater management system collects 100 percent of the building’s roof runoff, as well as runoff from sidewalks and condensation from the heating and cooling system. In total, the system controls runoff from 90 percent of all storms, substantially reducing the volume of stormwater and the amount of pollution discharged into the sewer system. In fact, when stormwater is released into the sewer system, the building’s stormwater management system reduces sediment discharge by 80 percent and removes over 40 percent of phosphorus.

According to the project architect, Jason Wright,



Photo Credits: Ron Blunt Photography



1050 K Street's green roof (shown in top left and bottom photos) captures rainwater and serves as an attractive function space with great city views.

the building would have been able to meet District of Columbia Department of the Environment's stormwater management targets at the time through the building's green roof alone; however, the owners installed the additional stormwater controls, such as the planters and the condensation capture system, as a feature. Beyond the stormwater controls, the building includes many other "green" features, including (to name a few) the use of non-toxic building materials to improve indoor air quality, an air handling system that replaces 100 percent of the air in the building every 55 minutes, a high-tech glass system that assures thermal comfort and reduces energy consumption, and local sourcing of over 40 percent of the building materials. Despite the higher cost necessary to implement these features, the owners were committed to building green, confident in their belief that this kind of sustainable approach to office building construction not only is the wave of the future, but projects an image with which many forward-looking businesses want to be identified. Indeed, even in the current tepid real estate market, 1050 K Street leased more quickly than other projects in close proximity; its tenant list now includes GlaxoSmithKline, Knoll Furniture, Phillips Electronics, Shell Oil Company, and Tesla Motors, among others. Base rents in this sustainable building sometimes are

slightly higher than comparable (but less green) buildings, but utility costs are lower, making the fully loaded rental cost comparable.

The developers and architects of 1050 K Street gained some useful insights as a result of their experience with 1050 K Street. For example, reflecting on the difficulties they had in placing the cistern, David Borchardt of the Tower Companies proposed that a clear policy by the District government and by DC Water on the use of the public right away for features that would control stormwater – as well as incentives for businesses to implement such green features – would ease the way for developers who want to build green and "do the right thing." Mr. Borchardt also suggested that it would be useful to develop a process for property developers, property owners, and property managers to work together to think creatively about green retrofits and improvements – such as, for instance, placing a large cistern under one of the alleyways that often run behind downtown buildings – and sharing the costs and benefits of such common green investments. He also believes one way to encourage developers to implement storm water controls is by discounting their stormwater bill, which in the District is based on a building's impervious surface area.