

# DC GREEN ROOFS

## Showcased Projects



### Ward 1

- Franklin D. Reeves Center (Coming Soon)

### Ward 2

- American Society of Landscape Architects, 636 Eye Street, NW (3,300 square feet)
- U.S. Department of Interior (Main Building), 1849 C Street, NW (6,500 square feet)
- Service Employees International Union,  
1800 Massachusetts Avenue, NW (12,400 square feet)

### Ward 3

- American University (Coming Soon)

### Ward 4

- Latin American Montessori Bilingual Public Charter School,  
1375 Missouri Avenue, NW (2,700 square feet)

### Ward 5

- District Department of Parks and Recreation - Trinidad Recreation Center,  
1310 Childress Street, NE (5,400 square feet)

### Ward 6

- U.S. Department of Transportation (Southeast Federal Center),  
1200 New Jersey Avenue, SE (68,000 square feet)
- American Psychological Association/World Resources Institute,  
10 G Street, NE (3,000 square feet)
- Friends Committee on National Legislation, 245 2<sup>nd</sup> Street, NE (1,200 square feet)

### Ward 7

- District Department of Employment Services (Coming Soon)

### Ward 8

- Anacostia Gateway, 1800 Martin Luther King Jr. Avenue, SE (10,500 square feet)



**TOTAL GREEN ROOF COVERAGE FOR  
THE ABOVE SHOWCASE PROJECTS IS: 113,000 square feet**

*NOTE: Recent data collected by DDOE indicates that, at the end of 2008, a total of about 75 green roof projects (of over 1,000 square feet each) have been completed in DC. The total green roof coverage for all of these 75 projects is about 350,000 square feet.*



## American Society of Landscape Architects [Ward 2]

- Building:** Substantial rooftop renovation and re-roofing of existing building.
- Owner:** American Society of Landscape Architects (ASLA)
- Address:** 636 Eye Street, NW
- Green Roof Cover:** 3,300 square feet on two elevated “waves” on either side of a patio plus a surrounding extensive system covered by a grating walkway. Access is through a new stairwell with planting on top.
- Cost & Funding:** Total green roof cost estimated by ASLA at \$350,000 for a system incorporating educational, architectural, esthetic and experimental components. Chesapeake Bay Foundation (CBF) grant of \$20,000.
- Installation Date:** April 2006
- Green Roof System:** Combination intensive / extensive green roof system design. One of the elevated “waves” is planted with sedums and the other with deeper soil is planted with hardy perennials and grasses. A low extensive system with sedums is covered by an aluminum grating walkway. The planting over the stairwell includes some trees and about 21 inches of soil. Components and services were supplied by *American Hydrotech, Inc.*; *Emory Knoll Farms*; *Chapel Valley Landscape Co.*; *Green Roof Products / St Louis Metal Works*; and *Ohio Gratings*.
- Water Retention:** Based on initial estimates, this roof would retain approximately 45,000 gallons of stormwater over a one-year period of typical rainfall in the District of Columbia region. ASLA has installed monitoring instruments on the roof and has collected runoff data for the year 2006-2007. CBF has cooperated with ASLA and Howard University to monitor and report on water quality data and a report on the results is available on DDOE and ASLA web sites.
- Access:** Tours and presentations on the roof are available by prior appointment.
- Contact:** Keith Swann, [kswann@asla.org](mailto:kswann@asla.org), 202-216-2353  
<http://land.asla.org/050205/greenroofcentral.html>



## U.S. Department of the Interior (Main Interior Building) [Ward 2]

<b>Building:</b>	Construction completed 1936. Provides office space for Interior's management Headquarters, including Bureaus.
<b>Owner:</b>	GSA, facility management delegated to Interior's National Business Center.
<b>Address:</b>	1849 C Street, NW
<b>Green Roof Cover:</b>	6,500 square feet of green roof located on the 3 <sup>rd</sup> wing at the south penthouse of the Main Interior Building (Wing 3 East). (This area includes the green roof and the pavers perimeter.)
<b>Cost &amp; Funding:</b>	\$209,526.00. The breakout for this amount is as follows: The roofing and drain upgrade cost \$103,310.00; the bond cost \$6,972.00; the vegetated roof cost \$87,796.00, and the design charrette cost \$11,448.00.
<b>Installation Date:</b>	December 2008
<b>Green Roof System:</b>	<p>A four-inch thick, un-irrigated Type III Roofmeadow® Savannah was installed over top a Barrett liquid applied rubberized asphalt roofing system. When fully saturated, this green roof will weigh less than 26 pounds per square foot. The Savannah assembly is a dual media profile utilizing a 2-inch thick granular media drainage base, which is separated from two-inches of light-weight engineered growing media by a root-permeable geotextile. The plant roots will grow down into the granular base (where most of the moisture is stored). This type of profile closely emulates nature and is particularly drought tolerant. The green roof was planted with seven different species of Sedums:</p> <ul style="list-style-type: none"> <li>Sedum album</li> <li>Sedum floriferum 'Weihenstephaner Gold'</li> <li>Sedum rupestre 'Angelina'</li> <li>Sedum sexangulare</li> <li>Sedum spurium 'John Creech'</li> <li>Sedum spurium 'Schorbuser Blut'</li> <li>Sedum spurium 'White Form'</li> </ul> <p>All of these Sedums will bloom during the course of the growing season. In general, Sedums tolerate extreme conditions and require little maintenance.</p> <p>The green roof was installed by Furbish Company, LLC, and the roofing and drain upgrade work was performed by James R. Walls Contracting Co., Inc. The green roof system was engineered and provided by Roofscapes, Inc. and the waterproofing system was provided by Barrett Company.</p>
<b>Water Retention:</b>	Holds up to a total of 0.75 inches of rainfall to reduce stormwater runoff entering the sewage system and reduce streambank erosion.
<b>Access:</b>	Limited Access
<b>Contact:</b>	Catherine Cesnik, <a href="mailto:Catherine_Cesnik@ios.doi.gov">Catherine_Cesnik@ios.doi.gov</a> , 202-208-7554



## Service Employees International Union [Ward 2]

- Building:** 1800 Massachusetts Avenue underwent a massive renovation after it was purchased by the Service Employees International Union (SEIU). The renovation started in 2005 and wrapped up in early 2008. The building is a LEED Gold certified building and houses SEIU's international headquarters. The building was partially occupied during its renovation and became fully occupied in December, 2006. The building is privately owned and is 75% owner occupied.
- Owner/Manager:** 1800 Massachusetts Avenue Corporation/Akridge
- Address:** 1800 Massachusetts Avenue, NW
- Green Roof Covering:** 12,400 square feet or 54.43% of the roof's surface is covered by green roof.
- Cost & Funding:** The estimated costing of the installation was \$35 per square foot installed paid by the ownership.
- Installation Date:** July, 2006
- Green Roof System:** Hot fluid applied roofing system designed by American Hydrotech. The hot fluid applied monolithic mastic membrane contains 25% post consumer recycled tire content and is fabric reinforced. The materials were installed as follows: monolithic membrane, elastomeric flashing sheet, flashing bonding, splicing cement, lap seal, water block mastic, metal termination bars, sheet metal flashing and trim, flash pipe clamping rings, reinforcing fabric (polyester), protection layer, fabric mat, three dimensional molded drainage panels with top and bottom channels and water retention reservoirs on the topside, filter fabric, and the soil material (American Hydrotech's lite-top extensive blend)
- Water Retention:** For a 2 year, 24 hour storm: Water volume retention: 3.67 gallons per square foot. Soil retention gallons per square foot at 3.5" of soil depth: .65 gallons. Water gallons retained: 8,702. Percentage of required retention: 19.17%
- Access:** Tours welcome by appointment.
- Contact:** Blair Petersen, 202-207-3920  
or Todd Anderson, 202-207-3880



## Latin American Montessori Bilingual Public Charter School [Ward 4]

<b>Building:</b>	Three story addition to historic building used as a school.
<b>Owner:</b>	Latin American Montessori Bilingual Public Charter School
<b>Address:</b>	1375 Missouri Avenue, NW
<b>Green Roof Cover:</b>	2,700 square feet
<b>Cost &amp; Funding:</b>	Approximate cost included \$18,750 for the membrane and \$79,290 for the medium and labor. Funding included a DC Green Roof Subsidy Program grant for \$8,046 with the balance provided from construction financing for the new addition.
<b>Installation Date:</b>	November, 2008
<b>Green Roof System:</b>	Extensive green roof installation with low to no maintenance landscaping consisting of shallow depths (~ 4") with plant varieties restricted to primarily mosses, herbs and grasses capable of withstanding harsh growing conditions. Plants were supplied by Emory Knoll Farms and installed by Prospect Waterproofing Company .
<b>Water Retention:</b>	Installation of the green roof has reduced the standard roof runoff at 0.4189 cfs to 0.1629 cfs.
<b>Access:</b>	Limited
<b>Contact:</b>	Diane Cottman, 202-726-6200



## D.C. Department of Parks and Recreation – Trinidad Recreation Center [Ward 5]

- Building:** New construction completed in 2007. Center includes gym, other youth activity rooms, game rooms, meeting and fitness rooms.
- Owner:** District of Columbia, Department of Parks and Recreation
- Address:** 1310 Childress Street, NE
- Green Roof Cover:** 5,400 square feet on lower roof section with pavers for walkways around perimeter and access through a fixed roof ladder and hatch.
- Cost & Funding:** Initial estimate for green roof was \$120,000. Chesapeake Bay Foundation (CBF) provided a \$20,000 grant and remainder of funds provided by the District Department of the Environment (DDOE).
- Installation Date:** December 2006
- Green Roof System:** Extensive green roof design using a modular roof top garden system as manufactured by *Green Tech Inc.* The modules are 4ft by 4ft plastic trays with built-in drainage channels. The planting medium fills the trays to about 8 inch depth. The plants are mixed sedums.
- Water Retention:** The roof is estimated to retain approximately 81,000 gallons of storm water over a one-year period of typical rainfall in the Washington DC region.
- Access:** Limited access to roof for small groups by appointment.
- Contact:** Mark Williams, [mark.williams@dc.gov](mailto:mark.williams@dc.gov), 202-258-4935  
or John Fanning, [john.fanning@dc.gov](mailto:john.fanning@dc.gov), 202-258-4935



## U.S. Department of Transportation (Southeast Federal Center) [Ward 6]

- Building:** New construction of twin office buildings completed in 2007. Provides offices for department management and several major federal agencies within DOT. Building is privately owned and leased to the federal government. Occupants moved in June 2007.
- Owner:** JBG / Federal Center, LLC
- Address:** 1200 New Jersey Avenue, SE
- Green Roof Cover:** 68,000 square feet on both lower roof sections and top of penthouses on two separate, adjacent buildings with pavers for walkways around perimeter and access through doorways in utility penthouse.
- Cost & Funding:** Total green roof as built cost (from contractor data) was \$720,000. Chesapeake Bay Foundation (CBF) provided a \$100,000 grant to partially defray this cost.
- Installation Date:** October 2006
- Green Roof System:** Extensive green roof system design. Components were supplied by *American Permaquik* and include a root barrier, filter fabric and moisture retention mat (design specs similar to *American Hydrotech Garden Roof System*). The lightweight growing medium, about 3 inches deep, meets ASTM standards and is similar to *American Hydrotech Lite Top Soil*. Sedum plugs are planted at two per square foot. The roofer was *Gordon Contractors*, and the green roof installer was *Davey Trees*.
- Water Retention:** The roof is estimated to retain approximately 1,020,000 gallons of storm water over a one-year period of typical rainfall in the Washington DC region. This calculated amount was part of the application to the District of Columbia for a building storm-water management permit and reflects an average 56% retention factor.
- Access:** Limited access to roof for small, escorted groups by appointment.
- Contact:** Paul Elias, [pelias@jbg.com](mailto:pelias@jbg.com), 240-333-3673



## American Psychological Association/World Resources Institute [Ward 6]

- Building:** This office building is owned by the American Psychological Association (API) and is the national headquarters of the World Resources Institute. It is located near Union Station in Washington DC. A re-roofing incorporated a green roof and a meditation labyrinth with access for tenants, guests and the public.
- Owner:** The American Psychological Association
- Address:** 10 G Street, NE
- Green Roof Cover:** 3,000 square feet
- Cost & Funding:** Estimated green roof cost was \$50,000 and Chesapeake Bay Foundation (CBF) provided a \$20,000 grant.
- Installation Date:** September 2008
- Green Roof System:** Green grid system – The standard GreenGrid® are light weight planting modules measuring 2ft by 4ft by 4in. Each module arrived on site with mature plants and ready to be installed. The modules were grown in a nursery for 30-60 days and transported in nursery racks. The modules were carried on a freight elevator to the roof. After installation the modules may be moved if necessary to accommodate future maintenance or changes. This system is designed for remodeling and conversion projects.
- Water Retention:** Approximately 45,000 gallons of water will be retained on this roof during a typical year of average rainfalls.
- Access:** Public tours and outreach in partnership with the World Resources Institute, the main building tenant.
- Contact:** Nancy Kiefer, [nkiefer@wri.org](mailto:nkiefer@wri.org)  
or Holly Siprelle, [hsiprelle@apa.org](mailto:hsiprelle@apa.org)  
[www.wri.org](http://www.wri.org)





## Friends Committee on National Legislation [Ward 6]

- Building:** The Friends Committee on National Legislation (FCNL) office building was the first green building on Capitol Hill. It is home to the nation's oldest religious lobby and the largest peace lobby in Washington, housing the organization's nearly forty employees. Beside daily business, the building's two conference rooms host coalition meetings and other events. FCNL, which spends some of its resources lobbying for environmentally friendly legislation, also uses its building as a lobbying tool – opening it to visits from members of Congress and congressional staff. Besides the roof, other green features include a geothermal heating and cooling system, bamboo floors, and a light scoop that delivers natural light to the core of the building.
- Owner:** Friends Committee on National Legislation (Manager: Jim Cason)
- Address:** 245 Second Street, NE
- Green Roof Cover:** 1,227 square feet of a total 2,438 square feet roof area (50.33% of roof vegetated)
- Cost & Funding:** \$20,000. The organization expects to recoup the cost in five years through energy efficiency; it costs less to cool a building when its roof is not 150 degrees. The green roof was built as part of the construction of FCNL's LEED certified building. The project was funded by a donor supported capital campaign.
- Installation Date:** Summer, 2005
- Green Roof System:** The green roof uses a Sopra-Drain for Sopranature system. It was installed by the Rayco Roof Service (Manassas, VA) using Soprema materials. The system consists of a strength core with fabrics attached to the top and bottom of the core. The top fabric allows water to pass into the drainage core, restricting the movement of soil particles and root growth while the bottom fabric provides protection to the Soprema membrane. The plastic core is the primary water reservoir, with perforations in the core to provide overflow drainage to prevent plants from drowning. The roof is covered by about 2 ½" growth of succulent plants. There is also a south facing light scoop that delivers natural light to the core of the building. The roof is maintained by the Furbish Company.
- Water Retention:** The roof retains approximately 60% of the annual rainfall. In the DC climate this comes out to about 16,200 gallons a year. The remainder of the water is discharged slowly over time avoiding stress on the municipal storm water system.
- Access:** The building is open Monday through Friday, 9 am-5:30 pm for public tours. Due to insurance reasons the roof is not open for public access.
- Contact:** Jim Cason, [jim@fcnl.org](mailto:jim@fcnl.org), 202-903-2531  
or Christine Haider, [christine@fcnl.org](mailto:christine@fcnl.org), 202-903-2505  
<http://www.fcnl.org/building/>



## Anacostia Gateway [Ward 8]

<b>Building:</b>	New construction office building with ground retail space, completed in 2007. Three floors with about 68,000 RSF total building area.
<b>Owner:</b>	Anacostia Gateway LLC [Anacostia Economic Development Corporation (AEDC) and DRI Partners, Inc.] – Tenants are DC Housing Authority.
<b>Address:</b>	1800 Martin Luther King Jr. Avenue, SE
<b>Green Roof Cover:</b>	10,500 square feet of green roof covering about 51% of total rooftop
<b>Cost and Funding:</b>	Total green roof cost estimated at \$250,000. Chesapeake Bay Foundation (CBF) provided a \$50,000 incentive grant.
<b>Installation Date:</b>	May 2007
<b>Green Roof System:</b>	Extensive green roof system design. “Hydrotech Garden Roof” Assembly; Concrete surface conditioner; Monolithic Membrane 612EV-FR and flashings, protection/separation course; root barrier protection; “Styroform” brand insulation; protection/water retention mat; drainage/water retention component; filter fabric; and 4” lightweight engineered soil/growing medium. The roof incorporates a roof terrace with access through a penthouse. The plants are sedums (sedum kamtschaticum).
<b>Water Retention:</b>	The roof is estimated to retain approximately 158,000 gallons of storm water over a one-year period of typical rainfall in the Washington DC region.
<b>Access:</b>	Limited access to roof by appointment.
<b>Contact:</b>	Mike Wallach, <a href="mailto:mike@aedc.net">mike@aedc.net</a> , 202-638-3000

