the guide to green :buildings

Resources for Sustainable, High Performance Buildings in the District of Columbia

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The Guide to Green: Buildings
Addresses Sustainable Development and Design Principles for:

1 Integrated Design
2 Sustainable Sites
3 Water Efficiency
4 Energy & Atmosphere
5 Materials & Resources
6 Indoor Air Quality
7 Case Studies

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Adrian M. Fenty, Mayor
Office of Planning www.planning.dc.gov
District Department of Environment www.ddoe.dc.gov

Welcome to
The Guide to Green: Buildings

A "green" building is a high performance facility that reduces water, energy and resource consumption, lowers operational costs, improves indoor air quality, and mitigates negative environmental impacts. Building "green" is the process of designing, constructing, operating, and maintaining buildings and landscapes that produce healthier indoor and outdoor environments. So why should you build green? Because it makes sense for the economy, public health *and* the environment.

District agencies, non-profits and private sector leaders are working to improve the environment by focusing on how our built environment can address problems such as climate change, air and water quality, volatile energy costs, and the District's aging infrastructure. The Guide to Green: Buildings contains principles, practices, and resources that help make sustainable, green development part of our everyday practice – for both new construction and renovations.

Buildings have a huge impact on our environment. An estimated 40 percent of raw materials consumed globally are used by the building construction industry. In the United States, buildings are responsible for approximately 68 percent of total electricity consumption, 38 percent of carbon dioxide emissions, 12 percent of potable water usage, and 272 million tons of construction and demolition waste annually.

Mounting evidence confirms that green buildings can realize lease or sale premiums and offer competitive advantages in progressive markets like the District. Green buildings also can lower operational costs, enhance asset value, improve risk and liability management, and build brand equity and reputation. Highlights of the economic and environmental benefits can be found throughout The Guide.

The Guide is organized to reflect the major categories addressed in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program, including:

- INTEGRATED DESIGN
- SUSTAINABLE SITES
- WATER EFFICIENCY
- ENERGY & ATMOSPHERE
- MATERIALS & RESOURCES
- INDOOR AIR QUALITY

With opportunities to improve the environment, provide better living and working conditions, and bolster the bottom line -- why not build green?

The Guide to Green: Buildings

Integrated Design

INTEGRATED DESIGN IS THE MOST IMPORTANT ELEMENT IN DELIVERING A SUCCESSFUL GREEN BUILDING

Resources

District Department of Environment
202-535-2600 www.ddoe.dc.gov

US Department of Energy; Building Technologies Program
www.eere.energy.gov/buildings

National Institute of Building Sciences; Whole Building Design Guide
202-289-7800 www.wbdg.org

US Green Building Council
202-828-7422 www.usgbc.org

Whole Building Design Guide
202-289-7800 www.wbdg.org/resources/charrettes.php

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Integrated Design

'Integrated design' involves collaboration between multiple professions – developers, contractors, architects, engineers and interior designers – early in the building planning process. An integrated approach explores, at the outset, many aspects of design that often are not considered until late in the process. By integrating the review of sustainable and conventional construction methods, a design team can explore ways to allow mechanical and natural systems to work together and lower project costs through system and design efficiency. There are five steps in the process for developing integrated building designs:

1. Establish a baseline performance profile showing energy use, material consumption, and costs for a typical facility that complies with code and other requirements for the project type, location, size, etc;
2. Identify a range of sustainable design strategies and options—all those that appear to have potential for the specific project;
3. Evaluate the expected performance of individual sustainable strategies;
4. Group high-performance strategies into different combinations to evaluate further performance and cost; and
5. Select strategies; refine the design and continue the analysis throughout the process.

GREEN BUILDING TIPS FOR INTEGRATED DESIGN

- Include the general contractor in early conversations with the architect and engineer to identify ways to streamline the construction time and process.
- Through integrated design and innovative use of sustainable materials and equipment, the initial or first cost of a sustainable building can be the same as, or lower than, that of a traditional building.
- Optimal-value engineering allows "right sizing" of infrastructure and mechanical systems, lowering costs of labor, materials, framing, and finishes.
- Research shows that investing in sustainable design features, such as energy- and water-efficiency measures, can considerably increase the resale value of a property by lowering annual costs and making the building less expensive to maintain and operate for a new owner.
- Many of the principles of sustainable design lead to longer building lifetimes and better adaptability of the building for future uses that cannot always be foreseen.

ENVIRONMENTAL BENEFITS

Significant reductions in CO_2 emissions are achieved through limiting the size of mechanical and HVAC systems in the ID process.

ECONOMIC BENEFITS

When project developers commit early to a high level of building integration, they can more effectively exploit cost trade-offs.

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Sustainable Sites

COMMUTING BY OFFICE WORKERS ACCOUNTS FOR 30-50 PERCENT MORE ENERGY THAN THE BUILDING ITSELF USES

- "Driving to Green Buildings"

Resources

District Department of Environment
202-535-2600 www.ddoe.dc.gov

DC Department of Public Works; Commercial Recycling Guide
202-645-7190 www.dpw.dc.gov

Low Impact Development Center
301-982-5559 www.lowimpactdevelopment.org

US Green Building Council; LEED-NC Version 2.2 Rating System
202-828-7422 www.usgbc.org

Construction Material Recovery Coalition; National Capital Region
202-289-7800 www.cmrc.us

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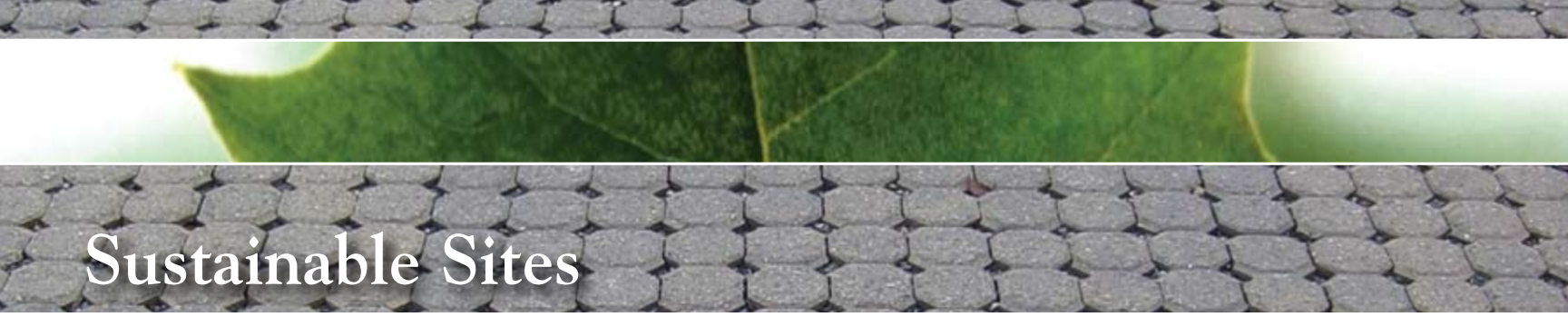

Sustainable Sites

Sustainable sites protect existing habitat and natural resources and revitalize areas that have been neglected or contaminated (often called 'brownfields'). Options to reduce waste and pollution associated with construction include controlling soil erosion, protecting waterways and wetlands, reducing airborne dust, and maximizing the natural advantages of a site. Sustainable site analysis focuses the owner/developer on the benefits of urban density and alternative transportation options to lessen the impact of a building on the surrounding community and environment. Sustainable site considerations can encourage acceptance of a development project by regulatory agencies, communities, neighbors, and environmental groups – often resulting in reduced costs and expedited permits and environmental review processes.

GREEN BUILDING TIPS FOR SUSTAINABLE SITES

- Project specifications and construction contracts should set goals and explicit tasks to increase recycling of construction and demolition waste and prevent construction-related pollution.
- Recycling and reusing existing building materials on site, such as wood, concrete, brick and asphalt can reduce environmental impacts and the overall cost of construction materials, including transportation.
- Green roofs add insulation that lower energy costs, reduce stormwater runoff, and help cool the environment, reducing the 'heat island effect'.
- Maximize the development capacity of sites located near mass transit.
- Discourage dependence on vehicles by providing bike racks or storage and preferred parking for car-sharing and car pools (Options that earn LEED points at low cost).
- Increase access to natural light and air by maximizing open spaces as part of the building design.
- Mitigating heat island impacts, and scoring LEED points, can be as simple as changing the color of roofing materials or concrete pavement to light, reflective colors.
- In a dense urban environment like the District, LEED points may be easily attained for the site selection category via proximity to transit, housing, jobs, services, etc.

ENVIRONMENTAL BENEFITS

Low impact development (LID) techniques that capture and clean rain water reduce the flow of pollution into our streams and rivers.

ECONOMIC BENEFITS

Selective building orientation can lower initial and lifecycle costs by reducing lighting needs and exploiting natural heating and cooling techniques.

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Water Efficiency

NEARLY 2.5 BILLION GALLONS OF COMBINED SEWER AND STORMWATER SPILL INTO THE ANACOSTIA AND POTOMAC RIVERS ANNUALLY

Resources

District Department of Environment
202-535-2600 www.ddoe.dc.gov

DC Water & Sewer Authority
202-787-2333 www.dcwasa.com

DC Department of Parks & Recreation; DPR Sustainable Design Guide
202-673-764 www.dpr.dc.gov

U.S. Environmental Protection Agency; Office of Water
www.epa.gov/water

US Green Building Council; LEED-NC Version 2.2 Rating System
202-828-742 www.usgbc.org

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Water Efficiency

Maximizing water efficiency in buildings and surrounding landscapes saves money and reduces their environmental impact. Limiting the use of drinking (potable) water for uses other than cooking, drinking and hygiene, also saves money and decreases the volume of water that must be treated. Lower water consumption also means lower wastewater generation, reducing the burden on the District's municipal wastewater systems and the volume of untreated sewage that is released in combined sewer overflow events. More effective and efficient water use can provide additional benefits by recharging groundwater and growing healthy landscapes.

GREEN BUILDING TIPS FOR WATER EFFICIENCY

- Low flow water fixtures, faucet aerators, flow sensors, and waterless urinals save on water bills, reduce wastewater volume, and are a simple option to obtain LEED points.
- Cooling equipment modified to use recycled water in a closed-loop system can reduce water consumption by a factor of 40.
- Consider treating wastewater on-site through natural or mechanical treatment systems such as constructed wetlands, biological nutrient removal systems, and high efficiency filtration systems.
- Perform a soil and climate analysis to determine appropriate plant material and design landscapes to reduce or eliminate irrigation requirements.
- Install trees and plants that are drought-resistant and give preference to plants native to the District.
- Integrate rainwater capture and other water reuse technologies to reduce potable water needs and wastewater flows.

ENVIRONMENTAL BENEFITS

On average, use of a single waterless urinal saves 45,000 gallons of water per year.

ECONOMIC BENEFITS

Low and no water landscaping can cost less than installing irrigation systems and provides on-going savings due to reduced power maintenance and water use.

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Energy & Atmosphere

REPLACING ONE INCANDESCENT LIGHT BULB WITH AN ENERGY-SAVING COMPACT FLUORESCENT BULB RESULTS IN A 1,000 POUND CARBON DIOXIDE SAVING - EPA

Resources

American Council for an Energy-Efficient Economy
202-429-8873 www.aceee.org

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers)
800-527-4723 www.ashrae.org

District Department of Environment; Energy Office
202-535-2600 www.ddoe.dc.gov

US Department of Energy; Energy Star Program
888-782-7937 www.energystar.gov

US Department of Energy; Energy Efficiency and Renewable Energy
877-337-3463 www.eere.energy.gov

US Green Building Council; LEED-NC Version 2.2 Rating System
202-828-7422 www.usgbc.org

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Energy & Atmosphere

Increased energy efficiency saves money, improves air quality, conserves natural resources, and creates a healthier ecosystem for everyone. Innovations in energy technology make incorporating high-efficiency mechanical and lighting systems easier and greatly reduces a building's energy consumption. Developments in renewable energy makes on-site use of solar, wind, geothermal, and other technologies feasible and several incentive programs are in place to help projects take advantage of renewable options.

GREEN BUILDING TIPS FOR ENERGY & ATMOSPHERE

- Establish a minimum level of energy efficiency for the proposed building and systems, and incorporate high-efficiency mechanical systems in buildings, verifying that they are installed, calibrated, and performing according to specifications.
- Employ a commissioning agent to confirm that building systems are installed and functioning correctly.
- Track the building's use of energy over time and identify ways to reduce energy use by exceeding minimum requirements in current building codes.
- Specify ENERGY STAR-rated appliances and office equipment in construction documents and employ the ENERGY STAR Portfolio Manager benchmarking tool to measure and track energy use and carbon emissions reductions. Buildings with a score of 75 or better also qualify as ENERGY STAR rated.
- Purchase renewable green power from your utility or third-party energy suppliers. Check that electricity is certified as green and that your purchase supports the development of renewable generation projects.
- Projects can earn LEED points for energy efficiency at very low or no cost by following or slightly improving upon code requirements.
- Design and locate buildings to maximize benefits from natural light and cross ventilation. Orienting buildings to the north and east, and residential buildings to the south and west, can help mitigate outside temperature impacts inside.
- Use daylight to reduce the need for artificial light and operable windows to provide natural ventilation and reduce mechanical cooling.

ENVIRONMENTAL BENEFITS

Incorporating renewable energy, such as solar, wind, geothermal or biomass into a building design greatly reduces CO_2 emissions typically associated with building operations.

ECONOMIC BENEFITS

The use of fluorescent and compact fluorescent lightbulbs extends lamp life by 10 times and reduces maintenance and labor costs.

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Materials & Resources

THE U.S. BUILDING INDUSTRY GENERATES 272 MILLION POUNDS OF BUILDING DEBRIS PER YEAR: 75 PERCENT OF WHICH IS BURNED OR SENT TO LANDFILLS - EPA

Resources

Habitat ReStore
703-360-6700 www.restorenova.org

The Loading Dock
410-558-3625 www.loadingdock.org

Forest Stewardship Council
202-342-0413 www.fscus.org

Community Forklift
202-544-0069 www.suscomini.org

US Green Building Council;
LEED-NC Version 2.2 Rating System
202-828-7422 www.usgbc.org

Green Recycling Network
240-674-3946 www.greenrecyclingnetwork.com

Construction Material Recovery Coalition;
National Capital Region
202-289-7800 www.cmrc.us

Whole Building Design Guide;
Construction Waste Management
202-289-7800 www.wbdg.org/tools/cwm.php

DC Department of Public Works;
Office of Recycling
202-645-7190 www.dpw.dc.gov

Metropolitan Washington Council of Governments
Builders' Guide to Reuse and Recycling
202-962-3200 www.buildersrecyclingguide.com

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Materials & Resources

Construction is resource intensive, but also presents many opportunities to select products that are recycled, non-toxic, and less resource exhaustive. The availability of 'green' construction materials grows daily and many green supplies are cost-competitive or even lower than traditional options. Considering 'green' materials selection early in the design process greatly increases options and can lower costs, such as transport and disposal. Setting goals for reuse of existing materials and structures, diversion of construction waste, purchasing recycled-content material and other categories can drive innovation and reduce the overall environmental impact of a building project.

GREEN BUILDING TIPS FOR MATERIALS & RESOURCES

- Establish a Construction Waste Management Plan and recycle and/or salvage at least 50 percent of non-hazardous construction and demolition debris, including paper, wood, glass, metal, and plastics. Clearly mark and catalogue materials to be salvaged and reused.
- Design to minimize construction debris. Using standard-sized or modular materials to avoid cutting pieces generates less waste and minimizes labor and disposal costs.
- Decrease environmental impacts and transportation costs by using materials recycled from the building site and by purchasing materials from local and regional markets within 500 miles of the building site.
- Specify building materials that are made with recycled materials and establish goals for recycled materials use.
- Use rapidly renewable materials for interior finishes, such as linoleum, cotton insulation, natural fiber textiles, strawboard, bamboo, and cork.
- Use wood-based materials that are certified with the Forest Stewardship Council (FSC).
- Look for ways to reduce material use and save money by eliminating unnecessary finishes and features such as ornamental wall coverings, walls and doors, and dropped ceilings.
- Earning LEED points, may be easily earned, through the use of locally harvested and/or produced materials.
- Concrete with slag content or fly ash can be less expensive ($0.50 to $1.00 per ton) and more durable than concrete made with 100 percent Portland cement.

ENVIRONMENTAL BENEFITS

Reducing, reusing and recycling materials limits the need for extraction of non-renewable resources and protects a finite supply of valuable assets.

ECONOMIC BENEFITS

On-site recycling of concrete, asphalt, metals, and wood can significantly reduce hauling and disposal costs and may produce revenue from recovered materials.

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Indoor Air Quality

INDOOR AIR POLLUTION CONSISTENTLY RANKS AMONG THE TOP FIVE ENVIRONMENTAL RISKS TO PUBLIC HEALTH - EPA

Resources

District Department of Environment
202-535-2600 www.ddoe.dc.gov

US Environmental Protection Agency; Indoor Air Publications
202-343-9370 www.epa.gov/iaq/pubs/insidest.html

US Green Building Council; LEED-NC Version 2.2 Rating System
202-828-7422 www.usgbc.org

Green Seal
202-872-6400 www.greenseal.org

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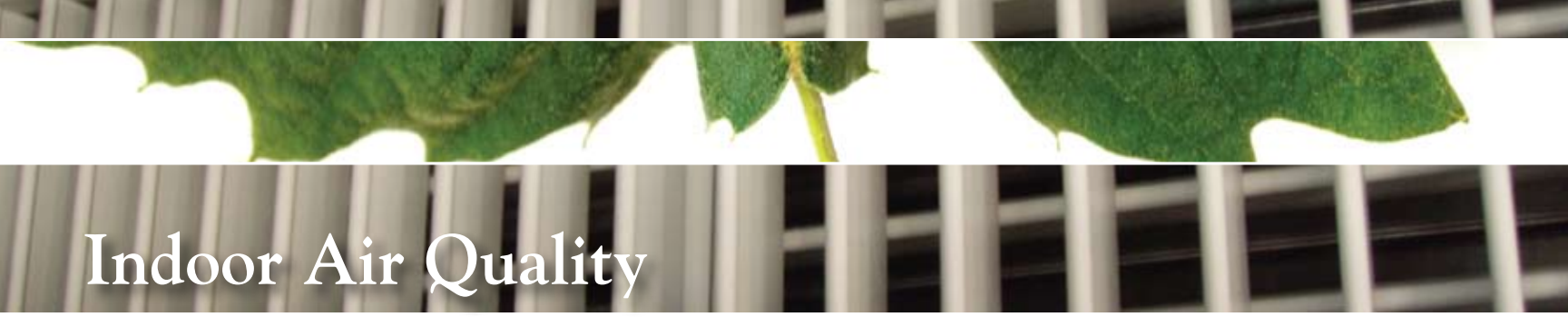

Indoor Air Quality

A critical element of development, historically overlooked, is the health impact that buildings have on the people that live, work, and study inside them. All projects should establish minimum indoor air quality performance standards to improve the comfort and well-being of their occupants. Using non-toxic, environmentally-friendly materials produces a healthier indoor environment and can increase productivity and marketability of a building. Office buildings with good indoor air quality can minimize sick days and increase employee retention.

GREEN BUILDING TIPS FOR INDOOR AIR QUALITY

- Create interior spaces that connect occupants with larger spaces, natural daylight, and open views.
- Design ventilation systems to meet or exceed the minimum outdoor air ventilation rates as described in the ASHRAE standard. Research shows that investing in improved ventilation can reduce sick leave costs by a factor of three.
- Use of low-emitting materials, furnishings and finishes is one of the easiest and most cost effective ways to earn up to three LEED points.
- Establish a green cleaning program that requires the use of nontoxic cleaners and cleaning methods.
- Design and locate outdoor designated smoking areas at least 25 feet away from entries, outdoor air intakes, and operable windows.
- Improving indoor air quality reduces the likelihood of moisture and mold damage.
- Use operable windows that allow occupants access to natural air and to alter the temperature of their living and work space.
- Paints with low levels of volatile organic compounds (VOCs or toxins) are cost-competitive or less expensive than toxic paints and can cover more surface area per gallon.
- Allow individual occupants or specific groups to control levels of lighting and temperature in multi-occupant spaces.

ENVIRONMENTAL BENEFITS

Non-toxic and low VOC (Volatile Organic Compounds) products and materials reduce the quantity of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of installers and occupants.

ECONOMIC BENEFITS

Individual control over lighting, temperature and ventilation, increased daylight, views of a natural landscape and openness of the environment may increase worker productivity.

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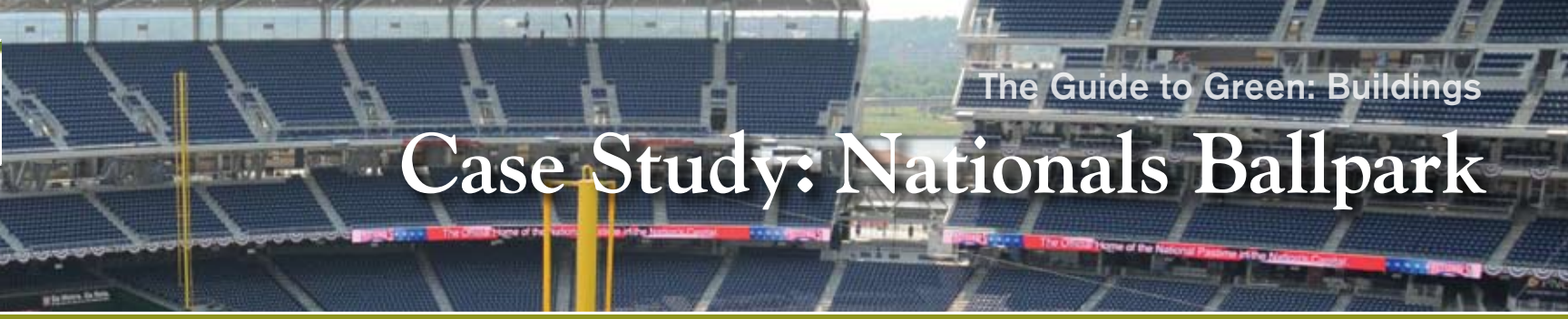

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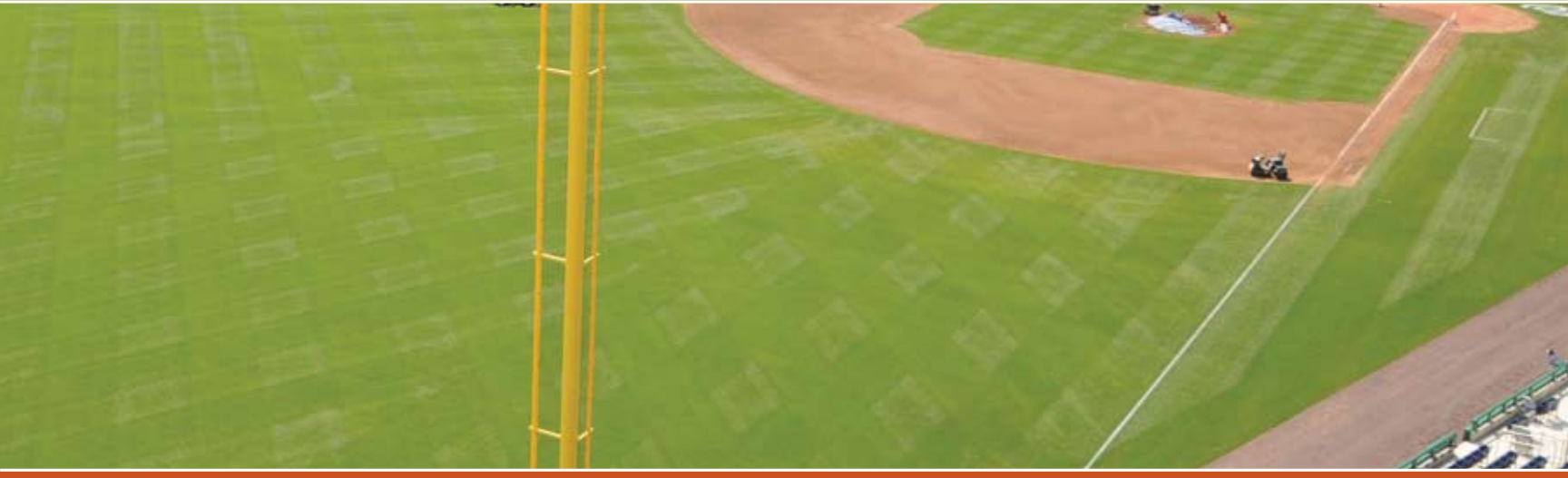
Case Study: Nationals Ballpark

WHEN IT EARNED A LEED RATING IN MARCH 2008, THE $611M NATIONALS BALLPARK BECAME THE NATION'S FIRST MAJOR PROFESSIONAL STADIUM TO BECOME LEED SILVER CERTIFIED



Summary

Nationals Ballpark is located in Southeast Washington at the base of the Anacostia River, among a new and developing mixed-use neighborhood, Capitol Riverfront. As fans pass through the facility, they witness panoramic views of Capitol Riverfront, Navy Yard and landmarks such as the Capitol and the Washington Monument. The playing fields are below grade to integrate the stadium scale with the neighborhood. The 41,000 seat venue also complements its surroundings through efficient field lighting, recycled materials and urban infrastructure.

LEED Facts

National Ballpark
Washington, DC

LEED for New Construction Awarded March 27, 2008

Silver	34*
Sustainable Sites	12/14
Water Efficiency	2/5
Energy & Atmosphere	3/17
Materials & Resources	6/13
Indoor Environmental Quality	7/15
Innovation & Design	4/5

***Out of a possible 69 points**

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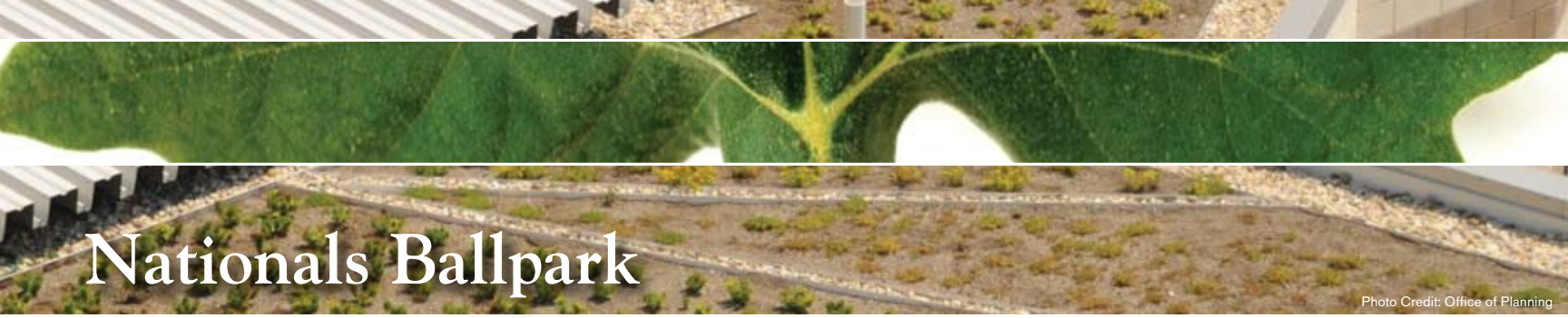

Nationals Ballpark

Photo Credit: Office of Planning

A SUSTAINABLE NEIGHBORHOOD SITE

Instead of locating the ballpark in an area on the periphery of Washington, the city selected the waterfront because it was a place that would complement future economic growth in Downtown. The location is easily accessible to public transportation, including access to nearby metro stations, local bus routes and bike trails. Because the site is within close proximity to the Anacostia River, much care was taken to treat storm and ground water runoff.

STRATEGIES AND RESULTS

- Water conserving plumbing fixtures have been used throughout the project, saving an estimated 3.6 million gallons of water per year, reducing overall water consumption by 30 percent.
- Energy conserving light fixtures help reduce light pollution and achieve a projected 21 percent energy savings over typical field lighting.
- The building materials used on the project were produced regionally, which cut down on transportation costs while promoting the local economy.
- Landscape materials are drought resistant, conserving water by eliminating the need for irrigation.
- A 6,300 square foot green roof minimizes roof heat gain through a high degree of reflectance.
- The Nationals Ballpark is categorized as a former brownfield redevelopment site.
- During the 22 months of ballpark construction, 5,500 tons of construction waste was recycled.
- Enhanced sandfilter was incorporated in six locations throughout the ballpark to screen organic debris (peanut shells, hot dogs, etc) from the stormwater system.

CONSTRUCTION PARTNERS

Architect: HOK Sport and Devrouax-Purnell Architects

Owner: The District of Columbia, D.C. Sports & Entertainment Commission (DCSEC)

Construction Manager: Clark Construction, Hunt Construction Group and Smoot Construction

Sustainable Design Consultant: HOK

PROJECT SPECIFICATIONS

Site Size: 20 acres

Facility Size: 1 million s.f.

Project Completion: 2008

Total Project Cost: $611 M

Case Study: Lamond Recreation Center

DEVELOPED BY THE DISTRICT OF COLUMBIA DEPARTMENT OF PARKS AND RECREATION AND IS A LEADER IN LOCAL GOVERNMENT GREENING

Summary

The Lamond Recreation Center utilizes a number of sustainable practices throughout the facility and site that makes it a leader in respecting the environment, its occupants and the surrounding urban community. The multi-purpose building sits on two-acres of terraced land and is equipped with a gym, exercise areas, meeting and office space, outside walking trails and beautifully landscaped grounds.

LEED Facts

Lamond Recreation Center
Washington, DC

LEED for New Construction Awarded March 6, 2007

Silver	33*
Sustainable Sites	6/14
Water Efficiency	5/5
Energy & Atmosphere	5/17
Materials & Resources	6/13
Indoor Environmental Quality	8/15
Innovation & Design	3/5

***Out of a possible 69 points**

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Lamond Recreation Center

Photo Credit: Ron Blunt

A COMMUNITY RECREATION CENTER FOR ALL AGES

Though sustainability was a primary objective for the project, most important was the development of the building's appearance to ensure that it was sensitive to the surrounding neighborhood. In order to achieve this, natural materials such as brick and copper siding were used and the scale of the surrounding buildings were balanced with its design. In addition, the landscaped areas utilized native plants, trees, and shrubs, like those found within the neighborhood, to eliminate the need for a permanent irrigation system. The project also features a comprehensive education program on the greening of the facility.

STRATEGIES AND RESULTS

- Mechanical, electrical and plumbing systems were designed to reduce energy use by 25 percent by using solar powered hot water heaters, efficient lighting and electrical systems, motion sensor controlled lights, and efficient HVAC systems.
- 75 percent of all construction waste was diverted from landfills.
- The location provides connectivity and access to public transportation, storage areas for bicycles, and encourages the use of alternative transportation by minimizing parking.
- Ten percent of the total building materials are from recycled content and 20 percent of the building materials were manufactured locally.
- All building finishes (paint, flooring, sealants, etc) have low or no volatile organic compounds (VOCs), the toxins that can cause harm to installers and occupants.
- Light colored roofing and paving is used to reduce the "heat island" effect and lower energy costs.
- Rainwater from the roof is stored in an underground cistern for use in the bathroom fixtures (toilets and urinals), reducing the water usage of the building.
- Innovative design points were awarded to the project for the inclusion of green educational signage which is displayed throughout the building.

CONSTRUCTION PARTNERS

Architect:
Quinn Evans | Architects

Owner: District of Columbia Department of Parks and Recreation

Construction Manager:
Turner Construction, Jair Lynch Development Partners, Alpha Corporation

Sustainable Design Consultant:
Quinn Evans | Architects

PROJECT SPECIFICATIONS

Site Size: 2 acres

Facility Size: 14,650 s.f.

Project Completion: 2007

Total Project Cost: $8 M

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Case Study: Deanwood Community Center & Library

THE PROJECT WILL BE THE FIRST LEED SILVER CERTIFIED, JOINT-USE COMMUNITY CENTER AND PUBLIC LIBRARY IN THE DISTRICT UPON ITS CERTIFICATION EXPECTED IN APRIL, 2010

Summary

The new Deanwood Community Center and Library is an innovative and sustainable joint-use facility that will feature educational, recreational and athletic programs for all ages. This project is a partnership between the Deputy Mayor's Office and the Department of Parks and Recreation and is being managed by the Deputy Mayor for Planning and Economic Development. The building will become an intergenerational destination with numerous opportunities for interaction organized around an interior public space.

LEED Facts

Deanwood Community Center & Library
Washington, DC

LEED for New Construction anticipated for Spring, 2010
Anticipated Points: 33

Silver	33*
Sustainable Sites	9/14
Water Efficiency	4/5
Energy & Atmosphere	4/17
Materials & Resources	3/13
Indoor Environmental Quality	10/15
Innovation & Design	3/5

***Out of a possible 69 points**

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Deanwood Community Center & Library

Image Credit: Ehrenkrantz Eckstut & Kuhn Architects

A VIBRANT JOINT-USE NEIGHBORHOOD FACILITY

The community facility will include an indoor swimming pool, locker rooms, gymnasium, game room, a 10,000 square foot library, child care and senior facilities, kitchen and multipurpose rooms. It is positioned at the north end of an existing 5.8-acre park in Northeast DC, and will integrate and anchor the north end of the park, helping to define the public open spaces between it and the Ronald Brown Middle School at the southern border of the park. The state-of-the art facility will offer continuous educational activity through youth and elderly programs at the Early Care & Education Center, where District students will be tutored after school and seniors will engage in numerous wellness programs.

STRATEGIES AND RESULTS

- The major site design initiatives include a cistern to collect stormwater run-off, bioretention gardens, and the reuse of water for irrigation.
- Designed to save energy, reduce water consumption, and create a healthy indoor environment, the center will foster environmental stewardship among the users.
- Light colored roofing and paving was used to reduce the “heat island” effect and lower energy costs.
- The building optimizes energy performance by reducing energy use by 40 percent compared to conventional means.
- Indoor chemical and pollutants are controlled through the use of walk-off mats and increased ventilation in spaces containing copy machines and the like.
- The building uses only interior finishes that meet high standards to ensure good indoor air quality, which can lead to higher levels productivity and overall well-being.
- The innovative design strategy focuses on continuing the green initiative of the building beyond the design and construction periods. For example, the Green Housekeeping credit refers to the owner’s commitment to use cleaning methods and products considered friendly to our environment.

CONSTRUCTION PARTNERS

Architect: Ehrenkrantz Eckstut & Kuhn Architects

Owner: The District of Columbia Department of Parks & Recreation

Program Manager: Banneker Ventures LLC and Regan Associates

Sustainable Design Consultant: TerraLogos

PROJECT SPECIFICATIONS

Site Size: 5.8 acres

Facility Size: 63,000 s.f.

Project Completion: 2009

Total Project Cost: $25 M

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Case Study: H.D. Cooke Elementary School

DEVELOPED BY THE OFFICE OF PUBLIC EDUCATION FACILITIES MANAGEMENT FOR THE DISTRICT OF COLUMBIA PUBLIC SCHOOLS AND IS A LEADER IN PUBLIC SCHOOL GREENING

Summary

Rehabilitation of the historic H.D. Cooke Elementary School building and construction of new light filled additions utilizes efficient use of material, limits construction impact and preserves history important to the neighborhood. The site is located within two acres at a high point in Adams Morgan. The school serves approximately 500 students and staff during school days and makes needed playground and community space available to the neighborhood come evening and on weekends.

LEED Facts

H.D. Cooke Elementary School
Washington, DC

LEED for Schools anticipated for Fall, 2009
Anticipated Points: 38

Silver	38*
Sustainable Sites	9/14
Water Efficiency	4/5
Energy & Atmosphere	5/17
Materials & Resources	5/13
Indoor Environmental Quality	12/15
Innovation & Design	3/5

***Out of a possible 69 points**

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Adrian M. Fenty, Mayor
Office of Planning www.planning.dc.gov
District Department of Environment www.ddoe.dc.gov

H.D. Cooke Elementary School

Photo Credit: Quinn Evans | Architects

AN ELEMENTARY SCHOOL BOUND TO ITS COMMUNITY

H.D. Cooke Elementary School is a significant icon and landmark in the city. The project exemplifies green design and maintains and improves the school's connection to the surrounding neighborhood. The approach to the renovation portion of the project followed the central tenet of historic preservation: modify where needed, retain wherever possible. The new addition will provide clear circulation, integrating the original building with the 1960 addition, the new gymnasium and cafeteria, and the street.

STRATEGIES AND RESULTS

- Mechanical, electrical and plumbing systems have been designed to reduce energy use by 25 percent by utilizing efficient electrical systems, motion and daylight sensor controlled lights, and efficient HVAC systems.
- 79.5 percent of classroom and core learning spaces receive a minimum of 2 percent daylighting.
- Sunshades and lightshelves are in place on south facing classroom windows to control and capitalize on the natural light.
- A minimum goal of 75 percent of all construction waste diverted from landfields was set for the project, while the current diversion is closer to 90 percent.
- The location of the elementary school provides access to several public bus lines and a metro stop, storage areas for bicycles, and parking designated for car pooling and alternative fuel vehicles.
- Storm-water runoff is treated and filtered in an onsite bio-retention facility before entering the public sewer system.
- All building finishes (paint, flooring, etc) have low VOCs.
- Light colored roofing and paving is used to reduce "heat island" effects.
- Existing wood floors in the original building classrooms are refinished, enhancing the design aesthetic and minimizing use of new materials.

CONSTRUCTION PARTNERS

Owner: The District of Columbia Public Schools

Design Build Construction team: Gilbane Construction and Quinn Evans | Architect

Sustainable Design Consultant: Sustainable Design Consulting

PROJECT SPECIFICATIONS

Site Size: 2 acres

Facility Size: 85,708 s.f.

Project Completion: 2009

Total Project Cost: $33.4 M

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OFFICE OF PLANNING

Harriet Tregoning; Director
Patricia Zingsheim; Associate Director
Chris Shaheen; Program Manager
MonaCheri McCoy; Revitalization Planner
Michael Johnson; Public Information Officer
Zach Dobelbower; Urban Planner

For questions or comments please contact the Office of Planning at 202-442-7600

DISTRICT DEPARTMENT OF ENVIRONMENT

George Hawkins; Director
Corey Buffo; Office of Policy & Sustainability
Brendan Shane; Office of Policy & Sustainability

AGENCIES

Office of the Deputy Mayor for Planning and Economic Development
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GOVERNMENT OF THE DISTRICT OF COLUMBIA
Adrian M. Fenty, Mayor
Office of Planning
801 North Capitol Street
Suite 400
Washington, D.C. 20002