MCPB
ITEM NO. 13
11-01-2007

October 26, 2007

MEMORANDUM

TO: Montgomery County Planning Board

VIA: Mary Dolan, Acting Chief, Countywide Planning Division MD

FROM: Marion Clark: 301-495-1328, Environmental Planning MC

SUBJECT: Status Report on Green Buildings in Montgomery County

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This item will provide an update on green building activities in Montgomery County. Sandra Batterden, Manager of Land Development in the Department of Permitting Services will review the status of regulations for Executive Regulation 19-07. Anja Caldwell, Manager of the Green Building Program with MCPS, Department of Facilities Management will discuss ongoing policies and practices, and recent successes in building green schools. Marion Clark, Environmental Planning will present an introduction to the Maryland National Capital Park and Planning Commission (M-NCPPC) Going Green at Home program. A short background is furnished below.

Over the past several years Montgomery County has made considerable strides in bringing green building practices to the public attention and into practice. Throughout this time M-NCPPC staff worked collaboratively with Montgomery County staff in efforts of public outreach, creating legislation, instituting policy and implementing green buildings. As a result of these efforts, the County is now positioned as a leader both regionally and nationally.

In 2006 the County Council passed the Green Building Law, No. 19-07 Buildings - Energy Efficiency and Environmental Design. When passed this law stepped in front of leading municipalities to establish Montgomery County as one of the most progressive counties in the nation by targeting both public and private sector buildings. Regulations for this law will be reviewed by the Transportation and Environment Committee on Monday October 29, 2007.

Montgomery County Department of Public Works (DPWT) and Montgomery County Public Schools (MCPS) have also been working to make public buildings greener and more energy efficient. MCPS designed Green Schools Focus to instill environmental stewardship and resource conservation in all

aspects of the school system. Contributing significantly to this mission, the Green Building Program is building green schools to high standards.

Now in its third year, the Going Green at Home program was created to educate community members living in single and multi family homes about the benefits of green buildings. This program joined a handful of other cities in the country that offer programs and events to assist residents in adapting their homes to be more energy efficient, and have cleaner air quality and better water conservation measures.

MONTGOMERY COUNTY EXECUTIVE REGULATION

Offices of the County Executive . 101 Monroe Street . Rockville, Maryland 20850

Subject: **Buildings – Energy Efficiency and Environmental Design**	**Number:** **19-07**
Originating Department: DEPARTMENT OF PERMITTING SERVICES	**Effective Date:**

Montgomery County Regulation on:

BUILDINGS – ENERGY EFFICIENCY AND ENVIRONMENTAL DESIGN

DEPARTMENT OF PERMITTING SERVICES

Issued by: County Executive
Regulation No.

Authority: Code Sections 8-26, 8-49, and 8-51
Supersedes: Regulation Nos. None
Council Review: Method 2
Register Vol. Issue
Comment deadline:
Effective date:
Sunset date: None

SUMMARY: This regulation implements the Montgomery County Green Buildings Law ~~set out~~ codified in Chapter 8 (Buildings), Article VII (Energy Efficiency and Environmental Design) of the County Code.~~:~~

ADDRESSES: Department of Permitting Services
255 Rockville Pike, Second Floor
Rockville, Maryland 20850

STAFF CONTACT: Sandra Batterden, Manager
Division of Casework Management
240-777-6248

Hadi Mansouri, Acting Chief
Division of Building Construction
240-777-6233

BACKGROUND INFORMATION: The Department of Permitting Services enforces Chapter 8

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(Buildings) of the ~~Montgomery~~ County Code. This regulation implements the ~~Montgomery County~~ Green Buildings Law, which is codified in Article VII~~,~~ (Energy Efficiency and Environmental Design) of Chapter 8.

I: PURPOSE

This regulation implements the ~~Montgomery County~~ Green Buildings Law by specifying the:

a) LEED Rating System and any equivalent ~~energy and environmental design~~ rating system ~~standard t~~that applies to each type of covered building under ~~Chapter~~Section 8-49 of the County Code;

b) process to verify that a covered building complies with the applicable standard, including types of persons who are qualified to verify compliance;

c) standards and procedures under which the Director may approve waivers or modifications of ~~Chapter~~ Section 8-49 of the County Code when compliance would be impracticable or unduly burdensome and the public interest would be served by the waiver or modification; and

d) standards and procedures for any enforcement mechanism that the Department finds necessary to accomplish the purposes of the Montgomery County Green Buildings Law.

II: APPLICABILITY

This regulation applies to any **newly constructed** or **extensively modified non-residential** or **multi-family residential building** that has or will have at least 10,000 square feet of gross floor area.

III: DEFINITIONS

For the purposes of this regulation, the following words and phrases have the meaning indicated. Words and phrases defined and used in Chapter 8 of the ~~Montgomery~~ County Code have the meaning indicated in that Chapter.

"Applicable rating system" means:

(1) For a building that obtains USGBC certification, the LEED rating system for which the

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building is registered at the USGBC;

(2) For a building that obtains County certification, the LEED rating system that would apply to the building if it were registered with the USGBC on the date that the building is registered with the Department under Section 5.0; or

(3) For a building that obtains certification under an equivalent rating system, the equivalent rating system for which the building is registered.

County building means any **covered building** for which the County government finances at least 30% of the cost of:

(1) construction, for a **newly constructed** building; or

(2) modification, for a building that is **extensively modified**.

County certification process means the process administered by the Department to verify that a covered building complies with the required standard.

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Covered building means a **newly constructed** or **extensively modified non-residential** or **multi-family residential building** that has or will have at least 10,000 square feet of gross floor area.

Department means the Department of Permitting Services.

Director means the Director of the Department of Permitting Services.

Equivalent rating certification process means the process administered by an equivalent rating entity to verify that a covered building complies with the required standard.

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Equivalent rating entity means a person or entity that the Director identifies as qualified to certify

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that a building complies with the required standard under an equivalent rating system.

Equivalent rating system means an energy efficiency and environmental design rating system that the Director identifies as equivalent to the applicable LEED rating system.

Extensively modified refers to any structural modification which alters more than 50% of the building's gross floor area, as indicated on the application for a building permit. ***Extensively modified*** does not include any modification that is limited to one or more of the following building systems: mechanical; electrical; plumbing; heating, ventilation, and air conditioning (HVAC); and fire protection.

Green buildings law means the Montgomery County Green Buildings Law codified in Chapter 8 (Buildings), Article VII (Energy Efficiency and Environmental Design) of the County Code.

LEED refers to the series of Leadership in Energy and Environmental Design (LEED) rating systems developed by the **USGBC (US Green Building Council).**

LEED accredited professional means [Hadi and Sandra please fill in].

LEED rating system means the particular **LEED** rating system that applies to a **covered building.**

Multi-family residential building means any multi-family residential or mixed-use building that is taller than 4 stories. ***Multi-family residential building*** does not include a residential care or assisted living building which can house no more than 16 occupants.

Newly constructed refers to a new stand-alone building or an addition to an existing building.

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(1) Except as provided in paragraph (2), a ***newly constructed*** building includes any addition to or enlargement of an existing building, but does not include any change to an existing portion of a building.

(2) For any building for which an application for all necessary building permits was filed before September 1, 2008, any later addition to that building constitutes a **newly constructed** building only if the addition would increase the building's land coverage by at least 100% ~~or~~ and gross ~~square~~ floor area by at least 10,000 square feet.

Non-residential building means a building not used as a dwelling.

Non-residential building does not include any:

(1) day care center for 5 or fewer persons;

(2) accessory building or structure;

(3) agricultural building, stable, barn, or greenhouse;

(4) parking garage that is not heated or cooled; or

(5) other building characterized as a miscellaneous building in the edition of the ICC International Building Code designated under Section 8-13.

Project plan means a project plan approved by the Planning Board under Chapter 59 of the County Code.

Preliminary plan means a preliminary plan approved by the Planning Board under Chapter 50 of the County Code.

Registered design professional means [Hadi and Sandra please fill in]

Required standard means the energy efficiency and environmental design standard that applies to

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a covered building under Section 8-49 of the County Code.

Regulatory approval means an approved project plan, preliminary plan, or site plan.

Site plan means a site plan approved by the Planning Board under Chapter 59 of the County Code.

Temporary Use and Occupancy Certificate means a certificate issued by the Department at the ~~Upon the~~ request of a building permit ~~the h~~holder ~~of a permit, the director may issue a temporary certificate of occupancy for a building or structure or part thereof be~~before the entire work covered by the building permit ~~shall have been~~is completed which authorizes the holder to use and occupy the building for a specified period~~; provided, that such portion or portions may be occupied safely prior to full completion of the building without endangering life or public welfare~~.

USGBC means the US Green Building Council, an organization that has developed and published the **LEED rating system** to measure the energy efficiency and environmental performance of a building.

USGBC certification process means the certification process administered by the USGBC to verify that a building complies with the required standard.

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IV: POLICY

4.0 The Department of Permitting Services supports the General Services Administration (GSA) commissioned evaluation of nationally recognized green building rating systems titled *Sustainable Building Rating Systems Summary* dated July 2006. The report, researched by the Pacific Northwest National Laboratory, identified the USGBC LEED rating system as the "most appropriate and credible" rating system for green building design and construction standards. The Department hereby identifies the LEED rating systems as the benchmark for evaluating proposed equivalent rating systems on a project by

project basis.

4.1 The Department will accept building permit applications for covered buildings under four optional methods of certification.

4.2 The first and preferred method to demonstrate compliance with the ~~LEED certification is via submission to the USGBC.~~ required standard is the USGBC certification process. Projects formally registered, submitted for review, and certified by the USGBC will be accepted as certified by the Department. The Department reserves the right to review and inspect (as it dseems necessary) certified credits approved by the USGBC.

4.3 The second method to demonstrate compliance with the required standard is the County certification process. Projects not submitted to the USGBC for formal review will undergo a complete review and inspection process via DPS, using the LEED rating system to document planning, design, and construction phase compliance. ~~In all instances below where LEED submission is stipulated, the alternative DPS review is considered equal.~~ Submission of credit documentation under the Green Buildings Law for projects using the LEED rating system must be certified by a registered design professional.

4.4 The third method to demonstrate compliance with the required standard is an equivalent rating certification process. Consideration of projects using any alternative green building rating system will be made via the building code modification process ~~provided~~ administered under Section 8-15 of the County Code. Submission of sufficient information regarding the proposed alternative rating system is required to allow the Director to determine ~~the equivalency to LEED.~~ whether it is an equivalent rating system. Submission of credit documentation under the Green Buildings Law for projects using an equivalent rating system ~~approved alternative to the LEED rating system m~~must be certified by a registered design professional.

V: COUNTY CERTIFICATION PROCESS

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5.0 To register a covered building for the County certification process, a person must submit the following information to the Department:

[Hadi and Sandra – please fill this in]

5.2 To obtain the Department's approval of design phase credits for a covered building, a person must submit the following information to the Department:

[Hadi and Sandra – please fill this in]

5.3 To obtain the Department's approval of construction phase credits for a covered building, a person must submit the following information to the Department:

[Hadi and Sandra – please fill this in]

5.4 To obtain the Department's approval of post-construction phase credits for a covered building, a person must submit the following information to the Department:

[Hadi and Sandra – please fill this in]

5.5 If a person encounters difficulty applying a pre-requisite or credit from the applicable rating system to a building that is subject to the County certification process, the person may ask the Department for a credit interpretation review by submitting a written application to the Department that includes:

[Hadi and Sandra – please fill this in]

~~Projects that are in compliance with future adopted national green building codes or standards will supercede the requirements of this regulation.~~

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VI: PROCEDURES – COMPLIANCE VERIFICATION

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6.0 Before applying to the Planning Board for the first regulatory approval relating to a project that includes a covered building, an applicant must register the building with the USGBC, the Department, or an equivalent rating entity.

6.1 When a person applies to the Planning Board for the first regulatory approval for a project that includes a covered building, the person must submit to the Department a Green Building Concept Plan that:

a) includes proof of registration with the USGBC, the Department, or an equivalent rating entity;
b) identifies the applicable rating system;
c) describes the project's scope; and

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d) describes anticipated green building features in the following areas: sustainable site, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design process.

6.2 A Green Building Concept Plan submitted to the Department under Section 6.1 is intended to be a planning tool for the Department and the owner of a covered building. The Planning Board must not make a Green Building Concept Plan a condition of regulatory approval.

~~5.0 When an applicant submits to the Montgomery County Planning Department an application for the first required regulatory approval relating to a project that includes a covered building, the applicant must submit to the Department, a Green Building Concept plan indicating the project scope and anticipated green building features in the following areas:~~

~~a)Sustainable Sites~~
~~b)Water Efficiency~~
~~c)Energy and Atmosphere~~
~~d)Materials and Resources~~
~~e)Indoor Environmental Quality~~
~~f)Innovation and Design Process~~

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6.3~~5.1~~ When an applicant submits to the Department an application for a building permit for a covered building, the applicant must also submit to the Department documentation of ~~LEED or approved equivalent rating system project~~ registration and credit information for the applicable rating system.

The documentation ~~of LEED or approved equivalent rating system project~~ of registration and credit ~~submission~~ information for the applicable rating system must identify the:

~~a)A~~LEED ~~or approved equivalent~~ pplicable rating system; ~~type under which the project is registered~~
a)
b) ~~Identification of the~~ Registered Design Professional as the point of contact for project information;
c) Design phase credit submission documentation and any anticipated or approved credits designated by the USGBC, the Department, or ~~approved~~ equivalent rating ~~organization~~ entity;~~.~~
d) Construction phase credit submission documentation and any anticipated or approved credits designated by the USGBC, the Department, or ~~approved~~ equivalent rating entity; and
~~d)~~e) LEED accredited professional responsible for credit documentation~~organization~~.

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6~~5~~.4~~2~~ Prior to construction start under the building permit for a **covered building**, a mandatory G~~g~~reen B~~b~~uilding Construction M~~m~~eeting is required.

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a) Attendees must demonstrate that a process is in place to adequately implement and document construction phase credits.
b) Attendees must include representatives of the building permit holder ~~project applicant~~, the building's ~~project~~registered design professional, and the LEED Accredited Professional responsible for ~~project~~ credit documentation.

~~6~~5.3 ~~Before construction begins on a covered building for which a building permit has been issued, the applicant, the project's registered design professional must attend a Green Building Construction Meeting with the Department and demonstrate that a process is in place to adequately implement and document construction phase credits.~~

~~5~~.54 The Department may conduct inspections of any covered building at any time as necessary to document construction or post-construction phase credits.

6.6~~5.5~~ Before a Use and Occupancy Certificate for a covered building is issued to an applicant:

(a) T~~t~~he applicant and the project's registered design professional must attend a Green Building Credit Verification meeting with the Department and demonstrate that the required number of design and construction phase credits have been obtained; and
(b) T~~t~~he Department must inspect the covered building and verify that the design and construction phase credits have been obtained.

6.7 If a covered building does not comply with the ~~has not obtained the~~ required standard~~applicable LEED or approved equivalent rating system certification~~, the Department must not issue a Use and Occupancy Certificate. The Department may issue a T~~t~~emporary Use and Occupancy Certificate if the applicant demonstrates that a process is in place to adequately implement and document anticipated construction or post-construction phase credits and the building can be safely used and occupied. The Director may revoke a ~~A~~ T~~t~~emporary Use and Occupancy Certificate ~~can be revoked i~~if the building does not comply with the ~~Montgomery County~~ Green Buildings Law or this regulation.

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VII: MODIFICATIONS

7.0~~VI.~~ Requests for Modification to the requirements of the ~~Montgomery County~~ Green Buildings Law or this regulation will be addressed via the Department's Building Code Modification process administered under Section 8-15 of the County Code. In addition to modifications for proposed use of alternative energy efficiency and environmental ~~efficiency~~ design rating systems, modifications may include requests

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for waivers when compliance is impracticable or unduly burdensome and the public interest would be served by a waiver or modification.

VIII. SEVERABILITY

The provisions of this regulation are severable. If a court of competent jurisdiction holds that a provision is invalid or inapplicable, the remainder of the regulation remains in effect.

EFFECTIVE DATE: This regulation becomes effective _____.

_____ _____

Isiah Leggett, County Executive Date

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GREEN TECHNOLOGY PILOTS AT MCPS

Sustainable Sites

- Vegetated Roof
- Pervious Paving
- Native and non-invasive Plantings
- Educational Gardens
- Bioretention
- Cisterns
- Raingardens
- No-Mow Zones
- Energy Star White Roofs
- Schoolyard Habitat Projects
- Composting

Water Efficiency

- Low-Flow Faucets and Showerheads
- Flushless Urinals
- Dual Flush Technology
- Irrigation Control

Energy Conservation

- Building Envelope Improvements
- Low-e Fiberglass windows
- Cool Daylighting
- Re-lamping
- Interior and Exterior Lighting Controls
- Lighting Standardization
- Occupancy Sensors
- Groundsource Hydronic Heat Pumps
- High Efficiency Boilers
- Plug Load Control
- Energy Recovery
- On site energy generation – Solar and Wind
- Green Power Procurement
- Energy Star Appliances
- Energy Star Design
- User Education Programs

Materials

- Use of Local Materials
- Recycled Content Materials
- Low emitting paints, sealants and adhesives
- Formaldehyde free insulation
- Formaldehyde Free Wood Composites
- Use of Forest Stewardship Council Certified Wood

Operations

- Integrated Pest Management
- Green Cleaning Equipment
- Healthy, High Performance Cleaning Initiative
- Tools for Schools IAQ Management
- Consumer Recycling
- Construction Waste Recycling
- Conservation Training
- Peer to Peer Green Training

Green MCPS Building

Montgomery County Public Schools
Green Building Program

2096 Gaither Road
Suite 203
Rockville, MD 20850

Phone 240.314.1095
Fax 240.314.1036

www.Schools2Green.org

Green MCPS Building

Schools2Green.org

MISSION

The Green Building Program of Montgomery County Public Schools provides leadership in energy and environmental design.
The program advocates environmental stewardship and resource conservation through intelligent design, technology pilots, high performance design training and innovative strategies for new school construction and renovations.

1ST LEED SCHOOL IN MARYLAND

First Public LEED School in Maryland - Great Seneca Creek ES in Germantown

The new elementary school in Germantown is the first school in Maryland to be LEED certified. LEED stands for Leadership in Energy and Environmental Design and is a rating system from the US Green Building Council (USGBC). The system provides a checklist for the design process in the categories of Sustainable Sites, Water Efficiency, Energy and Atmosphere, Material and Resources, Indoor Environmental Quality and green Design Innovation.

The more points the project is able to achieve in the six categories, the higher the ranking and third party certificate by the USGBC, from a basic LEED certification to Silver, Gold and Platinum.
A design charrette conducted in 2003 with members of the MCPS Department of Facilities Management and national green building experts determined the energy and environmental design goals for Great Seneca Creek and Little Bennett.

Some of the environmental design features of the projects are e.g. 43% savings in water with low-flow appliances, including flushless urinals and dual flush options for toilets.
The schools have a geoexchange system with all the piping buried under the athletic field. The constant ground temperature provides heat in the winter and cooling in the summer. This "free" energy is expected to save at least $0.55 per sq. ft. a year in energy use and maintenance of the schools.

The buildings also have a white Energy Star (www.energystar.gov) certified roof, which helps reducing the Heat Island Effect- the excessive heating of the atmosphere through dark surfaces built by humans. This will also reduce the air conditioning load of the buildings, as most schools at MCPS are now used throughout the year.

A comprehensive information kiosk is located in the lobby at Great Seneca Creek. This presentation is tied into a keyed building tour that explains the green and LEED related features of the building to students, staff and community members. Signs are posted in all the classrooms, by the windows, in the restrooms and at mechanical rooms as an educational and informative tool.
The signs can be customized by the students, as this building functions as a 3D textbook with active student involvement in MCPS' SERT (School Eco Response Team) program. User Education and behavior modification is an important factor in energy use and can make a difference of on average 15% on the utility bills of a school.

The school also has a comprehensive website that describes the green building features, including a twenty minute virtual tour narrated by the students of Great Seneca Creek ES.

More information on this pilot and the Green Building Program at MCPS is available on the MCPS Green Building Program's website at www.schools2green.org.

Contact: Anja S. Caldwell,
Green Building Program Manager and
LEED accredited Architect

E-mail Anja_S_Caldwell@mcpsmd.org

Schools2Green.org

Green Building MCPS

Great Seneca Creek Elementary School

Montgomery County Public Schools, Maryland

Great Seneca Creek Elementary School in Germantown is the first public school in the state of Maryland to be certified by the US Green Building Council (USGBC) with their LEED (Leadership in Energy and Environmental Design) rating system. The building opened in September 2006. After all the documentation of the building's construction had been reviewed by USGBC, the building received a Gold rating in April 2007.

The school building is the Green Building Program's (www.Schools2Green.org) first school built to green, high performance design standards that also pursued a LEED certification and achieved the prestigious Gold rating.

The LEED rating system awards points in six categories for conserving resources and reducing air and water pollution, as well as optimizing indoor air quality.

The Department of Facilities Management conducted a sustainable design charette during the schematic design phase in 2003 and produced the design teams high-performance design goals. The LEED system was used as a road map to design an energy- efficient and "green" school by using the latest technologies available in the growing green building industry.

The 82,500 square foot school building is equipped with a geothermal mechanical system that harvests the constant temperature of the earth for heating or cooling the building. This is expected to reduce the energy use by more than 35%, estimated at about $60,000. Therefore, Great Seneca Creek ES is also expected to earn an Energy Star from the U.S. EPA Energy Star Program for schools, when the energy bills of the first year in operation can be submitted and compared with the national database of energy-efficient schools. The building's plumbing utilizes dual-flush technology and low-flow fixtures that will reduce the potable water demand by at least 43% compared with other buildings of its type, estimated at about 360,000 gallons per year.

Ninety-five percent of the packaging and construction waste of the school were recycled. Most building materials came from local sources within 500 miles of the site. Some of the building components feature recycled materials, like the bathroom partitions, which are made of recycled plastic from soda bottles and laundry detergent containers.

The casework of the school is made of wheatboard, a rapidly renewable material that is an alternative to particleboard made of wood and mature trees.

Great Seneca Creek ES is also piloting a green cleaning program. As a result, several cleaning products were replaced by one healthier alternative.

Green Building MCPS

Green signage and tours of the school create a hands-on connection between the building and its users. Students and staff as well as the Germantown community and neighbors are learning how a building and its features affect the environment, and how negative effects can be reduced or even avoided by building greener.

In addition to providing a first-class learning and teaching environment, Montgomery County's first LEED school provides a three-dimensional textbook and teaching tool that advocates environmental stewardship.

A Web site dedicated to the green features of the school delivers this green message throughout the school system to other schools and other school districts nationwide.

For more information about the school and to set up a tour, contact MCPS Green Building Manager Anja Caldwell at 240 314 1095 or by e-mail at Anja_S_Caldwell@mcpsmd.org.

Total Gross Square Footage: 82,511 sf

Site: 13.7 acres

Number of Students: 740

Building and Site Cost: $17,780,138

Cost per sf: $215

Completion: September 2006

LEED Points: 39

LEED Certification Rating: Gold

Project Manager:
Joe Derosa, MCPS

Architect:
Grimm and Parker

Mechanical, Electrical, Plumbing:
James Posey Associates

Structural Engineer:
Wolfram and Associates

Commissioner:
Advanced Building Technologies

General Contractor:
Hess Construction

Landscape Architect:
Southfork Studio

LEED Consultant:
Sustainable Design Consulting

www.Schools2Green.org

MISSION

The Green Building Program of the Montgomery County Public Schools provides leadership in energy and environmental design. The program advocates environmental stewardship and resource conservation through intelligent design, technology pilots, high-performance design training, and innovative strategies.

1ST LEED PILOT SCHOOL

The new 84,000 square foot elementary school in Germantown is certified as the first public LEED school in Maryland.

LEED stands for Leadership in Energy and Environmental Design and is a rating system from the U.S. Green Building Council. The system provides a checklist for the design process in the categories of Sustainable Sites, Water Efficiency, Energy and Atmosphere, Material and Resources, Indoor Environmental Quality and Design Innovation.

The more points the project is able to achieve in the six categories, the higher the ranking and third-party certificate from the Council—from a basic LEED certification to Silver, Gold, and Platinum.

A design charrette, which was conducted in 2003 with members from the MCPS Department of Facilities Management and green building experts, determined the energy and environmental design goals for this MCPS pilot project.

MCPS Green Building Program

Department of Facilities Management - DOC
2096 Gaither Road, Suite 203, Rockville, MD 20850
Phone 240-314-1095, Fax 240-314-1036
Anja S. Caldwell, Green Building Program Manager
Anja_S_Caldwell@mcpsmd.org
www.Schools2Green.org

School Contact:

Principal Gregory Edmundson
13010 Dairymaid Drive, Germantown, MD 20874
Phone 301-353-8500
www.greatsenecacreekes.org

MORE GREEN SCHOOLS RESOURCES:

LEED - Leadership in Energy and Environmental Design
U.S. Green Building Council – www.usgbc.org

Maryland Green Schools Award Program
www.maeoe.org

Schoolyard Habitat
US Fish and Wildlife Service - www.fws.gov

Great Seneca Creek Elementary School in Germantown

Green Building MCPS

Schools2Green.org

GREEN TECHNOLOGY AT GREAT SENECA CREEK ES

SITE

Land use and planning a sustainable building site is fundamental for future generations.

- Erosion control during construction
- Reduced site disturbance
- Development and building footprint
- No mow grass and meadows
- Native and noninvasive vegetation
- Wetland restoration/protection
- Light pollution reduction on site and in the building
- Schoolyard Habitat project *
- Rain gardens *

WATER

Native vegetation and low-flow and efficient plumbing fixtures reduce fresh water need by 43%.

- Waterless urinals
- Dual-flush toilets
- Low-flow faucets and showerheads
- No irrigation and native vegetation

ENERGY

Energy-efficient design with natural lighting and ground source heat pumps reduce energy costs and our impact on the environment.

- Geothermal energy system
- Large windows for natural light & winter heating
- Light-colored reflective roofs reduce cooling load
- Energy-Star compliant
- 100% Green Power procurement
- Energy Management System (EMS)
- Efficient building envelope
- User Education Program—SERT
- Lighting standardization

MATERIALS

Taking advantage of recycling opportunities will save money and help conserve natural resources.

- Recycling program
- Wheat board casework
- Recycled materials for toilet partitions
- 90% construction waste recycled
- Use of local materials within 500 miles
- Use of Forest Stewardship Council Certified Wood

INDOOR ENVIRONMENT + HEALTH

By carefully choosing materials and fostering good ventilation we provide a healthy and safe environment for the occupants of the building.

- Materials, paints, and finishes that emit fewer toxic fumes (low VOC)
- Promoting healthy indoor air quality through effective ventilation
- Practices that discourage mold, dust, and mites
- Green Housekeeping Initiative
- No fumes from idling buses
- Elimination of CFCs, HCFCs and halons
- Large windows for outdoor views
- Integrated Pest Management
- Tools for Schools IAQ
- Formaldehyde-free materials

* Future community projects

The building has low-flow fixtures that achieve 43% savings in potable water, including no-flush urinals and dual-flush options for toilets in the kindergarten classrooms that has been color coded by the kids.
The school has a geo-exchange system with all the piping buried under the athletic field. The constant ground temperature of 58°F provides heat in the winter and cooling in the summer. This "free" energy is expected to save about $0.50 per square foot a year in energy cost and maintenance.
The roof is a white Energy Star roof, which helps reduce the Heat Island Effect— the heating of the atmosphere through dark surfaces. This will reduce the air conditioning load as most MCPS buildings are now operating throughout the year. The utility savings in this school are expected to be more than $ 50,000 a year.
During construction, more than 90% of the waste has been recycled and extra care given to protect the site and soil. The duct work was protected and sealed from dust and debris during construction at all times.

An information kiosk is located in the lobby and a Web site holds all the green information, including a virtual tour of the school narrated by the students. A keyed building map explains the green- and LEED-related features of the building to students, staff, and community members on site. Signs are posted in all the classrooms, by the windows, restrooms, and at mechanical rooms as an educational tool for students, teachers, and parents. Signs outdoors explain no-mow areas, wetland, native vegetation, and geothermal field.
The signs can be customized by the student's environmental club, as this building will function like a 3D textbook with active student involvement. User education and behavior modification can make a difference of more than 15% for the utility bills of a school.

LEED™ Credit Scorecard

LEED™ Green Building Rating System, version 2.1, final version w/ revisions

Great Seneca Creek ES

Montgomery County Public Schools

April 12, 2007

Y	?	N			
39		30	**Total Project Score**		Possible Points 69

Certified 26 to 32 points Silver 33 to 38 points Gold 39 to 51 points Platinum 52 or more points

Y	?	N			
7		7	**Sustainable Sites**		Possible Points 14
Y			Prereq 1	Erosion & Sedimentation Control	
1			Credit 1	Site Selection	1
		1	Credit 2	Development Density	1
		1	Credit 3	Brownfield Redevelopment	1
		1	Credit 4.1	Alternative Transportation, Public Transportation Access	1
1			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
		1	Credit 4.3	Alternative Transportation, Alternative Fuel Refueling Stations	1
1			Credit 4.4	Alternative Transportation, Parking Capacity and Carpooling	1
		1	Credit 5.1	Reduced Site Disturbance, Protect or Restore Open Space	1
1			Credit 5.2	Reduced Site Disturbance, Development Footprint	1
		1	Credit 6.1	Stormwater Management, Rate and Quantity	1
1			Credit 6.2	Stormwater Management, Treatment	1
		1	Credit 7.1	Landscape & Exterior Design to Reduce Heat Islands, Non-Roof	1
1			Credit 7.2	Landscape & Exterior Design to Reduce Heat Islands, Roof	1
1			Credit 8	Light Pollution Reduction	1

Y	?	N			
4		1	**Water Efficiency**		Possible Points 5
1			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1
1			Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1
		1	Credit 2	Innovative Wastewater Technologies	1
1			Credit 3.1	Water Use Reduction, 20% Reduction	1
1			Credit 3.2	Water Use Reduction, 30% Reduction	1

Y	?	N			
8		9	**Energy & Atmosphere**		Possible Points 17
Y			Prereq 1	Fundamental Building Systems Commissioning	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	CFC Reduction in HVAC&R Equipment	
2			Credit 1.1	Optimize Energy Performance, 20% New / 10% Existing	2
2			Credit 1.2	Optimize Energy Performance, 30% New / 20% Existing	2
1		1	Credit 1.3	Optimize Energy Performance, 40% New / 30% Existing	2
		2	Credit 1.4	Optimize Energy Performance, 50% New / 40% Existing	2
		2	Credit 1.5	Optimize Energy Performance, 60% New / 50% Existing	2
		1	Credit 2.1	Renewable Energy, 5%	1
		1	Credit 2.2	Renewable Energy, 10%	1
		1	Credit 2.3	Renewable Energy, 20%	1
1			Credit 3	Additional Commissioning	1
1			Credit 4	Elimination of HCFC's and Halons	1
		1	Credit 5	Measurement & Verification	1
1			Credit 6	Green Power	1

Y	?	N			
7		6	**Materials & Resources**		Possible Points 13
Y			Prereq 1	Storage & Collection of Recyclables	
		1	Credit 1.1	Building Reuse, Maintain 75% of Existing Shell	1
		1	Credit 1.2	Building Reuse, Maintain 100% of Shell	1
		1	Credit 1.3	Building Reuse, Maintain 100% Shell & 50% Non-Shell	1
1			Credit 2.1	Construction Waste Management, Divert 50%	1
1			Credit 2.2	Construction Waste Management, Divert 75%	1
		1	Credit 3.1	Resource Reuse, Specify 5%	1
		1	Credit 3.2	Resource Reuse, Specify 10%	1
1			Credit 4.1	Recycled Content, Specify 5% (post-consumer + 1/2 post-industri	1
1			Credit 4.2	Recycled Content, Specify 10% (post-consumer + 1/2 post-industr	1
1			Credit 5.1	Local/Regional Materials, 20% Manufactured Locally	1
1			Credit 5.2	Local/Regional Materials, of 20% Above, 50% Harvested Locally	1
		1	Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

Y	?	N			
8		7	**Indoor Environmental Quality**		Possible Points 15
Y			Prereq 1	Minimum IAQ Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		1	Credit 1	Carbon Dioxide (CO2) Monitoring	1
		1	Credit 2	Ventilation Effectiveness	1
1			Credit 3.1	Construction IAQ Management Plan, During Construction	1
		1	Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1
1			Credit 4.2	Low-Emitting Materials, Paints	1
1			Credit 4.3	Low-Emitting Materials, Carpet	1
1			Credit 4.4	Low-Emitting Materials, Composite Wood	1
		1	Credit 5	Indoor Chemical & Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems, Perimeter	1
1			Credit 6.2	Controllability of Systems, Non-Perimeter	1
		1	Credit 7.1	Thermal Comfort, Comply with ASHRAE 55-1992	1
		1	Credit 7.2	Thermal Comfort, Permanent Monitoring System	1
		1	Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
1			Credit 8.2	Daylight & Views, Views for 90% of Spaces	1

Y	?	N			
5			**Innovation & Design Process**		Possible Points 5
1			Credit 1.1	Innovation in Design: 40% Locally Manufactured Materials	1
1			Credit 1.2	Innovation in Design: Green User Education Program	1
1			Credit 1.3	Innovation in Design: Green Housekeeping Plan	1
1			Credit 1.4	Innovation in Design: 40% Water Efficiency	1
1			Credit 2	LEED™ Accredited Professional	1

GOING GREEN AT HOME

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

going.green

Before

After

what is a green home?

A green home is designed and built to provide the cleanest most comfortable air quality, furnish the most efficient delivery of energy to lower utility costs, and use the most durable maintenance free materials. Green homes are also friends of the community and easy on the environment. Whether you are building new, adding on, or remodeling, green homes perform at a high level by:

- Protecting and using the site to advantage
- Reducing waste
- Using low-impact materials
- Saving energy
- Minimizing impact on human health

why build and remodel green ?

Building or remodeling green protects the health of your family, provides a comfortable indoor environment, saves you money, and contributes to saving our environment!

for your health

If you have allergies or asthma, using green-building materials will insure the cleanest possible air quality. These materials do not "off-gas" volatile organic

compounds responsible for lung disease, because they are made from natural products.

to increase your comfort

Building green helps make your home more uniformly cool in the summer and warm in the winter. Building a new home or addition with a southern orientation and properly placed landscaping captures passive solar warmth and protects against cold winter winds. Green homes have less warm air leakage, because they are sealed and properly insulated for greater comfort year round.

to save money

If you are experiencing high heating and cooling bills, building green will provide economic relief. By designing your home or addition to use the most efficient energy saving products you can cut your utility costs significantly. Some products that help with utility bills are inexpensive and easy to use like a programmable thermostat or energy star appliances while others may take you off the grid entirely, like a new geothermal or photovoltaic system.

to protect the environment

Green buildings reduce, reuse and recycle materials, keeping materials out of our landfills. They use non-toxic natural materials, and help clean the air. Green homes are energy efficient and often don't depend on fossil fuels that contribute to global warming.