



GREEN BUILDING REPORT

For the District of Columbia, 2012



**Written by the District Department of the Environment
Approved by the Green Building Advisory Council**



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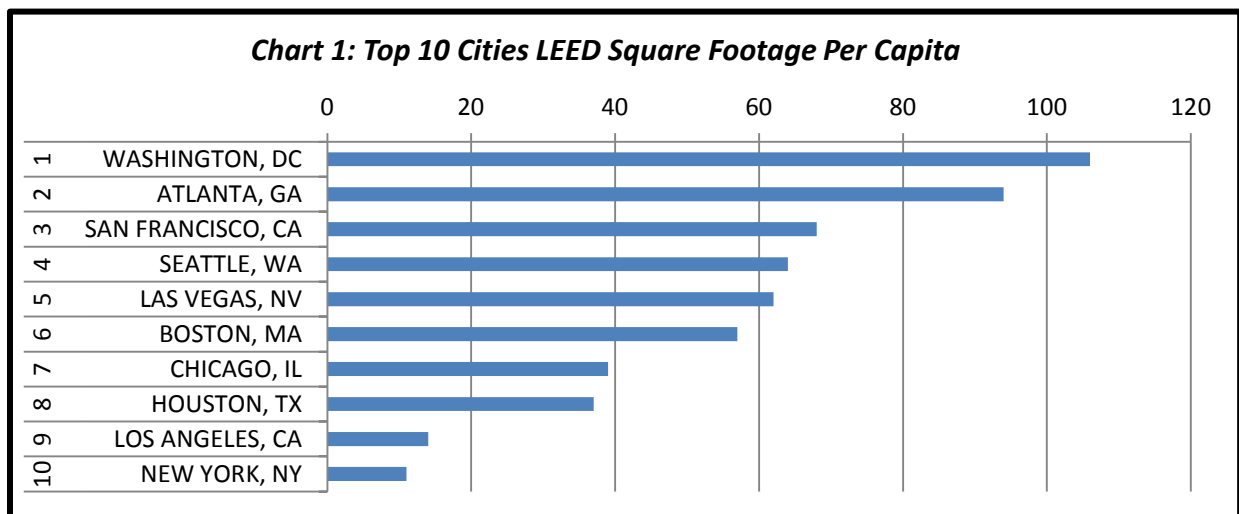
I. EXECUTIVE SUMMARY

The green building report is an annual requirement of the Green Building Act of 2006 (“**GBA**”). It is intended to catalogue the implementation of the GBA and the progress made toward a more sustainable built environment in the District of Columbia. The report is divided into seven chapters, and includes a glossary of terms and appendices. The report is published as a joint effort of the District Department of the Environment (“**DDOE**”) and the Green Building Advisory Council (“**GBAC**”), an entity that DDOE chairs which is made up of private and public sector individuals dedicated to greening the built environment in the District.

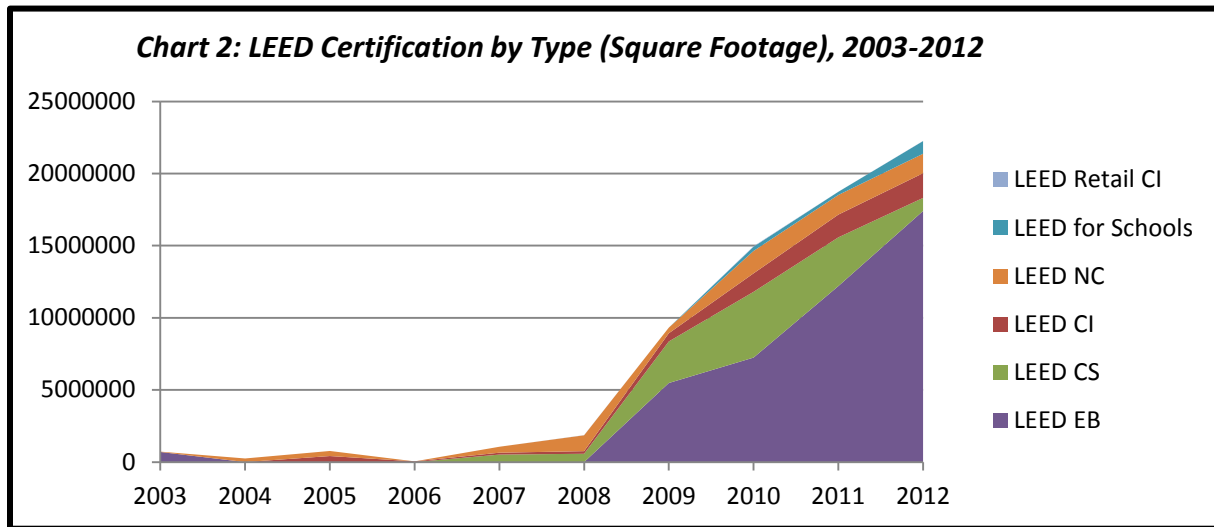
This report summarizes green building efforts and data from calendar year 2012. Some major projects undertaken in late 2012 and early 2013, such as development of the Green Construction Code and the Green Building Fund grant program are briefly discussed in this report, but will be covered more extensively in the 2013 report.

District’s Green Building Leadership

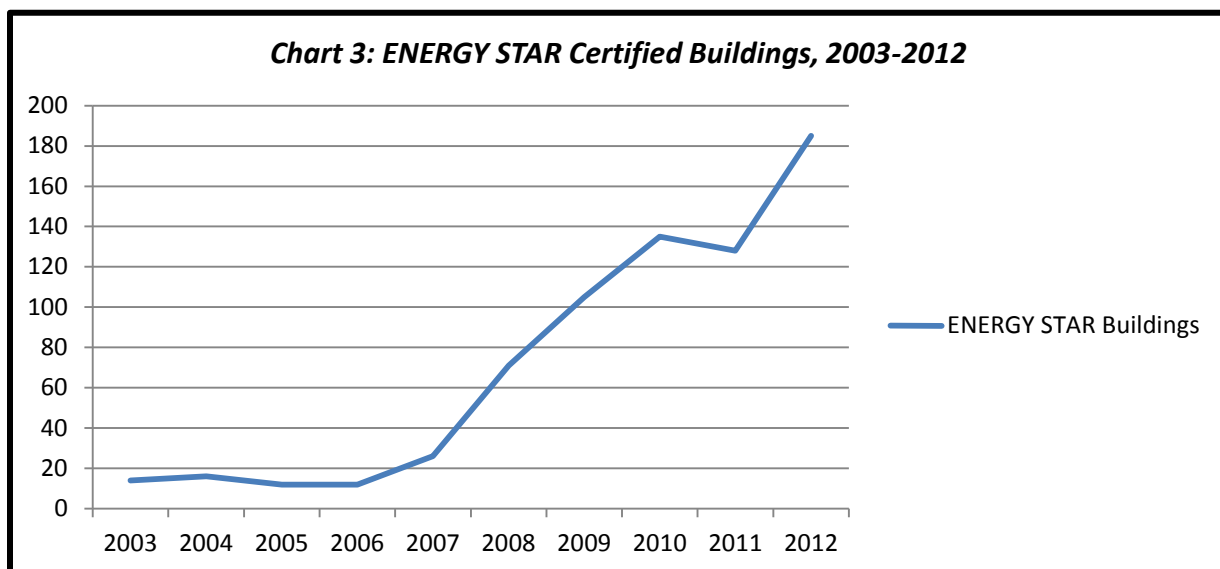
Though it is difficult to precisely quantify what it means to be a national leader in green building implementation, for the purposes of this report, we will use various green building certification platforms as indicators of the District’s leadership, including the U.S. Green Building Council’s LEED program, ENERGY STAR, and others. The District continues to lead the nation in these various green building standards on a per capita basis for large cities. At the end of 2012, there were 346 LEED certified projects including 69,463,873 square feet of total LEED certified space (not including LEED-Neighborhood Development and LEED-Homes projects). Based on 2010 census data, the District now has more than 100 LEED-certified square feet per capita. Though Chicago, New York, and Houston each had more total square footage of LEED certified space at the end of 2012, in per capita numbers the District towered above (see Chart 1 below).



The District's growth in green building deployment continues at a rapid pace. As referenced in the *Green Building Report for the District of Columbia, 2007 through 2011*, at the close of 2011 there was a total of 236 LEED certified projects representing 43,882,134 square feet of space. The 346 tally at the close of 2012 represents a growth of 110 projects and 25,581,739 square feet in one year alone (see Chart 2 below)—a heartening pace for those that care about the efficiency, cost-savings, and health benefits provided by high-performance buildings.



In addition to the LEED certification leadership, the District also surpasses other large U.S. cities in per capita numbers of ENERGY STAR certified buildings and total square footage. At the close of 2011, the District had 127 ENERGY STAR certified buildings amounting to 46,278,034 square feet of space. By the end of 2012, as with the LEED certification growth trend, the District witnessed a large jump in ENERGY STAR certifications to 185 buildings totaling 62,532,741 square feet (see Chart 3 below). This represents 58 buildings more than in 2011, and 16,254,707 square feet in just one year's time.



The leadership in greening the built environment also continues beyond LEED and ENERGY STAR. The District is consistently in the top three and often in first place among cities in total green power purchasing, city government green power purchasing, green roof installations, urban parkland space, public transit ridership, bike share ridership, and other sustainability metrics.

Benchmarking

In 2008, the District became the first jurisdiction in the United States to adopt a law requiring the disclosure of public and privately owned buildings' energy performance. Similar laws have now been adopted by eight other cities. In 2012, DDOE completed regulations to implement the energy benchmarking program, with the first reporting deadline being set for April 1, 2013. As of November 8, 2013, 83% of all covered buildings 100,000 square feet and larger had complied. Summary results of the benchmarking data comprise the bulk of Chapter IV of this report. Buildings in the District reporting benchmarking data are on average very energy-efficient, with the median building scoring a 77 on the 1-100 ENERGY STAR scale. The results also show that from 2010-2012, Department of General Services (“**DGS**”) buildings reduced energy use by 7%, and the private buildings that reported data for all three years reduced energy use by 6%. The report also makes a number of recommendations for future improvements.

Green Construction Codes

The GBA requires that the District's construction codes “incorporate as many green building practices as practicable,” and specifically identifies the need to continually improve the energy code. As a result, the District is establishing itself as a leader in the arena of green codes development. In 2008, the District adopted the “30 Percent Solution” for improved performance of residential buildings, including provisions that required commercial buildings to perform 7% more energy efficiently than those of surrounding jurisdictions, and other important water efficiency and stormwater management measures.

In March of 2012, the Construction Codes Coordinating Board (“**CCCB**”) and its Green Technical Advisory Group began the process of adapting the 2012 International Green Construction Code (“**IgCC**”) and 2012 International Energy Conservation Code for use in the District. The initial drafts of the Green Construction and Energy Conservation Code amendments were issued in 2012 for a first round of public comments. In calendar year 2012, the Department of Consumer and Regulatory Affairs (“**DCRA**”), DDOE and private sector leaders gave more than 25 presentations on the proposed green code. DCRA also began training for its staff on the new code to help insure a more seamless transition when the codes are finalized.

The CCCB completed its work in November 2013 following extensive public engagement, and submitted the codes to the Mayor and DC Council for their consideration and vote. The District will be one of the first cities, if not the first, to adopt all of the chapters and Appendix A of the IgCC, which will lead to one of the greenest construction codes in the country. The ultimate goal of greening the codes is to make high performance construction more mainstream—and to eventually get to the point where we don't have to call it “green” anymore. When we achieve this goal, one milestone of the District's green building leadership will be achieved.

Green Building Fund

DCRA collects green building fees during the permit intake process to capitalize the District's Green Building Fund (see Table 1 below). As defined in the GBA, the Green Building Fund is to be used for: (a) streamlining administrative green building processes; (b) improving sustainability performance outcomes; (c) building capacity of development and administrative oversight professionals in green building skills and knowledge; (d) institutionalizing innovation; and (e) overcoming barriers to achieving high performance buildings. Though expenditures have not historically matched revenues in the fund, DDOE and DCRA worked diligently in 2012 and early 2013 to better use the fund, including hiring more green building staff, supporting the energy benchmarking program created in the Clean and Affordable Energy Act of 2008 ("CAEA"), and creating the first ever Green Building Fund grant program. In FY13 (which includes 3 months of 2012) spending increased more than three times above FY12 (see Table 1).

Table 1: Green Building Fund Revenue and Expenditures, FY10 – FY12

Fund Activity	FY10	FY11	FY12	FY13	TOTAL
Revenues	\$ 886,726	\$ 745,206	\$ 809,086	\$1,688,587	\$ 4,129,605
Expenditures	\$ 431,801	\$ 180,654	\$ 205,915	\$642,403	\$ 1,460,773
Surplus	\$ 454,925	\$ 564,552	\$ 603,171	\$1,046,184	\$ 2,668,832

Incentives

The District has not yet created any financial incentives for green building. This is a priority area of study reflected in the work plan discussed below and summarized in Appendix A of this report. DCRA had originally been offering expedited permit review for green building projects; however, due to the improvements the agency has made to its overall permitting process, the expedited review has not been as much of an incentive as anticipated. As a result, expedited review was removed legislatively in GBA amendments that passed in 2012, as discussed in Chapter V. However, integrating green applicability reviews into the existing preliminary design review meetings ("PDRMs") structure was found to be of value and shall continue.

FY13-15 Work Plan

Following the appointment term for its new and returning members in 2012, the GBAC drafted a work plan for FY13-15 (see Appendix A). The GBAC will use the work plan to drive continual improvements in key areas of the green building program for the District. The council will continue to support the development of the current and future green construction codes, and will strive to align the goals of the Sustainable DC initiative with the District's green building program. If the Green Construction Code passes the DC Council, the GBAC will play a key role in reviewing the current structure of the GBA and proposing changes to align this legislation with the code. In an effort to minimize duplication, and streamline efforts, the GBAC will also coordinate green building efforts between District government agencies, the energy and water utilities, and the private sector. Finally, the GBAC will advise the District government on the proper use of the Green Building Fund to drive green building innovation in both the public and private sectors, and will increase its outreach role in order to publicize those efforts.

II. INTRODUCTION

A. Report Intent

This report, the second in a series published by the government of the District of Columbia, documents the District's progress towards a "greener" and more sustainable building stock. For those seeking additional information and earlier data, please refer to the *Green Building Report for the District of Columbia, 2007 through 2011*, which can be found on the DDOE website at www.ddoe.dc.gov/greenbuildings. The 2007-2011 report explains the history of the legislative framework and requirements for green building in the District and the roles and responsibilities of various District agencies and the GBAC, therefore that information will not be repeated here.

B. Sustainability in the District of Columbia

In July 2011, Mayor Gray announced his intention to make the District the healthiest, greenest and most livable city in the United States. Since that time, staff members at DDOE, the Office of Planning, and other agencies have been working diligently to create and begin implementation of the Sustainable DC Plan. The original vision for the plan was published in April of 2012 and the final implementation plan was released in February of 2013. There are seven solution sections in the plan related to the built environment, energy, food, nature, transportation, waste and water that are intended to address four challenges that the District faces for jobs and the economy, health and wellness, equity and diversity, and climate and the environment.

The development of the Sustainable DC Plan included more than 200 meetings, with more than 5,000 involved citizens. Within the plan there are 32 goals, 31 targets, and 143 action items—many of which are related to issues in and solutions from the building sector. For building related goals, the plan calls for 50% reductions in greenhouse gas emissions and energy consumption city-wide, an increase in the use of renewable energy to total 50% of the District's load, and the construction of net-zero energy projects for new construction, among many others. More detailed information can be found at www.sustainabledc.org.

The greening of buildings will play a crucial role in the execution of the Mayor's Sustainable DC Plan. Simply put, without an aggressive green building program, the plan is unlikely to succeed. Therefore, it is the goal of the GBAC and the District's green building program to integrate our efforts with the goals and actions in the Sustainable DC Plan.

Unique Built Environment Characteristics

The District of Columbia has some unique land and building characteristics that provide challenges, as well as opportunities, for achieving the goals in the Sustainable DC Plan.

Challenges

- *Building height limit:* The District has a federally regulated building height limit, which may limit the District's ability to provide bonus density incentives for green building.
- *Lot-line to lot-line development:* In many parts of the District, and particularly in the Central Business District (“**CBD**”), lot-line to lot-line development is standard, which can limit green building solutions that could otherwise be accommodated within setbacks.
- *Stormwater responsibilities:* There are two different agencies responsible for regulating stormwater (DDOE and DC Water) with different goals and fee requirements.
- *Water table:* The portions of the District that have a shallow water table have high dewatering and related cost-considerations.
- *Challenges for renewables:* The District's solar insolation provides some good opportunities for solar energy solutions, but not all sites are able to generate enough of any one renewable energy source to depend on it as a single primary power source. There is generally not enough wind velocity in the city to make wind energy development within the city limits financially viable; however, the District leads cities in the U.S. in off-site green power purchasing. There is some potential for biomass generation, though air quality concerns also need to be taken into account.
- *Ground-source heat pumps:* There is great potential for ground source heat pump deployment in the District, but because of land cost and density the wells generally must be vertically excavated, which adds expense. Also open-loop wells, which can sometimes be less expensive than closed-loop, are not permitted due to water quality concerns.
- *Historically-protected public space:* The street network (roads and sidewalks) covers more than 26% of the District's land surface area.¹ This represents significant impervious surface area, and while not a direct “green building” concern, the public right-of-way is part of the built environment and green infrastructure solutions should be seriously considered in the right-of-way for long-term sustainability. Also, there are limitations in the city for the use of the right-of-way for treating building related stormwater runoff. (For the relative scale of impervious surface impacts, buildings account for approximately 20% of the city's impervious area).
- *Federal government land ownership:* The District has minimal influence on federal government construction projects, though there are certain regulations with which the feds have to comply. Federal ownership of park land in the District has many great benefits, but creates impediments for the District government or the private sector to use the federal land for certain environmental strategies, such as creating bioretention in public space to filter stormwater for roads and other impervious surfaces.

¹ District Department of Transportation estimates, 2009.

Opportunities

- *Permanently protected green space:* 19.4% of the District is park or open space, contributing to the current 35% urban tree canopy. Compared to some other cities, the nearly 20% of open space is a high number.
- *Uniform roofline:* Similar building heights and the predominance of flat roofs provide a good platform for cool roofs, green roofs and solar energy installations, so stormwater and solar access concerns may more easily be solved in the District than in other cities.
- *Federal occupancy:* The federal government owns 23% of land in the District, which has some potential to limit off-site green building solutions, but also creates opportunities for rapid market transformation due to federal adoption of green building priorities.
- *Development of large sites:* Development areas, such as the Anacostia waterfront, Walter Reed Army Medical Center, MacMillan Reservoir, and others, could become significant opportunities to move toward aspirational zero waste, net-zero water, net-zero energy, and/or micro-grid/off-the-grid utility solutions.

Finally, the District has 55 historic districts and hundreds of buildings with historic designation, which may equally represent challenges as well as provide opportunities.

Environmental Policies & Framework

In addition to the GBA requirements and zoning, land use, and historic preservation considerations, the District is also subject to and maintains a variety of environmental regulations and policies that influence the built environment, such as:

- The Municipal Separate Storm Sewer System (“**MS4**”) Permit² issued by the EPA to the District of Columbia, which requires a 1.2” stormwater retention standard for new construction of a certain size; and,
- A proposed citywide Climate Action Plan,³ which aims to achieve 30% greenhouse gas emissions (“**GHG**”) reductions by 2020 and 80% greenhouse gas emissions reductions by 2050. The Sustainable DC Plan added another mid-term goal of 50% GHG reductions by 2032. Given that 74% of the District’s greenhouse gas emissions are directly attributable to energy use in buildings, the climate change targets reveal the need for building owners to reduce their use of greenhouse gas-emitting fuels by adopting significant energy efficiency measures in combination with purchases or generation of clean energy.

²“District of Columbia Municipal Separate Storm Sewer System National Pollutant Discharge Elimination System Final Permit,” dated October 7, 2011, <http://www.epa.gov/reg3wapd/npdes/dcpermits.htm>.

³“Climate of Opportunity: A Climate Action Plan for the District of Columbia, Draft September 2010,” <http://ddoe.dc.gov/service/climate-opportunity-reducing-greenhouse-gas-emissions>.

An on-going environmental priority for the District is the restoration and protection of the Rock Creek, Potomac River, and Anacostia River watersheds. The conditions of the District's waterways are attributable in large part to historically poor industrial practices and the effects of stormwater runoff, which left a legacy of land and water contamination. The residual impacts on developers, the city, and neighboring residents is substantial and highlights the role that green building practices may have in restoring these natural resources.

Green Building Policies & Platforms

The three green building certification programs that are mandated for some projects in the District are: (1) the U.S. Green Building Council's ("USGBC") LEED program; (2) Environmental Protection Agency's ("EPA") ENERGY STAR Target Finder and Portfolio Manager energy modeling and benchmarking tools, and (3) Enterprise's Green Communities Criteria ("EGC"). At the time of the drafting of this report, the District was also considering the adoption of the International Green Construction Code.

Leadership in Energy and Environmental Design

LEED is a green building certification program created by the USGBC, but administered by the Green Building Certification Institute ("GBCI"), a not-for-profit organization that provides independent oversight of professional credentialing and project certification programs related to green building.⁴ To receive certification, a project applies to a specific (or multiple) program(s), such as LEED-New Construction, LEED-Existing Buildings, LEED-Core and Shell, LEED-Homes, LEED-Schools, LEED-Commercial Interiors and others.

There are criticisms of the LEED certification system, and issues for governments that mandate LEED green building certification requirements. These concerns and questions include:

- The dependence on a third-party organization, over which the government has no oversight, to set the District's green building standards
- The perception that application costs associated with LEED are significant

Despite these critiques, LEED is the recognized national standard for green building certification and the District will utilize this standard for certain requirements until an alternative solution is approved. The planned adoption of the new Green Construction Code in 2014 will create a localized alternative that will allow the District to control its green building standards more easily in the future. If the Green Construction Code is adopted, at some point the District may consider transitioning away from the LEED requirement for private sector commercial buildings that is found in the GBA, but that decision has not yet been made.

⁴ For more information about GBCI, go to www.gbci.org.

ENERGY STAR

EPA's ENERGY STAR Target Finder tool is an energy-modeling tool for new construction that enables a design team to model and plan future energy performance. Portfolio Manager, the EPA's online energy benchmarking program, is a widely accepted tool that enables building owners to track energy and water use in their buildings and compare a building's performance against similar buildings nationwide. Portfolio Manager is used for more than 300,000 buildings throughout the country as the industry-standard tool to track and evaluate energy and water consumption, develop energy management goals over time, and identify strategic opportunities for cost savings. Additionally, LEED references Portfolio Manager as the measurement tool to verify energy performance under the LEED-Existing Buildings Operations and Maintenance standard. The GBA and its amendment, the CAEA, have various requirements for the use of EPA's Target Finder and Portfolio Manager.

Enterprise Green Communities Criteria

Enterprise Green Communities is a green building rating system that was developed by Enterprise Community Partners, with the mission to “fundamentally transform the way we think about, design and build affordable homes.”⁵ It is a certification program for affordable housing development (new construction and renovation), and the District has identified EGC as the standard for GBA compliance for publicly-funded residential projects. The intent for requiring EGC instead of LEED for residential projects under the GBA is to insure a reasonable level of environmental, health and economic performance without the burden of the fees associated with LEED certification.

International Green Construction Code

In addition to a rigorous update to the energy code, the District began the adoption process of the IgCC in 2012. The three certification programs discussed above serve as aspirational standards, but the new green code, if passed by the DC Council, will serve as a minimum green building standard for all commercial projects in the District that are 10,000 square feet and larger, and all multi-family residential projects that are both 10,000 square feet and larger and four stories or higher. If adopted, we will have a baseline of what it means to build green in the District, which will be the first step towards standardizing green construction. Though projects built under the new code and under the aforementioned certification programs will achieve high levels of environmental performance, generally speaking those projects will not achieve true “sustainability.” For the next evolution in green building towards buildings that have zero, or potentially even a positive, impact on the environment, the District may have to consider the development of an incentive program, at least in the short term.

⁵ For more information on Enterprise Green Communities Criteria, go to www.greencommunitiesonline.org.

III. Green Building Report

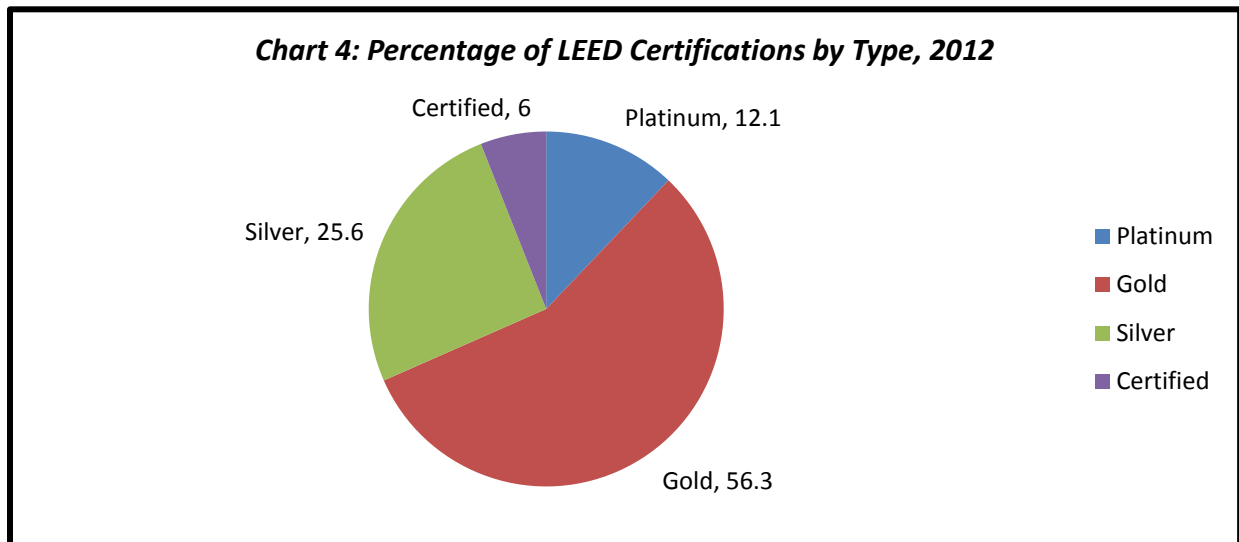
A. Green Building Market Overview

As mentioned in the executive summary, it is difficult to draw a direct connection between the deployment of various building certification programs, and how “green” a city is. There are many more elements of the environmental performance of buildings within a city than those that are covered in the LEED, ENERGY STAR, or EGC programs. However, looking at the numbers, and particular the growth over time, of buildings certified using the various platforms remains at least one valid indicator for analyzing the District’s built environment.

LEED Projects

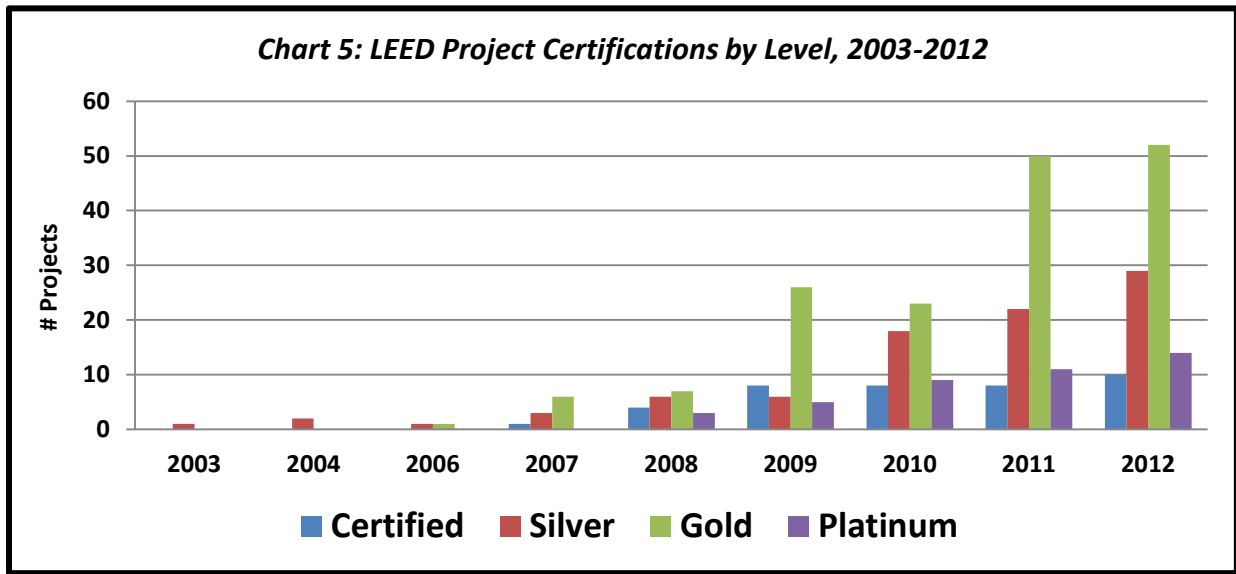
Washington, DC, is one of the nation’s most active cities for green building, measured by the number and square footage of LEED certified buildings, levels of LEED certification attained, number and square footage of ENERGY STAR certifications, and number of EGC buildings. At the close of 2012, the USGBC reported 346 LEED certified projects (excluding LEED-Homes and LEED-Neighborhood Design) representing 69,463,873 square feet of space. More than 700 additional projects have been registered representing well over 100 million additional square feet of projects that could become certified.⁶ (See Appendix C: LEED Certifications, 2012).

Not only was there a significant increase of certifications in 2012, the proportion of LEED-Gold and Platinum certifications also increased relative to the number of LEED-Certified and LEED-Silver projects, resulting in 68.4% of the District’s LEED projects being certified at the Gold or Platinum levels (see Chart 4 below).

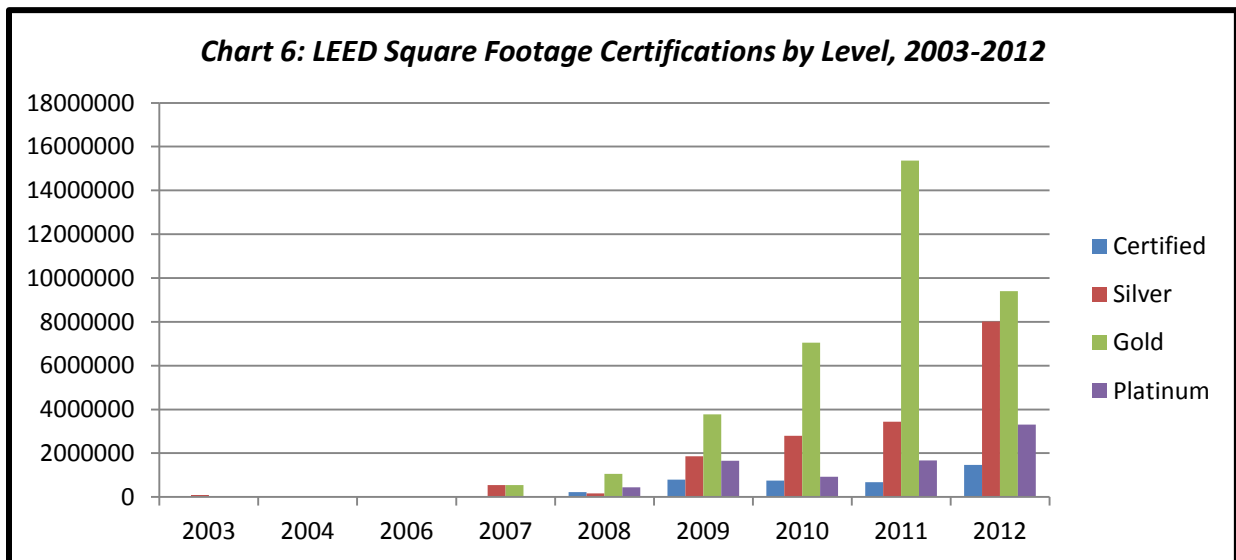


⁶ For an up-to-date listing of LEED projects in the District, visit: <http://www.gbig.org/places/2015>

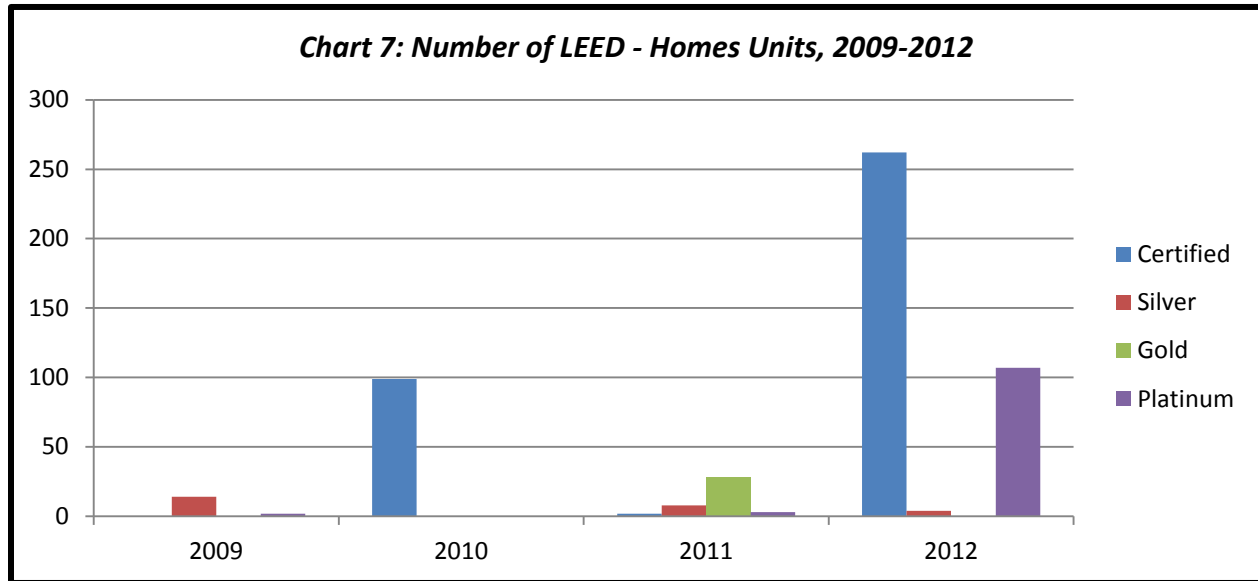
By comparison, from 2006-2011, 60% of the District’s LEED buildings were Gold or Platinum, and the national average for Gold and Platinum certifications during that time period was 45% relative to all LEED certifications (see Chart 5 below). The District is therefore seeing both an increase in the total number of green buildings, but also an increase in the percentage of higher performing green building—an excellent trend for those who care about the environmental benefits of these types of projects.



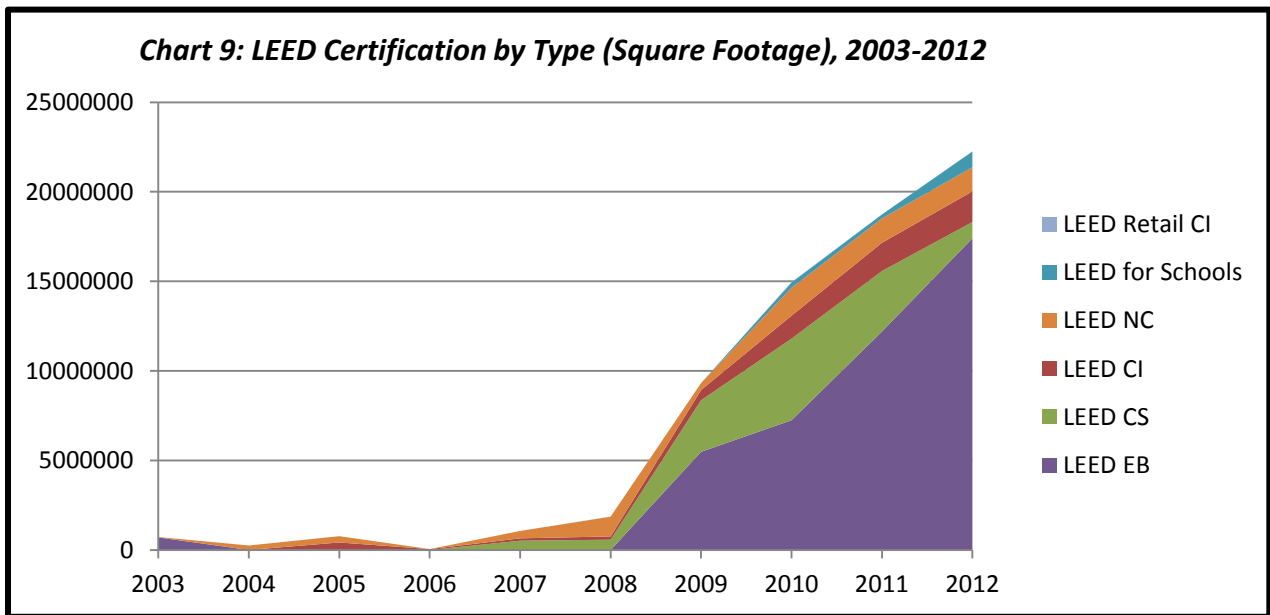
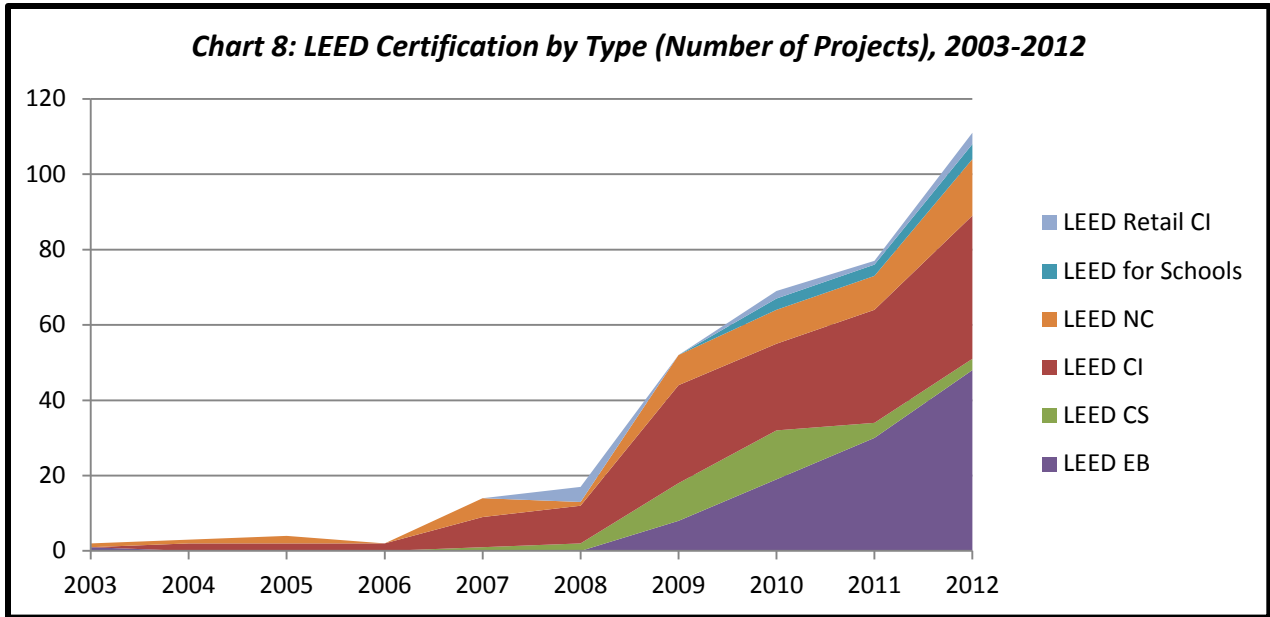
Though the overall number of projects receiving Gold and Platinum certification have increased as a percentage of all certified projects, the total square footage of Gold and Platinum projects decreased from 17,029,219 in 2011 to 12,709,426 in 2012 (see Chart 6 below). By contrast the square footage of silver certified projects increased from 3,436,446 in 2011 to 8,015,370 in 2012.



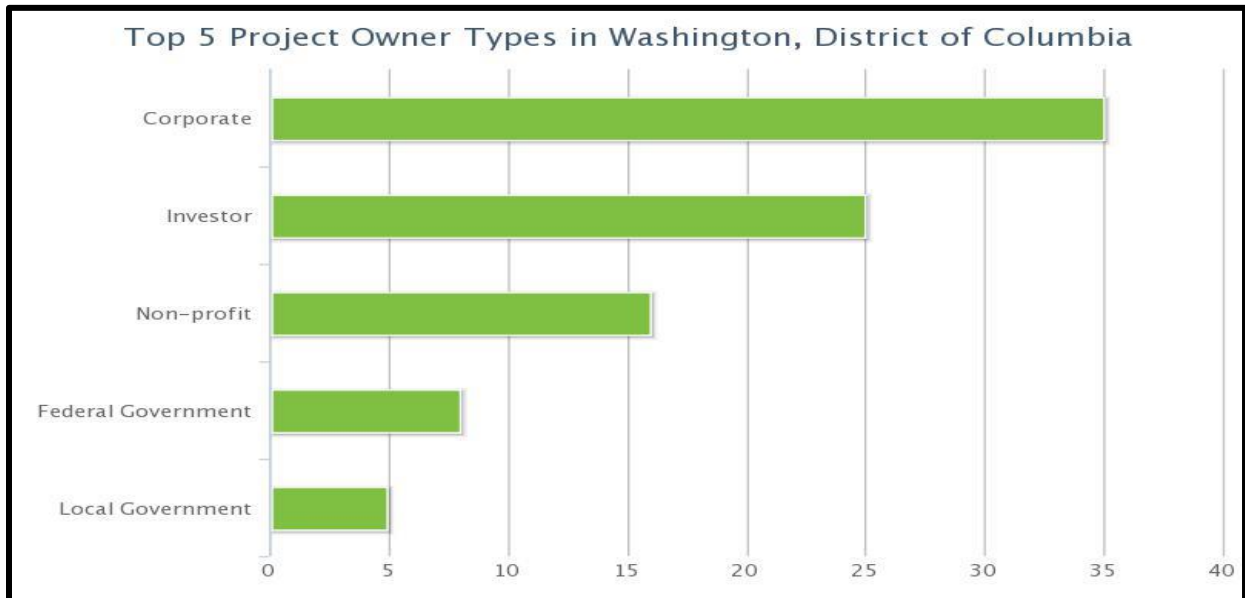
Because USGBC does not include LEED-Homes and LEED-Neighborhood Development in their online data platform, the Green Building Information Gateway (www.gbig.org), the numbers above do not include LEED-H or LEED-ND. Calendar year 2012 saw a significant increase in total number of LEED-H residential units certified—more than doubling the combined totals from 2009-2011 (see Chart 7 below). LEED-ND projects represent a significant amount of land square footage in the District (nearly 17 million square feet), but only account for 6 total projects from 2009-2012, with 4 LEED-ND projects certified in 2009, none in 2010, and 1 each in 2011 and 2012.



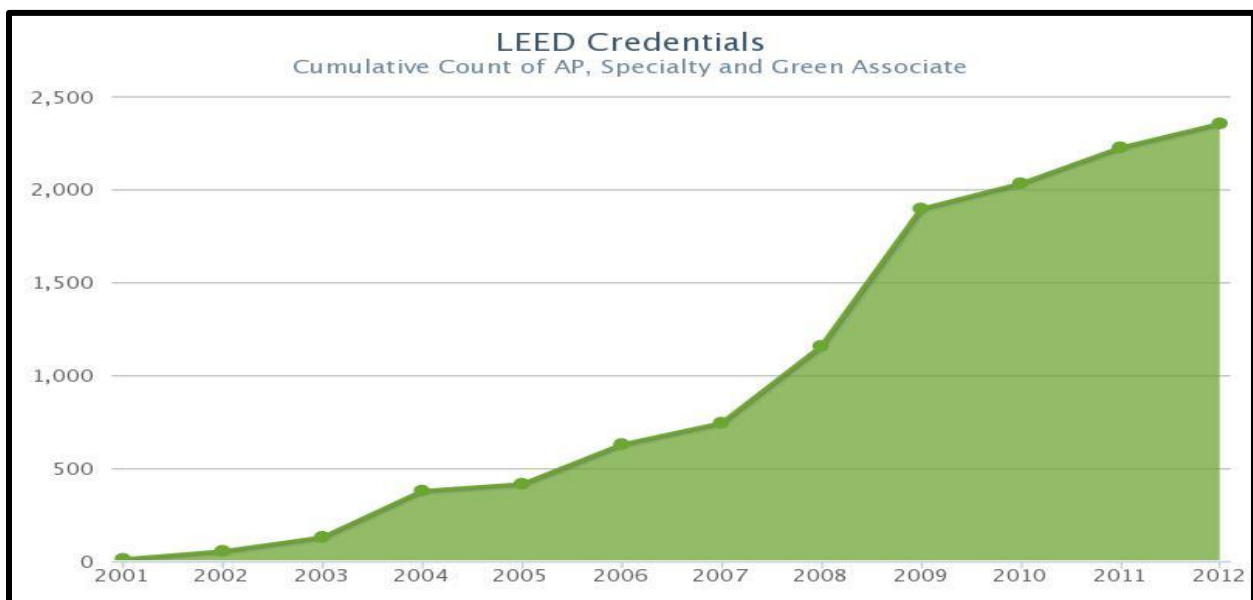
It is also helpful to compare the types of LEED projects that are getting certified, and the trends over time of those projects (see Charts 8 and 9 below). The most striking growth in the number of projects receiving certification is occurring in the LEED-Existing Buildings and LEED-Commercial Interiors categories, while the greatest growth by far in total square footage terms is found in the LEED-EB program. The reasons for this trend are not verified, and can only be speculative, but it is possible that the trend is revealing an increasing interest in the repositioning of existing assets among property owners following the real estate market crash that began in 2008. Some owners may be working to reposition properties rather than undertake new construction projects given current market realities. That said, the District was not as deeply affected by the real estate market crash and the growth of the LEED-EB trend could be more related to simple competition for tenants, and also an increased interest in sustainability outcomes amongst the development sector in the city.



Of the top five owners of LEED certified projects, corporate entities account for 35%, investor properties represent 25%, non-profit owners account for 16%, the federal government controls 8% and the District government is responsible for 5% (see Chart 10 below).

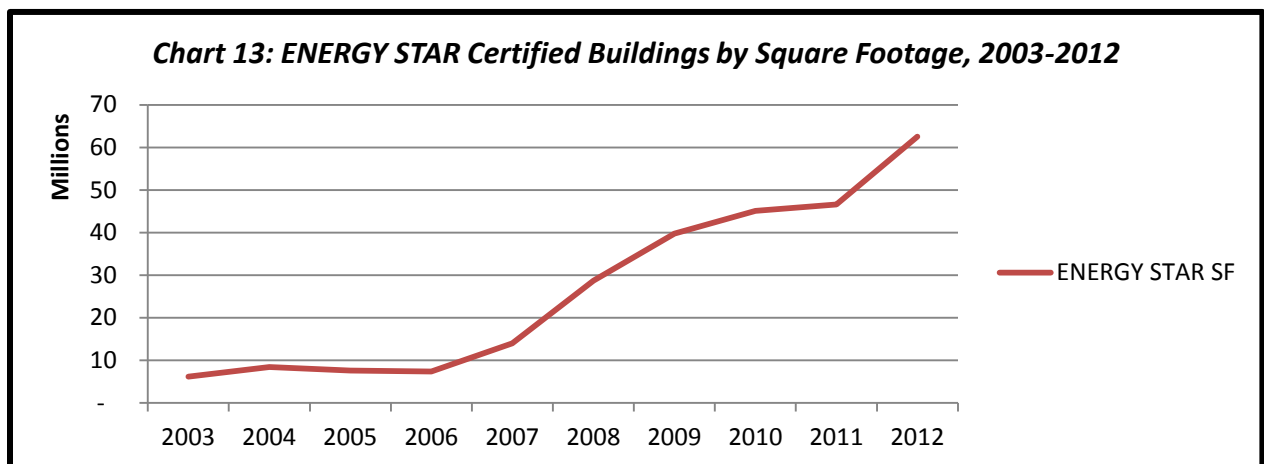
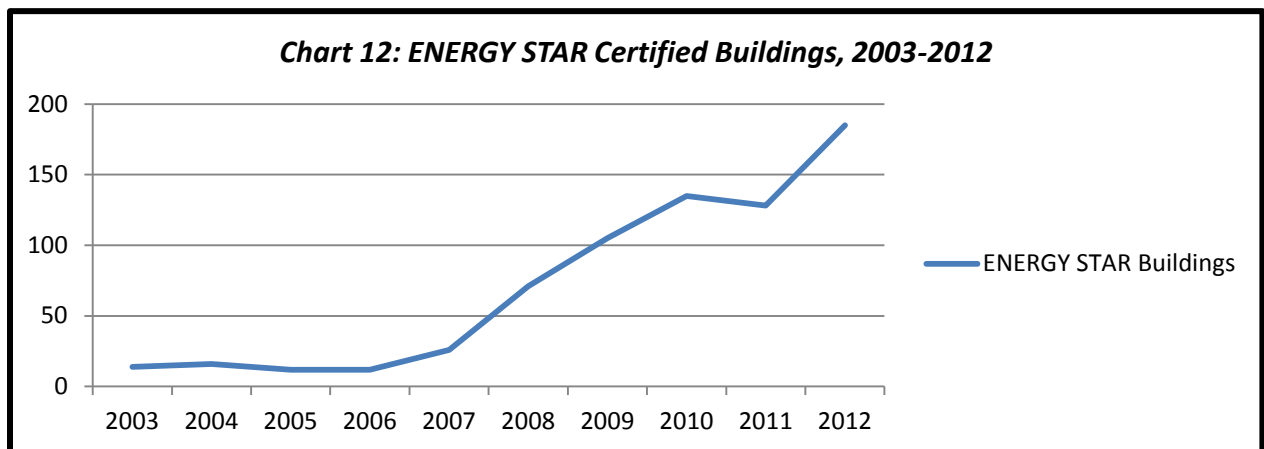
Chart 10: Top 5 Project Owner Types for LEED Certified Projects

To support green building development, the District has great human capacity for the deployment of LEED certified projects, with a large and growing population of professionals accredited under the LEED program (see Chart 11 below). In just 10 years, the number of individuals accredited has gone from about 50 to nearly 2,500—a growth that is an indicator of the prevalence of green building in the District and a harbinger of continued advancement.

Chart 11: LEED Accredited Professionals in the District, 2001-2012


ENERGY STAR Projects

For the fourth year in a row, in 2012, the Washington, DC, metropolitan area again had the nation's second largest number of ENERGY STAR-rated buildings (see Table 2 below), despite the DC region having a fraction of the population of the Los Angeles metro area, which at the end of 2012 led the nation in total number of ENERGY STAR buildings (metro Chicago had the most square footage of ENERGY STAR certified space, with DC metro coming in second place in that category too). Within the city limits, the EPA reported 185 ENERGY STAR rated buildings in 2012⁷ (See Appendix D: ENERGY STAR Rated Buildings, 2012), with 62,532,741 square feet of space. In 2012, the 185 ENERGY STAR buildings in the District averaged 84 points out of the maximum of 100, and represented 181 office buildings, 2 financial institutions and 1 retail establishment. Except for a slight dip in 2011, the growth of ENERGY STAR certification is following an encouraging trend in the District (see Charts 12 and 13 below).



⁷ For an up-to-date listing of ENERGY STAR projects in the District, visit: http://www.energystar.gov/index.cfm?fuseaction=labeled_buildings.locator

Table 2: Top Cities with the Most ENERGY STAR Certified Buildings, 2012

 Top Cities with the Most ENERGY STAR Certified Buildings in 2012									
2012 Rank	Metro Area	ENERGY STAR Certified Buildings in 2012	Total Floorspace (million sq. ft.)	Annual Cost Savings (millions)	Emissions Prevented (Equal to ___ Homes' Annual Electric Use)	2011 Rank	2010 Rank	2009 Rank	2008 Rank
1	Los Angeles	528	112.5	\$134.8	52,300	1	1	1	1
2	Washington, DC	462	116.1	\$127.4	83,100	2	2	2	4
3	Chicago	353	130.4	\$92.3	118,400	4	4	5	6
4	New York	325	111.5	\$144.6	63,600	6	5	10	12
5	Atlanta	304	63.6	\$52.3	55,500	3	6	9	9
6	San Francisco	291	70.1	\$106.5	39,300	5	3	3	2
7	Houston	241	88.6	\$73.8	72,900	7	7	6	3
8	Dallas-Fort Worth	214	59.0	\$47.3	48,400	8	10	8	5
9	Phoenix	202	31.6	\$34.4	32,500	13	17	20	22
10	Boston	188	45.5	\$67.5	25,000	10	12	13	11
11	Philadelphia	174	33.3	\$26.7	23,700	15	14	24	17
12	Denver	161	36.7	\$37.8	50,500	11	11	4	7
13	Cincinnati	137	21.1	\$13.5	17,800	25	25	n/a	n/a
14	Charlotte	133	17.2	\$15.2	10,800	17	18	22	18
14	Minneapolis-St. Paul	133	42.7	\$49.3	67,300	14	13	11	8
15	San Diego	123	16.9	\$18.1	7,100	19	20	17	n/a
16	San Jose	114	11.7	\$18.5	7,400	21	22	n/a	n/a
17	Seattle	108	23.2	\$18.7	15,200	16	16	14	10
18	Miami	104	19.8	\$19.3	17,300	18	21	19	23
19	Detroit	100	16.2	\$13.8	15,200	20	9	15	14
20	Sacramento	97	11.7	\$14.7	6,400	12	8	16	21
21	Indianapolis	91	15.1	\$10.4	14,200	n/a	24	23	n/a
22	Albuquerque	89	10.4	\$5.6	5,300	n/a	n/a	n/a	n/a
23	Kansas City, Mo.	82	20.6	\$14.0	22,900	n/a	n/a	n/a	n/a
23	Portland, Ore.	82	14.4	\$10.1	7,600	23	15	12	18
24	Riverside, Calif.	69	9.2	\$10.2	3,500	9	n/a	n/a	24
25	Virginia Beach	67	6.4	\$4.1	3,700	n/a	n/a	n/a	n/a

Green Communities Projects

Only one additional Enterprise Green Communities project was certified in 2012—and since the passage of the Green Building Act in 2006, there are now a total of 10 projects certified under the EGC program. According to Enterprise staff, there are an additional 10 projects that have been approved for step one of the certification program and are waiting on the project completion and verification process. Early in 2013, Mayor Gray announced his intention to significantly increase the amount of money that the District dedicates to affordable housing development, which will likely lead to an increase in the number of EGC certified projects.

B. Public Sector Report

The GBA contains green building requirements for public- and publicly-financed construction projects. The Act requires all public, and publicly-financed (with 15% or more of project costs coming from District sources), new construction and substantial improvement commercial projects to meet the LEED standard at the Silver level. Residential new construction and substantial improvement projects 10,000 square feet and larger are required to meet the Enterprise Green Communities standard.

Summary of Public Sector Implementation

The District's agencies continue to make tremendous gains in the area of green building—both with respect to LEED certification, and also with other new innovative green building initiatives.

In 2012, the District's Department of General Services continued to seek to 'lead by example' with its new construction efforts and, when possible, exceed the GBA mandated LEED-Silver certification requirement. In total, 7 of 10 LEED projects were certified Gold, and DGS achieved its first Platinum certification with the 331,789 square foot construction of 200 I Street, SE (see Appendix E for a list of projects).

DGS also pursued other innovative new green building projects in 2012. Two highlights:

- DGS completed its first ever power purchase agreement (“PPA”) for a 500kW solar array at Dunbar High School. This precedent-setting agreement, which leverages third-party capital and does not impact the District's debt capacity, will allow the District to achieve significant scale with onsite solar over the next several years.
- Through a partnership with the local utility (Pepco), the District now receives near real-time electricity consumption data in 15-minute intervals for the majority of its facilities. This information, made transparent through the District's BuildSmartDC.com website, is a central component of DGS's landmark 'Game Change' initiative to reduce energy consumption by 20% in government facilities.

Though the majority of this report focuses on calendar year 2012, for the projects supported by the Department of Housing and Community Development (“DHCD”), the report uses fiscal year 2013 data because the elements tracked in the agency's key performance indicators report in

FY13 more closely aligned with the report's goals. In fiscal year 2013 (October 1, 2012-September 30, 2013), DHCD supported the creation of 375 new affordable housing units and the rehabilitation of 482 units. Out of those projects, a total of 230 special needs housing units (for the elderly, disabled and homeless populations) and 24 new homeownership units were funded. In total, the agency created 3.8 units per \$100,000 of financial assistance. All of the units that were developed under the requirements of the GBA were built to the Enterprise Green Communities standard.

Exemptions

The GBA allows exemptions to be made, provided that a project demonstrates "substantial evidence of practical infeasibility or hardship" as a result of the law. There were no official exemptions awarded by DDOE in calendar year 2012.

C. Private Sector Report

The GBA requirements for private projects were phased in over time. The first mandate took effect January 2009, which applied to non-residential projects larger than 50,000 square feet. As required by Section 4 of the GBA, these projects were required to submit a non-binding green building checklist (the "**Green Building Intake Form**" or "**Checklist**") with their building permit applications. The purpose of the Checklist was to increase developer awareness of green building strategies. There is currently no information available on the number of Green Building Intake Forms completed, or total number of projects larger than 50,000 square feet that applied for building permits; however, DCRA is updating their tracking system to gather this information in the future.

The second mandate of the GBA became effective January 1, 2012, and all private projects 50,000 square feet and larger permitted since that date are now required to attain LEED certification. There has been significant discussion about how the District, specifically DCRA, will manage private sector compliance with the GBA, as well as the financial security required by the GBA. But the development of DCRA's green building program and the publication of regulations have been completed, which will help the agency ensure compliance with the GBA.

With an eye towards improving data tracking and analysis, in early 2013 DCRA began updating the "green building" section of its online permit application to track buildings being built to the proposed Green Construction Code or one of the alternative pathways to the code. During the update process, DCRA is taking the opportunity to improve the tracking of public and private buildings being built to the requirements of the GBA. In addition to updating the online permit application, DCRA is adding additional checks and balances to the standard operating procedure of the building permit intake process to ensure that the most accurate and current data is being fully captured. This includes adding staff capacity to the third-party plan review program to ensure the adequate screening of projects; training plan review coordinators on the applicability provisions of the green code, Green Building Act, and Energy Conservation Code; and requiring a mandatory "green review" at the permit stage for all projects 10,000 square feet and larger.

IV. Benchmarking Report

A. Overview

DDOE's 2012 inventory confirms that buildings are responsible for 74% of our greenhouse gas emissions. Most of this building stock will still be here in 20 years. Therefore, any effort to reduce energy use in the District and mitigate climate change must include not just new buildings and renovations, but also existing buildings. Energy benchmarking is the starting point for efforts to reduce the energy use of existing buildings, as you can't manage what you haven't measured.

CAEA amended the GBA to require all District government buildings 10,000 square feet and larger and all private buildings 50,000 square feet and larger to annually benchmark their energy consumption using the ENERGY STAR Portfolio Manager tool (“**Portfolio Manager**”), and report the results to DDOE for public disclosure. In 2012, the DC Council amended this requirement to also include reporting of water consumption. The District was the first jurisdiction in the U.S. to adopt a law requiring the public disclosure of the energy performance of privately owned buildings. Similar laws have now been adopted by eight other cities—New York, Seattle, San Francisco, Austin, Philadelphia, Minneapolis, Boston, and Chicago.

The goals of the benchmarking program are threefold. Individual building owners and managers will gain information they need to improve their buildings—in many cases becoming aware for the first time of the energy savings potential. Secondly, DDOE will publically disclose the results, which can drive transformation in the marketplace as energy performance becomes well-understood and interested parties use comparative energy performance when evaluating different rental or purchase options, thus turning energy efficiency from something invisible into something with real market implications. Finally, a successful benchmarking program will ensure that DDOE and the DC Sustainable Energy Utility (“**DC SEU**”) have the granular energy data they need to plan for the future, design more effective programs, and target incentives.

All District government buildings 10,000 square feet and larger under the management of the DGS have been benchmarked for fiscal years 2009 through 2012. The results are discussed in subsection B below. DGS is now going above and beyond the legal requirements by publishing summary energy data on almost 400 buildings, along with detailed 15-minute-interval electricity consumption data for the previous day, week, and month on www.buildsmartdc.com.

In 2012, after extensive stakeholder outreach, DDOE completed the process of finalizing the rulemaking for private building benchmarking, resulting in the program being implemented in 2013. The first deadline was set for April 1, 2013. DDOE has now collected data from more than 800 private buildings, and is analyzing the results. The findings comprise the majority of this section of the report. Details on the rulemaking are provided in subsection C. A discussion of the implementation process, compliance-to-date, and preliminary findings comprise the remainder of this chapter.

B. Public Building Benchmarking

CAEA mandates that each year the District benchmark the energy and water performance of all District government facilities 10,000 gross square feet and larger, and report the results publicly. This provision applies not just to facilities managed by DGS, but also to other District instrumentalities, including, but not limited to, the DC Housing Authority, the DC Courts, DC Water, the Washington Convention Center and other Events DC facilities, and the University of the District of Columbia.

In 2012, DGS revisited earlier benchmarking data and found many inconsistencies and errors, which required fixing. DDOE, with substantial assistance from the DC SEU, then used this new data to benchmark the performance of the facilities using Portfolio Manager. On January 18, 2013, DDOE published the benchmarking results for 230 DGS facilities for fiscal years 2012, 2011, and 2010. In addition, the report included revised and updated data for fiscal year 2009, replacing the previous report that had been issued on FY 2009 public building performance. Full building-by-building results can be found at <http://ddoe.dc.gov/energybenchmarking/>. DDOE is still working with the other District agencies and instrumentalities to benchmark and publish the results for their buildings, and expects to do so in 2014. Therefore, the summary below will focus only on the DGS facilities.

The findings reveal that District government buildings have much room to improve, but are also making impressive gains by reducing energy use 7% from FY 2010 to FY 2012 (see Chart 15 below). Benchmarking has already helped DGS inventory its facilities, audit the accuracy of its energy data, and target the facilities most in need of improvement for upgrades and/or operational changes.

Many District facilities are unable to receive an ENERGY STAR score and therefore must use the weather normalized source energy use intensity (“EUI”) for comparison with similar facilities (“source energy” represents the total amount of raw fuel that is required to operate the building, incorporating all transmission, delivery, and production losses). U.S. EPA has published a set of national medians for source EUI for various facility types. The national medians are compared to the 2012 results for DGS in tables 3 and 4 below. On average, most District facility types perform at higher energy intensities than the national median. The DC Public Library system stands out, however, performing 28% *better* than the national median.

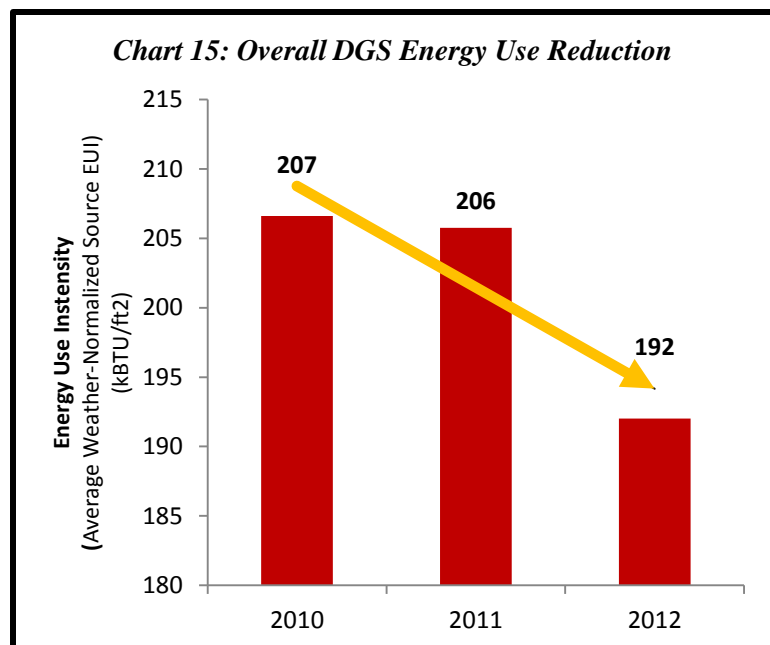


Table 3: DGS Facilities' Energy Use Intensity Compared to National Medians

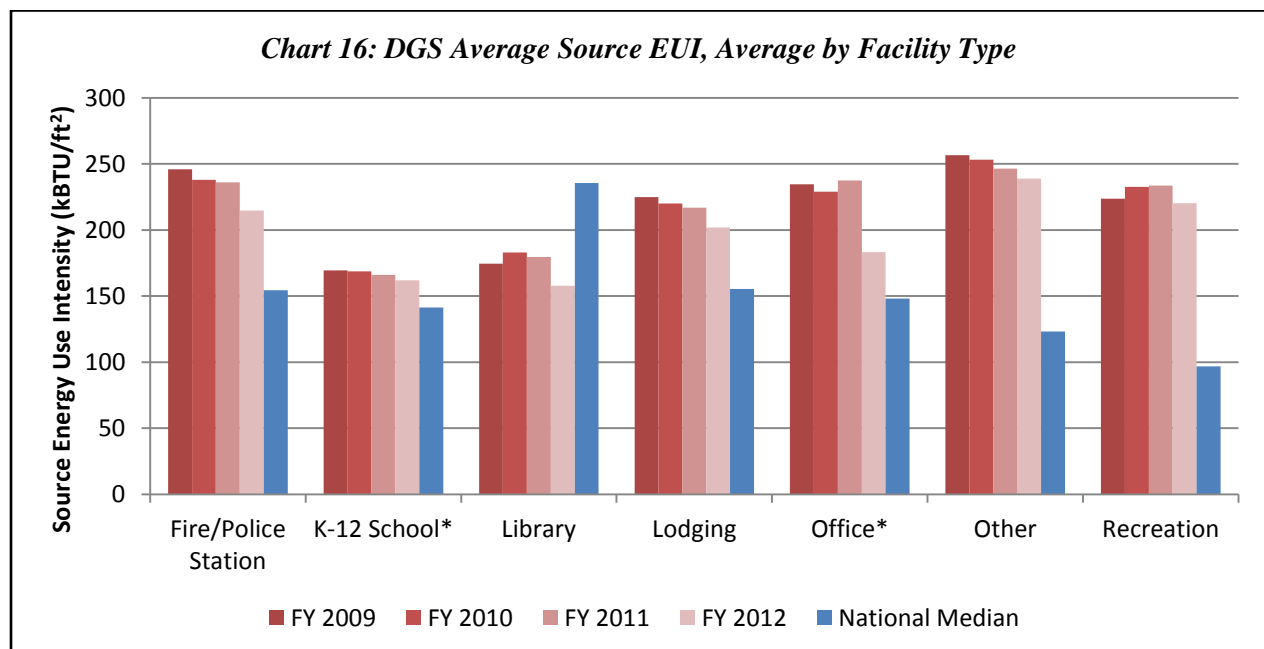
Facility Type	National Median Source EUI (kBTU/ft ²)	DGS FY2012 Median Weather-Normalized Source EUI (kBTU/ft ²)	DGS Median EUI vs. National Median EUI
Fire Station or Police Station	154	219	42% more
K-12 School*	141	154	9% more
Library	236	169	-28% LESS
Lodging (Shelters)	156	202	30% more
Office*	148	214	44% more
Other	123	237	93% more
Recreation	97	203	110% more

Table 4: DGS Facilities' Average Energy Use Reduction by Type

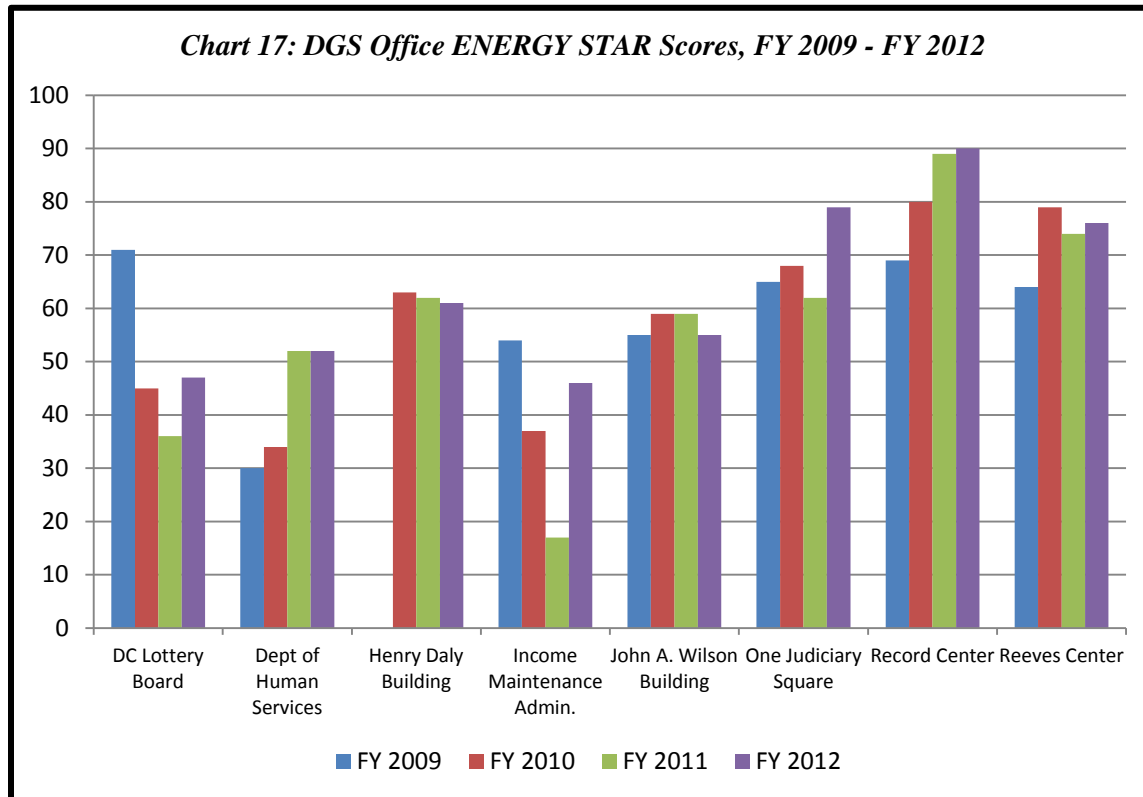
Facility Type	DGS FY2010 Average Weather-Normalized Source EUI (kBTU/ft ²)	DGS FY2012 Average Weather-Normalized Source EUI (kBTU/ft ²)	Percentage Improvement
Fire Station or Police Station	238	215	10%
K-12 School*	169	162	4%
Library	183	158	14%
Lodging (Shelters)	220	202	8%
Office*	229	183	20%
Other	253	239	6%
Recreation	233	220	5%
Total	207	192	7%

*Also eligible for ENERGY STAR Score

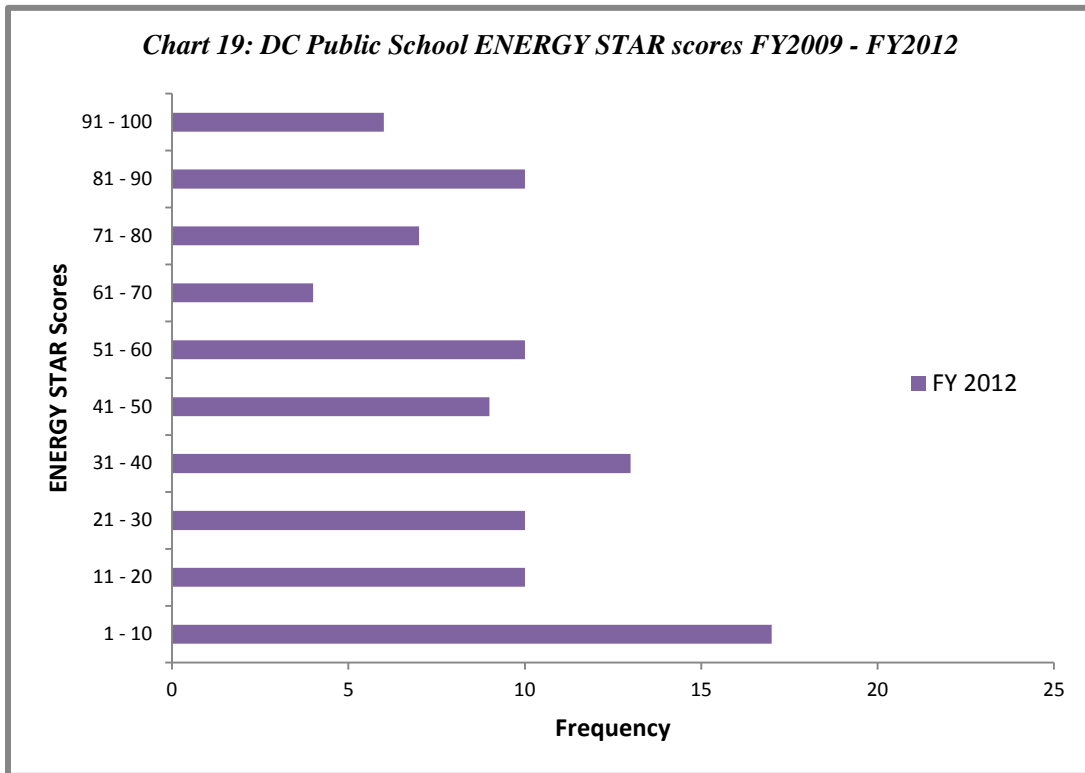
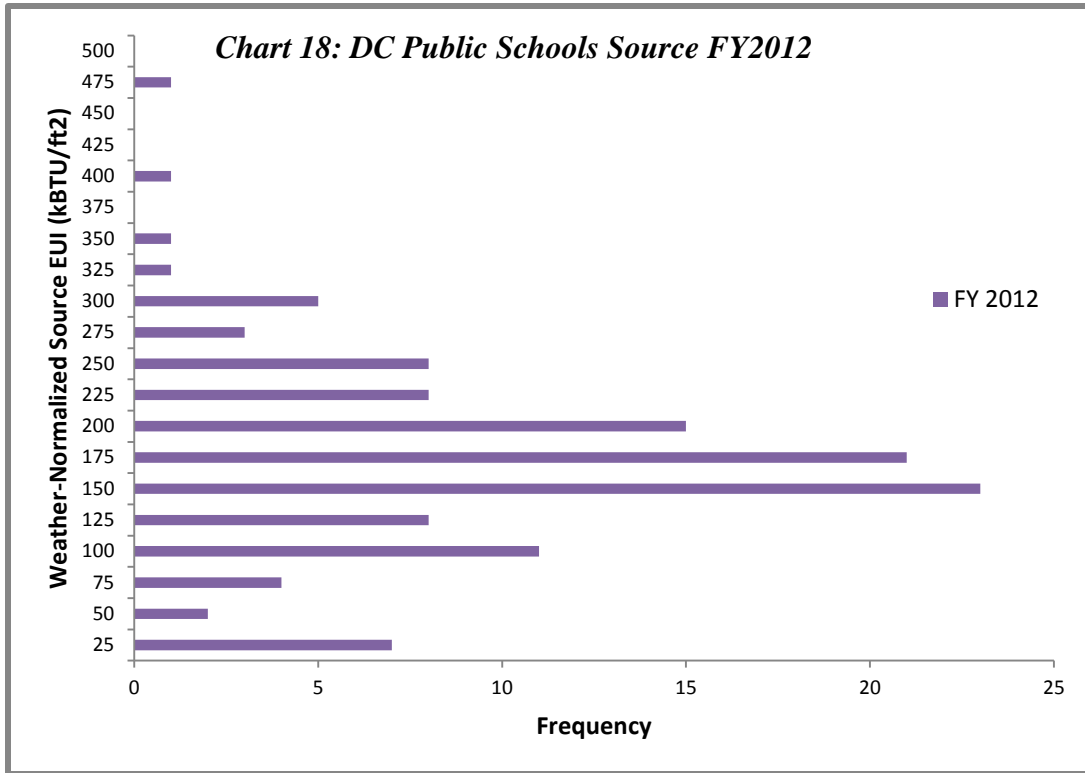
Chart 16 shows the improvement in various District government building types as compared to the national median.



Offices and K-12 schools are eligible for the 1-100 ENERGY STAR score, which measures the performance of the building relative to other similar buildings, normalizing not just for weather, but also for space use. Below are the ENERGY STAR scores for the largest District government owned office buildings for FY 09 – FY 12.



The ENERGY STAR scores for K-12 schools are more erratic, influenced strongly by the space use data inputted for the schools in the District. This is very apparent when comparing the Source EUIs for FY 2012 (see Chart 18 below) to that of the ENERGY STAR scores (see Chart 19 below) for the same period. The EUIs have a normal bell curve distribution, as would be expected. However, the ENERGY STAR scores do not display the same pattern; they are heavily weighted towards the high and low ends of the 1-100 range. DGS is currently in the midst of an extensive assessment of space use data, which should ensure that the scores from the FY13 benchmarking are more reliable.



C. Private Building Benchmarking Implementation

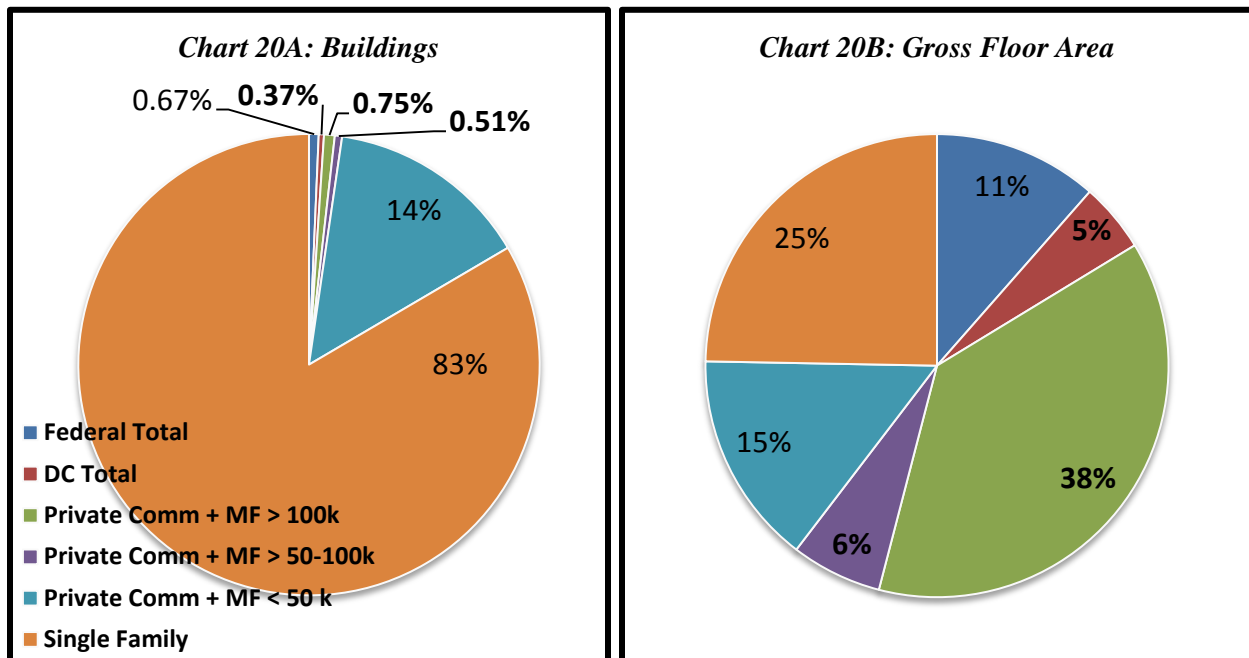
Regulations

The final rulemaking on ENERGY STAR benchmarking of privately owned buildings was published in the DC Register on January 18, 2013 (60 DCR 3), following extensive stakeholder engagement in calendar year 2012. The details of the rulemaking are described in chapter V.

Covered Building Stock

The benchmarking regulation is an excellent example of the power of scale. There are 128,000 buildings in the District, representing more than 730 million gross square feet. However, when fully rolled out, the benchmarking program will apply to only 1.6% of the buildings, but 49% of the total floor area.

Chart 20: Number of building (left); gross floor area (right)—the benchmarking law applies to DC government buildings 10,000 gross square feet and larger and private buildings 50,000 gross square feet and larger.



As originally envisioned by the Green Building Act and its amendments, the benchmarking law was to have been implemented in five phases: District government buildings would report in 2010, private buildings 200,000 square feet and larger would report 2011 data by July 1, 2011, and private buildings 150,000 square feet and larger would report 2012 data by April 1, 2012. However, the private building benchmarking regulation was delayed, and the implementation timetable was compressed accordingly. The first implemented reporting deadline was on April 1, 2013, with larger tranches of buildings reporting multiple years of data at once, as indicated in Table 5.

Table 5: Private Building Benchmarking Deadlines

Building Size (sq ft)	Utility Year Data	Original Initial Deadline	Final Initial Deadline
200,000+	2010-2012	July 1, 2011	April 1, 2013
150,000 – 200,000	2011-2012	April 1, 2012	April 1, 2013
100,000 – 150,000	2012	April 1, 2013	April 1, 2013
50,000 – 100,000	2013	April 1, 2014	April 1, 2014

In identifying potentially covered buildings, DDOE used the District's centralized real property database, maintained by the District's Office of Tax and Revenue (OTR) and Office of the Chief Technology Officer (OCTO). However, DDOE discovered many inaccuracies in the tax records, and in most cases the square footage listed in the tax records differed from the gross square footage as defined for benchmarking in Portfolio Manager. DDOE published a list of all buildings that appeared covered by the regulation in February 2013. DDOE will publish a new covered building list for 2014 reporting in Q1 of FY14.

Exempt Entities

Federal government buildings are not covered under the CAEA. However, the Energy Independence and Security Act of 2007 mandates that the federal government benchmark the energy performance of its facilities and make the results public online, and DDOE is working closely with the U.S. General Services Administration (“GSA”) and the U.S. Department of Energy (“DOE”) to accelerate this disclosure. DDOE also does not have the ability to enforce on foreign embassies and international institutions. Fortunately, more than 70 embassies—including most of the embassies 50,000 square feet and larger—have signed a sustainability pledge with the city, which includes a commitment to share their energy benchmarking data.

The regulation also specifically exempts several classes of buildings from benchmarking: buildings on a single tax lot that are under the size threshold and are separately metered for all utilities, and buildings that were built or sold during the reporting year. Additionally, exemptions may be requested from the GBAC if an owner believes disclosure of a building's energy use would harm the public interest, but no such exemptions have yet been requested.

DC SEU Benchmarking Help Center

In order to ensure a high rate of compliance and better data quality, building owners need to be able to access specialized technical support. Therefore, in 2012, in collaboration with the Institute for Market Transformation and under the supervision of DDOE, the DC Sustainable Energy Utility funded the creation a “Benchmarking Help Center” for energy benchmarking. The help center is modeled heavily on similar efforts in New York City and Seattle. DDOE has remained the main resource for all questions on enforcement, compliance, requirements, and exemptions, but the DC SEU Help Center provides more in-depth technical support on Portfolio Manager and related benchmarking tasks via a phone hotline, email, and in-person trainings. In 2012, the Help Center fielded more than 1,000 requests for assistance and offered 11 trainings. More than 70% of buildings submitting in time for the first reporting deadline on April 1, 2013, had been benchmarked by a company that received assistance from the DC SEU Help Center.

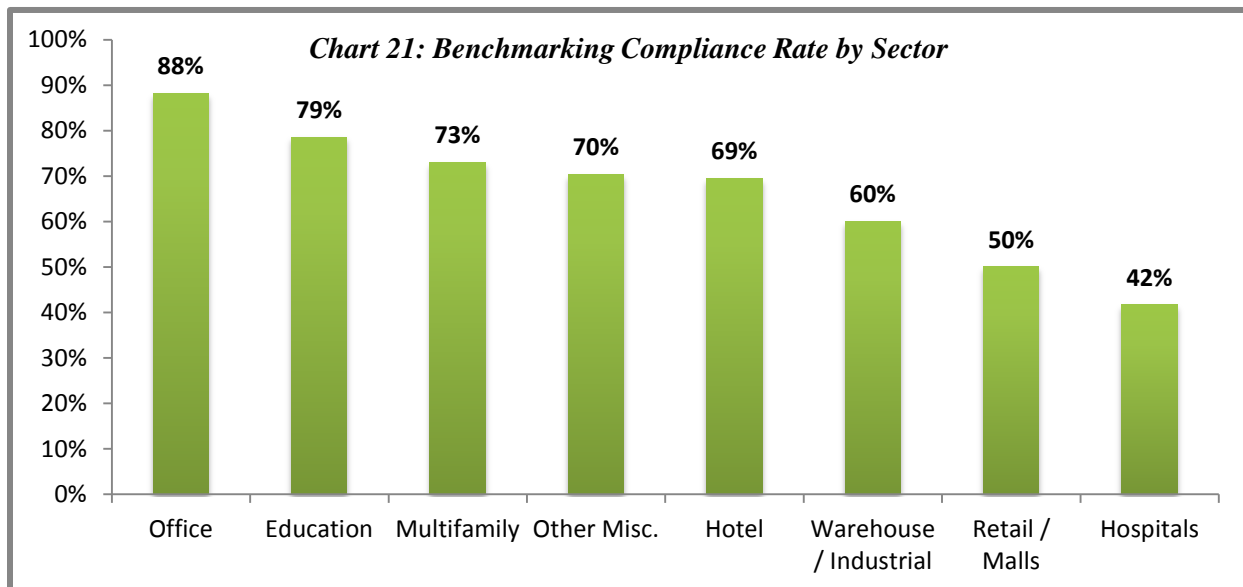
Utility Data Access

In order to successfully and accurately benchmark their buildings, owners and managers need access to whole-building energy and water consumption data. Utility provision of whole building energy data has been critical to the success of mandatory benchmarking in New York City and Seattle. District law and DDOE regulations require non-residential tenants to provide their landlord with data the owner needs to benchmark the buildings—the tenants are liable for \$100/day fines for non-compliance. Residential tenants have no requirements. This requirement on non-residential tenants renders moot many of the privacy concerns surrounding utility data of non-residential tenants in buildings covered by CAEA.

In collaboration with DDOE, the District’s electric utility, Pepco, is supporting the benchmarking regulations by providing aggregate energy use data to authorized requestors where five or more accounts are present in the building. The aggregation of 5 accounts on a monthly interval ensures that no individual account’s data can be isolated. The use of this service was optional in 2013, but will be required in 2014. In 2013, more than 100 buildings acquired whole building utility data from Pepco for reporting to DDOE. For cases where there are fewer than 5 accounts, and for water and natural gas data, DDOE has designed a common waiver form that a tenant can use to authorize their landlord to access their energy and water consumption data.

D. Private Building Compliance

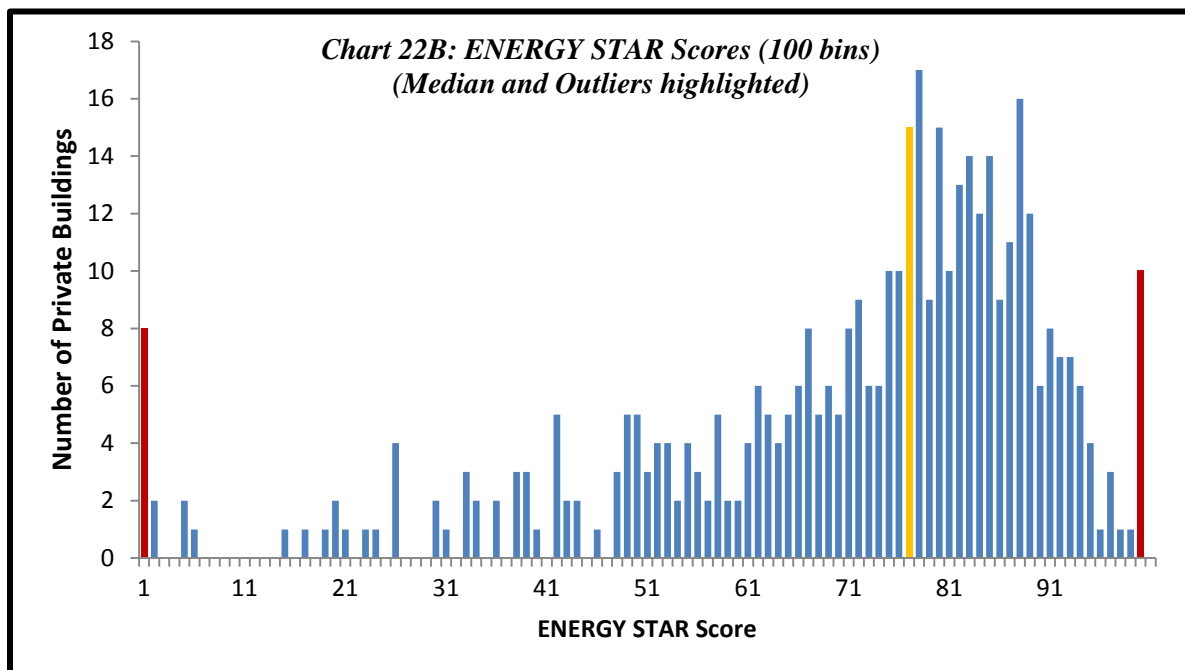
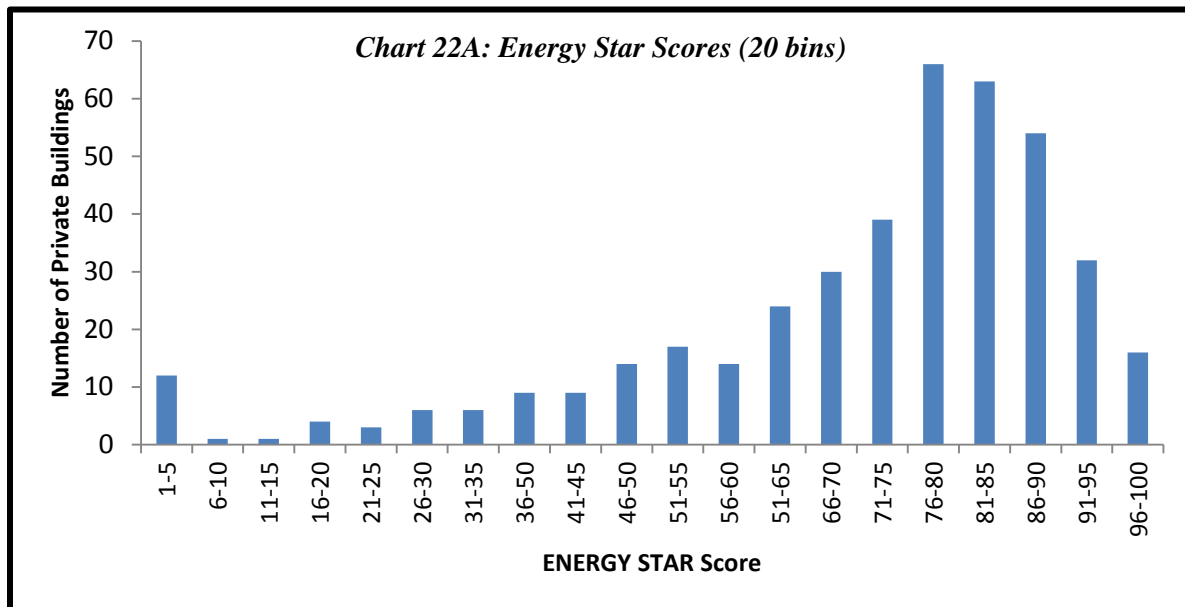
For the April 1, 2013 deadline, more than half of all buildings that were required to report had done so. As of November 8, 2013, the compliance rate was at 83%. Compliance varies by sector (see Chart 21 below):



E. Private Building Benchmarking Preliminary Results

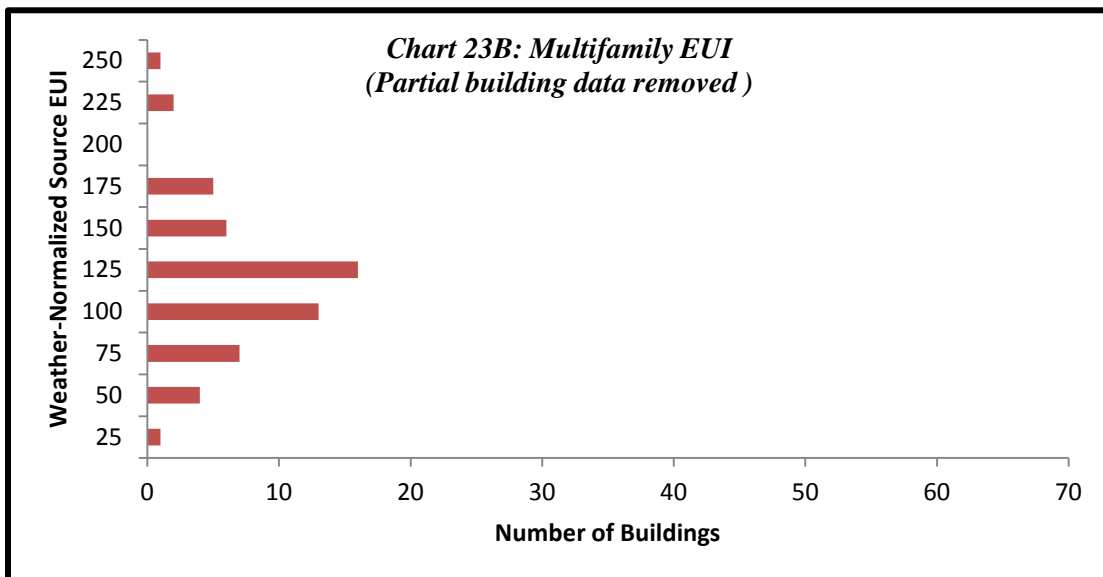
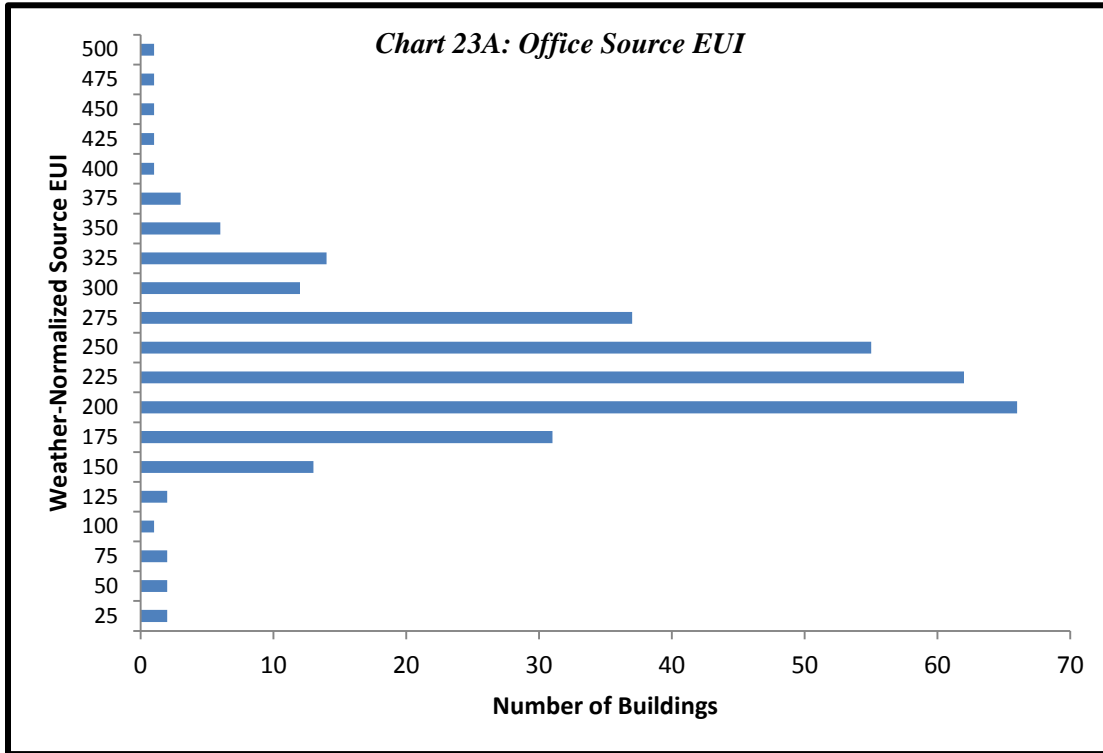
ENERGY STAR Scores

As notably displayed in their ENERGY STAR scores (see Chart 22A), District buildings have very strong energy performance. The ENERGY STAR score represents how a building compares to other similar buildings nationwide, adjusting for weather and use, on a 1-100 percentile scale. Private buildings in the District well outperform the national average--the average ENERGY STAR score is a 70, and the median is 77. Of the buildings achieving a score sufficient to apply for ENERGY STAR certification from U.S. EPA (an ENERGY STAR score of 75 or higher), 55% have been certified for 2012 or 2013, while 34% have never been certified.



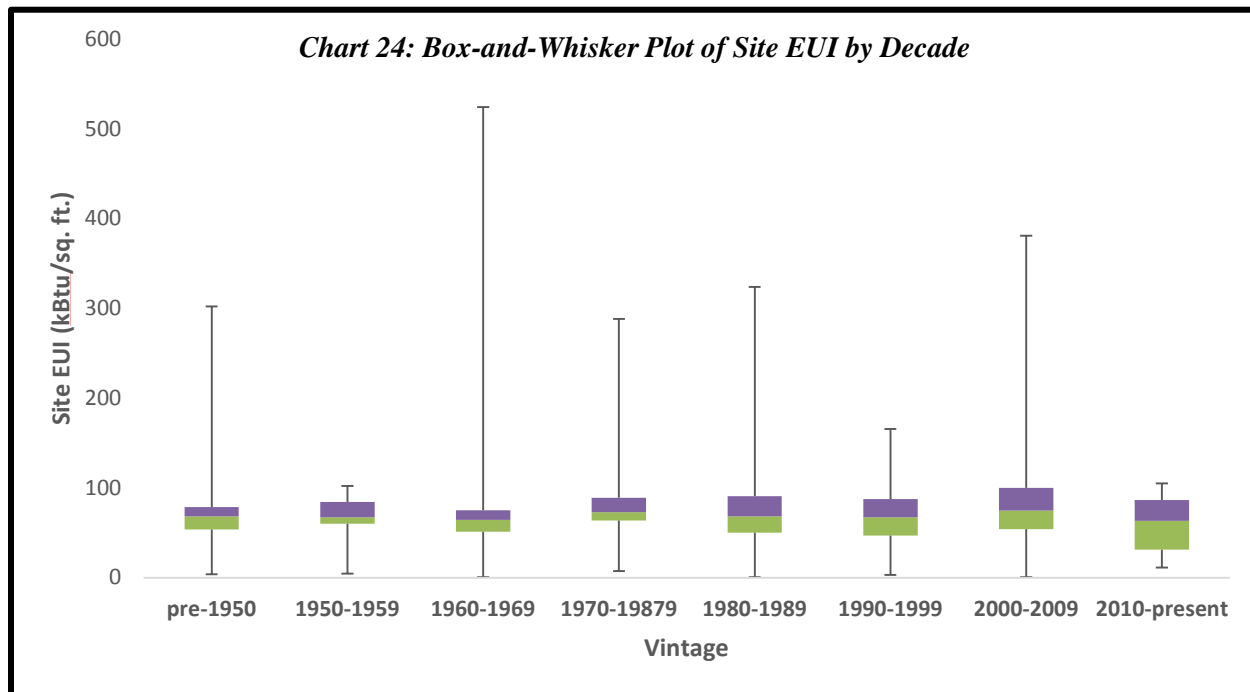
Energy Use Intensity

Office buildings in the 95th percentile of energy use consume 2.35 times as much energy as buildings in the 5th percentile. The lack of consistent whole building data for the multifamily sector makes calculating a similar metric for multifamily difficult.



Age

As has been borne out in other studies, age does not have any statistically significant influence on building energy performance. In fact, a linear regression of source EUI versus building age has an R^2 of only 1%. In Chart 24, the lack of influence is visible.



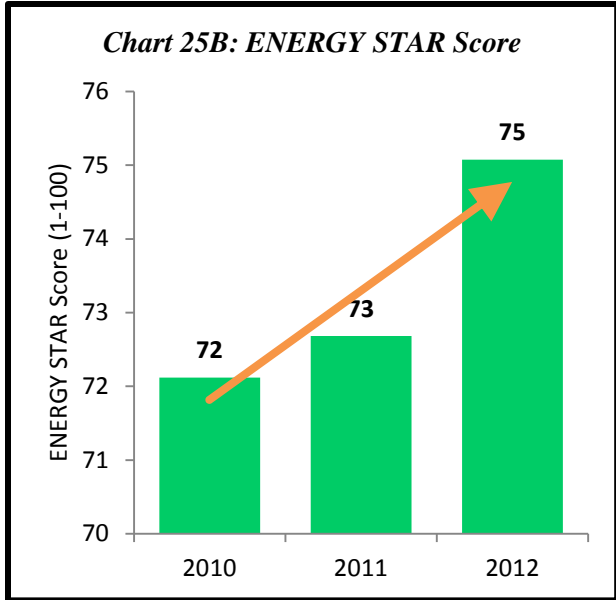
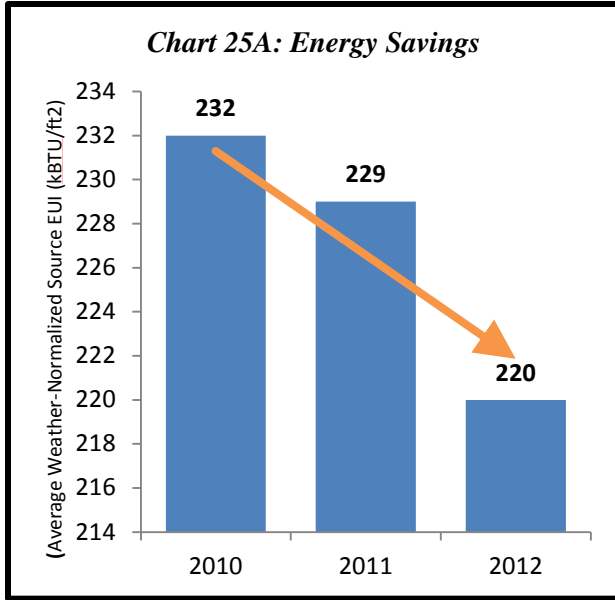
Improvements Over Time

The District's dataset is unique in that it contains 3 years of data—2010, 2011, and 2012—for the largest buildings. It is important to note that the energy efficiency improvements cannot be directly attributed to the benchmarking program and the public disclosure of results, as reporting was not required until 2013 and many owners benchmarked all three years at once for submission to DDOE. Nonetheless, there are interesting findings.

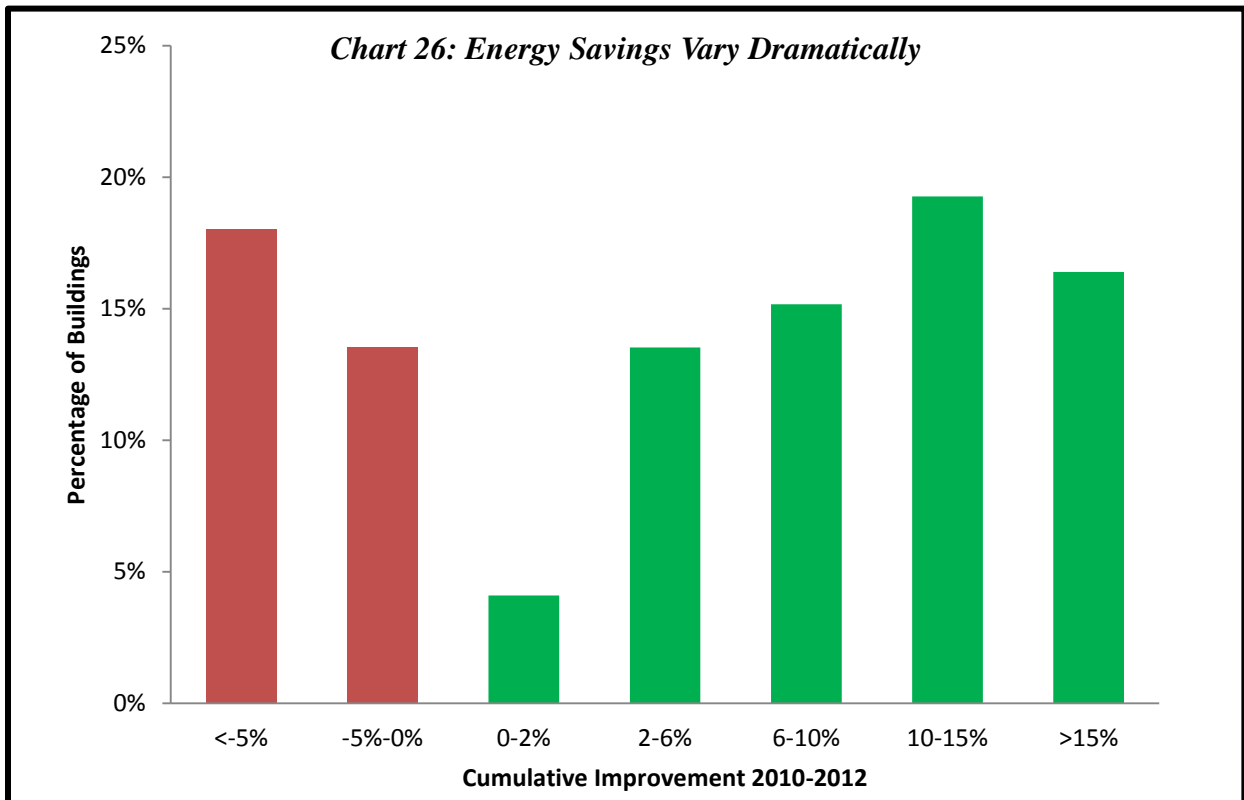
Buildings that reported benchmarking data for all three years (278 buildings), and are eligible for an ENERGY STAR score, reported, on average:

- A 6% reduction in energy use (see Chart 25A)
- A 3-point increase in their ENERGY STAR scores (see Chart 25B)

These results are consistent with the findings in EPA's Data Trends series. EPA looked at 4 years of data from 35,000 buildings in Portfolio Manager with complete and valid information, and found that during that period, the buildings energy use was reduced by 7% and the ENERGY STAR scores increased 6 points.



Moreover, facilities are not just incrementally improving—some are improving significantly, as indicated in Chart 26.

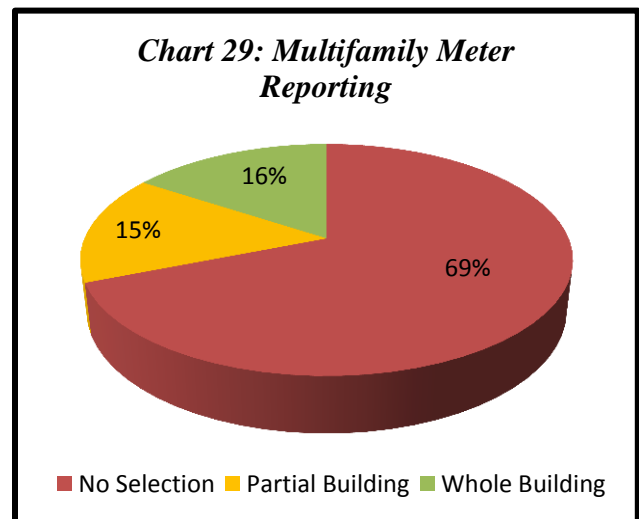
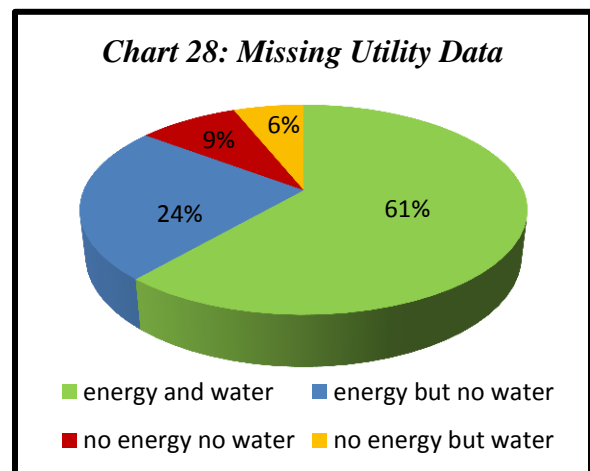
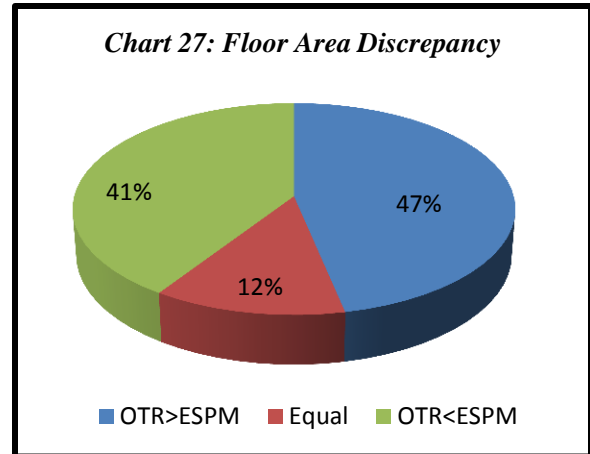


Data Limitations

The actual gross floor area in most buildings differs from what is recorded in the tax records, because there are not consistent standards for how building floor area is calculated. Sometimes building owners do not actually know their gross floor area—especially in the multifamily sector. Only twelve percent of buildings reported exactly what is recorded in the tax records. Slightly more buildings were smaller than the tax record, as opposed to larger, but there seems to be little overall trend (see Chart 27).

The ability to do analysis on the data collected was also limited by incomplete reporting, as indicated in Chart 28. Fifteen percent of buildings reported no energy use at all in 2012 and 24% of buildings provided energy data but failed to provide water data for 2012. In most cases these gaps were caused by technical errors in reporting via Portfolio Manager. DDOE and the DC SEU Benchmarking Help Center are working to reach out to these parties.

Finally, there was also incomplete reporting about the metering configuration in buildings. The multifamily sector was unique this year in being able to report only common area meter information if tenants were separately metered—starting next year they will need to get aggregated data from Pepco. When reporting partial data, building owners were asked to indicate what portions of the building the reported energy information accounted for, so DDOE and the public could compare like buildings. However, as shown in Chart 29, 69% of buildings did not report a metering configuration. This makes it difficult to distinguish whole building from partial building data, and limits the usefulness of the conclusions we can draw from the multifamily sector data.



F. Recommendations for Improving Benchmarking in the District

Public Buildings

While most District government buildings are either owned or leased by DGS, and thus now benchmarked in Portfolio Manager, there are other public facilities not under the DGS umbrella that have not been comprehensively benchmarked. These facilities are managed by the DC Housing Authority, the DC Courts, the Washington Convention Center, the University of the District of Columbia, and DC Water. DDOE is actively working to get benchmarking data from the entities listed above.

DGS facilities have been benchmarked using monthly consumption data for electricity, natural gas, and district steam. However, some facilities may also use fuel oil or other fuel sources which need to be tracked as well. Water data also needs to be tracked and disclosed. For truly accurate benchmarking in all public facilities, improved space use data will also be required.

Private Buildings

Building owners need to be able to easily access whole building energy consumption data in order for benchmarking to be reliable and comprehensive. Pepco is already providing aggregated whole building electricity consumption where 5 or more accounts are present. To further advance this program, DDOE and Pepco have joined the DOE Better Buildings Data Access Accelerator. Under this partnership, Pepco has committed to continue providing whole building data, and is also working to provide direct upload of data to Portfolio Manager by the end of the year. In 2014, the use of whole building electricity data will be required by the benchmarking program.

DDOE is now seeking to get Washington Gas and DC Water to follow Pepco's lead. To further advance this goal, the GBAC recommends that the DC Council adopt the "Aggregate Benchmarking Data Amendment Act of 2013," which the Mayor sent to the DC Council on October 1, 2013. The Act will mandate that utilities provide whole building data to building owners and upload it to Portfolio Manager on a monthly basis automatically.

Currently, when a building is sold, the new owner does not have to benchmark it until the first full calendar year after purchase. DDOE analysis indicates that ~50% of the building stock more than 50,000 square feet is sold each year, resulting in a potential flux of up to 10% in the total buildings that report benchmarking data each year, as buildings leave and return from the covered building set. It would be better if the seller simply transferred the benchmarking data to the buyer and the buyer was required to benchmark for the year in which they bought the building. Building managers will also benefit from the richer baseline data for comparing the building's current performance. To make this a requirement, the Mayor has sent to DC Council the "Benchmarking Data Transfer Improvement Amendment Act of 2013," which GBAC recommends for adoption by the DC Council.

V. Codes, Regulations & Legislation

A. Green Construction Codes

The GBA specifically mandates that “the Mayor shall, in consultation with the GBAC, submit construction code revisions to the DC Council that incorporate as many green building practices as practicable,” and identifies the need to continually improve the energy code. As a result, the District is establishing itself as a leader in the arena of green codes development:

- In 2008, the District completed a comprehensive building code update, involving stakeholders including the GBAC, DDOE, DCRA, the District of Columbia Building Industry Association (“**DCBIA**”), the Apartment and Office Building Association (“**AOBA**”), and others. The following code improvements were adopted:
 - More stringent efficiency requirements for building envelope, water fixtures, and removal of impediments for the use of waterless urinals and green piping
 - Adoption of ASHRAE Standard 90.1-2007 for commercial buildings
 - “30 Percent Solution”⁸ energy efficiency strategies for low-rise residential buildings
 - Stormwater management measures, including on site rainwater retention and easier methods for disconnecting downspouts
 - Urban heat island requirements for flat roofs
- In 2012, the Mayor issued a directive for the District’s Construction Codes Coordinating Board (“**CCCB**”) to leapfrog the International Code Council 2009 model codes and instead move directly to the 2012 versions. The 2012 I-codes include the International Green Construction Code (“**IgCC**”) for the first time, as well as a new International Energy Conservation Code (“**IECC**”). In March of 2012, the CCCB and its Green and Energy Technical Advisory Groups began the process of adapting the IgCC and IECC for use in the District. The initial versions of the Green and Energy Conservation Codes were issued for a first public comment period in late 2012. The CCCB submitted the final code proposals to the Mayor in 2013 for consideration in early 2014 by the DC Council.

Following the adoption of the 2012 model I-codes, including the new IgCC and IECC, the District will have one of the greenest construction codes in the country. But adoption is just one part of the process—having a green code in place helps, but ensuring compliance with the codes is equally essential. Building codes enforcement is one of the most effective tools available for improving the environmental and energy performance of buildings. In the District, as in other parts of the country, compliance and enforcement needs to be significantly improved. The codes have limited impact if plan reviewers do not check for green construction specifications, or if building inspectors are not trained in the new requirements when confirming compliance during project site visits.

⁸Advanced by the Energy Efficient Codes Coalition, <http://www.energyefficientcodes.org/>.

DCRA is spending a significant amount of Green Building Fund revenue for training its staff and third-party plan reviewers and inspectors to prepare them for the adoption of the new green and energy codes. The agency intends to continue this commitment to training and enforcement in years to come, and is working on unique training concepts such as in-the-field, peer-to-peer, and virtual training for agency staff and the private sector. If high performance codes are to be considered as a viable alternative to a LEED-based green building requirement for many of the District's buildings, code enforcement will be paramount to this strategy's success.

B. Rulemaking

A number of new rules related to the implementation of the GBA were published in 2012:

- D.C. Register 11318, Volume 59, Number 47, issued November 23, 2012:

These rules provide guidance for the binding pledge and financial security agreements required by the GBA. As set forth in the Act, financial security can take the form of either: (1) cash; (2) an irrevocable letter of credit; (3) a bond; or (4) a binding pledge. The form for the Binding Pledge Agreement defined in this rule is deemed to satisfy the financial security requirement of the Act.

- D.C. Register 11318, Volume 59, Number 48, issued November 23, 2012:

In this rule, DCMR Title 12 Chapter 2A was amended to include new definitions, Chapter 13A was altered, and Chapter 35A was amended to add new reference standards.

These regulations apply to all construction projects that are required to comply with the GBA (D.C. Official Code § 6-1451.01), including publicly-owned or publicly financed projects, and private-owned projects with 50,000 square feet or more of gross floor area.

The emergency regulations allow the use of the following LEED standards for compliance: New Construction & Major Renovations; Commercial Interiors; Core & Shell; Healthcare; Retail; and Schools. For private-owned projects, a financial security must be submitted to DCRA before the issuance of the first certificate of occupancy for occupiable space in a story above grade plane. Failure to comply with the GBA requirements or to achieve the minimum required LEED standard will result in the forfeiture of either 100% or 50% of the financial security, with the possibility of additional monthly fines.

- 60 DC Register 367, Volume 60, Number 3, published January 18, 2013:

Though this final rulemaking was published outside the scope of this report, it is included here because the work of drafting and finalizing it was completed in 2012 and because the results of its implementation are significant (See Section IV). In this rule a new section, 3513, was added to DCMR Title 20, Chapter 35, and the definitions in Section 3599 were amended. The final rulemaking followed an extensive stakeholder engagement

process with two rounds of proposed regulations in 2011 and 2012, and was supported by multiple guidance documents published online. These final regulations and guidance documents implement the energy and water performance benchmarking provisions of the Green Building Act and its amendments, which mandate that owners of privately-owned buildings annually benchmark their buildings using the Portfolio Manager tool and report the results to the District for public disclosure.

- D.C. Register 11318, Volume 60, Number 33, issued August 2, 2013:

Though this rulemaking was published outside of the scope of this report (published in calendar year 2013), a reference is included here because the rule clarifies the emergency regulations that were published in November of 2012, which are described above. In this rule, DCMR Title 12 Chapter 2A was amended to include new definitions.

These emergency regulations apply to all construction projects that are required to comply with the GBA (D.C. Official Code § 6-1451.01), including publicly-owned or publicly financed projects, and private-owned projects of 50,000 square feet or more of gross floor area. The emergency regulations further clarify the GBA's intended definition of "residential occupancy" to include "residential group R-2, R-3 or R-4 occupancies, and buildings regulated by the Residential Code."

The rule also further clarifies the definitions of new construction and substantial improvement that are found in the Act. New construction is now defined as "the construction of any building or structure whether as a stand-alone, or an addition to, a building or structure. The term 'new construction' includes new buildings and additions or enlargements of existing buildings, exclusive of any alterations or repairs to any existing portion of a building." Substantial improvement is defined as "any repair or alteration of, or addition to, a building or structure, the cost of which equals or exceeds 50 percent of the market value of the building or structure before the repair, alteration, or addition is started."

C. Legislative Amendments

One legislative amendment was made to the GBA in 2012, which is summarized below:

- Green Building Compliance, Technical Corrections and Clarification Amendment Act of 2012:

This act corrects and further refines various definitions and requirements of the GBA. The act includes a requirement for public and charter schools to target LEED-Gold, clarifies application for mixed-use and publicly-financed projects, adds a new penalty for the failure of publicly funded projects to fulfill GBA, introduces a penalty for failure to comply with the Act's benchmarking requirements, further addresses the GBA's financial security requirements, and revises the uses of the Green Building Fund, including more oversight by the DC Council and GBAC. The amendment was unanimously approved by the DC Council in early March and signed by the Mayor on March 28, 2012.

VI. Implementation

A. Capacity Building, Training & Education

The District continues to build agency capacity to support green building implementation, and to put significant resources into training and education for the advancement of green building activity in the city.

Capacity Building

In calendar year 2012, DCRA began putting the pieces in place to build a significant green building program in that agency. The position for DCRA's green building coordinator was posted in 2012, and was filled in early 2013. In the FY13-FY14 budget plan for the Green Building Fund, an additional four positions are listed to support the work of DCRA's program. These hires are crucial to the development of the new green and energy codes being proposed for adoption, and to ensuring compliance with the new codes. An additional position was dedicated in the Green Building Fund to support a staff person to work on the ENERGY STAR benchmarking program at DDOE. Finally, monies were set aside from the fund and earmarked for DGS to support the work of energy and water benchmarking for our public buildings.

Training & Education

DCRA spent a significant amount of money and dedicated much staff time to code and other trainings. The agency held 21 trainings with more than 800 participants in 2012, including several focused on green building and energy code compliance, including the list below:

- **USGBC** - Green Building Basics and LEED Online
- **ICC** - 2012 IECC Fundamentals
- **ICC** - Developing Green Building Ordinances and Programs
- **Prospect Solar** - Solar Panel Installation
- **ASHRAE** - Complying With Standard 90.1 - 2010
- **ASHRAE** – Fundamental Requirements of Standard 62.1
- **ASHRAE** - Basics of High Performance Building Design
- **ASHRAE** - Understanding Standard 189.1 - 2011

B. Enforcement & Compliance

Enforcement of, and compliance with, the GBA occurs at multiple levels: agency Director accountability to the Mayor, the public disclosure of benchmarking results, publication of the Green Building Report, building permitting and inspection of individual projects, and more. The weight of compliance rests on the permitting and inspection process however, and that is the focus of this section.

Project Permitting and Inspections

Permitting intake processes (called the “Green Building Intake Form”), standard operating procedures (“SOPs”), and tracking systems (Accela) have been put in place by DCRA. However, lack of adequate plan review staff and inspectors remains an ongoing concern. Staffing needs have been neglected for several reasons: (a) austerity measures imposed on the government as a result of fiscal hardships from FY10-FY12; and (b) legal issues around DCRA’s right to enforce the GBA were unresolved. The legal issues included:

- DCRA’s legal authority to enforce legislative requirements outside of the agency’s narrow mission to enforce District codes
- DCRA’s legal authority to reject permit applications for causes other than noncompliance
- DCRA’s legal authority to reject a certificate of occupancy on anything other than noncompliance with construction codes

Since the above issues were resolved by the publication of new regulations, DCRA has developed the following mechanisms to manage GBA project compliance at the permitting stage:

- A Green Building Intake Form for private projects 50,000 square feet or larger
- Tracking of green features in the Accela project tracking system
- SOPs including review for applicable GBA documentation, with LEED and Green Communities Criteria checklists and the general Green Building Intake Form, registration with a third party certifying organization if appropriate, demonstration of ENERGY STAR Target Finder compliance, and third party standards for permitting, inspections, and certification for green building
- Inclusion of GBA requirements in full project permit applications so that a permit application is not deemed completed unless it incorporates documentation demonstrating compliance with the GBA

Project Bonding Requirement

The GBA requires some form of financial surety for mandated green building projects. Until the passage of the Green Building Compliance, Technical Corrections, and Clarification Amendment Act of 2012 (“TCCAA”) was passed, obstacles to implementing a “green building bond” were cited, which included arguments about the lack of availability of a “green building bond” in the private marketplace, the pricing associated with a novel and niche product, identification of which firm (developer, architect, contractor, or sustainability consultant) was the appropriate responsible party; and others.

As a result of the TCCAA, the interests of the government to have financial security are better aligned with the range of tools available to private practitioners. Specifically, the types of financial security that are now permitted include: (i) cash deposited into an escrow account; (ii) letters of credit; (iii) bonds; and (iv) binding pledges to fulfill green building certification. If the building owner fails to receive the required green building certification, the District now has the ability to draw down on funds or levy fines against the applicant.

C. Green Building Fund

DCRA collects green building fees during the permit intake process, which in turn generates the Green Building Fund budget. The Green Building Fund (See Table 6 for revenues and expenditures) is to be used for: (a) streamlining administrative green building processes; (b) improving sustainability performance outcomes; (c) building capacity of development and administrative oversight professionals in green building skills and knowledge; (d) institutionalizing innovation; and (e) overcoming barriers to achieving high performance buildings. Though expenditures have not historically matched revenues in the fund, DDOE and DCRA worked diligently in 2012 to create a new paradigm for use of the fund, including hiring more staff to implement the goals of the GBA, supporting the energy benchmarking program created in the CAEA, and creating the first ever Green Building Fund Grant program. Thus, the expenditures in FY13 represent a significant increase in spending from those in FY12.

Table 6: Green Building Fund Revenue and Expenditures, FY10 – FY13⁹

Fund Activity	FY10	FY11	FY12	FY13	TOTAL
Revenues	\$ 886,726	\$ 745,206	\$ 809,086	\$ 1,688,587	\$ 5,239,353
Expenditures	\$ 431,801	\$ 180,654	\$ 205,915	\$ 642,403	\$ 1,460,773
Surplus	\$ 454,925	\$ 564,552	\$ 603,171	\$1,046,184	\$ 3,778,580

D. Incentives

Under the GBA, DCRA is responsible for developing incentives to support green building innovation, with the Green Building Fund as one of the sources of funding. To date, no financial incentives have been created, in part because no extensive studies or analysis have been funded that could identify the appropriate green building level, sectors, or format for incentives. Given limited public resources, incentives should be as targeted and cost-effective as possible. The creation of financial incentives is among the priorities in the GBAC work plan for 2013-2015, and the goal of creating some research to support an incentive is one of the targets of the plan.

Expedited Permit Review

The original GBA offered expedited permit reviews as an incentive for owners that would meet and exceed the Act's requirements. The program offered a 30-day design review and a PDRM for the applicant. Though some early projects went through the expedited process, DCRA's improvements to the overall permit approval process have eliminated expedited review as a significant advantage or incentive. As a result, this incentive was removed from the GBA when the TCCAA passed in March of 2012. Integrating green applicability reviews into the existing PDRM structure has been found to be of value and shall continue.

⁹ Revenue for the Green Building Fund in FY13 more than doubled from the previous year because of an increase in building permit applications following the market recovery at the end of calendar year 2012.

VII. Conclusion

Ultimately, there are six simple targets the District needs to hit to move toward sustainability in our built environment. We need to use as little energy as possible in our buildings, and produce the rest onsite or nearby; we need to use as little water as possible, and collect rainwater onsite or nearby to cover the balance; and we need to create minimal or zero waste (both waste water and solid waste) and minimize the impacts of the remaining waste that leaves the site. If we do those things, and also eliminate toxic products in our buildings, we will be on a path to constructing truly sustainable structures.

Though these targets are simple in theory, the implementation of true sustainability is more difficult in practice. But we are not starting from scratch. As discussed in this report, the District was the first large city in the nation to pass a law that required green building certifications for both the public *and* private sectors; the first city to pass a law requiring energy benchmarking; and we are now poised to pass what may be the greenest construction code in the country.

This report shows the exponential growth of green building deployment since the passage of the GBA and the energy benchmarking requirements, all of which has coincided with a remarkable growth in development and population in the District, proving that being a green city has more than one meaning. Though we have had remarkable growth, we have also realized a significant reduction in the District's carbon emissions. Our next step is to finalize the green construction codes and ensure that there is sufficient training, education and enforcement in place to continue to raise the bar and to normalize green building for all projects in the District.

The District's green building program, with the support of the GBAC, must now be integrated with the goals of Mayor Gray's Sustainable DC Plan in order to continue the District's national leadership in green building deployment, and to start us on the path towards sustainability. We must continue the creative use of the Green Building Fund to finance innovative ideas and analysis in order to drive us to the next evolution of green building.

But the GBA, energy benchmarking, and the new green codes will not lead directly to true sustainability. There are new programs, such as zero-energy and Living Building Challenge certifications, which are beginning to drive high performance projects, but currently those projects are a small minority of total construction. In order to move them to the mainstream, the city should explore incentive programs that can help off-set the differential costs of these deep green building solutions.

The growth of green building in both the private and public sectors discussed in this report reveals that the District has the will to continue driving towards true sustainability, and the progressive nature of our program shows that we have the "way." If we continue to follow it, this path can lead us to achieve the Mayor's goal of being the "healthiest, greenest and most livable city in the nation."

Glossary

AOBA	Apartment and Office Building Association
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
AWDZ	Anacostia Waterfront Development Zone
AWDZ Act	National Capitol Revitalization Corporation and Anacostia Waterfront Corporation Reorganization Act of 2008
CAEA	Clean and Affordable Energy Act of 2008
CBD	Central Business District
CCCB	Construction Codes Coordinating Board
DCBIA	District of Columbia Building Industry Association
DCPL	District of Columbia Public Libraries
DCRA	Department of Consumer and Regulatory Affairs
DDOE	District Department of the Environment
DHCD	Department of Housing and Community Development
DMPED	Office of the Deputy Mayor for Planning and Economic Development
DGS	Department of General Services
DOC	Department of Corrections
DOH	Department of Health
DPR	Department of Parks and Recreation
DPW	Department of Public Works
DYRS	Department of Youth Rehabilitation Services
FEMS	Fire and Emergency Medical Services
GBA	Green Building Act of 2006
GBAC	Green Building Advisory Council
GBCI	Green Building Certification Institute

EGC	Enterprise Green Communities
GSA	U.S. General Services Administration
HFA	Housing Finance Agency
ICC	International Code Council
IECC	International Energy Conservation Code
IgCC	International Green Construction Code
LEED	Leadership in Energy and Environmental Design
LEED-AP	LEED-Accredited Professional
LID	Low-Impact Development
MPD	Metropolitan Police Department
MS4	Municipal Separate Storm Sewer System
OP	Office of Planning
OTR	Office of Tax and Revenue
PDRM	Preliminary Design Review Meetings
RFP	Request for Proposals
SOP	Standard Operating Procedures
TAG	Technical Advisory Group
TCCAA	Green Building Technical Corrections, Clarification and Revision Amendment Act
UDC	University of the District of Columbia
USGBC	U.S. Green Building Council

List of Appendices

Appendix A: 2013-2015 Work Plan

Appendix B: Green Building Advisory Council Appointees

Appendix C: LEED Certifications in the District, 2012

Appendix D: ENERGY STAR Rated Buildings, 2012

Appendix E: Public Projects, 2012

Appendix A: 2013-2015 Work Plan

Green Building Advisory Council Action	Target Date	Status
Green Construction Codes:		
GBAC will work to support the development of the new Green Construction and Energy Conservation Codes in the District, as well as subsequent training for permitting and inspection staff, as well as the private sector construction industry.	Ongoing	In Process
Sustainable DC Implementation:		
GBAC will work to integrate the Sustainable DC implementation plan with priorities for the advisory council, including spending recommendations for the Green Building Fund.	Ongoing	In Process
Green Building Innovation:		
GBAC will continue to advise on deep green building innovation, including policies to support zero-energy and water construction, and Living Building Challenge certification, with a possible proposal to create a related incentive program.	2014	In Process
GBAC will consider and advise on the creation of a single family and low-rise residential green building standard or code for the District.	2015	
Green Building Process & Regulation		
When called upon, GBAC will host interagency meetings for coordinating large scale development projects in the District, and provide advice on green building opportunities in requests for proposals on projects.	Ongoing	
GBAC will advise on any amendments to the Green Building Act that may be relevant given the imminent adoption of the District's new Green Construction Code.	2014	In Process
GBAC will convene discussions with the District's utilities and the Public Service Commission to support green building advances in the public and private sectors.	2013	In Process
Green Building Fund:		
GBAC will continue to advise on the use of the Green Building Fund--including the ideas to be funded in the Green Building Fund Grant program.	Ongoing	In Process
GBAC Outreach:		
GBAC will publish the Green Building Report for 2012.	2013	
GBAC will publish the Green Building Report for 2013.	2014	
GBAC will publish the Green Building Report for 2013.	2015	

Appendix B: GBAC Appointees

Private Sector Appointees

Sean Cahill, Property Group Partners
Ethan Landis, Landis Construction
Anica Landreneau, HOK
Patricia A. Rose, Greenspace NCR
Sandy Wiggins, BALLE (Board Chair)
Jessica B. Zimbabwe, Urban Land Institute

Public Sector Appointees

Bill Updike, District Department of the Environment
Director Michael P. Kelly, Department of Housing and Community Development
Rabbiah Sabbakhan, Department of Consumer and Regulatory Affairs
Director Harriet Tregoning, Office of Planning
Director Brian J. Hanlon, Department of General Services

Appendix C: LEED Certifications, 2012

Street	Zip	LEED System	PTS	Level	Date	Square Feet
900 17th Street, NW	20006	LEED-EB:OM v2009	61	Gold	1/3/2012	160109
1401 H Street NW	20005	LEED-EB:OM v2009	53	Silver	1/3/2012	345501
Confidential	Con	LEED-EB:OM v2009	50	Silver	1/10/2012	379324
1155 21st St. NW	20581	LEED-CI v2009	60	Gold	1/11/2012	47726
900 17th Street NW,Suite 200	20006	LEED CI 2.0	33	Gold	1/13/2012	5857
1919 M Street, NW	20036	LEED-EB:OM v2009	64	Gold	1/19/2012	271532
50 INDEPENDENCE AVE, SW	20515	LEED-NC v2009	65	Gold	1/19/2012	265485
10th St & Constitution Ave., NW	20560	LEED CI 2.0	27	Silver	1/23/2012	14500
237 PENNSYLVANIA AVE SE	20003	LEED Retail (CI) 1.0	25	Certified	1/24/2012	2893
1001 Pennsylvania Avenue NW	20004	LEED EB O&M	43	Silver	1/26/2012	851488
1630 7th Street NW	20001	LEED NC 2.2	41	Gold	1/31/2012	22679
401 9th Street, NW	20004	LEED-EB:OM v2009	64	Gold	1/31/2012	475190
Confidential	Con	LEED for Schools 2.0	38	Silver	1/31/2012	122397
1155 21st St. NW	20581	LEED-CI v2009	52	Silver	2/1/2012	22388
601 D Street, NW	20004	LEED-EB:OM v2009	53	Silver	2/2/2012	547978
American Chemical Society	20036	LEED-EB:OM v2009	83	Platinum	2/16/2012	135127
1200 Massachusetts Avenue NW	20005	LEED NC 2.2	40	Gold	2/21/2012	7000
2100 Eye Street, NW	20052	LEED-NC v2009	63	Gold	2/23/2012	36035
Diagnostic Imaging & Radiology	20010	LEED-CI v2009	40	Certified	3/6/2012	15375
901 K Street	20002	LEED-CI v2009	45	Certified	3/12/2012	5326
1101 Pennsylvania Ave NW	20004	LEED-EB:OM v2009	60	Gold	3/14/2012	202638
575 7th Street, NW	20004	LEED-EB:OM v2009	80	Platinum	3/14/2012	532709
1155 21st St. NW	20581	LEED-CI v2009	54	Silver	3/15/2012	23863
Confidential	Con	LEED NC 2.2	41	Gold	3/20/2012	22436
1101 K Street, NW	20005	LEED-EB:OM v2009	64	Gold	3/22/2012	317132
Confidential	Con	LEED-CI v2009	64	Gold	3/23/2012	156354
600 22nd Street NW	20052	LEED NC 2.2	41	Gold	3/29/2012	100000
Confidential	Con	LEED-CI v2009	61	Gold	3/30/2012	88961
607 14th Street	20005	LEED-EB:OM v2009	74	Gold	4/11/2012	273111
888 First Street, NE	20002	LEED-EB:OM v2009	63	Gold	4/16/2012	558620
Confidential	Con	LEED-CI v2009	52	Silver	4/17/2012	164418
2021L Street NW	20036	LEED-CI v2009	88	Platinum	4/23/2012	7400
2221 EYE STREE NW	20052	LEED Retail (CI) 1.0	70	Gold	5/7/2012	4524
50 F Street NW	20001	LEED-CI v2009	65	Gold	5/7/2012	25057
1775 Pennsylvania Ave NW	20006	LEED-CI v2009	53	Silver	5/7/2012	21359
801 9th Street NW	20001	LEED-EB:OM v2009	65	Gold	5/8/2012	250433

Street	Zip	LEED System	PTS	Level	Date	Square Feet
1152 15th Street, NW	20005	LEED-CI v2009	92	Platinum	5/14/2012	27633
1000 Connecticut Ave NW	20036	LEED CS 2.0	47	Platinum	5/17/2012	369743
1627 I St NW	20006	LEED-EB:OM v2009	64	Gold	5/24/2012	114595
1510 H Street, NW	20005	LEED-CI v2009	50	Silver	5/29/2012	12014
101 Constitution Avenue, NW	20001	LEED EB O&M	43	Silver	5/31/2012	548538
1875 K Street, NW	20006	LEED EB O&M	53	Gold	5/31/2012	199435
Confidential	Con	LEED-CI v2009	55	Silver	5/31/2012	19097
Confidential	Con	LEED NC 2.1	39	Gold	6/1/2012	227033
1060 Brentwood Road, NE	20018	LEED-NC v2009	72	Gold	6/4/2012	2876
1300 New York Avenue, NW	20577	LEED-EB:OM v2009	63	Gold	6/5/2012	1018509
2121 Ward Place NW	20036	LEED-CI v2009	63	Gold	6/8/2012	8600
1700 E Capitol Street NE	20003	LEED for Schools 2.0	44	Gold	6/11/2012	284502
1350 New York Avenue, NW	20577	LEED-EB:OM v2009	61	Gold	6/11/2012	145038
1200 First Street NE	20002	LEED-EB:OM v2009	82	Platinum	6/12/2012	310259
900 19th Street, NW	20006	LEED-EB:OM v2009	52	Silver	6/12/2012	113577
Naval Support Activity	20373	LEED NC 2.2	37	Silver	6/13/2012	186093
801 17th Street, NW	20006	LEED-CI v2009	67	Gold	6/14/2012	3544
GWU Mount Vernon Campus	20007	LEED-NC v2009	66	Gold	6/18/2012	55713
1200 19TH Street, NW	20036	LEED-CI v2009	83	Platinum	6/18/2012	56078
1310 G Street	20005	LEED EB O&M	35	Certified	6/26/2012	195711
1111 34th St. NW	20007	LEED-CI Retail v2009	67	Gold	6/26/2012	1468
Confidential	Con	LEED-CI v2009	68	Gold	6/26/2012	30728
3950 Chesapeake Street, N.W.	20010	LEED NC 2.2	33	Silver	6/27/2012	53540
1600 M Street NW	20036	LEED EB O&M	59	Gold	6/28/2012	835167
1110 Vermont Street	20005	LEED-EB:OM v2009	50	Silver	7/3/2012	319596
Confidential	Con	LEED-CI v2009	41	Certified	7/3/2012	3635
1625 Eye Street NW	20006	LEED-EB:OM v2009	61	Gold	7/5/2012	384921
1825 Eye Street, NW	20006	LEED-EB:OM v2009	50	Silver	7/10/2012	1242321
1111 19th Street, NW	20036	LEED-EB:OM v2009	63	Gold	7/13/2012	263759
1828 L Street NW	20036	LEED-CI v2009	60	Gold	7/13/2012	9366
945 G Street, NW	20001	LEED CS 2.0	37	Gold	7/24/2012	206600
1129 20th Street NW	20036	LEED-CI v2009	70	Gold	7/25/2012	11352
355 E Street, SW	20024	LEED-CI v2009	55	Silver	8/6/2012	302696
1875 Connecticut Ave NW	20009	LEED-CI v2009	63	Gold	8/27/2012	24952
1828 L St. NW	20036	LEED-CI v2009	51	Silver	8/29/2012	13433
3950 Chesapeake Street NW	20016	LEED Schools v2009	61	Gold	9/11/2012	351012
1200 19th Street, NW	20036	LEED-CI v2009	87	Platinum	9/12/2012	64988
1700 K Street NW	20006	LEED-EB:OM v2009	51	Silver	9/18/2012	416518
1901 Pennsylvania Avenue	20006	LEED-EB:OM v2009	61	Gold	9/26/2012	105219

Street	Zip	LEED System	PTS	Level	Date	Square Feet
Confidential	Con	LEED NC 2.1	40	Gold	10/2/2012	12293
Confidential	Con	LEED for Schools 2.0	49	Gold	10/2/2012	119000
901 K Street	20001	LEED-CI v2009	52	Silver	10/3/2012	16840
1899 Pennsylvania Avenue, NW	20006	LEED-EB:OM v2009	51	Silver	10/7/2012	206164
1250 Connecticut Avenue NW	20036	LEED-EB:OM v2009	61	Gold	10/8/2012	196645
Confidential	Con	LEED-CI v2009	62	Gold	10/11/2012	44291
1101 K Street, NW	20005	LEED-CI v2009	61	Gold	10/22/2012	26260
1201 F Street	20004	LEED-EB:OM v2009	52	Silver	10/22/2012	258596
1101 Vermont Avenue NW	20005	LEED-EB:OM v2009	54	Silver	10/22/2012	193383
Confidential	Con	LEED-CI v2009	65	Gold	10/22/2012	26900
1220 19th Street, NW	20036	LEED-EB:OM v2009	61	Gold	10/23/2012	110636
1707 L Street, N.W.	20036	LEED-CI v2009	81	Platinum	10/25/2012	1400
2 DC Village Lane SW	20032	LEED NC 2.2	36	Silver	10/26/2012	89798
1901 Pennsylvania Ave	20006	LEED-CI v2009	52	Silver	10/31/2012	3314
1101 17th Street, NW	20036	LEED-EB:OM v2009	50	Silver	10/31/2012	237412
1150 17th Street, NW	20036	LEED-EB:OM v2009	41	Certified	10/31/2012	270827
1501 K Street, NW	20005	LEED-EB:OM v2009	50	Silver	10/31/2012	429937
1725 Desales Street NW	20036	LEED-EB:OM v2009	57	Silver	10/31/2012	84725
1750 Pennsylvania Avenue NW	20006	LEED-EB:OM v2009	60	Gold	10/31/2012	318797
1875 Connecticut Avenue, NW	20009	LEED-EB:OM v2009	61	Gold	10/31/2012	428705
1825 Connecticut Avenue, NW	20009	LEED-EB:OM v2009	60	Gold	10/31/2012	350038
999 N. Capitol Street, NE	20002	LEED-CI v2009	57	Silver	11/19/2012	88723
1800 Massachusetts Avenue NW	20036	LEED-EB:OM v2009	81	Platinum	11/26/2012	213592
2400 14th St. NW	20009	LEED NC 2.2	52	Platinum	11/28/2012	255829
200 Eye Street SE	20003	LEED-CS v2009	91	Platinum	11/30/2012	331789
901 New York Avenue	20001	LEED-EB:OM v2009	64	Gold	11/30/2012	604549
655 15th Street, NW	20005	LEED-EB:OM v2009	63	Gold	11/30/2012	734969
1849 C Street, NW	20240	LEED CI 2.0	25	Certified	12/4/2012	290515
2550 M Street, NW	20037	LEED-EB:OM v2009	62	Gold	12/13/2012	208325
191 Pennsylvania Ave, NW	20006	LEED-EB:OM v2009	51	Silver	12/13/2012	262403
Confidential	Con	LEED-CI v2009	66	Gold	12/13/2012	10465
1250 H St. NW	20005	LEED-CI v2009	40	Certified	12/14/2012	7872
1736 L Street NW	20036	LEED-CI v2009	50	Silver	12/17/2012	7297
Confidential	Con	LEED-EB:OM v2009	51	Silver	12/18/2012	654156
Confidential	Con	LEED-EB:OM v2009	54	Silver	12/21/2012	127216

Appendix D: ENERGY STAR, 2012

Building Owner	Property Manager	Address	Square Feet	Year Built	Score
APA LLC	APA LLC	10 G Street NE	280169	1997	88
TIAA-CREF	Hines	1001 Pennsylvania Ave, NW	808836	1985	76
1015 15th Street, Inc.	Lincoln Property Company	1015 15th Street, NW	203540	1979	77
Carr Properties	Carr Properties	1025 Vermont Ave. NW	109878	1963	92
Akridge	Akridge	1090 Vermont Avenue NW	163045	1982	78
Carr Properties	Carr Properties	1100 15th Street, NW	146228	1982	75
Manulife Financial	Manulife Financial	1100 New York Avenue, NW	569143	1991	90
Transwestern	Transwestern	1101 14th St NW	119963	1981	80
Vornado/Charles E. Smith	Vornado/Charles E. Smith	1101 17th Street N.W.	215096	1964	82
Rockefeller Group Development Corporation	Rockefeller Group Development Corporation	1101 K Street, NW	307330	2006	86
Louis Dreyfus Property Group	Louis Dreyfus Property Group	1101 New York Ave NW	391370	2007	78
1101 Vermont Investors, LLC	Cambridge Asset Advisors LLC	1101 Vermont Ave, N.W.	193383	1982	76
Columbia DC 1111 19th Street Office Properties, LLC	Cassidy Turley	1111 19th St NW	261955	1979	81
Liberty Property Trust	Liberty Property Trust	1129 20th Street NW	182221	2009	79
Brookfield Properties	Brookfield Properties	1200 K Street NW	425681	1992	90
Piedmont Office Realty Trust	Piedmont Office Realty Trust	1201 Eye Street NW	282879	2002	80
Tishman Speyer	Tishman Speyer	1201 F Street, NW	258638	2000	82
Pembroke Real Estate	Lincoln Property Company	1201 New York Avenue	494465	1988	89
First Potomac Realty Trust		1211 Connecticut Avenue NW	146644	1967	90
13th & L Associates	CBRE, Inc	1220 L Street, NW	319103	1983	78
Piedmont Office Realty Trust	Piedmont Office Realty Trust	1225 Eye Street NW	247426	1988	80
Brookfield Properties	Brookfield Properties	1250 Connecticut Ave NW	195087	1964	82
IPERS Eye Street NW-DC, Inc.	Transwestern	1250 Eye Street NW	187269	1982	81
The Lenkin Company	The Lenkin Company	1300 19th St NW	133338	1978	84
TRT 1300 Connecticut Avenue Owner LLC	TRT 1300 Connecticut Avenue Owner LLC	1300 Connecticut Avenue	125851	1954	75
Boston Properties	Boston Properties	1301 New York Ave., NW	207599	1983	88
Quadrangle Mangement Company	Quadrangle Mangement Company	1301 Pennsylvania Ave. NW	231902	1981	91
Gaedeke Group LLC (Corporate Office)	Gaedeke Group LLC (Corporate Office)	1310 G Street, NW Suite 790	196815	1991	76
Borger Management, Inc.	Borger Management, Inc.	1310 L Street NW	153800	2002	75
Behringer Harvard Property Trust	Behringer Harvard Property Trust	1325 G Street Suite 740	333484	1968	95

Building Owner	Property Manager	Address	Square Feet	Year Built	Score
Boston Properties	Boston Properties	1330 Connecticut Ave., NW	335990	1984	81
Brookfield Properties	Brookfield Properties	1400 K Street, NW	200947	1982	88
1441 L Associates, LLC	S.C. Herman & Associates, Inc.	1441 L Street, NW	192804	1969	82
Ponte Gadea Washington, LLC	Cassidy Turley	1445 New York Avenue, NW	205656	1985	89
Carr Properties	Carr Properties	1575 Eye Street, NW	203857	1979	85
PPF OFF 1601 K Street, LLC	Property Group Partners, LLC	1601 K Street N. W. Suite 160	231423	2005	85
Brookfield Properties	Brookfield Properties	1625 Eye Street NW	401819	2003	85
The Tower Companies	The Tower Companies	1707 L Street, NW	109926	1960	78
Vornado/Charles E. Smith	Vornado/Charles E. Smith	1725 DeSales St Nw	87113	1962	91
Vornado/Charles E. Smith	Vornado/Charles E. Smith	1750 Pennsylvania Ave	306766	1964	83
1776 Eye SPE LLC	Cassidy Turley	1776 I St NW	225845	1987	75
Cassidy Turley	Cassidy Turley	1800 M Street, NW	602170	1975	83
Akridge	Akridge	1800 Massachusetts Avenue, NW	208086	1979	91
Blenheim DC I LLC	Blenheim DC I LLC	1801 K Street, NW	612504	1971	88
Vornado/Charles E. Smith	Vornado/Charles E. Smith	1825 Connecticut Av	319977	1957	86
Borger Management, Inc.	Borger Management, Inc.	1825 K Street NW	254527	1966	82
The Tower Companies	The Tower Companies	1828 L Street Street, NW	332928	1965	85
Manulife Financial	Manulife Financial	1850 M St., NW	259948	1986	87
Vornado/Charles E. Smith	Vornado/Charles E. Smith	1875 Connecticut	404809	1961	88
1899 L Street Tower, LLC C/o Blackrock	Transwestern	1899 L St, NW	159817	1978	78
1899 Penn Owner, LP C/O Paramount Group Inc.	Paramount Group Inc.	1899 Pennsylvania ave. N.W.	206164	1915	80
TIAA-CREF	Hines	1900 K Street	379324	1996	89
1901 L Street, LLC	Cassidy Turley	1901 L Street, NW	141514	1982	82
Government Properties Income Trust	REIT Management & Research	20 Massachusetts Avenue	343324	1973	88
Washington Real Estate Investment Trust	Washington Real Estate Investment Trust	2000 M Street NW	238758	1971	91
ARA GREEN	Quadrangle Mangement Company	2033 K Street N.W.	127216	1975	87
2099 Owner, LP C/O Paramount Group Inc.	Paramount Group Inc.	2099 Pennsylvania Ave. NW	231164	2000	76
Hines	Hines	2100 M Street, NW, Suite 620	325821	1969	86
George Washington University	Tishman Speyer	2100 Pennsylvania Avenue	322250	1966	75
TF Cornerstone	TF Cornerstone	2121 K Street NW	188459	1981	84

Building Owner	Property Manager	Address	Square Feet	Year Built	Score
Minshall Stewart Properties, LLC	Minshall Stewart Properties, LLC	2175 K Street, NW	146455	1981	77
Boston Properties	Boston Properties	2200 Pennsylvania Avenue	541360	2011	90
Washington Real Estate Investment Trust	Washington Real Estate Investment Trust	2445 M Street N.W.	309800	1986	78
CCMH Metro Center LLC-Host Hotels & Resorts	Washington Marriott? at Metro Center	775 12th St Nw	450000	1994	77
CIM Urban REIT Properties V LP	The CIM Group, LP	901 D Street,SW	422227	1988	84
Piedmont Office Realty Trust	Piedmont Office Realty Trust	400 Virginia Avenue SW	252289	1986	94
425 Eye Street NW, LP, C/O Paramount Group Inc.	425 Eye Street NW, LP, C/O Paramount Group Inc.	425 I St.,NW	399371	1973	98
BREOF 450H Street REO, LLC	Cassidy Turley	450 H Street, NW	30125	1988	76
Square 516S Office Venture, LLC	Cassidy Turley	455 Massachusetts Ave NW	247330	2008	81
Boston Properties	Boston Properties	500 E Street, SW	280118	1987	85
First Potomac Realty Trust		500 1st Street, NW	134296	1976	78
National Association of Realtors	Cassidy Turley	500 New Jersey Avenue	102985	2004	78
Liberty Property Trust	Liberty Property Trust	1425 New York Ave NW	284845	1992	82
Boston Properties	Boston Properties	505 9th Street NW	368831	2007	83
CLPF- CC Pavillion, LP	Cassidy Turley	5335 Wisconsin Avenue	211471	1990	86
Hines Interest Limited Partnership	Hines Interest Limited Partnership	600 13th St Nw	256702	1997	79
BHB Limited Partnership	Zuckerman Gravely Management, Inc.	601 Indiana Ave., NW	56651	1963	79
Polinger Shannon & Luchs	Polinger Shannon & Luchs	601 New Jersey Avenue	275102	2001	88
BAC F Street, LLC	Tishman Speyer	620 F ST NW	119468	2006	81
BREOF 64 New York Avenue REO, LLC	Cassidy Turley	64 New York Avenue, NE	379149	2000	86
JBC Funds 740 LLC	Buck Management Group	740 15th Street NW	198700	1907	80
Manulife Financial	Manulife Financial	750 17th St., NW	139841	1989	81
Brookfield Properties	Brookfield Properties	77k Street NE suite 100	338929	2008	97
A-799 Ninth , LLC L/O CBRE	A-799 Ninth , LLC L/O CBRE	799 9th street N.W.	279892	2001	86
800 K Street Associates, LLC	The JBG Companies	800 K Street, NW	536839	1989	75
The CIM Group, LP	The CIM Group, LP	800 N CAPITOL STREET, NW	322538	1989	80
801 Eye Street Associates, LLC	The JBG Companies	801 Eye Street, NW	335909	1990	80
BREOF 801 North Capitol REO, LLC	Cassidy Turley	801 North Capitol Street, NE	120921	1966	84
Louis Dreyfus Property Group	Louis Dreyfus Property Group	801 17th Street NW	257754	2010	82

Building Owner	Property Manager	Address	Square Feet	Year Built	Score
Kan Am 810 Seventh Street, LP	Kan Am 810 Seventh Street, LP	810 7th St N.W.	297676	1991	77
Harbor Group Management Co. (DC)	Harbor Group Management Co. (DC)	820 1st ST NE	298533	1990	85
CIM Urban REIT Properties VI L.P.	The CIM Group, LP	830 First Street, NE	252992	2001	84
First Potomac Realty Trust		840 First Street, NE	275617	2003	81
Carr Properties	Carr Properties	901 K Street	247723	2009	84
Boston Properties	Boston Properties	901 New York Ave., NW	604549	2004	82
The JBG Companies	The JBG Companies	955 L'Enfnat Plaza North S.W.	382503	1967	78
American Chemical Society	American Chemical Society	1550 M St. NW	85277	1987	90
APA LLC	APA LLC	750 First Street NE	387076	1991	75
American Society of Hematology	AtSite	2021 L Street	81032	2010	91
Akridge	Akridge	636 Eye Street NW	12800	1994	91
John's Hopkins University	Cassidy Turley	1619 Mass ave	64843	1963	77
Johns Hopkins University	Cassidy Turley	1717 Mass Avenue, NW	122460	1962	83
Boston Properties	Boston Properties	600 Maryland Ave., SW Suite 150W	571431	1982	90
Principal Global Investors	Polinger Shannon & Luchs	1200 1st Street NE	303703	2007	91
Carnegie Endowment for International Peace	Cassidy Turley	1779 Massachusetts Ave NW	80000	1997	76
Akridge	Akridge	975 F Street NW	168013	2006	75
Association of American Medical Colleges	Association of American Medical Colleges	2501 M Street, NW	102441	1986	78
TREA 1401 H, LLC	Cassidy Turley	1401 H Street, NW	360615	1992	79
13th & F Associates Limited Partnership	13th & F Associates Limited Partnership	555 13th Street N.W Suite 100 West	629670	1987	78
General Services Administration	General Services Administration	12TH & CONST AVE NW	1213119	1934	81
T-C 1101 Pennsylvania Avenue Owner LLC	Jones Lang LaSalle	1101 Pennsylvania Ave. NW.	222182	1898	81
Square 742/WC Smith + Co	William C. Smith + Company	1100 New Jersey Ave., SE	303458	2003	94
Rosche/888 First Street, NE, LLC	Union Center Plaza Management Corp.	888 First Street, NE	558620	1995	83
Carr Properties	Carr Properties	1255 23rd St. NW	329351	1983	88
L&B Realty Advisors	L&B Realty Advisors	1099 14th Street NW	508315	1991	76
TIAA -CREF	Cassidy Turley	1300 Eye Street	475785	1989	81
Shorenstein Realty Services, LP	Shorenstein Realty Services, LP	1401 Eye Street, NW	220573	1967	81
Carr Properties	Carr Properties	2233 Wisconsin Ave. NW	123068	1964	96

Building Owner	Property Manager	Address	Square Feet	Year Built	Score
General Services Administration	General Services Administration	7TH & D STREETS SW	920264	1932	89
Dept of State	Dept of State	320 21st St.	2406262	1960	76
Human Rights Campaign HQ	Human Rights Campaign HQ	1640 Rhode Island Ave	72000	1954	75
International Monetary Fund (IMF) HQ	CB Richard Ellis	700 19th Street, N.W.	1708000	1979	75
International Monetary Fund (IMF) HQ	Sodexo	1900 Pennsylvania Ave NW	791100	2005	76
Inter-American Development Bank		1300 New York Ave, NW	1018508	1982	98
Inter-American Development Bank		1350 New York Ave, NW	144637	1983	82
Internal Revenue Service	Internal Revenue Service	1111 Constitution Ave., NW	1428147	1932	94
International Finance Corporation	International Finance Corporation	2121 Pennsylvania Ave., NW	882174	1997	94
JBG/2121 Wisconsin, L.L.C.	JBG/2121 Wisconsin, L.L.C.	2121 Wisconsin Avenue NW	183000	1960	87
JBG/Jefferson Court LLC	JBG/Jefferson Court LLC - c/o The JBG Companies	1025 Thomas Jefferson Dr.	316056	1984	86
Korean International Trade Association	Jones Lang LaSalle	1660 L Street NW	138734	1968	95
L&B 1775 Eye Street, Inc.	Lincoln Property Company	1775 Eye Street, NW	206356	1969	80
Lafayette Centre Property, LLC	Cassidy Turley	1120 20th Street, NW	338037	1983	87
Liberty Place Owner, LP, C/O Paramount Group Inc.	Paramount Group Inc.	325 7th St., NW	191094	1990	75
Judiciary Plaza LLC	Cassidy Turley	450 5th Street, NW	539478	1982	90
Lincoln Square Associates Manager, Inc.	Dweck Properties	555 11th St. NW	447537	2001	88
Columbia Property Trust	Cassidy Turley	701 & 801 Pennsylvania Avenue, NW	736052	1990	80
Boston Properties	Boston Properties	401 9th Street, NW Suite 150	475190	2000	81
Cassidy Turley	Cassidy Turley	901 15th Street NW	308250	1987	91
Boston Properties	Boston Properties	655 15th Street, NW	702039	1982	86
Akridge	Akridge	630 Eye Street NW	17404	1994	81
National Association of Home Builders	Transwestern	1201 15th Street, NW	240863	2001	91
National Geographic Society	National Geographic Society	1600 M Street NW	497773	1985	78
Quadrangle Mangement Company	Quadrangle Mangement Company	1331 Pennsylvania Ave. NW	454557	1984	88
Columbia Property Trust	Columbia Property Trust	80 M Street , SE	319955	2001	93
Northwestern Development Company	Blake Real Estate. Inc.	1800 G Street NW	706812	1970	88
Organization of American States	Organization of American States	1889 F Street N.W.	268848	1978	83

Building Owner	Property Manager	Address	Square Feet	Year Built	Score
CS Office One, LLC	StonebridgeCarras	1275 First Street, NE	338645	2010	93
Hines	Hines	1301 K Street NW	627511	1990	89
Wells REIT-Independence Square, LLC	Piedmont Office Realty Trust	250 E. Street SW	378045	1991	75
Akridge	Akridge	701 13th Street	456936	2003	76
Bentall Kennedy (US), LP	CBRE	395 E Street S.W.	279704	2005	78
Bentall Kennedy (US), LP	CBRE	355 E Street, SW	379613	2009	84
Penzance 1130 Property Owner, LLC c/o Penzance	Penzance 1130 Property Owner, LLC c/o Penzance	1130 Connecticut Ave NW	228126	1986	87
Potomac Center North/Jones Lang LaSalle	Potomac Center North/Jones Lang LaSalle	500 12th Street SW	504155	2005	86
Jones Lang LaSalle/INVESCO	Jones Lang LaSalle/INVESCO	550 12TH STREET SW	427463	1968	90
B.F. Saul Company	B.F. Saul Company	601 Pennsylvania Ave, NW	250503	1986	75
1121 Properties Inc.	Akridge	1121 14th Street	90378	2006	77
Rite Aid Corporation	Rite Aid Corporation	1306 U Street NW	7444	1993	78
Boston Properties	Boston Properties	1615 M Street, NW	223628	1984	82
Unit Owners Association at the Offices at Terrell Place, a Condominium	Cassidy Turley	575 7th Street, NW	521568	2003	82
1627 Eye Street Property, LLC	Cassidy Turley	1627 I Street, NW	114595	1912	79
Invesco Real Estate	Lincoln Property Company	1030 15th Street, NW	351009	1968	92
GNAREI 1 Farragut, LLC	Cassidy Turley	900 17th Street NW	160109	1961	91
The Foundry Georgetown LLC c/o CB Richard Ellis Inc.	The Foundry Georgetown LLC c/o CB Richard Ellis Inc.	1055 Thomas Jefferson St NW	226537	1973	81
Akridge	Akridge	601 13th Street, NW	483201	1990	83
The Tower Companies	The Tower Companies	1909 K Street	242937	1999	84
The Mills Building Associates	Akridge	1700 Pennsylvania Avenue	172603	1966	79
LHL Realty Co DC LLC	CBRE, Inc.	601 D Street, NW	541518	1973	78
The Pew Charitable Trusts	The Pew Charitable Trusts	901 E Street NW	262019	1989	80
Willco Companies	Willco Companies	1111 20th st NW	165232	1989	83
Thomas Circle CF LLC	Polinger Shannon & Luchs	One Thomas Circle	238444	1982	75
TWO CON, LLC	StonebridgeCarras	145 N Street, NE	623532	2010	87
Lafayette Centre Property LLC	Cassidy Turley	1133 21st Street, NW	155808	1984	79
USCCB	USCCB	3211 4th Street, N.E.	194131	1989	85
UFCW International Union	UFCW International Union	1775 K Street, NW	176701	1970	87
United States Institute of Peace	United States Institute Of Peace	2301 Constitution Ave, NW	153545	2010	94
Architect of the Capitol	Architect of the Capitol - OSP	4700 Shepherd Pkwy SW	5378	2002	89
JBG/Federal Center, LLC	JBG Commercial Management, LLC	1200 New Jersey Ave, SE	1578431	2007	93
Van Ness Center Limited Partnership	Polinger Shannon & Luchs	4301 Connecticut Avenue	196350	1965	78
Brookfield Properties	Brookfield Properties	750 9th Street NW	329789	2000	87
Quadrangle Mangement Company	Quadrangle Mangement Company	1001 G Street NW	366055	1989	82

Appendix E: Public Buildings, 2012

Project Name	Address	Rating System	Date	Square Feet	Level	PTS
Watha T. Daniel/Shaw Library	1630 7th Street, NW	LEED-NC 2.2	1/31/12	22,679	Gold	41
Anacostia Neighborhood Library	1800 Good Hope Road, SE	LEED-NC 2.2	3/20/12	22,436	Gold	41
Woodrow Wilson High School	3950 Chesapeake Street, NW	LEED for Schools	9/11/12	351,012	Gold	61
Eastern High School	1700 E. Capitol Street, NE	LEED for Schools	6/11/12	284,502	Gold	44
Takoma Elementary School	3200 6th Street, SE	LEED for Schools	10/2/12	119,000	Gold	49
Walker-Jones School	1125 New Jersey Ave, NW	LEED for Schools	1/31/12	122,397	Silver	38
DOES	4058 Minnesota Ave, NE	LEED-NC 2.1	6/1/12	227,033	Gold	39
200 Eye Street, SE	200 Eye Street, SE	LEED-CS v2009	11/30/12	331,789	Platinum	91
Senior Wellness Center	3531 Georgia Avenue, NW	LEED-NC 2.1	10/2/12	12,293	Gold	40
Ward 3 Aquatic Facility	3950 Chesapeake Street, NW	LEED-NC 2.2	6/27/12	53,540	Silver	33