



The City of New York  
Mayor's Office of Operations  
Office of Environmental  
Coordination

Local Law 86 of 2005  
Fiscal Year 2010 Annual Report



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## Background

Mayor Michael R. Bloomberg signed Intro 324 into law on October 3, 2005, enacting the City's green building law. Known as Local Law 86 of 2005 (LL86) and developed in conjunction with the New York City Council, it was implemented starting in 2006 for several projects at the Department of Design and Construction and generally took effect on January 1, 2007 for both public and private entities that receive city funds. By requiring the design of more efficient buildings, the law supports the goals of PlaNYC to reduce the annual rate of greenhouse gas emissions 30% by 2017 for municipal operations and 30% by 2030 for the city as a whole as well as goals to reduce energy cost, potable water use, and the amount of stormwater that enters the City's water treatment systems. LL86 will also produce other significant benefits such as improving indoor and outdoor air quality and increasing the amount of waste material recycled in the process of constructing and operating buildings. On November 20, 2006 the Mayor issued Executive Order

97, which authorized the Director of the Mayor's Office of Environmental Coordination (MOEC) to exercise the powers and duties of the Mayor in conjunction with the implementation of LL86.

Pursuant to the City Administrative Procedures Act (CAPA), rules to implement LL86 were published in draft form for public comment on December 1, 2006 and, following a public comment period and hearing, became effective on April 2, 2007. On June 21, 2009 an amendment to the rules took effect, also following a public comment period and hearing. This amendment redefined the selected green building rating system as the Version 3 Leadership in Energy and Environmental Design (LEED®) 2009 suite of systems, the most recent version published by the U.S. Green Building Council (USGBC). The rules are found at Title 43 of the Rules of the City of New York, Chapter 10.

In 2007 the New York City School Construction Authority (SCA) and the Department of Education (DOE) requested that MOEC consider the New York City 2007 Green Schools Rating System (GSRS 2007) as an alternative to LEED® for New Construction Version 2.2, the most applicable of the USGBC LEED® rating systems allowed by the law at the time. Based on an independent third party analysis by Davis Langdon Associates and as allowed by the law, the Director of the Mayor's Office of Environmental Coordination elected to utilize this alternative system for city schools, finding it to be at least as stringent as LEED® for New Construction Version 2.2. The texts of LL86, Executive Order 97, the final Rules, the subsequent amendment, as well as the NYC 2007 Green Schools Rating System and Guide may all be viewed on the MOEC website at [www.nyc.gov/oec](http://www.nyc.gov/oec).

## Summary of Local Law 86 of 2005 Provisions

Local Law 86 applies to capital building projects where construction is managed by a city agency or where a city agency holds an agreement with a non-city entity for a project to receive city funds over a threshold amount. Most building types encountered in such projects are covered by the law, with the exception of those with residential, high hazard, outdoor assembly, and industrial uses as primary occupancies.

For covered projects, the law's requirements fall into four basic categories. First, they require projects that will spend at least \$2 million for construction must achieve a LEED® rating level in accordance with the LEED® green building standards developed by the USGBC. A minimum Certified level is required for health and educational facilities and a minimum Silver level is required for all other covered occupancy types. In many cases these projects must apply to the USGBC for independent third-party certification of the required rating level. The second group of provisions requires that projects with a LEED® rating level requirement and construction costs of \$12 million or more must also reduce energy cost by a minimum of 20%-30%. The third category requires that larger boiler and lighting system upgrades achieve at least 10% energy cost reductions and that large HVAC comfort control upgrades achieve minimum 5% energy cost reductions. The fourth category requires that projects with \$500,000 or more of domestic plumbing work must reduce potable water use by 30% or more.

Finally, the law requires the preparation of a report each year after the law takes effect, commencing in 2008. This is the third annual report. As with the first and second, this report provides information in accordance with specific LL86 requirements.

## Synopsis of Report

LL86 requires the publication of a report after the end of each fiscal year on the capital building projects subject to LL86 that were completed in that fiscal year. In addition to those that were completed by the end of fiscal year 2010, this third annual report, like the first and second, also includes projects subject to the law that are in various stages of design and construction and that received a Certificate to Proceed from the Office of Management and Budget (OMB) or CBX Certificate, for land acquisition, prior to the end of FY2010.

For those LL86 projects that have completed design and started construction, this report documents, in accordance with specific LL86 requirements, the projected benefits as well as estimates of the additional costs related to achieving the required LEED® rating level. Also described are the available agency findings regarding the payback of investments in specific energy efficiency measures implemented to meet or exceed the law's minimum energy cost reduction requirements.

The conclusions and totals in this report are based on data supplied to the Mayor's Office of Environmental Coordination by the managing agencies, *i.e.* those city agencies managing construction or those managing funding agreements for the expenditure of city funds on covered projects. It is important to note that, as projects proceed toward completion, the data indicated here, such as estimated costs, completion dates, and project floor areas are subject to change and will be updated in subsequent reports.

## Summary of LL86 Projects

A total of 174 projects subject to LL86 have commenced design since the law took effect on January 1, 2007, or, in the case of projects managed by the Department of Design and Construction, since January 1, 2006. These account for total combined project costs of \$6,316,777,000. Of this total, \$4,798,326,000 cover construction costs for work subject to LL86 provisions and about \$1,055,900,000 in city funds were allocated, *i.e.* released from the city treasury, towards project costs in FY 2010.

**LEED® Projects.** Seventeen projects, each with construction costs from \$2,000,000 to \$12,000,000, are subject to the LEED® rating level provisions only. The total construction cost of these smaller projects is \$109,346,000. An additional 73 LEED® projects, each with a construction cost of \$12,000,000 or more, are also subject to the minimum 20–30% energy cost reduction requirements. The construction cost of the 90 projects that are subject to the LEED® provisions amounts to \$4,397,841,000 and the total floor area is roughly 7,353,000 square feet (s.f.).

**System Specific Projects.** There are also 71 projects with aggregate construction costs of \$276,119,000 for work subject to the system specific energy cost reduction requirements. Note, in accordance with LL86 provisions, those projects subject to the boiler, lighting, or HVAC comfort control energy cost reduction requirements are not subject to the LEED® rating level requirements, although they may be subject to the potable water use reduction requirements.

**Water Use Reduction Projects.** Thirteen projects are subject to the water use reduction requirements only, although most projects subject to the potable water use reduction requirements are subject to other requirements as well. Sixty-nine of the 90 LEED® projects and one project subject to the system specific energy cost reduction requirements are also subject to the potable water use reduction requirements.

“Table 1- Summary of Costs and LEED® Project Floor Area by Agency for Projects Subject to LL86 Provisions” (*page 5*) summarizes the costs of all LL86 projects and floor area of LEED® projects by budgeting agency. Following Table 1 are four sections that detail the projects according to the four groups of LL86 provisions. The tables in each section provide the following key attributes for each project by agency: the name and type of project, project cost, construction cost, the year of expected completion and, where applicable, the floor area subject to the LEED® provisions. The first section provides the names and key attributes of those smaller projects that are subject to the LEED® rating level provisions only and the second describes the larger LEED® projects that are also subject to the 20–30% minimum energy cost reduction requirement. The third includes projects subject to the boiler, lighting or HVAC comfort controls provisions, and the fourth describes projects subject to the potable water use reduction provisions only. Following these four sections is a brief discussion of projects that have been completed, as well as those that received full or partial exemptions from any LL86 provision before the end of FY 2010.

**Table 1 - Summary of Costs and LEED® Project Floor Area  
by Budgeting Agency for Projects Subject to LL86 Provisions**

Budgeting Agency <sup>1</sup>	Managing Agency(s) <sup>2</sup>	Number of Projects Subject to LL86 Provisions	Project Cost (\$)⁴	Construction Cost of Work Subject to LL86 Provisions⁵	Floor Area Subject to LEED® Rating Level Requirement (s.f.)⁷	FY10 Capital Allocation (\$)⁶
<b>BkBP</b>	DDC	1	64,000,000	12,796,601	16,000	2,797,463
<b>CJC</b>	DDC	1	40,698,000	1,339,000	0	7,960,000
<b>CME</b>	CME	1	28,064,303	20,348,647	26,947	26,235,000
<b>CUNY</b>	CUNY	2	110,761,445	109,600,000	120,000	21,017,898
<b>DCAS</b>	DCAS,DDC	3	138,069,841	101,504,562	63,000	7,569,928
<b>DCLA</b>	EDC, DDC	20	426,372,536	300,861,963	443,320	103,486,709
<b>DEP</b>	DDC	1	14,296,000	12,000,000	77,000	103,684
<b>DHS</b>	DDC	1	76,579,000	67,839,000	76,823	625,469
<b>DOC</b>	DDC	1	92,706,000	81,300,000	558,431	818,738
<b>DOE</b>	SCA	119	3,297,915,418	2,404,795,130	3,408,474	670,969,612
<b>DOHMH</b>	DDC, DCAS	5	196,138,790	156,933,585	555,300	10,616,434
<b>DOITT</b>	DDC	1	700,000,000	525,000,000	550,000	56,849,220
<b>DPR</b>	DPR, EDC	7	199,871,220	173,760,220	242,998	94,410,000
<b>EDC</b>	EDC	4	126,334,000	78,188,000	201,899	23,148,500
<b>HPD</b>	HPD	1	24,489,079	21,109,833	37,000	0
<b>NYPD</b>	DDC	2	744,036,798	719,567,886	702,870	28,522,370
<b>NYPL</b>	DDC	2	14,011,000	12,299,106	26,500	362,181
<b>QPL</b>	DDC	2	22,433,115	17,665,000	29,666	1,919,121
	<b>TOTAL</b>	<b>174</b>	<b>6,316,776,545</b>	<b>4,798,326,368</b>	<b>7,353,223</b>	<b>1,055,864,435</b>

**Notes for Table 1 and Key to Agency Acronyms:** See Page 32

## Projects Subject to LEED® Rating Level Provisions Only

Table 2 (*page 7*) lists those covered projects with work that is subject to only the LEED® rating level requirement, *i.e.* work that involves one or more new buildings, tenant fit-outs in new buildings, additions, or substantial reconstructions of existing buildings, and that have construction costs for such work ranging from \$2,000,000 to \$12,000,000.



**Glen Oaks Library, Queens**  
**Marble Fairbanks Architects**

**Table 2 - Projects Subject to LEED® Rating Level Provisions Only  
(New Buildings, Additions, and Substantial Reconstruction  
with Construction Costs from \$2M to \$12M)**

Budgeting Agency(s) <sup>1</sup>	Managing Agency	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to LEED® Rating Level Requirement (\$) <sup>5</sup>	Minimum LEED® Rating Level Required	Floor Area Subject to LEED Rating Level Requirement (s.f.) <sup>7</sup>	FY of Completion <sup>8</sup>
DCLA	DDC	<b>NYBG McQuillan Facility</b> Substantial Reconstruction	7,300,000	2,018,070	Silver	3,200	2011
		<b>NYBG Snuff Mill</b> Substantial Reconstruction	11,000,000	8,486,000		8,900	2011
		<b>52 Street Archstone Clinton</b> Substantial Reconstruction	11,108,000	10,824,000		17,000	2011
		<b>ART/ NY Alliance of Resident Theater</b> Substantial Reconstruction	14,400,000	10,236,100		15,000	2012
		<b>Afrikan Poetry Theatre</b> <b>Substantial Reconstruction</b>	5,352,000	4,785,000		6,500	2012
		<b>Bronx River Art Center</b> Substantial Reconstruction	9,025,000	7,622,000		4,540	2012
		<b>Irish Repertory Theatre - Phase I</b> Substantial Reconstruction	2,911,000	2,281,000		3,000	2013
		<b>Mind-Builders Creative Arts Center</b> Substantial Reconstruction	7,983,000	6,033,825		13,424	2012
		<b>Alpha Omega Dance Company</b> Substantial Reconstruction	3,813,000	2,570,000		5,052	2013
DOHMH	DDC	<b>Staten Island Animal Shelter</b> New Building	2,913,000	2,450,000		5,300	2013
DPR	DPR	<b>Marine Park Community Center</b> New Building	11,413,000	9,000,000		9,800	2011
		<b>BRG River House</b> New Building	6,300,000	6,076,000		6,901	2012
EDC	DPR	<b>Coney Island Steeplechase Plaza</b> New Building	21,000,000	7,000,000		8,000	2014
NYPL	DDC	<b>Mariners Harbor Branch Library</b> New Building	9,971,000	9,325,106	Certified	10,000	2012
		<b>Woodstock Branch Library</b> Substantial Reconstruction	4,040,000	2,974,000		16,500	2013
QPL	DDC	<b>Glen Oaks Branch Library</b> New Building	13,911,000	11,658,000		18,000	2012
		<b>Kew Garden Hills Library</b> Substantial Reconstruction	8,522,115	6,007,000		11,666	2013
<b>TOTAL</b>			<b>150,962,115</b>	<b>109,346,101</b>		<b>162,783</b>	

**Notes for Table 2 and Key to Agency Acronyms:** See Page 32

## Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions

The projects described in Table 3 (*page 9*) are subject to the LEED® rating level requirements as well as the minimum 20–30% energy cost reduction requirements, since they involve new buildings, additions, and substantial reconstructions with construction costs of \$12 million or more.



**BAM Fisher Building**  
**H3 Hardy Collaboration, Architecture,**  
**LLC**

**Table 3 - Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions (New Buildings, Additions, and Substantial Reconstruction with Construction Costs of \$12M or More)**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to LEED® Rating Level Requirement (\$) <sup>5</sup>	Minimum LEED® Rating Level Required	Floor Area Subject to LEED® Rating Level Requirement (s.f.) <sup>7</sup>	FY of Completion <sup>8</sup>
BkBP	DDC	Asser Levy Park Reconstruction New Building	64,000,000	12,796,601	Silver	16,000	2015
CME	CME	Jacobi Medical Center Campus Substantial Reconstruction	28,064,303	20,348,647		26,947	2014
CUNY	CUNY	BCC North Instructional Building New Building	102,300,000	102,300,000	Certified	120,000	2011
DCAS	DDC	City Hall Renovation Substantial Reconstruction	106,789,521	95,420,397	Silver	63,000	2012
DCLA	DDC	Brooklyn Museum Climate Control - 4A Addition	21,612,000	21,392,000		15,000	2010
		Museum of the City of New York - Phase II Substantial Reconstruction	25,817,000	25,540,000		54,640	2012
		SI Insitute of Arts & Sciences Substantial Reconstruction	24,915,000	21,762,000		48,302	2013
		122 Community Center Substantial Reconstruction	21,181,000	15,652,000		44,225	2013
	EDC	Downtown Brooklyn Strand Theater Substantial Reconstruction	24,000,000	23,000,000		70,000	2012
		Theatre for a New Audience New Building	34,000,000	30,000,000		22,000	2013
		American Museum of Moving Image Addition	50,738,000	48,000,000		70,562	2012
		BAM Richard B. Fisher Building New Building	43,320,840	43,320,840		27,000	2012
		Orchestra of St. Luke's - DiMenna Center Substantial Reconstruction	13,580,128	13,580,128		14,975	2011
DEP	DDC	DEP Shaft Maintenance Substantial Reconstruction	14,296,000	12,000,000		77,000	2014
DHS	DDC	New Family Intake Center-Bronx New Building	76,579,000	67,839,000		76,823	2011
DOC	DDC	JATC Reconstruction Substantial Reconstruction	92,706,000	81,300,000	558,431	2014	
DOE	SCA	PS 287-Q New Building	51,660,353	38,527,488	Certified	59,770	2013
		PS 71-R New Building	80,684,270	65,190,160		110,306	2013
		IS 230-Q Annex New Building	28,299,555	23,302,429		36,204	2012
		PS/IS 312-Q New Building	74,884,366	65,610,000		98,569	2012
		PS/IS 338-K New Building	82,525,201	69,713,610		103,945	2014

Notes for Table 3 and Key to Agency Acronyms: See Page 32

**Table 3 (cont'd) - Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions (New Buildings, Additions, and Substantial Reconstruction with Construction Costs of \$12M or More)**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to LEED® Rating Level Requirement (\$) <sup>5</sup>	Minimum LEED® Rating Level Required	Floor Area Subject to LEED® Rating Level Requirement (s.f.) <sup>7</sup>	FY of Completion <sup>8</sup>
DOE	SCA	Clinton MS & HS New Building	138,339,399	85,248,045	Certified	139,719	2013
		PS 290-Q New Building	81,503,289	63,297,855		99,023	2014
		PS 311-Q New Building	76,971,664	67,428,148		103,687	2014
		PS 298-Q New Building	82,507,416	72,293,572		107,595	2014
		PS 8-K Addition	29,280,511	22,779,016		17,858	2012
		PS/IS 48-Q New Building	72,399,387	62,776,844		94,023	2011
		PS 42-Q Addition	59,329,623	32,490,536		53,091	2013
		PS 196-Q Addition	41,079,865	27,048,736		35,684	2012
		Ampark Neighborhood School-X Addition	66,972,197	35,038,016		55,869	2011
		PS 133-K New Building	91,477,187	79,203,904		117,484	2013
		PS 160-K Annex Addition	58,732,532	37,877,320		61,971	2013
		PS 264-K New Building	64,125,395	47,618,624		73,528	2012
		IS/HS @ Spring Creek New Building	100,313,783	87,125,688		154,530	2013
		All City Leadership School New Building	40,362,711	35,041,604		53,171	2012
		PS 310-K New Building	41,070,551	32,076,000		52,758	2012
		Community Health Academy (CLOTH) New Building	65,544,323	52,298,688		75,183	2012
		Maspeth HS 585-Q New Building	113,612,421	84,019,000		149,938	2013
		PS/IS 277-Q New Building	77,279,958	56,331,600		94,580	2013
		PS 29-Q Addition	27,971,300	16,375,770		26,735	2013
		Settlement Housing PS/IS/HS New Building	54,507,156	42,839,524		147,654	2012
PS 331-K New Building	42,644,469	37,410,129	98,849	2013			
IS/HS 404-Q New Building	84,624,967	74,234,070	142,606	2013			

**Notes for Table 3 and Key to Agency Acronyms:** See Page 32

**Table 3 (cont'd) - Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions (New Buildings, Additions, and Substantial Reconstruction with Construction Costs of \$12M or More)**

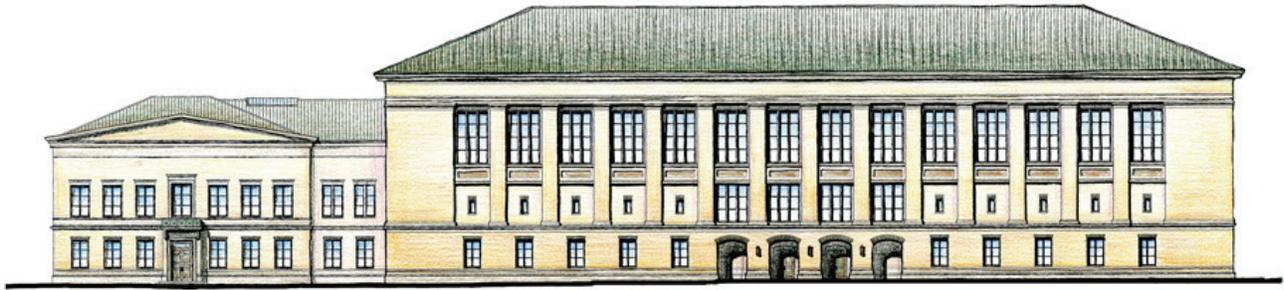
Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to LEED® Rating Level Requirement (\$) <sup>5</sup>	Minimum LEED® Rating Level Required	Floor Area Subject to LEED® Rating Level Requirement (s.f.) <sup>7</sup>	FY of Completion <sup>8</sup>
DOE	SCA	<b>PS 292-X</b> New Building	47,725,333	38,791,305	Certified	61,000	2013
		<b>PS/IS 281-M</b> New Building	99,355,013	57,809,700		94,124	2013
		<b>PS/IS 51-M Replacement</b> New Building	75,822,213	66,496,950		99,370	2014
		<b>IS 285-X</b> New Building	49,354,741	41,444,865		59,941	2013
		<b>PS/IS 177-X</b> New Building	75,264,196	59,398,920		97,122	2014
		<b>IS 259-K</b> Addition	52,814,565	30,952,480		51,209	2011
		<b>PS/IS 163</b> New Building	82,459,104	71,561,464		101,560	2011
		<b>PS 971</b> New Building	41,332,510	30,492,020		43,338	2011
		<b>Cypress Hills Community School</b> New Building	50,192,702	43,150,840		57,066	2013
		<b>PS/IS 276-M</b> New Building	108,902,124	93,072,720		127,700	2011
		<b>PS/IS 79-X</b> Addition	67,863,387	37,419,252		65,141	2011
		<b>PS 94-X Annex</b> New Building	46,416,960	40,269,320		52,766	2011
		<b>PS 59-M (MEETH)</b> Substantial Reconstruction	80,345,591	40,600,000		50,786	2009
<b>Middle College HS (Phase A)</b> Substantial Reconstruction	69,347,516	48,899,522	83,021	2013			
DOHMH	DDC	<b>Upgrades @ Chelsea Health Clinic</b> Substantial Reconstruction	13,387,000	12,630,000	Silver	28,400	2014
		<b>Renovation at Richmond Health Center</b> Substantial Reconstruction	22,636,000	19,275,000		40,000	2013
		<b>Addition and Renovation at Riverside Health Center</b> Substantial Reconstruction	31,746,030	30,439,695		38,544	2011
	DCAS	<b>DOHMH Headquarters Consolidation</b> Fit-Out in New Building	125,456,760	92,138,890		661,051	2012
DOITT	DDC	<b>Public Call Answering Center (PSAC II)</b> New Building	700,000,000	525,000,000	550,000	2013	
DPR	DPR	<b>McCarren Pool and Recreation Center</b> Substantial Reconstruction	50,000,000	41,500,000	22,000	2012	
		<b>Ocean Breeze Field House</b> New Building	62,274,000	50,600,000	134,522	2013	

**Notes for Table 3 and Key to Agency Acronyms:** See Page 32

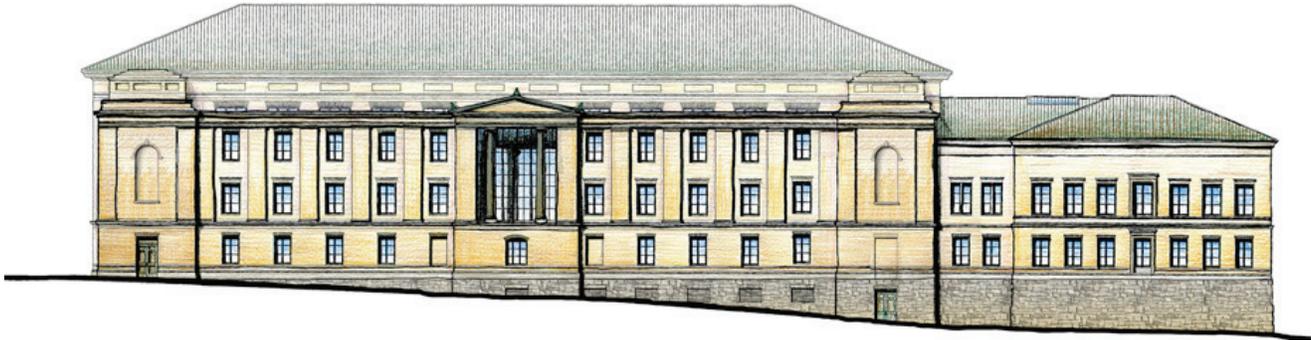
**Table 3 (cont'd) - Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions (New Buildings, Additions, and Substantial Reconstruction with Construction Costs of \$12M or More)**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to LEED® Rating Level Requirement (\$) <sup>5</sup>	Minimum LEED® Rating Level Required	Floor Area Subject to LEED® Rating Level Requirement (s.f.) <sup>7</sup>	FY of Completion <sup>8</sup>
DPR	DPR	<b>District HQ and Comfort Station</b> New Building	24,584,220	24,584,220	Silver	15,527	2011
	EDC	<b>Prospect Park Lakeside Center</b> New Building	30,000,000	30,000,000		26,000	2012
		<b>Building J</b> Substantial Reconstruction	15,300,000	12,000,000		28,248	2009
EDC	EDC	<b>Sephardic Community Youth Center, Inc.</b> New Building	62,946,000	46,800,000		110,000	2011
		<b>Federation of Italian - American Organizations</b> New Building	12,388,000	12,388,000		49,899	2013
		<b>Pier A Redevelopment</b> Substantial Reconstruction	30,000,000	12,000,000		33,000	2012
HPD	HPD	<b>Arverne By The Sea YMCA</b> New Building	24,489,079	21,109,833		37,000	2012
NYPD	DDC	<b>121st Precinct in Staten Island</b> New Building	60,259,798	57,567,886		52,870	2013
		<b>New Police Academy</b> New Building	683,777,000	662,000,000		650,000	2013
<b>TOTAL</b>			<b>5,469,042,480</b>	<b>4,397,840,872</b>		<b>7,190,440</b>	

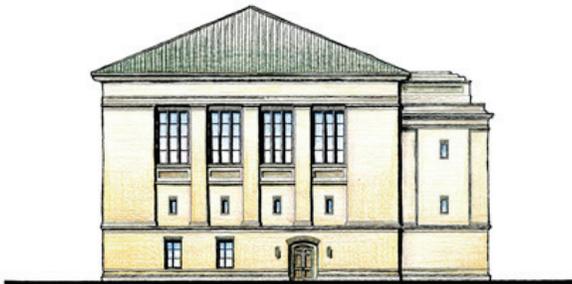
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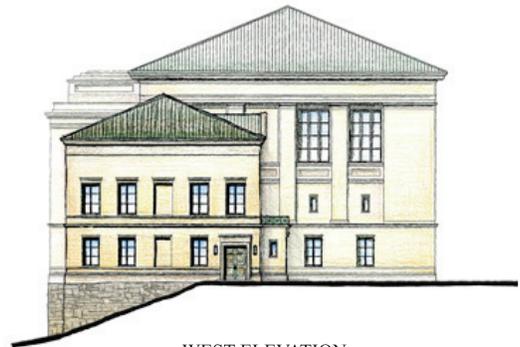
SOUTH ELEVATION - QUAD SIDE



NORTH ELEVATION



EAST ELEVATION



WEST ELEVATION

**Bronx Community College North Instructional Building**  
**Robert A.M. Stern Architect**

## Projects Subject to System Specific Energy Cost Reduction Provisions

Table 4 (*page 15*) lists projects that are not subject to the LEED® rating level provisions but that involve the installation or replacement of boilers or HVAC comfort controls with construction costs of \$2,000,000 or more or the installation of lighting systems with construction costs of \$1,000,000 or more.



**DOHMH Office Consolidation, Long Island City  
Gerner Kronick + Valcarcel, Architects, PC**

**Table 4 - Projects Subject to System Specific Energy Cost Reduction Provisions**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to System Specific Energy Cost Reduction Requirement (\$) <sup>5</sup>	FY of Completion <sup>8</sup>
CJC	DDC	Kings County Criminal Court Renovation Lighting Upgrade	40,698,000	1,339,000	2012
CUNY	CUNY	Kingsborough Boiler Replacement Boiler Upgrade	8,461,445	7,300,000	2012
DCAS	DCAS	Municipal Building Lighting Upgrade Lighting Upgrade	1,622,320	1,622,320	2012
		60 Centre Heating Upgrade Boiler Upgrade	29,658,000	4,461,845	2017
DCLA	DDC	American Museum of Natural History Lighting Upgrade	10,388,000	1,100,000	2011
	EDC	David H. Koch Theater HVAC Comfort Controls	83,928,568	2,659,038	2010
DOE	SCA	JHS 45-M Boiler Upgrade	8,075,760	3,603,853	2010
		PS 52-K Boiler Upgrade	4,968,880	3,055,749	2009
		PS 188-Q Boiler Upgrade	11,218,550	3,875,714	2010
		PS 178-Q Boiler Upgrade	9,443,000	3,757,320	2010
		PS 122-X Boiler Upgrade	6,196,470	4,287,025	2010
		W.E.B. DUBOIS HS-K Boiler Upgrade	6,910,680	5,289,944	2009
		PS 377-K Boiler Upgrade	7,755,230	4,019,192	2011
		PS 377-K HVAC Comfort Controls	7,755,230	2,411,235	2011
		PS 246-X Boiler Upgrade	7,038,360	4,548,792	2010
		PS 57-M Boiler Upgrade	3,827,740	3,137,596	2010
		JHS 10-Q Boiler Upgrade	9,149,070	6,649,241	2010
		Gompers Vocational HS-X Boiler Upgrade	8,550,570	5,256,865	2010
		Gompers Vocational HS-X HVAC Comfort Controls	8,550,570	2,043,651	2010
		Taft HS-X Boiler Upgrade	13,531,420	8,321,518	2011
		Taft HS-X HVAC Comfort Controls	13,531,420	3,886,061	2011
		IS 115-X Boiler Upgrade	6,974,520	5,121,710	2011
		PS 120-K Boiler Upgrade	4,184,180	3,516,976	2010
		PS 81-K Boiler Upgrade	6,243,020	3,137,470	2010

Notes for Table 4 and Key to Agency Acronyms: See Page 32

**Table 4 (cont'd) - Projects Subject to System Specific Energy Cost Reduction Provisions**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to System Specific Energy Cost Reduction Requirement (\$) <sup>5</sup>	FY of Completion <sup>8</sup>
DOE	SCA	<b>PS 81-K</b> HVAC Comfort Controls	6,243,020	2,494,767	2010
		<b>PS 108-X</b> Boiler Upgrade	5,971,700	4,299,624	2011
		<b>PS 56-K</b> Boiler Upgrade	6,969,200	3,898,560	2010
		<b>PS 56-K</b> HVAC Comfort Controls	6,969,200	2,388,811	2010
		<b>PS 23-R</b> Boiler Upgrade	5,171,040	2,916,467	2011
		<b>PS 36-M</b> Boiler Upgrade	6,227,060	3,422,167	2011
		<b>PS 36-M</b> HVAC Comfort Controls	6,227,060	2,195,671	2011
		<b>PS 76-M</b> Boiler Upgrade	5,963,720	3,467,388	2011
		<b>PS 32-X</b> Boiler Upgrade	21,065,870	3,633,340	2013
		<b>John Jay HS-K</b> Boiler Upgrade	10,863,440	7,426,219	2012
		<b>PS 111-M</b> Boiler Upgrade	5,726,620	4,562,867	2011
		<b>PS 121-Q</b> Boiler Upgrade	4,346,075	3,257,033	2012
		<b>IS 227-Q</b> Boiler Upgrade	7,041,339	5,294,664	2011
		<b>Jamaica HS-Q</b> HVAC Comfort Controls	10,651,500	3,104,993	2012
		<b>Jamaica HS-Q</b> Boiler Upgrade	10,651,500	6,735,523	2012
		<b>PS 194-M</b> Boiler Upgrade	7,672,770	5,105,600	2012
		<b>PS 12-X</b> Boiler Upgrade	7,525,548	4,184,474	2011
		<b>IS 383-K</b> Boiler Upgrade	6,138,420	3,854,139	2012
		<b>PS 50-M</b> Boiler Upgrade	4,173,810	2,498,182	2012
		<b>IS 84-X</b> HVAC Comfort Controls	5,256,055	2,676,202	2012
		<b>IS 216-X</b> Boiler Upgrade	5,875,420	3,191,486	2012
		<b>IS 216-X</b> HVAC Comfort Controls	5,875,420	2,236,591	2012
<b>PS 198-X</b> HVAC Comfort Controls	4,989,110	3,030,516	2012		
<b>Fort Hamilton HS-K</b> Boiler Upgrade	10,909,240	9,059,580	2012		

**Notes for Table 4 and Key to Agency Acronyms:** See Page 32

**Table 4 (cont'd) - Projects Subject to System Specific Energy Cost Reduction Provisions**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name and Type <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to System Specific Energy Cost Reduction Requirement (\$) <sup>5</sup>	FY of Completion <sup>8</sup>
DOE	SCA	IS 113-X Boiler Upgrade	5,465,140	3,276,647	2012
		PS 253-K Boiler Upgrade	5,631,882	4,631,206	2012
		IS 137-X Boiler Upgrade	5,374,394	4,310,322	2012
		IS 61-K HVAC Comfort Controls	9,556,864	2,661,792	2012
		IS 61-K Boiler Upgrade	9,556,864	7,056,665	2012
		Murrow HS-K Boiler Upgrade	10,225,184	9,502,985	2010
		IS 93-Q Lighting Upgrade	1,166,405	1,077,705	2011
		JHS 157-Q Boiler Upgrade	18,776,885	2,992,700	2012
		PS 60-R Lighting Upgrade	1,107,230	1,023,030	2011
		IS 127-X Lighting Upgrade	1,236,100	1,142,100	2011
		JHS 141-X Boiler Upgrade	5,216,605	3,811,581	2012
		PS 111-Q Boiler Upgrade	5,011,465	3,634,373	2012
		IS 285-K Boiler Upgrade	5,709,730	3,522,999	2012
		JHS 168-Q Boiler Upgrade	10,128,941	7,726,806	2012
		PS 50-R Boiler Upgrade	5,734,626	4,632,516	2011
		PS 18-R Boiler Upgrade	5,053,899	4,669,572	2012
		IS 59-Q Lighting Upgrade	1,258,455	1,162,755	2012
		PS 26-K HVAC Comfort Controls	6,759,713	2,537,125	2012
		PS 26-K Boiler Upgrade	6,759,713	3,708,541	2012
		IS 193-X HVAC Comfort Controls	7,187,059	2,955,644	2013
		IS 184-X HVAC Comfort Controls	9,032,348	4,135,708	2013
		IS 183-X HVAC Comfort Controls	7,335,809	3,518,141	2012
IS 147-X HVAC Comfort Controls	7,345,590	3,090,960	2013		
		<b>TOTAL</b>	<b>647,795,142</b>	<b>276,118,849</b>	

Notes for Table 4 and Key to Agency Acronyms: See Page 32

## Projects Subject to Potable Water Use Reduction Provisions

By the end of FY 2010, LL86 had required 83 projects that involved work on plumbing systems with construction costs of \$0.5M or more to reduce domestic water usage by a minimum of 20-30%. The total combined construction cost of such work was about \$104,000,000.

Of these 83, 67 are among those listed in “Table 3 - Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions”. Thirteen additional projects that are not subject to any other LL86 provisions are subject to the potable water use provisions. These are listed in “Table 5 - Projects Subject to Potable Water Use Reduction Provisions Only”, which follows (*page 19*). Two of the LEED® projects with construction costs from \$2,000,000 to \$12,000,000 and one that is subject to the System Specific Energy Cost Reduction Requirements, listed in Tables 2 and Table 4 respectively, are also subject to the potable water use reduction provisions.



**McCarren Park Pool Reconstruction**  
**Rogers Marvel Architects, PLLC**

**Table 5 - Projects Subject to Potable Water Use Reduction Provisions Only**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name <sup>3</sup>	Project Cost (\$) <sup>4</sup>	Construction Cost of Work Subject to Potable Water Use Reduction Requirement (\$) <sup>5</sup>	FY of Completion <sup>8</sup>
DOE	SCA	Madison HS-K Toilets	16,636,970	548,814	2011
		PS 91-K Toilets	1,725,650	1,556,977	2011
		PS 121-K Toilets	657,500	619,112	2011
		PS 161-K Toilets	1,432,035	955,156	2011
		PS 209-K Toilets	2,135,980	925,056	2011
		PS 226-K Toilets	1,708,818	1,070,366	2012
		IS 234-K Toilets	1,711,020	1,543,777	2011
		PS 335-K Toilets	3,047,030	2,749,200	2010
		Brooklyn Tech HS-K Toilets	5,615,260	572,178	2011
		Seward Park HS-M Toilets	7,714,000	504,399	2010
		PS 7-X Toilets	1,659,109	1,496,940	2010
		PS 44-X Toilets	1,570,298	1,416,810	2010
		IS 391-X Toilets	3,362,240	1,061,760	2010
		TOTAL		<b>48,975,910</b>	<b>15,020,545</b>

**Notes for Table 5 and Key to Agency Acronyms:** See Page 32

## Completed Projects

For the purposes of LL86 reporting, a completed project has the following attributes: all the city funds that will be utilized for the project have been released from the city treasury, the project has achieved all applicable LL86 requirements, and the project is at least substantially complete. In the case of a project subject to the LEED® rating level requirement, this means it must have achieved at least the required rating level and, if required to apply to the USGBC for certification of a LEED® rating, it must have received this certification.

The 28 LL86 projects that have been completed in accordance with the criteria above are those listed in Tables 2 through 5 of this report with an FY of Completion of 2010 or earlier. Of those projects subject to the LEED® rating level requirement, listed in Tables 2 and 3, Building J achieved a LEED® Gold rating level that was certified by the USGBC and Brooklyn Museum Climate Control Phase 1A received a Silver rating level that was also certified. One project, the addition and renovation of PS 59 in Manhattan, was completed in accordance with the requirements of the Green Schools Rating System 2007. An additional 25 projects, managed by the SCA for the Department of Education and subject to the various system specific energy and water use reduction requirements, have also been completed.

## Exempted Projects

LL86 allows MOEC to grant a full or partial exemption from any one of the 11 possible requirements in the law to the extent that the dollars allocated to those projects receiving such an exemption account for less than 20% of the city dollars allocated, i.e. released from the city treasury, each fiscal year to all the projects subject to the same requirement except in the case of a project granted a partial exemption from a requirement where the dollars allocated are adjusted in proportion to the incremental construction cost of partial compliance relative to that of full compliance. Since the Sephardic Community Center is the only one of three projects receiving exemptions that actually spent city capital dollars in FY 2010, only the FY 2010 allocations to projects subject to the same requirements for which the Center received exemptions were considered in determining whether the related 20% thresholds in the law were reached this year. For each one of the three LL86 requirements that apply to the Center, these values were found to be well within the 20% limits cited in the law. The background and justifications for the full exemptions granted to the Center and for the two other projects that have received partial exemptions to date are described below.

In FY 2008, the Sephardic Community Center, listed in Table 3, received full exemptions from all three of the LL86 requirements that applied to the project. Although it had completed design and started construction well before the law took effect, the Sephardic Community Center project technically was subject to the law because it received a grant from the City after the law's effective date, thereby triggering LL86. Compliance with

the law after the start of construction meant the project would have had to be redesigned and partially rebuilt, an outcome that was clearly “not in the public interest”, the standard for granting exemptions that is cited in the law.

For the YMCA Arverne project listed in Table 3, the Department of Housing Preservation and Development and the Young Men’s Christian Association (YMCA) requested and received several partial exemptions. Although the City had committed to providing city funds for this project early in design, the initial grant amount was not large enough to trigger the law. It was only after the design was nearly complete that the City agreed to increase its funding contribution in an amount sufficient to trigger several LL86 requirements: the LEED® rating level requirement, the minimum 20% energy cost reduction requirement for LEED® projects, and the minimum 30% potable water use reduction requirement. Since full compliance would have necessitated a significant redesign, the partial exemptions granted allowed the lessening to 5% of both the LEED® energy prerequisite minimum 10% energy cost reduction requirement and the LL86 LEED® project minimum 20% energy cost reduction requirement. The LL86 potable water reduction requirement was also relaxed from 30% to 20%.

The third project to apply for an exemption was the Whitney Museum at Gansevoort Street. In the course of its land acquisition negotiations with the City and in conjunction with the Department of Cultural Affairs and the NYC Economic Development Corporation, the Whitney applied for a partial exemption from the LEED® project minimum 25% energy cost reduction requirement. The Museum indicated that the costs associated with meeting this requirement would have jeopardized the project’s viability due to the additional investment needed for compliance while maintaining the strict humidity and temperature levels necessary to protect a world class art collection. Upon review of the schematic design and cost/benefit analysis provided by the applicants, MOEC agreed that the full amount of the additional investment was not in the public interest. A lessening of this requirement to 14% from 25% was therefore granted, subject to several conditions, including MOEC review of revisions to the documentation upon which their determination was based, periodic review by MOEC of the team’s progress towards achieving a LEED® Gold rating level target under LEED® for New Construction 2009, and certification by the USGBC that the targeted rating was achieved. Note that, since one of the prerequisites for being included in the required LL86 annual report is the receipt of a Certificate to Proceed that has been approved by OMB, this third project does not yet appear in the project tables of this annual report.

## Projected Benefits and Costs of LEED® Rating Level, Energy Cost Reduction, and Potable Water Use Reduction Provisions

The following Tables 6, 7, 9, and 10, show estimated costs and benefits for the LL86 projects listed in Tables 2, 3, 4, and 5 that have started construction. Table 8 (*page 26*) describes the incremental cost, energy cost reduction, and payback for specific energy efficiency measures utilized by several projects in Table 7 (*page 24*) to achieve the LL86 minimum energy cost reduction requirements. Benefits quantified in these tables include energy cost savings<sup>1</sup>, greenhouse gas<sup>2</sup> reduction, and peak electric demand reduction, as well as reductions in both stormwater runoff and potable water use<sup>3</sup>. Costs indicated include the construction cost of the portion of projects subject to LL86 requirements<sup>5</sup>, the cost of compliance with the LEED® rating level provisions<sup>6</sup>, and the incremental construction cost of compliance with the LL86 LEED® project energy cost reduction provisions. Table 6 (*page 23*) compiles the cost/benefit data reported for those projects subject to the LEED® rating level provisions with construction costs from \$2M-\$12M. The second table, Table 7 (*page 24*), covers LEED® projects that are valued over \$12M and are therefore also subject to the 20-30% minimum energy cost reduction provisions. Table 9 (*page 28*) shows the benefits reported for work subject to the system specific energy cost reduction requirements<sup>4</sup>. And finally, Table 10 (*page 30*) shows the benefits reported for work subject only to the LL86 potable water use reduction provisions, *i.e.* water use reduction benefits that are not covered in the other tables.

### Footnotes:

1. The calculations for energy cost savings utilize the FY 2010 energy rates provided by the Division of Energy Management (DEM) of the NYC Department of Administrative Services (DCAS) for electricity, natural gas, and purchased steam. These rates are posted at [nyc.gov/oec](http://nyc.gov/oec). In accordance with the LL86 Rules, energy cost and peak load reductions are relative to a baseline defined in the New York State Energy Conservation Construction Code.
2. Coefficients for greenhouse gas reduction calculations were provided by the NYC Mayor's Office of Long Term Planning and Sustainability.
3. In accordance with the LL86 Rules, estimated reductions in potable water use and stormwater runoff are calculated relative to the baselines defined in the applicable sections of the LEED® NC-2.1 or 2.2 rating systems.
4. The energy related benefits for DOE projects involving steam boiler upgrades may include benefits related to steam trap replacement work implemented, with prior MOEC approval, to meet the boiler upgrade energy cost requirements in the most cost effective manner.
5. Note that the costs indicated in the "Construction Cost" column of the Cost and Benefit tables represent the total construction cost of work subject to the provisions of LL86, *i.e.* not the incremental cost of the added construction needed to satisfy the LL86 energy cost reduction provisions beyond the minimum construction necessary to meet the standards in the NYC Building Code, and therefore should not be divided by the the energy cost reduction indicated in order to calculate the simple payback of the investment mandated by LL86.
6. Variations in the reported cost of compliance with the LEED® rating level provisions, relative to overall construction cost, may be explained by several factors. First, the portion of project work that is comprised of commissioned systems and the level of precision required by the specific commissioning program may vary considerably from one project to another, resulting in significant variations in commissioning costs for projects of similar size. Second, the amount of experience a consultant may have with LEED® rating systems, as well the size of the project itself, may have a significant effect on the percentage of project costs devoted to achieving the required LEED® rating level. And finally, in the case of many school projects where commissioning and Green Schools compliance services are partially performed by SCA personnel, the professional fees reported are sometimes the outcome of averaging total commissioning and compliance costs for a group of projects in order to arrive at the costs per school indicated in the table.

**Table 6 - Costs and Benefits for Projects Subject to LEED® Rating Level Provisions Only (New Buildings, Additions, and Substantial Reconstruction with Construction Costs from \$2M to \$12M)**

Budgeting Agency(s)	Managing Agency(s)	Project Name and Type	Construction Cost of Work Subject to LEED Rating Level Requirement (\$)	Commissioning and Fees Related to LEED® or Green Schools Compliance (\$)	Energy Cost Reduction (\$/yr)	Peak Load Reduction (kw)	Greenhouse Gas Reduction (metric tons/yr)	Potable Water Use Reduction (gals/yr)	Stormwater Runoff Reduction <sup>11</sup> (gals/yr)
DCLA	DDC	<b>NYBG McQuillan Facility</b> Substantial Reconstruction	2,018,070	75,000	3,940	3	13	30,124	1,730,107
		<b>NYBG Snuff Mill</b> Substantial Reconstruction	8,486,000	75,000	8,653	38	20	29,358	55,042
		<b>Mind-Builders Creative Arts Center</b> Substantial Reconstruction	6,033,825	144,455	7,275	19	24	50,711	0
DPR	DPR	<b>Marine Park Community Center</b> New Building	9,000,000	17,300	13,376	15	36	172,692	0
NYPL	DDC	<b>Mariners Harbor Branch Library</b> New Building	9,325,106	104,258	7,289	46	15	49,830	0
QPL	DDC	<b>Glen Oaks Branch Library</b> New Building	11,658,000	146,317	8,770	54	30	102,643	0
<b>TOTAL</b>			<b>46,521,001</b>	<b>562,330</b>	<b>49,304</b>	<b>174</b>	<b>138</b>	<b>435,358</b>	<b>1,785,149</b>

**Notes for Table 6 and Key to Agency Acronyms:** See Page 32

**Table 7 - Costs and Benefits for Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions (New Buildings, Additions, and Substantial Reconstruction with Construction Costs of \$12M or More)**

Budgeting Agency	Managing Agency	Project Name and Type	Construction Cost of Work Subject to LEED® Rating Level Requirement (\$)	Commissioning and Fees Related to LEED® or Green Schools Compliance (\$)	Energy Cost Reduction (\$/yr)	Peak Load Reduction (kw)	Green-house Gas Reduction (metric tons/yr)	Potable Water Use Reduction (gals/yr)	Stormwater Runoff Reduction <sup>11</sup> (gals/yr)
DCLA	DDC	Brooklyn Museum Climate Control - 4A Substantial Reconstruction	13,580,128	89,960	13,965	90	31	148,457	151,193
		SIAS Buildings A & B at SHCC Addition	21,392,000	200,000	5,351	23	16	0	0
		122 Community Center Substantial Reconstruction	25,540,000	260,418	34,339	32	69	219,200	0
	EDC	Downtown Brooklyn Strand Theater Substantial Reconstruction	21,762,000	1,163,000	34,886	111	72	367,000	0
		Orchestra of St. Luke's - DiMenna Center Addition	48,000,000	147,730	29,680	48	100	86,292	0
DHS	DDC	New Family Intake Center - Bronx New Building	67,839,000	269,715	28,671	54	63	338,642	3,000
DOE	SCA	PS 8-K Addition	22,779,016	283,500	5,457	27	16	79,722	0
		PS/IS 48-Q New Building	62,776,844	268,500	28,729	143	83	449,118	0
		PS 42-Q Addition	32,490,536	268,500	16,222	81	47	644,454	0
		PS 196-Q Addition	27,048,736	268,500	10,904	54	31	324,450	0
		Ampark Neighborhood School-X Addition	35,038,016	268,500	17,071	85	49	203,774	0
		PS 133-K New Building	79,203,904	268,500	35,898	179	103	434,079	0
		PS 160-K Annex Addition	37,877,320	268,500	18,936	94	55	227,633	0
		PS 264-K New Building	47,618,624	268,500	22,467	112	65	221,202	0
		IS/HS @ Spring Creek New Building	87,125,688	268,500	47,218	235	136	685,575	0
		All City Leadership School New Building	35,041,604	268,500	16,247	81	47	202,766	0
		PS 310-K New Building	32,076,000	268,500	16,121	80	46	152,415	0
		Community Health Academy (CLOTH) New Building	52,298,688	268,500	22,973	114	66	275,823	0
		Maspeth HS 585-Q New Building	84,019,000	268,500	45,815	228	132	1,464,800	0
		PS/IS 277-Q New Building	56,331,600	268,500	28,900	144	83	635,360	0
PS 29-Q Addition	16,375,770	282,600	8,169	41	24	385,583	0		

**Notes for Table 7 and Key to Agency Acronyms:** See Page 32

**Table 7 (cont'd) - Costs and Benefits for Projects Subject to both LEED® Rating Level and Energy Cost Reduction Provisions (New Buildings, Additions, and Substantial Reconstruction with Construction Costs of \$12M or More)**

Budgeting Agency(s)	Managing Agency	Project Name and Type	Construction Cost of Work Subject to LEED® Rating Level Requirement (\$)	Commissioning and Fees Related to LEED® or Green Schools Compliance (\$)	Energy Cost Reduction (\$/yr)	Peak Load Reduction (kw)	Green-house Gas Reduction (metric tons/yr)	Potable Water Use Reduction (gals/yr)	Stormwater Runoff Reduction <sup>11</sup> (gals/yr)
DOE	SCA	<b>Settlement Housing PS/IS/HS</b> New Building	42,839,524	268,500	45,117	224	130	244,701	0
		<b>PS 331-K</b> New Building	37,410,129	268,500	30,204	150	87	661,113	0
		<b>IS/HS 404-Q</b> New Building	74,234,070	304,000	65,691	227	179	339,161	0
		<b>PS 292-X</b> New Building	38,791,305	282,600	18,639	93	54	607,095	0
		<b>PS/IS 281-M</b> New Building	57,809,700	283,500	24,915	60	76	505,580	0
		<b>PS/IS 51-M Replacement</b> New Building	66,496,950	268,500	30,363	151	87	0	0
		<b>IS 285-X</b> New Building	41,444,865	268,500	18,315	91	53	336,960	0
		<b>PS/IS 177-X</b> New Building	59,398,920	268,500	29,676	148	85	237,042	0
		<b>IS 259-K</b> Addition	30,952,480	268,500	15,647	78	45	284,508	0
		<b>PS/IS 163</b> New Building	71,561,464	268,500	31,032	154	89	327,600	0
		<b>PS 971</b> New Building	30,492,020	268,500	13,242	66	38	495,738	0
		<b>Cypress Hills Community School</b> New Building	43,150,840	268,500	17,437	87	50	288,488	0
		<b>PS/IS 276-M</b> New Building	93,072,720	342,000	59,738	138	210	224,303	0
		<b>PS/IS 79-X</b> Addition	37,419,252	268,500	19,904	99	57	456,497	0
		<b>PS 94-X Annex</b> New Building	40,269,320	268,500	8,875	51	25	456,497	0
		<b>PS 59-M (MEETH)</b> Substantial Reconstruction	40,600,000	268,500	33,910	169	98	326,381	0
<b>Addition and Renovation at Riverside Health Center</b> Substantial Reconstruction	30,439,695	272,525	20,924	98	67	102,692	0		
DPR	DPR	<b>McCarren Pool and Recreation Center</b> Substantial Reconstruction	41,500,000	166,000	98,570	120	272	779,049	0
		<b>Building J</b> Substantial Reconstruction	12,000,000	89,700	11,201	30	35	80,580	14,348
EDC	EDC	<b>Pier A Redevelopment</b> Substantial Reconstruction	12,000,000	84,855	23,169	7	74	0	0
NYPD	DDC	<b>121st Precinct in Staten Island</b> New Building	57,567,886	300,000	91,024	94	195	112,957	1,468,745
		<b>New Police Academy</b> New Building	662,000,000	1,100,000	536,565	914	1,545	4,638,400	4,258,713
<b>TOTAL</b>			<b>2,527,665,614</b>	<b>12,634,603</b>	<b>1,732,179</b>	<b>5,303</b>	<b>4,887</b>	<b>19,051,687</b>	<b>5,895,999</b>

Notes for Table 7 and Key to Agency Acronyms: See Page 32

**Table 8 - Costs and Benefits of  
Energy Efficiency Measures (EEM) of Projects in Table 7**

Budgeting Agency	Managing Agency	Project Name	Energy Efficiency Measure Description	Incremental Construction Cost of Individual EEM (\$)	Energy Cost Reduction of Individual EEM (\$/yr)	Simple Payback of Individual EEM (yrs)
DCLA	DDC	122 Community Center	Efficient Wall Assembly	16,000	1,309	12
			Efficient Window Glazing	30,000	2,588	12
			Efficient Lighting	0	4,188	0
			CO2 Sensors	32,000	20,231	2
			Geothermal Heat Pumps	1,083,000	24,391	44
			<b>TOTAL</b>	<b>1,161,000</b>	<b>52,707</b>	<b>22</b>
DHS	DDC	New Family Intake Center - Bronx	Efficient Wall Assembly	44,000	2,897	15
			Glazing	189,980	3,070	62
			Efficient Roof Assembly	21,600	546	40
			Automated Interior Shades	44,480	2,611	17
			Efficient Lighting	0	5,274	0
			Daylight Dimming Controls	62,000	4,857	13
			Occupancy Sensors	18,400	2,747	7
			CO2 Sensors	12,000	1,332	9
			Enthalpy Economizer	0	67	0
			Heat Recovery	126,000	6,863	18
			Premium Efficiency Motors	1,300	316	4
			Hi Efficiency Boilers	3,000	5,741	1
			Variable Frequency Drives on HW Pumps	19,600	3,363	6
<b>TOTAL</b>	<b>542,360</b>	<b>39,684</b>	<b>14</b>			
DOHMH	DDC	Addition and Renovation at Riverside Health Center	Viracon VE1-2M Argon Filled Glazing for All Windows	75,000	10,108	7
			Additional Insulation at Walls and Roofs	35,000	11,709	3
			High Reflectance Roof	9,000	8,047	1
			Automated Internal Shades	28,000	9,145	3
			High Efficiency Lighting	20,000	11,621	2
			Daylight Sensors	20,000	13,037	2
			Occupancy Sensors	40,000	14,107	3
			Variable Frequency Drives for Pumps and Fans	12,000	8,999	1
			Premium Efficiency Motors	2,000	7,746	0
			Enthalpy Wheel Heat Recovery	30,000	14,037	2
			CO2 Sensors	75,000	13,951	5
			Condensing Boilers	233,312	11,981	19
			Temperature Controls	115,000	11,903	10
<b>TOTAL</b>	<b>694,312</b>	<b>146,391</b>	<b>5</b>			

**Notes for Table 8 and Key to Agency Acronyms:** See Page 32

**Table 8 (cont'd) - Costs and Benefits of Energy Efficiency Measures of Projects in Table 7**

Budgeting Agency	Managing Agency	Project Name	Energy Efficiency Measure Description	Incremental Construction Cost of Individual EEM (\$)	Energy Cost Reduction of Individual EEM (\$/yr)	Simple Payback of Individual EEM (yrs)
DPR	EDC	Building J	Additional Wall Insulation	11,000	3,049	4
			Low-E Coating on Insulated Glazing	21,490	21,490	1
			Additional Roof Insulation	11,300	1,972	6
			87% Efficiency Condensing Boiler with VAV System	7,400	897	8
			Low LPD (Lighting Power Densities)	0	449	0
			Occupancy Sensors for Lighting Control	4,400	179	25
			<b>TOTAL</b>	<b>55,590</b>	<b>28,036</b>	<b>2</b>
NYPD	DDC	121st Precinct in Staten Island	Lighting Efficiency	0	2,029	0
			Motor Efficiency, Motor Control	35,645	2,796	13
			Boiler Efficiency	14,850	3,998	4
			Wall Insulation	48,000	4,930	10
			Roof insulation	17,921	1,156	16
			Low E-Glass	18,940	1,973	10
			<b>TOTAL</b>	<b>135,356</b>	<b>16,882</b>	<b>8</b>
NYPD	DDC	New Police Academy	Economizer Controls (air & water side)	1,035,000	36,085	29
			Demand Controlled Ventilation in Dense & Variable Occupancy Spaces	266,000	18,702	14
			Exhaust Air Energy Recovery	972,000	12,809	76
			Efficient Variable-Speed Chillers	150,000	170,981	1
			Efficient Boilers with Improved Part Load Performance	240,000	6,149	39
			Heat Recovery with Condenser Water for DHW Systems	155,000	70,203	2
			Cogeneration System to Generate Electricity and Use Waste Heat for Domestic Hot Water	1,245,000	120,145	10
			Reduced Lighting Power Densities	0	37,864	0
			Daylight Responsive Controls for Typical Spaces	62,000	54,291	1
			Increased Exterior Wall Insulation	120,380	17,087	7
			Increased Roof Insulation	155,282	6,338	25
			Increased Slab-on-Grade Insulation	217,458	568	383
			High Performance Curtain Wall & Skylight Glazing	184,986	16,809	11
			Exterior Shading Devices	1,444,999	10,663	136
<b>TOTAL</b>	<b>4,125,000</b>	<b>578,694</b>	<b>7</b>			

**Notes for Table 8 and Key to Agency Acronyms:** See Page 32

**Table 9 - Costs and Benefits of Projects Subject to System Specific Energy Cost Reduction Provisions**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name <sup>3</sup>	Construction Cost of Work Subject to System Specific Energy Cost Reduction Requirement (\$) <sup>5</sup>	Electric Peak Demand Reduction (kw)	Energy Cost Reduction (\$)	Greenhouse Gas Reduction (metric tons/yr)
CJC	DDC	Kings County Criminal Court Renovation Lighting Upgrade	1,339,000	0	1,491	3
DCAS	DCAS	60 Centre Heating Upgrade Boiler Upgrade	4,461,845	2	355	1
DCLA	DDC	American Museum of Natural History Lighting Upgrade	1,100,000	39	33,374	68
DOE	SCA	JHS 45-M Boiler Upgrade	3,603,853	0	4,148	18
		PS 52-K Boiler Upgrade	3,055,749	0	2,254	10
		PS 188-Q Boiler Upgrade	3,875,714	0	1,453	6
		PS 178-Q Boiler Upgrade	3,757,320	0	1,423	6
		PS 122-X Boiler Upgrade	4,287,025	0	1,738	7
		W.E.B. DUBOIS HS-K Boiler Upgrade	5,289,944	0	1,159	5
		PS 377-K Boiler Upgrade	4,019,192	0	2,583	11
		PS 246-X Boiler Upgrade	4,548,792	0	1,437	6
		PS 57-M Boiler Upgrade	3,137,596	0	3,093	13
		JHS 10-Q Boiler Upgrade	6,649,241	0	2,285	10
		Gompers Vocational HS-X Boiler Upgrade	5,256,865	0	3,921	17
		Taft HS-X Boiler Upgrade	8,321,518	0	6,609	28
		IS 115-X Boiler Upgrade	5,121,710	0	2,575	11
		PS 120-K Boiler Upgrade	3,516,976	0	1,209	5
		PS 81-K Boiler Upgrade	3,137,470	0	2,668	11
		PS 108-X Boiler Upgrade	4,299,624	0	896	4
		PS 56-K Boiler Upgrade	3,898,560	0	2,079	9
		PS 23-R Boiler Upgrade	2,916,467	0	1,631	7
PS 36-M Boiler Upgrade	3,422,167	0	1,645	7		
PS 76-M Boiler Upgrade	3,467,388	0	2,081	9		

**Notes for Table 9 and Key to Agency Acronyms:** See Page 32

**Table 9 (cont'd) - Costs and Benefits of Projects Subject to System Specific Energy Cost Reduction Provisions**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name <sup>3</sup>	Construction Cost of Work Subject to System Specific Energy Cost Reduction Requirement (\$) <sup>5</sup>	Electric Peak Demand Reduction (kw)	Energy Cost Reduction (\$)	Greenhouse Gas Reduction (metric tons/yr)
DOE	SCA	PS 32-X Boiler Upgrade	3,633,340	0	2,060	9
		John Jay HS-K Boiler Upgrade	7,426,219	0	6,453	28
		PS 111-M Boiler Upgrade	4,562,867	0	2,138	9
		PS 121-Q Boiler Upgrade	3,257,033	0	1,844	8
		IS 227-Q Boiler Upgrade	5,294,664	0	4,160	18
		Jamaica HS-Q Boiler Upgrade	6,735,523	0	5,776	25
		PS 194-M Boiler Upgrade	5,105,600	0	1,835	8
		PS 12-X Boiler Upgrade	4,184,474	0	1,779	8
		Fort Hamilton HS-K Boiler Upgrade	9,059,580	0	5,735	24
		PS 253-K Boiler Upgrade	4,631,206	0	1,673	7
		IS 93-Q Lighting Upgrade	1,077,705	23	9,834	20
		IS 127-X Lighting Upgrade	1,142,100	25	10,594	22
		JHS 141-X Boiler Upgrade	3,811,581	0	2,896	12
		PS 111-Q Boiler Upgrade	3,634,373	0	2,075	9
<b>TOTAL</b>			<b>156,040,279</b>	<b>89</b>	<b>140,960</b>	<b>478</b>

**Notes for Table 9 and Key to Agency Acronyms:** See Page 32

**Table 10 - Costs and Benefits of Projects Subject to Potable Water Use Reduction Provisions Only**

Budgeting Agency <sup>1</sup>	Managing Agency <sup>2</sup>	Project Name <sup>3</sup>	Construction Cost of Work Subject to Potable Water Use Reduction Requirement (\$) <sup>5</sup>	Potable Water Use Reduction (gals/yr)
DOE	SCA	Madison HS-K Toilets	548,814	902,467
		PS 91-K Toilets	1,556,977	351,697
		PS 121-K Toilets	619,112	157,248
		PS 161-K Toilets	955,156	565,110
		PS 209-K Toilets	925,056	369,192
		PS 226-K Toilets	1,070,366	484,029
		IS 234-K Toilets	1,543,777	1,100,736
		PS 335-K Toilets	2,749,200	393,059
		Brooklyn Tech HS-K Toilets	572,178	2,304,465
		Seward Park HS-M Toilets	504,399	534,310
		PS 7-X Toilets	1,496,940	329,238
		PS 44-X Toilets	1,416,810	331,695
		IS 391-X Toilets	1,061,760	768,427
		TOTAL		<b>15,020,546</b>

**Notes for Table 10 and Key to Agency Acronyms:** See Page 32



**BAM Fisher Building**  
**H3 Hardy Collaboration, Architecture, LLC**

## Table Notes:

### Key to agency acronyms:

<b>BKBP</b>	Brooklyn Borough President
<b>CME</b>	Chief Medical Examiner
<b>CJC</b>	Criminal Justice Coordinator
<b>DCAS</b>	Department of Citywide Administrative Services
<b>DCLA</b>	Department of Cultural Affairs
<b>DEP</b>	Department of Environmental Protection
<b>DOC</b>	Department of Corrections
<b>DOE</b>	Department of Education
<b>DOHMH</b>	Department of Health and Mental Hygiene
<b>DoITT</b>	Department of Information Technology and Telecommunications
<b>DHS</b>	Department of Homeless Services
<b>DPR</b>	Department of Parks and Recreation
<b>EDC</b>	New York City Economic Development Corporation
<b>FDNY</b>	New York City Fire Department
<b>HHC</b>	Health and Hospitals Corporation
<b>NYBG</b>	New York Botanical Garden
<b>NYPD</b>	New York City Police Department
<b>NYPL</b>	New York Public Library
<b>QBPL</b>	Queens Borough Public Library
<b>SCA</b>	New York City School Construction Authority

### Notes for tables:

1. The primary budgeting agency is the city agency whose budget carries most, if not all, city funding for a project until the Office of Management and Budget (OMB) authorizes the transfer of funds to the managing agency.
2. The managing agency is the city agency managing construction or that holds a funding agreement, lease, or other legal agreement with a non-city entity(s) that manages construction. It is also the city agency that provided data for this report. In some cases, the managing agency may also be the budgeting agency.
3. The projects in this report are limited to those subject to one or more provisions in LL86 that received their first approved Certificate to Proceed from the OMB during or before FY 2010.
4. Project cost is the total of all costs associated with an entire capital project regardless of funding source. It includes all capitally eligible costs as described in the NYC Comptroller's Directive 10, such as costs related to site acquisition, site preparation, furniture, fittings, and equipment, as well as design and construction. Note that project cost also covers capital investments on portions of the project that may not be covered by the provisions of LL86, such as "minor alterations and ordinary repairs" as defined in the NYC Building Code, or portions of a project that do not involve building spaces served by HVAC equipment.
5. Construction costs indicated here are only for that portion of the project work scope that is subject to the relevant LL86 provisions. For example, for a project that has a large landscaping component as well as a building component over \$2,000,000, the construction cost reflects only the building portion of the project that is subject to the LEED® related provisions of the law, which may not necessarily include the landscaping component. Alternatively, for a project subject to a system specific energy cost reduction requirement, the construction cost reflects only that work on the portion of the system that is subject to such requirement. Construction costs include all construction related costs, such as mark-ups related to general conditions, contractor overhead and profit, contingencies, and construction management fees. Note that the construction cost indicated here varies from the incremental construction cost discussed in Note 10 below.
6. Since projects may take several years to complete, each year the managing agency typically spends a portion of the total amount of city funds that are committed to the entire project. Note that the FY2010 allocation indicated here represents the amount released from the city treasury during FY 2010 to all portions of the project, not necessarily only to the portion that is subject to LL86.
7. Floor areas indicated refer to the portion of the project that is subject to the LL86 LEED® rating level provisions and includes

the area for such projects that utilize either the LEED® or Green Schools 2007 rating system. For example, for a project that involves the substantial reconstruction of only a portion of a building, the floor area indicated refers only to that area, not to the area of the entire building.

8. The FY of completion is defined as the FY that all city funds that will be utilized for the project have been released from the city treasury, all applicable LL86 requirements have been met, and the project is at least substantially complete.
9. Simple payback means the number of years, rounded to the nearest whole year, that it takes for the projected annual energy cost reduction, as estimated at the beginning of construction, to equal the estimated incremental construction cost of the energy conservation measures, as determined by dividing such incremental cost by the reported annual energy cost reduction.
10. The phrase “Incremental Construction Cost of Energy Efficiency Measures” represents the difference in construction cost between the design that meets the energy cost reduction requirements in the law and the construction cost of a design that satisfies the minimum requirements in the NYS Energy Conservation Construction Code baseline cited in the LL86 Rules.
11. In order to limit the benefits reported here to those that are a direct result of achieving LL86 requirements, the reductions in stormwater runoff indicated are only for those projects that are targeting one or more points under the stormwater runoff reduction credit in a LEED® rating system or in the Green Schools 2007 rating system.

## Conclusions

In the three and a half years since Local Law 86 of 2005 (LL86) took effect, 90 new buildings, additions, and reconstructions of existing buildings in New York City that together account for about \$5,600,000,000 of project cost and 7,300,000 square feet of floor area have committed to meeting LEED® or NYC Green Schools construction standards as a direct result of the laws' enactment. Mechanical, electrical, and plumbing system upgrades will significantly exceed the minimum requirements of the NYS Energy Conservation Construction Code on 84 additional projects with combined project costs of about \$700,000,000. Together, these 174 building projects account for over \$6,300,000,000 of project costs and represent the foremost indication of the City's commitment to lead by example with regard to green building. As such, they will serve as precedents for future public and private initiatives dedicated to advancing the practice of building green in New York City.

The data presented in this report indicate that the overall value of all projects subject to LL86 continues to be higher than initially anticipated. The preamble to the 2005 law estimated that an average of \$1.2 billion of project value would be subject to its provisions each year for each of the first ten years after it took effect. At the end of FY10, that annual rate stands at about \$1.8 billion, about 50% more than the amount originally projected, though somewhat lower than the analogous \$2 billion dollars of annual average project value that city agencies reported last year.

Available data for projects that have finished design show that the average investment to meet both the LEED® rating and energy cost reduction requirements for LEED® projects averages under 1.5% of construction cost, with roughly one third of that investment dedicated to the professional services needed to demonstrate compliance with the LEED® requirements and the other two thirds dedicated to the incremental cost of the investment in energy efficiency measures, an energy efficiency investment with an average simple payback of approximately 7 years.

The professional fees associated with meeting LL86 requirements appear to be trending downward on smaller projects. For the 17 projects with construction costs from \$2 million to \$12 million that utilize one of the selected LEED® rating systems, the added design and commissioning fees amount to approximately 1.2% of construction cost, considerably lower than the 2% that was reported on all such projects in FY 2009, a finding that suggests fees are lessening as consultants become more familiar with the law and with LEED® rating systems in general. While this amount represents a relatively small dollar value, these smaller projects still spend on average twice the amount, in percentage terms, for the professional fees necessary to satisfy the law's LEED® provisions than such fees on LEED® projects with construction costs over \$12M.

The implementation of LL86 requirements continues to support the achievement of the goal, mandated by the New York City Climate Protection Act (Local Law 22 of 2008), to decrease the City's annual greenhouse gas emissions rate by 30% by 2017 for municipal operations and by 30% by 2030 for the City as a whole. Extrapolating

from data reported here, the incremental investment in energy efficiency mandated by LL86 contributes toward both of these greenhouse gas reduction goals at an average annual reduction rate of approximately 2800 metric tons per year, representing more than 1% of the City’s 2017 greenhouse gas reduction target.

Extrapolating from projected energy savings reported for projects that have completed design, it is also estimated that LL86 energy efficiency mandates will significantly reduce city expenditures for building energy use. Completed LL86 projects are projected to account for an annual decrease in energy costs of about \$1.5M. Total savings, calculated by adding the \$1.5M energy cost reduction from one year of completed LL86 projects to the cumulative savings of previous years, should amount to approximately \$15M by 2017 and \$150M by the year 2030. It is further worth noting that, due to the inevitability of rising energy rates, energy cost savings attributable to completed LL86 projects will likely amount to considerably more as rates increase.

Though more challenging to quantify than greenhouse gas and energy cost reduction benefits, savings from the improved health and productivity of occupants in green buildings may exceed those for energy cost. This likelihood arises from recent and credible green building research that indicates substantial savings result when such improvements are monetized in terms of metrics such as reduced sick days and health care costs.

In conclusion, it is clear that, despite the moderate variability in the dollar value of building projects that receive city funds each year, LL86 remains an extremely cost-effective means by which to save taxpayer dollars over the life of the buildings and spaces covered by its provisions. The data in this report show that, as more and more LL86 projects are completed, the law’s contribution to reducing greenhouse gas and lowering city expenses, as well as to increasing the health and productivity of building occupants will become increasingly significant.



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