NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY
NEW YORK CITY DEPARTMENT OF EDUCATION

NYC GREEN SCHOOLS GUIDE

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NYC Green Schools Guide Rating System Summary

	LEED Reference	CHPS Reference (or SCA as noted)	NYC GSG Credit Name		Credits With No Points Required for all	Credits With Points Required for all	Required if feasible*	Optional**
Site (10 Points)								
Site Selection	SS Pr 1		S 1.1R	**Construction Activity Pollution Prevention**	NP			
	SS 1		S 1.2R	**Site Selection**		1		
		1.1.7	S 1.3	**Sustainable Site & Building Layout**			1	
	SS 2		S 1.4	**Development Density & Community Connectivity**			1	
		1.1.2	S 1.5R	**Joint Use of Facilities,** Community Access	NP			
	SS 3		S 1.6	**Brownfield Redevelopment**			1	
Transportation	SS 4.1		S 2.1	**Alternative Transportation**, Public Transportation Access			1	
	SS 4.3/SS 4.4		S 2.2R	**Alternative Transportation**, Fuel-Efficient Vehicles/Parking		1		
Minimize Impact on Site	SS 5.1		S 3.1	**Site Development**, Protect or Restore Habitat			1	
	SS 5.2		S 3.2	**Site Development**, Maximize Open Space			1	
Stormwater Design	SS 6.2		S 4.1	**Stormwater Design**, Quality Control			1	
Outdoor Lighting	SS 8		S 5.1R	**Light Pollution Reduction**		1		
				Totals for this section:	2NP	3	7	0
Water (5 Points)								
Outdoor Systems	WE 1.1		W 1.1R	**Water Efficient Landscaping**, Reduce by 50%		1		
	WE 1.2		W 1.2R	**Water Efficient Landscaping**, No Potable Use or No Irrigation		1		
Indoor Systems	WE 3.1		W 2.1R	**Water Use Reduction,** 20% Reduction		1		
	WE 3.2		W 2.2R	**Water Use Reduction,** 30% Reduction		1		
	ID 1.1		W 2.3R	**Water Use Reduction,** > 40% Reduction		1		
				Totals for this section:	0NP	5	0	0
Energy (3 Points)								
Commissioning	EA Pr 1/EA 3		E 1.1R	**Enhanced Commissioning**		1		
Refrigerant Management	EA Pr 3		E 1.2R	**Fundamental Refrigerant Management**	NP			
	EA 4		E1.3	**Enhanced Refrigerant Management**			1	
Verification	EA 5		E 2.1R	**Measurement & Verification**		1		
		3.3.5	E 2.2R	**Energy Management System Controls,** HVAC and Hot Water	NP			
Energy Efficiency	EA Pr 2		E 3.1R	**Minimum Energy Performance**	NP			
HVAC Optimization		3.1.2	E 4.1R	**HVAC System Sizing,** Avoid Oversizing	NP			
Green Power	EA 6		E 5.1	**Green Power**			1	
				Totals for this section:	4NP	2	2	0
Materials (8 Points)								
Efficient Material Use	MR Pr 1		M 1.1R	**Storage & Collection of Recyclables**	NP			
	MR 1.1		M 1.2	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof			1	
	MR 1.2		M 1.3	**Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof			1	
	MR 1.3		M 1.4	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements			1	
	MR 2.1		M 1.5R	**Construction Waste Management**, Divert 50% from Disposal		1		
	MR 2.2		M 1.6	**Construction Waste Management**, Divert 75% from Disposal			1	
Sustainable Materials	MR 4.1		M 2.1R	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)		1		
	MR 5.1		M 2.2R	**Regional Materials**, 10% Extracted, Processed & Manuf. Regionally		1		
		4.1.1	M 2.3R	**Wallboard & Roof Deck Products,** Mold Resistance	NP			
		7.2.3	M 2.4R	**Low-Mercury Lighting,** Reduce Mercury Waste		1		
				Totals for this section:	2NP	4	4	0

	LEED Reference	CHPS Reference (or SCA as noted)	NYC GSG Credit Name		Credits With No Points Required for all	Credits With Points Required for all	Required if feasible*	Optional**
Indoor Environmental Quality (18 Points)								
IAQ Post-occupancy	EQ Pr 1/EQ2		Q 1.1R	**Minimum IAQ Performance / Increased Ventilation**		1		
		5.4.8	Q 1.2R	**Air Flow Stations,** Outside Air Intakes		1		
IAQ Pre-occupancy	EQ 3.1		Q 2.1R	**Construction IAQ Management Plan**, During Construction		1		
	EQ 3.2		Q 2.2R	**Construction IAQ Management Plan**, Before Occupancy		1		
Low-Emitting Materials	EQ 4.1		Q 3.1R	**Low-Emitting Materials**, Adhesives & Sealants		1		
	EQ 4.2		Q 3.2R	**Low-Emitting Materials**, Paints & Coatings		1		
	EQ 4.3		Q 3.3R	**Low-Emitting Materials**, Carpet Systems		1		
	EQ 4.4		Q 3.4R	**Low-Emitting Materials**, Composite Wood & Agrifiber Products		1		
Pollut. Source Control	EQ 5		Q 4.1R	**Indoor Chemical & Pollutant Source Control**		1		
		5.3.5	Q 4.2R	**Electric Ignition Stoves**	NP			
		6.2.4	Q 4.3R	**Provide HEPA Vacuums**	NP			
Controllability of Syst.	EQ 6.1		Q 5.1R	**Controllability of Systems**, Lighting		1		
	EQ 6.2		Q 5.2R	**Controllability of Systems**, Thermal Comfort		1		
Thermal Comfort	EQ 7.1		Q 6.1R	**Thermal Comfort**, Comply with ASHRAE 55-2004		1		
Lighting	EQ 8.1		Q 7.1	**Daylight & Views**, Daylight 75% of Spaces			1	
	EQ 8.2		Q 7.2	**Daylight & Views**, Views for 90% of Spaces			1	
		5.2.1	Q 7.3	**Visual Performance,** Artificial Direct-Indirect Lighting			1	
Acoustics	ID 1.2	5.5.1	Q 8.1	**Minimum Acoustical Performance**			1	
		SCA	Q 8.2	**Sound Isolation for Special Spaces**			1	
		SCA	Q 8.3	**Acoustic Windows**			1	
				Totals for this section:	2NP	12	6	0

Additional Credits (12 Points)								
Required for All Projects	ID 2		A 1.1R	**LEED® Accredited Professional**		1		
Optional - Green Roofs	SS 7.2		A 2.1	**Heat Island Effect**, Roof				1
	SS 6.1		A 2.2	**Stormwater Design**, Quantity Control				1
Optional - Energy	EA 1.1		A3.1	**Optimize Energy Performance (new 10.5%, Existing 3.5%)**				1
	EA 1.2		A3.2	**Optimize Energy Performance (new 14%, Existing 7%)**				1
	EA 1.3		A3.3	**Optimize Energy Performance (new 17.5%, Existing 10.5%)**				1
	EA 1.4		A3.4	**Optimize Energy Performance (new 21%, Existing 14%)**				1
	EA 2		A3.5	**Renewable Energy**				1
Optional - Materials	MR 4.2, 5.2		A 4.1	**Additional Sustainable Materials**				1
Optional - IEQ	ID 1.3	5.1.3	A 5.1	**Daylight in Classrooms**				1
		WA 3.2	A 5.2	**Low-Emitting Materials, Furniture**				1
Optional - Education	ID 1.4		A 6.1	**Building as Educational Tool**				1
				Totals for this section:	0NP	1	0	11

SCA Credit Name: Letter prefix indicates credit section (S, W, E, M, Q, A)
first number indicates the category within the sectior
second number inicates the specific credit within the section category
Suffix "R" is added for credits that are required of all projects

* Projects required to achieve all "feasible" credits that are possible for a particular project and site.
** Projects may only pursue "optional" (A section) credits with permission from the SCA
NP To be consistent with LEED, the NYC Green Schools Rating System assigns no point value (NP) to credits that are based on LEED or CHPS prerequisites

NYC Green Schools Rating System	Credits Required for all Projects (with no Point Value)	Credits Required for all Projects	Credits Required if Feasible*	Optional Credits**	Total Number of Available Credit Points
Totals	10 NP	27	19	11	57

INTRO

ODUCTION

1.0 INTRODUCTION

Local Law 86/05 was enacted into law by the New York City Council in late 2005, establishing a demanding set of sustainable standards for public construction projects in New York City. This local law makes New York City one of the first and largest school districts in the nation to have sustainable school design, construction and operations guidelines required by law.

Sustainable school design and operation provides many benefits to students, school staff and the city as a whole. Sustainable schools:

- Conserve energy
- Reduce operating costs
- Promote a healthy environment
- Teach environmental responsibility
- Demonstrate commitment to sustainability

The New York City School Construction Authority (SCA), with the New York City Department of Education (DOE), have created the NYC Green Schools Rating System to guide the sustainable design, construction and operation of new schools, modernization projects and school renovations and to achieve compliance with Local Law 86/05. This rating system is based on the LEED® (Leadership in Energy and Environmental Design) Green Building Rating System™, which was developed by the US Green Building Council (USGBC). The NYC Green Schools Rating System includes enhancements beyond LEED-based on best practices for schools adopted from the Collaborative for High Performing Schools (CHPS) rating systems developed by the states of Washington, Massachusetts and New York and also on SCA best practices.

1.1 LL86/05 REQUIREMENTS FOR SCHOOLS

LEED/GREEN BUILDING STANDARD CERTIFICATION

LL 86/05 requires all New York City funded new schools, additions, and substantial reconstruction projects with construction budgets greater than $2M, to be "designed and constructed to comply with green building standards not less stringent than standards to achieve a LEED certified or higher rating." Substantial reconstruction projects include reconstruction/rehabilitation of at least two of the three major systems (electrical, HVAC and plumbing) and the work must affect at least fifty percent (50%) of the building's floor area. This would typically not include school Capital Improvement Program projects because these projects are smaller in scope.

The SCA/DOE have chosen to develop an independent sustainable design rating system to certify sustainability of applicable public school projects, as allowed by LL86/05. Based on careful consideration of the analysis and conclusions of an independent review dated March 12, 2007, of the NYC Green Schools Guide, the Director of the Office of Environmental Coordination, on behalf of the Mayor, found that the SCA's NYC Green Schools Rating System will be no less stringent than LEED New Construction, version 2.2, for the achievement of a LEED Certified rating.

ENERGY COST REDUCTION

LL 86/05 requires all capital school projects with construction budgets greater than $12 M to reduce energy costs by at least 20% compared to the baseline referenced in LEED-NC version 2.1/EA Credit 1.

An additional 5% or 10% energy cost savings beyond the 20% mandate must be implemented, unless the payback on the investment exceeds 7 years.

WATER USE REDUCTION

LL 86/05 requires all capital projects involving the installation or replacement of plumbing fixtures (where that work has a construction budget greater than $0.5M) to reduce potable water consumption by a minimum of 30% compared to the baseline criteria referenced in LEED-NC 2.2 /WE Credit 3.2 or a minimum of 20% if waterless urinals are not approved by the NYC Department of Buildings. Note that while the text of LL86/05 references LEED-NC 2.1, the rules and regulations for LL86/05 have clarified that the reference standard to be used is the current version of LEED-NC. This requirement would apply to new schools, substantial reconstruction projects and Capital Improvement Program projects.

SELECTED CAPITAL RENOVATION PROJECTS

LL86/05 has special sustainable requirements for selected "capital renovation projects." These are projects that are more limited in scope than a new school, addition, or substantial reconstruction and they do not require LEED certification or the equivalent. The SCA refers to these projects as Capital Improvement Program projects. The sustainable requirements for these projects are not addressed by this guide but are incorporated in the SCA Design Requirements, Standard Specifications and Standard Details. For general reference, a summary of these requirements follows below.

- Projects involving boiler replacement with construction budgets greater than $2M, or lighting replacement with construction budgets greater than $1M, must reduce energy costs by a minimum of 10% compared to the baseline criteria in the more stringent of LEED-NC V2.1/EA Credit 1 or the NYS Energy Code.
- Projects involving HVAC comfort controls replacement with construction budgets greater than $2M must reduce energy costs by a minimum of 5% as compared to the baseline criteria referenced in LEED-NC V2.1/EA Credit 1 or the NYS Energy Code, whichever is more stringent.
- Projects involving installation or replacement of plumbing fixtures with construction budgets greater than $0.5M must reduce potable water consumption by a minimum of 30% compared to the baseline criteria referenced in LEED-NC 2.2 /WE Credit 3.2 or by a minimum of 20% if waterless urinals are not approved by the NYC Department of Buildings.

1.2 NYC GREEN SCHOOLS RATING SYSTEM

The NYC Green Schools Rating System:

- Establishes sustainable building guidelines that allows projects to achieve sustainable standards equivalent to those established for a LEED-NC 2.2 certified or higher rating,
- Addresses specific sustainable issues in the design, construction and operation of New York City public school buildings.
- Reduces the cost and complexity of sustainability for schools.
- Incorporates the energy and water conservation requirements mandated by LL86/05.
- Includes betterment practices specific to schools and to NYC school construction and operation.

While LL86/05 requires that 50% of applicable projects apply for sustainable certification, the SCA and DOE plan to exceed the LL86/05 requirements by requiring certification under its system for all applicable projects.

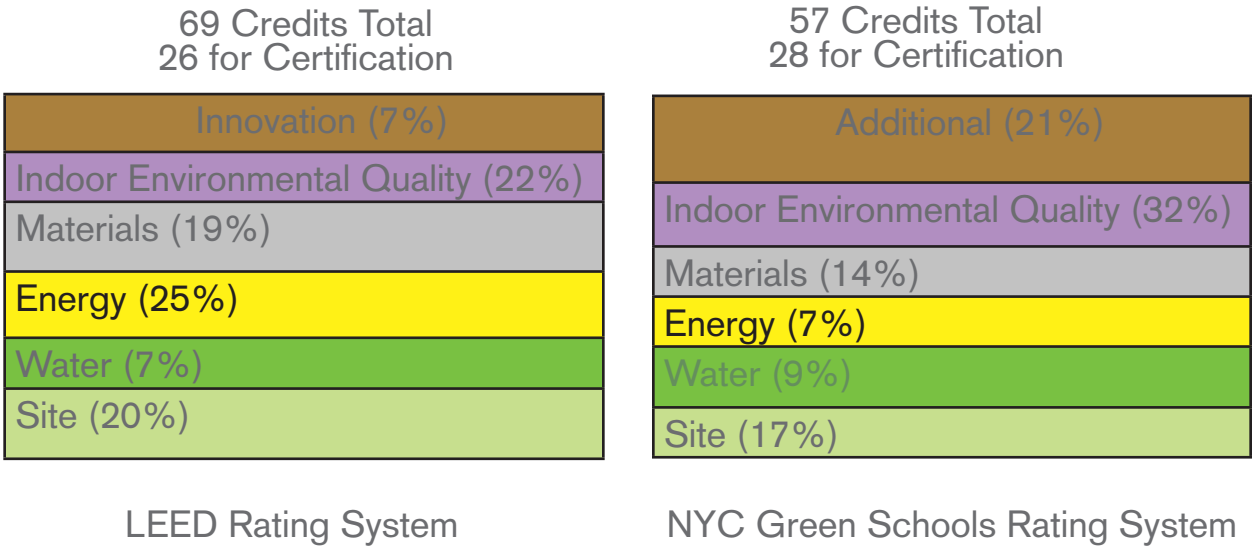
1.3 A LEED-BASED SYSTEM

The central reason the SCA and DOE have chosen to create a new sustainable rating system for New York City Schools is that the LEED rating system is not school specific; LEED was created by the USGBC to address a wide variety of building types including commercial, office, retail, institutional and residential. The USGBC is developing a LEED application guide for schools. However the completion schedule for that application guide did not meet the LL86/05 compliance schedule and that guide does not address specific issues related to New York City public schools.

The SCA believes that it will better serve the students, staff and general public by adopting sustainable standards specifically developed for NYC public school buildings. The rating system that the SCA and DOE have developed has been determined to be no less stringent than LEED New Construction, version 2.2, for the achievement of a LEED® Certified rating.

The SCA and DOE determined which LEED credits to incorporate or omit by following a detailed process of developing a compliant scope of work for each credit and estimating the cost of compliance for different sizes and types of schools. Credits were selected for inclusion in the NYC Green Schools Rating System based on appropriateness of each credit to be required as a standard for New York City public schools, cost considerations and environmental benefit. There is a focus in the Green Schools Rating System on indoor environmental quality, which includes approximately one – third of the credits.

An example of an omitted credit is the LEED prerequisite prohibiting smoking, which was omitted to reduce documentation and review of a requirement that is already mandated by local law.



1.4 REDUCING THE COST AND COMPLEXITY OF SUSTAINABILITY IN SCHOOLS

Because of the high volume of construction in a narrow programmatic building type, New York City public school design has historically been based on design standards. The SCA continues that approach by using standards that have been carefully researched and refined to provide well-planned, durable, cost-effective schools. The SCA standards cover all aspects of school design from architectural planning to specific MEP systems. These standards include Design Requirements, Standard Specifications, Standard Detail Drawings and Standard Room Layouts. It is important to the SCA's mission to standardize the approach to sustainability in order to contain costs, maintain aggressive project delivery schedules and to direct Design Teams in a systematic and efficient manner.

The SCA has developed revised standards that incorporate the requirements of the NYC Green Schools Rating System. Affected standards for each credit are referenced in this guide.

1.5 LL86/05 ENERGY AND WATER CONSERVATION COMPLIANCE

The SCA/DOE conducted extensive energy modeling and water use reduction calculations to explore cost – effective options for complying with the LL86/05 energy and water conservation requirements. A wide range of energy conservation measures were studied using prototypical school building models for each type of school building, from early childhood center through high school, and additions. Per LL86/05, this modeling was done using ASHRAE 90.1-1999, as referenced in LEED-NC 2.1. Modeling for each system evaluated was also conducted using ASHRAE 90.1-2004 with Appendix G, as required by the current version of LEED-NC 2.2. Parametric studies were done to confirm that results continued to apply as various site and design factors changed. The SCA selected standard energy conservation measures for schools is based on these prototypical modeling studies.

1.6 NYC GREEN SCHOOLS RATING SYSTEM - ENHANCEMENT CREDITS

During the process of developing the NYC Green Schools Rating System, each LEED credit was evaluated for applicability to New York City schools. Other state guidelines for sustainable schools were reviewed for best practices to be incorporated in the NYC Green Schools Rating System. Based on this "best practices" review, the SCA/DOE incorporated many prerequisites and credits from Collaborative for High Performing Schools (CHPS) rating systems. The SCA/DOE also referenced selected requirements from CHPS credits that were incorporated into LEED-based credits to make SCA credits more stringent or more appropriate for schools. One example is the inclusion of mold prevention measures into the LEED-based credit for indoor air quality during construction.

The SCA/DOE considered adopting NY-CHPS as a standard but chose not to do so for several reasons, including the fact that many credits as written did not apply to New York City requirements. The SCA/DOE determined that basing the system directly on LEED would facilitate demonstration of equivalency as required by LL86/05.

Other enhancement credits based on the SCA's experience with New York City public schools are also included in the rating system.

1.7 NYC GREEN SCHOOLS RATING SYSTEM – REQUIRED CREDITS

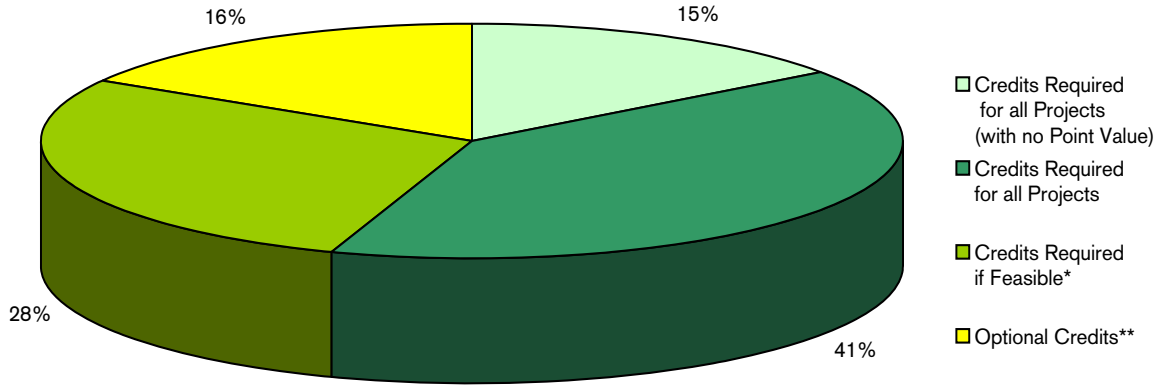
The NYC Green Schools Rating System has more requirements and fewer options than LEED. It includes credits based on 6 of the 7 LEED prerequisites and 47 of the 69 LEED credits. In addition to reducing the number of credits, the NYC Green Schools Rating System has created a more directed system by instituting "required credits." In LEED and CHPS, the only required credits are prerequisites, whereas in this rating system all credits (except the 11 optional credits) are required, if they are possible given the contstraints of a specific project. Credits based on LEED and CHPS prerequisites have no point value in the NYC Green Schools Rating System to make the system easily comparable to other rating systems.

The SCA/DOE rating system makes a distinction between two types of required credits:

"Required for all" credits must be achieved by all applicable projects. This category includes 25 LEED-based credits, though there may be an occasional project unable to comply with a "Required for All" LEED-based credit. All projects are required to achieve compliance on at least 26 of the LEED-based credits included in the NYC Green Schools Rating System to achieve system equivalency.

"Required if feasible" credits are credits that projects must comply with unless the Design Team provides an acceptable explanation of why that credit cannot be achieved and this is accepted and approved by the SCA. All projects are required to comply with these credits if possible, unless site constraints, programmatic requirements or extraordinary costs do not permit compliance. An example of a required if feasible credit is the LEED-based credit for Building Reuse. This credit would be pursued by modernization and renovation projects, but is not available to new building projects.

The SCA system also includes optional credits in the "Additional" credit section. These credits may only be pursued with SCA permission. These credits include items that the SCA/DOE felt had sustainable application to New York City Public Schools but which were not selected as standards for all schools at this time because of their cost or because more experience with operations and maintenance in schools would be required.



The SCA believes that the high level of required credits in this system will result in schools that provide greater environmental and health benefits for occupants and users, while maintaining a consistent design approach. Below is a summary of the types of credits and whether they are based on LEED credits.

SCA Rating System	Credits Required for all Projects (with no point Value)	Credits Required for all Projects (with point Value)	Credits Required if Feasible	Optional Credits (Require SCA permission)	Total Number of Available Credit Points
LEED-Based	4 NP*	25	14	8	47
Non-LEED-Based	6 NP	2	5	3	10
Totals	10 NP	27	19	11	57

* In addition to the credits indicated here, there are two LEED prerequisites incorporated into SCA credits with point value. Credits E1.1R and Q1.1R each incorporate a LEED prerequisite and a related LEED credit into one SCA credit. The total number of LEED prerequisites incorporated into the system is 6.

1.8 ABBREVIATION LIST

ACEEE	American Council for an Energy Efficient Economy
A/E	Architect/Engineer (typically A/E of Record)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BCC	Building Code Compliance
BMP	Best Management Practice
BMS	Building Management System
BPS	Best Practice Standards
CBECS	Commercial Buildings Energy Consumption Survey
CFC	Chlorofluorocarbons
CGP	Construction General Permit
CHPS	Collaborative for High Performing Schools
CI	Corporate Interiors (typically LEED-CI)
CID	Construction Inspection Division
CIR	Credit Interpretation Ruling (from USGBC)
CMU	Concrete Masonry Unit
CRI	Carpet and Rug Institute
CxA	Commissioning Agent
DEC	NYC Department of Environmental Conservation
DEP	NY State Department of Environmental Protection
DOE	NYC Department of Education
DOT	NYC Department of Transportation
DSF	Division of School Facilities
DSNY	NYC Department of Sanitation
EA	Effective Aperture
ECC	Early Childhood Center
ECM	Energy Conservation Measure (ECM)
EEM	Energy Efficiency Measure
ETV	Environmental Technology Verification
FEMA	Federal Emergency Management Agency
F&E	Furniture and Equipment (typically SCA/F&E Unit)
FID	Facilities Inspection Division (refer to BCC & CID)
FIRM	Flood Insurance Rate Maps
FMSI	Facilities Management System Integrator
FSC	Forestry Stewardship Council
GBCI	Green Building Certification Institute
HCFC	Hydrochlorofluorocarbons
HEPA	High – Efficiency Particulate Arresto
HID	High-Intensity Discharge
HS	High School
HVAC	Heating, Ventilating and Air Conditioning

IEH	Industrial and Environmental Hygiene
IES	Illuminating Engineering Society
IESNA	Illuminating Engineering Society of North America
IEQ	Indoor Environmental Quality
IIC	Impact Insulation Class
IPMVP	International Performance Measurement & Verification Protocol
IS	Intermediate School
LEED	Leadership in Energy and Environmental Design
LPD	Lighting Power Density
MEP	Mechanical, Electrical, Plumbing
MERV	Minimum Efficiency Reporting Value
NC	New Construction (typically LEED-NC)
NP-DES	National Pollutant Discharge Elimination System
NRC	Noise Reduction Coefficient
NYSECCC	New York State Energy Conservation and Construction Code
PS	Primary School
QA/QC	Quality Assurance/Quality Control (typically SCA QA/QC Department)
RH	Relative Humidity
RTU	Roof top units
SAA	Sound Absorption Average
SCA	NYC School Construction Authority
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPOT	Sensor Placement + Optimization Tool
SPDES	State Pollutant Discharge Elimination System
SRI	Solar Reflectance Index
STC	Sound Transmission Class
SWPP	Stormwater Pollution Prevention
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USG	United States Gypsum
USGBC	United States Green Building Council
VCT	Vinyl Compositional Tile
VOC	Volatile Organic Compounds
VT	Visible Transmittance
WWR	Window to Wall Ratio

USER GUIDE

The SCA/DOE compliance process is similar to the LEED certification process but requires compliance verification earlier during the design phase. The SCA/DOE compliance process is less complex for Design Teams and Contractors than LEED certification review because complying systems have been reviewed and incorporated into the SCA design standards.

SCA Compliance Review will be administered by trained SCA Architecture and Engineering (A&E) Department reviewers and SCA/DOE commissioning agents who will monitor design and construction compliance and review certificates prepared by the A/E of Record during the design and construction phases and by the General Contractor during the construction phase.

Design Teams should note that this rating system, unlike LEED, is not competitive. Projects must pursue all required and feasible credits. There is no incentive or differentiation in ratings for schools achieving more points because the number of points achieved will typically be based only on the circumstances of site and scope.

2.1 DESIGN PHASE CERTIFICATION PROCESS

The A/E of Record will follow the requirements in this guide to develop sustainable school designs compliant with the NYC Green Schools Rating System. SCA compliance reviews during the design phase of the project are conducted by a trained group of SCA A&E reviewers. The SCA/DOE Commissioning Unit must provide their concurrence with SCA A&E that the 100% sustainable design report meets the required criteria based on their review of the documentation submitted and an audit of selected credits.

At the conclusion of the 100% Design Phase, the A/E of Record will prepare a Sustainable Design Compliance Certification package. This package is provided to the SCA Building Code Compliance (BCC) division as documentation of design compliance with LL86/05.

The steps in the SCA/DOE sustainable design compliance process include:

- Pre-Schematic – Development of site selection credit documentation.
- Schematic Design –Submission of project checklist and compliance narratives and documentation for site selection credits.
- Design Development – Submission of sustainable design report including credit compliance narratives.
- 60% Design – Submission of sustainable design report including design phase credit calculations and forms.
- 100% Construction Documents – Submission of final sustainable design report including Design Compliance Certification.

The procedures for the sustainable certification process during the construction and post – occupancy phases are elaborated in section 2.2. Note that the commissioning process takes place throughout the project design and construction.

SUSTAINABLE DESIGN PROCEDURES

FEASIBILITY STUDY PHASE

Site feasibility studies are often prepared by designers who are independent of the school Design Team ultimately selected to execute the project. Designers assigned to prepare Feasibility Studies must investigate documentation of sustainable site information as described in the SCA Design Requirement for the scope of feasibility studies. The SCA may choose on a case-by-case basis to require testing to determine viability of sustainable measures such as geothermal wells or on-site stormwater disposal.

PRE-SCHEMATIC DESIGN

1. The Design Team is required to familiarize themselves with the NYC Green Schools Guide and Project Checklist and the LL86/05 Reporting Form.
2. Pre-schematic conceptual design options should consider sustainable measures that are attainable for the site and building appropriate to this level of design, especially as they relate to selected site credits.
3. No submittal is required at this phase.

SCHEMATIC DESIGN

Include the following in the Sustainable Design Report:

1. Submit NYC Green Schools Rating System Project Checklist with proposed credits indicated.
2. Submit Credit Compliance Narratives and documentation for the site credits related to site selection (identified in credit submittals). Information may be drawn from the project feasibility study.
3. If the SCA has provided permission/direction to pursue credits from the Additional Credits section, submit a cost analysis for NYC Green Schools Rating System Additional Credit cost allocation, when applicable.
4. Submit items 1-5 and 7-9 of LL86/05 Reporting Form – Project Data.

DESIGN DEVELOPMENT

Include the following in the Sustainable Design Report:

1. Submit updated Project Checklist – explain any changes.
2. Submit a Credit Compliance Narrative for each credit (except the site selection credits previously documented unless they have changed). Each narrative should describe the approach to pursuing the credit, compliance methodology, SCA specification sections and standard details that will be included in the construction documents to achieve compliance. Include an explanation of each credit that is determined to be not feasible for this project. In occasional cases where it is determined that any of the required 25 LEED- based credits cannot be achieved, the Design Team must identify an alternate “Required If Feasible” LEED-based credit.
3. Submit the Project Commissioning Plan and Commissioning Matrix modified to apply to this project.
4. Submit a cost analysis for NYC Green Schools Rating System Additional Credit cost allocation when applicable.

60% CONSTRUCTION DOCUMENTS

Construction documents submitted with this submittal must incorporate sustainable requirements.
Include the following in the Sustainable Design Report:

1. Submit updated Project Checklist – explain any changes.
2. Submit any revised Credit Compliance Narratives, as required.

3. Submit calculations, design studies, forms and other required credit documentation for all design phase credits (except for site selection credits previously documented).
4. Submit a cost analysis for NYC Green Schools Rating System Additional Credit cost allocation when applicable.
5. Provide documentation on any changes in the SCA/DOE's project requirements.

100% CONSTRUCTION DOCUMENTS

Construction documents submitted with this submittal must incorporate sustainable requirements. Include the following in the Final Sustainable Design Report:
1. Submit final Project Checklist.
2. Submit any revised Credit Compliance Narratives, as required.
3. Submit Design Compliance Certificates signed by architect and engineer of record.
4. Submit a cost analysis for NYC Green Schools Rating System Additional Credit cost allocation.
5. Provide documentation on any changes in the SCA's project requirements.
6. Submit LL86/05 Reporting Form – Design Data with supporting documentation.

Submit Design Compliance Certificate Package to BCC following completion of SCA Architecture and Engineering review of the above. Include Project Checklist, Credit Compliance Narratives and Design Compliance Certificates.

2.2 CONSTRUCTION PHASE CERTIFICATION PROCESS

Compliance reviews during the construction period will be by the Commissioning Unit. After the completion of the review process, the Commissioning Unit/SCA BCC will verify that the project complies with the NYC Green Schools Rating System and the requirements of LL86/05.

CONSTRUCTION PHASE

1. Review construction submittals for compliance with specified sustainable requirements. For substitutions, indicate that the item meets or exceeds the sustainable standards specified.
2. Submit LL86/05 Reporting Form – Construction Data at the completion of construction.
3. Review Contractor's compliance certificate and supporting documentation per NYC Green Schools Guide and specified requirements.
4. Submit Construction Compliance Certificate signed by Architect. Submit with supporting documentation to SCA/DOE Commissioning Agent at the completion of construction.

POST-CONSTRUCTION PHASE

Submit LL86/05 Reporting Form-Post Occupancy after determination of project meeting requirements. Please refer to the Compliance Certification Process diagram at end of this section.

2.3 COMMISSIONING

While LEED credits require commissioning of a minimum set of systems, the SCA and DOE have determined to conduct whole building commissioning in accordance with the SCA/DOE Commissioning Plan. Commissioning will be conducted by a joint commissioning group made up of trained staff from the SCA QualityAssurance/Quality Control Group and staff from the DOE Division of School Facilities (DSF). The commissioning process will be monitored by the designated project commissioning agent (CxA) from this group. A description of the commissioning process and a copy of the project specific Commissioning Plan and Commissioning Matrix will be incorporated in the construction contract documents, along with commissioning requirements in the applicable specifications sections.

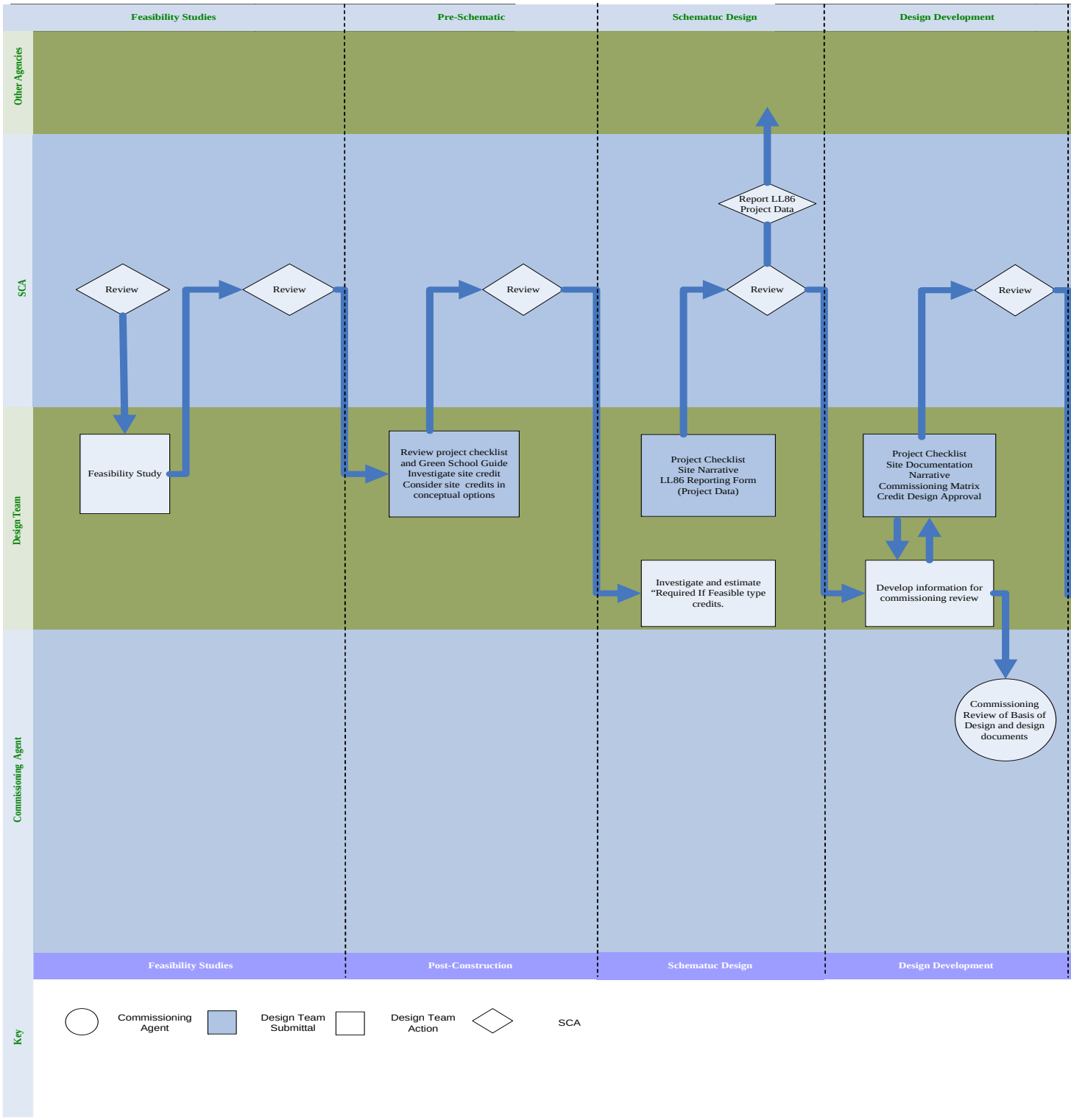
The Commissioning Unit is also responsible for reviewing sustainable compliance during construction. This group will perform verification audits to insure that any substitutions are in compliance with the SCA Green Schools Guide requirements for sustainability.

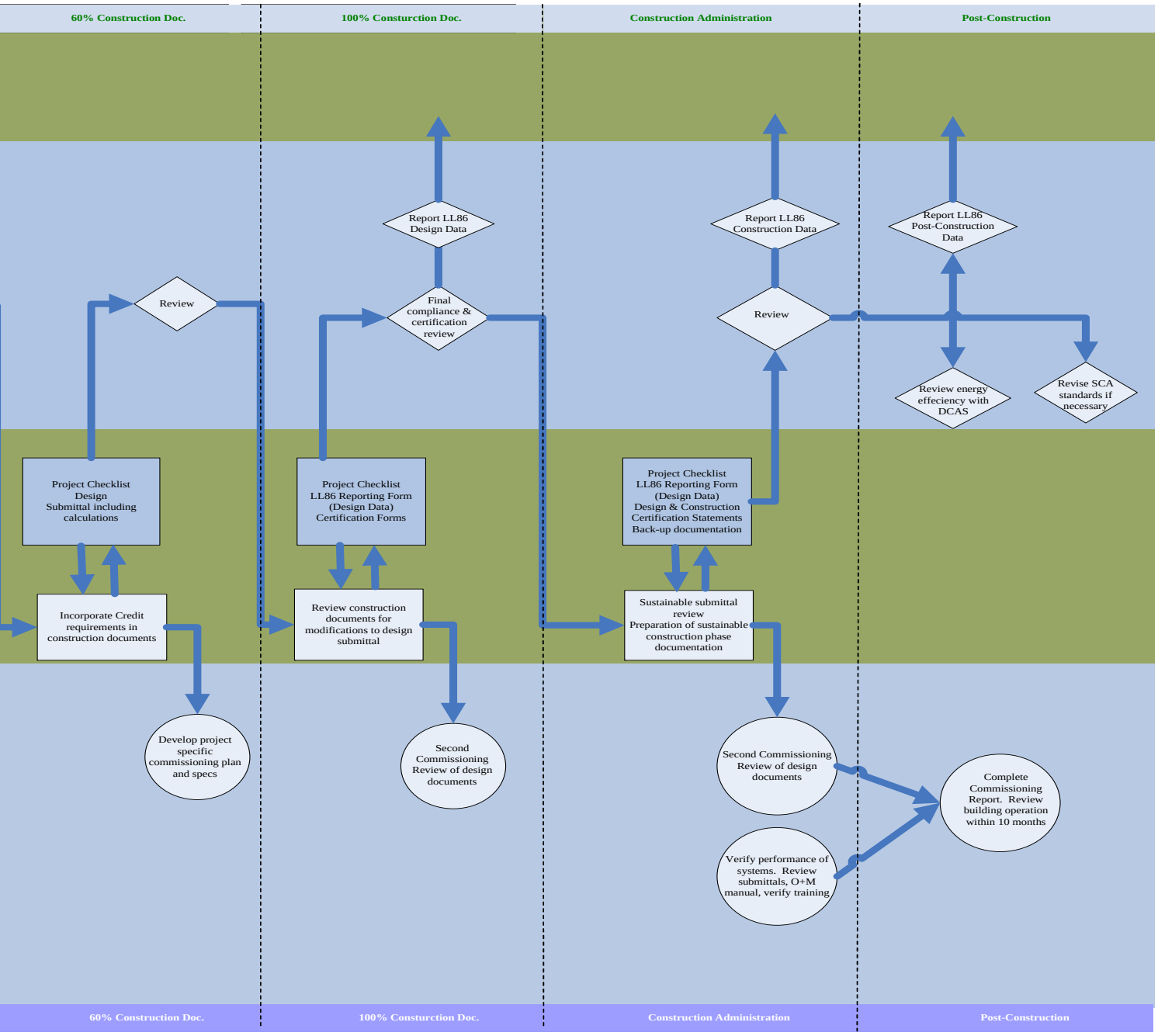
At the completion of construction, the SCA/DOE commissioning unit will review the Construction Phase Compliance Certification Package for compliance and audit a selection of credits to confirm compliance.

2.4 THIRD-PARTY AUDIT OF PROJECTS

At the end of each fiscal year, the SCA will provide The Office of Environmental Coordination (OEC) with a list of new construction, addition and substantial reconstruction projects completed during that fiscal year. The OEC will select 10% of these projects to receive a third-party certification audit. The purpose of the verification is to review a sample of projects for compliance with the requirements of the NYC Green Schools Rating System. Where possible, the audit sample will be representative of SCA's distribution of project types (new construction of small schools and large schools, as well as rehabilitation projects). The third-party auditor will be under contract to the Office of Environmental Coordination.

NYC GREEN SCHOOLS RATING SYSTEM
CERTIFICATION PROCESS DIAGRAM




60% Construction Doc.
100% Consturction Doc.
Construction Administration
Post-Construction
Review
Project Checklist
Design
Submittal including
calculations
Incorporate Credit
requirements in
construction documents
Develop project
specific
commissioning plan
and specs
Report LL86
Design Data
Final
compliance &
certification
review
Project Checklist
LL86 Reporting Form
(Design Data)
Certification Forms
Review construction
documents for
modifications to design
submittal
Second
Commissioning
Review of design
documents
Report LL86
Construction Data
Review
Project Checklist
LL86 Reporting Form
(Design Data)
Design & Construction
Certification Statements
Back-up documentation
Sustainable submittal
review
Preparation of sustainable
construction phase
documentation
Second Commissioning
Review of design
documents
Verify performance of
systems. Review
submittals, O+M
manual, verify training
Report LL86
Post-Construction
Data
Review energy
effeciency with
DCAS
Revise SCA
standards if
necessary
Complete
Commissioning
Report. Review
building operation
within 10 months
60% Construction Doc.
100% Consturction Doc.
Construction Administration
Post-Construction

LL86/05 CO
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EPORTING

3.0 LL86/05 COMPLIANCE AND REPORTING

3.1 LEED COMPLIANCE OR EQUIVALENCY

LL 86/05 states that alternative green building standards, no less stringent than LEED-NC, may be used with Mayoral approval. Following extensive study and preparation of the NYC Green Schools Guide, SCA/DOE prepared an Equivalency Report and Equivalency Analysis documentation to demonstrate to the Mayor's Office that the NYC Green Schools Rating System develops schools that achieve sustainable standards equivalent to, or more stringent than, LEED-NC certification. The NYC Mayor's Office of Environmental Coordination has issued findings demonstrating that this rating system developed by the SCA/DOE is no less stringent than LEED standards for certification.

Note that alternative compliance measures are not permitted for other LL86/05 mandates regarding energy and water reduction requirements.

3.2 LEED-NC VERSION 2.1 ENERGY COST REDUCTION MODELING

LL 86/05, as initially enacted, makes specific reference to, and requires compliance with, LEED-NC version 2.1 Energy & Atmosphere credits, which address ASHRAE 90.1-1999 as a reference standard for measuring energy efficiency or the latest New York State Energy Code. The prototypical modeling conducted by the SCA in developing this guide showed that schools would meet and in some cases surpass the energy cost reduction requirements of LL86/05 using a standardized combination of energy conservation measures developed by the SCA. Upon passage of the latest NYS-ECCC, further prototypical modeling was performed. Atypical schools will require project specific demonstration of energy cost reduction using NYS-ECCC methodology referencing ASHRAE 90.1-2004, per LL86/05.

3.3 LEED-NC VERSION 2.2 ENERGY COST REDUCTION MODELING

The USGBC has updated the LEED-NC rating system and issued LEED-NC version 2.2. LEED 2.2 Energy and Atmosphere credits reference an updated ASHRAE standard – ASHRAE 90.1 – 2004 and Appendix G thereof. The energy performance levels prescribed by LEED 2.2 (ASHRAE 90.1-2004 and Appendix G) are more stringent than the 1999 version.

The NYC Green Schools Rating System energy credits reference the same 2004 ASHRAE standard as the current version of LEED. The SCA has conducted prototypical modeling to demonstrate compliance of typical schools with this standard and SCA credit E 3.1R. Atypical schools must demonstrate compliance on a project specific basis.

Energy cost reduction credit points (SCA credits A3.1 through A3.4) cannot be achieved using prototypical modeling; these credits require project specific documentation and SCA direction/permission to pursue. Projects that conduct project specific modeling must do so using both ASHRAE 90.-1999 to demonstrate LL86/05 compliance and ASHRAE 90.1-2004 to achieve energy cost reduction credit points.

3.4 LL 86/05 ANNUAL REPORTING REQUIREMENTS

LL86/05 PROJECT REPORTING

Reporting forms for each capital project must be completed and submitted in accordance with guidelines issued by the Mayor's Office of Operations. The A/E of Record will prepare these forms for Design and Construction at the completion of schematic design and 100% construction documents and at the completion of construction. The SCA will forward the data to the Mayor's Office of Environmental Coordination. SCA will complete the LL86/05-Post Occupancy form after final certification

ENERGY CONSERVATION REPORTING

In place of project specific energy modeling for each new project, the SCA has developed standardized energy system prototypes as model systems for schools. The prototype 'standard systems' have been predetermined to be compliant with LL86/05 energy cost reduction mandates through energy modeling studies. Prototype systems were developed through energy modeling for typical school buildings and scaled in the modeling exercise to equate with the size and energy requirements of other typical school buildings – high schools, primary schools, early childhood centers, additions and modernizations.

It is intended that Design Teams utilize the scaled results of the energy modeling study as the reporting basis for each typical school building type – early childhood centers, primary schools, intermediate schools, high schools, modernizations and additions. This approach is viable because of the standardization in school programs, design requirements, specifications, details and building systems. This time and cost-effective approach allows the SCA to meet its Capital Plan commitment goals and comply with LL86/05 requirements.

3.5 UPDATING THE GREEN SCHOOLS GUIDE

REGULATORY CHANGES

When there are modifications or revisions to the New York City Building Code, New York State Energy Conservation Construction Code, ASHRAE standards, Local Law 86 and/or the rules governing green building standards the SCA will revise its energy models, the NYC Green School Rating System, the NYC Green Schools Guide and other related SCA design standards and guidelines, as appropriate, to reflect regulatory changes. The SCA will provide the Office of Environmental Coordination (OEC) with a written explanation of all regulatory changes and the updates made and provide a copy of the updated documents. In the event that the SCA determines that a regulatory change does not impact the NYC Green Schools Guide, SCA will provide OEC with a written explanation of this determination.

UTILITY RATE CHANGES

As the utility rates paid by Department of Citywide Adminstrative Services (DCAS) for schools change, the SCA will assess the impact of such rate changes on the energy modeling and determine whether energy efficiency measures need to be revised to comply with LL86/05. If energy efficiency measures are required to be revised, the SCA will provide the Office of Environmental Coordination (OEC) with a copy of the updated energy report and revisions to the applicable portions of the NYC Green Schools Guide. In the event the SCA determines that the rate changes do not impact the NYC Green Schools Guide and compliance with LL86/05, the SCA will provide OEC with a written explanation of this determination.

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SITE

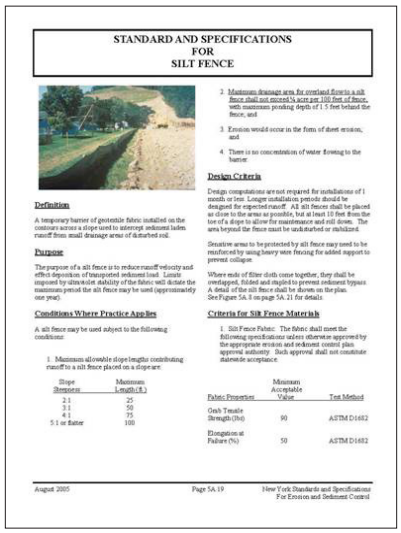
Designers can improve the interaction between buildings and their surroundings by taking advantage of site conditions and by reducing negative impacts of the built environment on the site and surroundings.

The credits in this section address site selection, massing and orientation of buildings, conservation of natural resources, and reduction of building impacts. Prudent site selection is essential for utilizing existing infrastructure, promoting appropriate density in urban development and protecting environmentally sensitive areas such as wetlands and flood prone areas. Massing and orientation of buildings impact daylighting opportunities, provide protection from wind and weather conditions and can help conserve land and protected habitats. The impact of school buildings on their environment can be mitigated by locating schools near public transportation, reducing stormwater runoff, controlling exterior light pollution, reducing heat island effects and limiting construction related pollution.

One of the greatest challenges in building new schools in New York City is finding appropriate sites. The SCA site selection process includes the consideration of available properties that are within the geographical and jurisdictional area of need, which meet the minimum size requirement for the targeted project.

All Design Teams need to evaluate the advantages and disadvantages of the selected site and design schools to respond to the selected sites in a sustainable way.

INTENT	REQUIREMENTS	
Reduce pollution from consutruction activities by controlling soil erosion, waterway sedimendation and airborne dust generation. This credit is required for all projects.	Create and implement an Erosion and Sedimentation Control Plan, including a narrative and drawing, for all construction acitivities associated with the project. LEED requires that the plan conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit (CGP) or Local Standards and Codes, whichever is more stringent. The plan shall describe the measures implemented to accomplish the following objectives: 1. Prevent loss of soil during construction by stormwater runoff and/ or wind erosion, including protecting topsoil by stockpiling for reuse. 2. Prevent sedimentation of stormwater or recieving streams. 3. Prevent polluting the air with dust and particulate matter.	The EPA CGP outlines the provisions necessary to comply with Phase I and Phase II of the National Pollutant Discharge Elimination System (NDPES) program. While the EPA CGP only applies to construction sites greater then one acre, these requirements apply to all project for the purposes of this credit. For projects over one acre and that discharge into a separate storm system or recieving stream ,thus requireing a full Stormwater Pollution Prevention Plan (SWPP), the Design Team must develop the Erosion and Sedimentation Control Plan. For smaller projects and those that discharge into a combined sewer, the Erosion and Sedimentation Control Plan will be completed by the Contractor per the Project Specifications.



STANDARD AND SPECIFICATIONS
FOR
SILT FENCE

Definition

A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence placed on a slope are:

Slope Steepness	Maximum Length (ft.)
2:1	25
3:1	50
4:1	75
5:1 or flatter	100

2. Maximum drainage area for overland flow to a silt fence shall not exceed ¼ acre per 100 feet of fence, with maximum ponding depth of 1.5 feet behind the fence; and

3. Erosion would occur in the form of sheet erosion; and

4. There is no concentration of water flowing to the barrier.

Design Criteria

Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff. All silt fences shall be placed as close to the areas as possible, but at least 10 feet from the toe of a slope to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.

Sensitive areas to be protected by silt fence may need to be reinforced by using heavy wire fencing for added support to prevent collapse.

Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. A detail of the silt fence shall be drawn on the plan. See Figure 5A.8 on page 5A.21 for details.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682

August 2005 Page 5A.19 New York Standards and Specifications For Erosion and Sediment Control

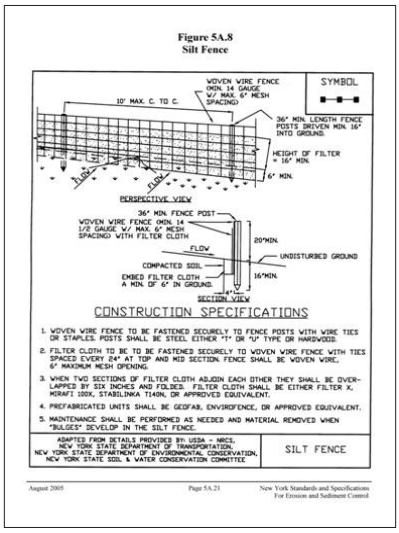


Figure 5A.8
Silt Fence

NYS DEC Standards and Specifications for Erosion and Sediment Control
Temporary Structural Measures

BEST PRACTICES AND IMPLEMENTATION	CREDIT SUBMITTALS	REFERENCES
The SCA specifications Section 02200 details these requirements and related submittals. The specification references the New York State Discharge Pollution Elimination System (NY-SPDES), which has been approved by the United States Environmental Protection Agency for the control of wastewater and stormwater discharges in accordance with the Clean Water Act, but is broader in scope that act because it controls point source discharges to groundwater as well as surface waters. An Erosion and Sedimentation Control Plan should include appropriate strategies such as temporary and permanent seeding, mulching, earth dikes, slit fencing, sediment traps, sediment basins, temporary gravel at construction site entrance, temporary block inlet protection, surface roughening, and surface stabilization, tree preservation and protection, land grading and dust control. For interior projects without excavation, document should include a requirement for contractor to provide a dust control plan.	**SCHEMATIC DESIGN** No Credit Submittal. **DESIGN DEVELOPMENT** ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY • Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. Indicate whether the Design Team will develop the Erosion and Sedimentation Control Plan. **60% CONSTRUCTION DOCUMENTS** ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY • Submit appropriate specification section modified for project. • Submit the Erosion and Sedimentation Control Plan for projects where this document is to be developed by the Design Team. **100% CONSTRUCTION DOCUMENTS** ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY • For projects where the Design Team has developed the Erosion and Sedimentation Control Plan, submit Certification Form and updated narrative as necessary. **CONSTRUCTION** CONTRACTOR'S RESPONSIBILITY Per the Project Specifications: • For projects not required to comply with SPDES, submit an Erosion and Sedimentation Control Plan drawing and narrative or dust control plan if interior project only. • Submit Contractor's Certification Form. CONTRACTOR'S RESPONSIBILITY • Review Contractor's submittal for compliance.	LEED-NC Credit SS Pr1 Construction Activity Pollution Prevention **SCA DESIGN REQUIREMENTS** None **SCA STANDARD SPECIFICATIONS** S01900 Existing Premises Work 02200 Earthwork **SCA STANDARD DETAILS** None **OTHER REFERENCES** NYS DEC Standards and Specifications for Erosion and Sediment Control Temporary Structural Measures: http://www.dec.ny.gov/chemical/29066.html NYS DEC SPDES General Permit For Construction Activity: http://www.dec.ny.gov/permits/6054.html NYS DEC Sample Erosion and Sediment Control Plan: http://www.dec.ny.gov/docs/water_pdf/appendixf1.pdf NPDES EPA Construction General Permit: http://cfpub.epa.gov/npdes/stormwater/cgp.cfm

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Avoid the selection and development of inappropriate sites, and/or portions of sites, and reduce the environmental impact of locating the building on a site. This credit is required for all projects.	Do not develop buildings, hardscape, roads or parking areas on portions of the site that meet any of the following criteria: 1. Previously undeveloped land whose elevation is lower than five feet above the elevation of the 100-year flood as defined by the Federal Emergency Management Agency. 2. Land that is specifically identified as habitat for any species on Federal or State threatened or endangered species lists. 3. Land within 100 feet of any wetlands as defined by United States Code of Federal Regulations 40 CFR, Parts 2130-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, OR within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is more stringent. 4. Previously undeveloped land that is within 50 feet of a water body, defined as seas, lakes, rivers, streams and tributaries that support or could support fish, recreation or industrial use, consistent with the terminology of the Clean Water Act. 5. Land that prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public landowner.	The SCA Design Requirement for Site feasibility study report includes investigation of this credit. Potential school project sites are identified with the input of the NYC Department of Education, the SCA and other parties. Feasibility studies are often conducted by a different entity than the school Design Teams. To ensure that sustainable site issues are considered, the SCA Design Requirement outlining the scope of services for feasibility studies requires investigation of the items listed in this credit. In cases where a feasibility study has been completed, the Design Team may find useful information for documenting this credit in the feasibility study. The SCA Design Requirement 1.1.3.1 (Feasibility Study) includes requirements for this credit.

CREDIT SUBMI TTALS

Schematic design

ARCHITECT'S RESPONSIBILITY

Submit a narrative summarizing compliance with each of the site selection criteria utilizing the numbering under requirements:

- Include information demonstrating whether site was previously developed.
- For previously undeveloped land, submit a site plan indicating elevations in relation to the 100-year flood.
- Submit US Fish and Wildlife Service listing of endangered species for the county. Provide site specific documentation if site is adjacent to a river or coastline, or if list includes species besides shortnose sturgeon, piping plover, roseate tern and sea beach amaranth. Submit site specific documentation from the New York Natural Heritage Program on whether site is the habitat for threatened or endangered species.
- Submit documentation of proximity to wetlands . Include annotated plan if site is within state or local setback distances.
- For previously undeveloped land, submit documentation of proximity to bodies of water. Include annotated plan if site is within 50 feet of a water body.
- If project is on public parkland, indicate if land of equal or greater value was accepted in trade by landowner.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit the Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit SS 1
Site Selection

SCA DESIGN REQUIREMENTS

1.1.3.1 Feasibility Study

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

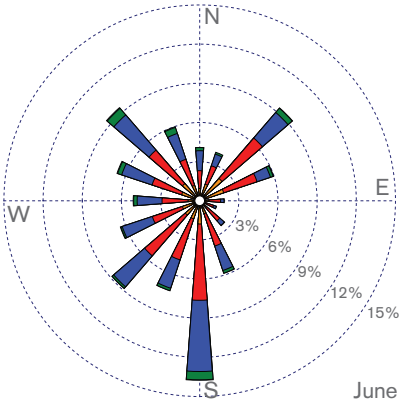
FEMA flood insurance rate maps:
http://msc.fema.gov

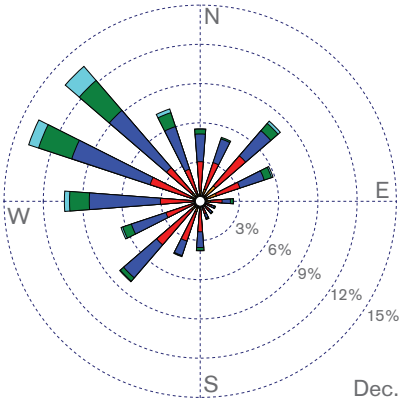
New York Natural Heritage Program
625 Broadway, 5th Floor
Albany, NY 12233-4757
Phone: (518) 402-8935
http://www.dec.ny.gov/animals/29338.html

US Fish and Wildlife Service
Islip Field Office
Phone: (631)776-1401
http://www.fws.gov/northeast/nyfo/es/section7.htm (see county list of endangered species)

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Encourage the analysis of sustainable design factors in the pre-design phase. A thorough site analysis allows designers to make informed design decisions and to take full advantage of solar orientation, prevailing wind direction, topography and landscape. This credit is required, if feasible, for all projects.	Implement no fewer than three of the following sustainable site analyses: 1. Orient and compose the building to take advantage of natural daylighting. 2. Plot shadow patterns from surrounding buildings onto project site to optimize access to daylight. 3. Plot shadow patterns from proposed building(s)/addition on adjacent properties and buildings and consider design options to address impact as necessary. 4. Consider prevailing winds when determining the site and building layout. 5. Take advantage of existing adjacent building and natural land formations and vegetation to provide shelter from extreme weather or to deflect unwanted noise. 6. Design landscaping to mitigate solar gain and winter winds. 7. Identify locations on the roof(s) for potential renewable energy generation.	When sections of the building can be oriented along the east-west axis, the buildings can take advantage of natural daylighting and reduced glare conditions. This can reduce electrical lighting and resultant energy consumption. By charting shadows on the site at equinox and solstice, the building can be positioned to improve opportunities for natural daylighting and to reduce shading on adjacent properties. A reproduction of sun angle data for New York City's latitude and longitude is provided here for reference. In New York City, prevailing winds generally come from the northwest between October and April and from the south/southwest between May and September. The shape of the building or addition can create wind-sheltered spaces. When considering site placement of bus parking, avoid layouts where prevailing winds would blow exhaust into the school air intakes. Plantings can be used to control light and wind. Plant or protect existing deciduous trees to block summer sun and allow winter solar gain. Plant or protect existing coniferous trees to block winter wind. Planting should be done an adequate distance from the building to prevent moisture retention near the building envelope. In the future, harvesting renewable energy may become cost effective and roofs could be designed to accommodate renewable energy sources such as photovoltaics and solar domestic hot water. Potential positions for photovoltaic panels should not

Windrose Data for New York City





Wind velocity (m/s)
Source: USDA, National Resources Conservation Service 1961-1990

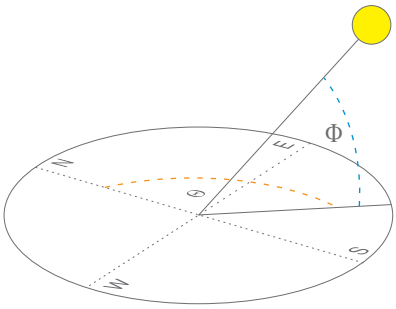
CREDIT SUBMI TTALS

REFERENCES

be shaded and should be oriented to maximize solar energy collection.

The intent of this last requirement is to identify potential sites for renewable measures but not to modify building infrastructure.

Solar Angle Data for New York City



Date	Altitude (Φ)	Azimuth (Θ)
Jun 21		
9:00	49.2°	101.2°
12:00	72.7°	182.0°
3:00	48.2°	259.9°
Sep 21		
9:00	34.7°	125.3°
12:00	49.8°	184.4°
3:00	31.0°	239.8°
Dec 21		
9:00	14.3°	139.4°
12:00	25.8°	181.6°
3:00	12.7°	223.0°

Source: U.S. Naval Observatory, Astronomical Applications Department 2006

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

- Submit a narrative summary describing which sustainable analyses are to be carried out.

Submit annotated site plans and sections demonstrating three of the following utilizing the numbering under requirements:

- The project is designed to take advantage of natural daylighting.
- The design maximizes opportunities for natural daylighting and minimizes impact on adjacent properties. Provide shadow plots for the site and surrounding buildings for the following times: 9 AM, 12 PM and 3 PM on the 21st of June, September and December.
- The project is designed to accommodate prevailing winds.
- The project uses natural features, and/or adjacent buildings, to provide shelter from extreme weather or deflect unwanted noise.
- The intended or existing plantings increase shade in the summer and allow solar gain in the winter.
- The project includes locations for potential on-site renewable energy generation sources.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

Submit updated documentation as necessary.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

NY CHPS Version 1.0 1.1.7
Sustainable Site & Building Layout

SCA DESIGN REQUIREMENTS

1.1.3.1 Feasibility Study
1.3.1.1 Building Location and Orientation
1.3.4.1 Entrances and Exits
2.5.1 Trees, Shrubs, Ground Cover and Lawns

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

Wind roses for New York City:
ftp://ftp.wcc.nrcs.usda.gov/downloads/climate/windrose/new_york/new_york/

General wind data for New York City:
http://www.weather.gov/forecasts/graphical/sectors/newyork.php

Sun angle data:
http://www.usno.navy.mil/USNO/astronomical-applications/data-services/rs-one-day-us

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Channel development to urban areas with existing infrastructure, protect green fields and preserve habitat and natural resources. This credit is required, if feasible, for all projects.	Confirm that the project site meets the desired level of community connectivity and development density using one of the following two methods: Option 1 – Community Connectivity Construct or renovate building on a previously developed site that is within a half mile of a residential zone neighborhood with an average density of 10 dwelling units per acre AND within a half mile radius of at least 10 Basic Services AND with pedestrian access between the building and the services. Basic Services include, but are not limited to: 1) Bank; 2) Place of Worship; 3) Convenience Grocery; 4) Day Care; 5) Cleaners; 6) Fire Station; 7) Beauty; 8) Hardware; 9) Laundry; 10) Library; 11) Medical/Dental; 12) Senior Care Facility; 13) Park; 14) Pharmacy; 15) Post Office; 16) Restaurant; 17) Another School or University; 18) Supermarket; 19) Theater; 20) Community Center; 21) Fitness Center; 22) Museum. 23) Commercial Office Note that no services can be duplicated except restaurants, which can only be listed twice. OR Option 2 – Development Density Construct or renovate building on a previously developed site AND in a community with a minimum building density of 60,000 square feet of gross building area. per acre. (Note: density calculation must include the area of the project being built and is based on a typical two-story downtown development).	All projects should attempt to comply with the requirements of this credit first by using Option 1. If a project site cannot comply with Option 1, then Option 2 must be used. For some sites, compliance with the credit requirements will not be feasible based on the site. The SCA Design Requirement for feasibility studies describes investigation of the requirements for this credit. A suggested tool for documenting compliance with Option 1 above is to use “Make a Map” through myciti.org to help locate basic services around the proposed site. The oasisnyc.net website may also be used for Option 2 to determine lot area and built area for all lots within the prescribed area. After a map is provided, the “Select” and “Lot Info” tools can be used to query information on surrounding lots near the school. Consistent with USGBC Credit Interpretation Rulings, park land, bodies of water and single family homes may be excluded from development density calculations. Physical education spaces like athletic fields and playgrounds may be excluded from development density calculations as well.

CREDIT SUBMI TTALS

REFERENCES

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing which documentation method(s) were used and what the results were.

• Submit Development Density & Community Connectivity Form.

Along with the form, provide:

Option 1 – Community Connectivity

• Submit documentation that project is on a previously developed site that is within a half mile of a residential zone/ neighborhood with an average density of 10 dwelling units per acre.

• Submit a site plan showing a half mile radius, and locating basic services within that radius that have pedestrian access. Drawings, maps and aerial photos can all be used as a basis for plans as long as a scale is provided.

OR

Option 2 – Development Density

• Submit a site vicinity plan showing the project site and the surrounding sites and buildings. Draw the density boundary on the plan, note the drawing scale and assign sequential numbers to each lot within the boundary. Drawings, maps and aerial photos can all be used as a basis for plans as long as a scale is provided.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.

• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 Credit SS 2
Development Density & Community Connectivity

SCA DESIGN REQUIREMENTS

DR 1.1.3.1 Feasibility Study

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

For locating NYC community services:
NYC planning maps and data:
http://www.myciti.org/

For building density information:
http://www.oasisnyc.net/OASISMap.htm

For zoning information:
http://www.nyc.gov/html/dcp/html/zone/zh_zmaptable.shtml

For NYC census information:
http://gis.nyc.gov/dcp/pa/address.jsp

Area plan showing community services within 1/2 mile

myciti.org

Area plan for development density calculations

myciti.org

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
The most successful schools have a high level of parent and community involvement. This involvement can be enhanced if a school is designed so that neighborhood meetings, recreation activities, and other community functions can take place at the school in a safe and secure fashion. This credit is required for all projects.	Design appropriate entrances for community use of school facilities such as auditorium, gym, cafeterias, library, and select classrooms for meeting rooms. New York City Schools are used actively by the community. Public activities in New York City public schools include: after-school programs, voting, community meetings and provision of emergency services through a long-standing agreement with the Red Cross. Recreational areas and playgrounds are sometimes run as Jointly Operated Playgrounds with the NYC Department of Parks and Recreation.	The SCA Design Requirements are written to accommodate community use of school spaces such as auditoriums, gyms, cafeterias and libraries. Strategies that contribute to shared use of the school building include configuring entryways, lobbies and spaces for public use to allow for controlled or separate access of spaces likely to be used during and after school hours for community functions.

CREDIT SUBMITTALS

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit a copy of relevant plan areas annotated to indicate design features incorporated to accommodate community/public use of select places of assembly.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

NY CHPS Credit 1.1.2
Joint Use of Facilities

NY CHPS Credit 7.5.2
Community Access

SCA DESIGN REQUIREMENTS

1.3.1.1 Building Location and Orientation
1.3.5.1 Cafeteria PK-8 and HS

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Rehabilitate damaged site where development is complicated by environmental contamination, reducing pressure on undeveloped land. This credit is required, if feasible, for all projects.	Confirm project site is: defined as a Brownfield by a New York City, New York State, or federal government agency. OR documented as contaminated by means of ASTM E 1903-97 Phase II Environmental Site Assessment Reg. 40CFR Part 763 or a local Voluntary Cleanup Program (such as are sometimes undertaken on school projects under agreements with the New York City Department of Environmental Conservation). Consistent with USGBC Credit Interpretation Ruling for this credit (available on USGBC web site), contamination by asbestos is addressed by this credit if it is documented with one of the methods indicated above. Consistent with LEED, there is no minimum required amount of contamination required to achieve this credit. However, sites with only minimal amounts of contaminants should not pursue this credit.	Environmental site assessments are conducted through the SCA/IEH Unit and are typically completed prior to the start of schematic design. Brownfield and site contamination status documentation may be obtained through feasibility report, SCA/IEH Unit or SCA/IEH consultant. SCA school sites are remediated to a residential remediation standard per NYS DEC requirements. .

CREDIT SUBMITTALS

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

- Submit a narrative summarizing the site's contamination/Brownfield status. Indicate which entity has declared the site contaminated.
- Attach executive summary level findings on site contamination.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

Incorporate specifications and details by SCA IEH division into construction documents.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit SS 3
Brownfield Redevelopment

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

Project specific specifications prepared by SCA IEH division.

SCA STANDARD DETAILS

Project specific details prepared by SCA IEH division.

OTHER REFERENCES

Site cleanup strategies:
www.brownfieldstsc.org

US EPA Brownfield programs:
www.epa.gov/brownfields

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce pollution and land development impacts from automobile use. This credit is required, if feasible, for all projects.	Option 1: Confirm project site is within a half mile (2,640 feet) of an existing – or planned and funded – commuter rail, light rail or subway station. Distance must be calculated along pedestrian routes, not bird's eye distance. OR Option 2: Confirm project site is within one fourth mile (1,320 feet) of one or more stops for two or more public bus lines usable by building occupants. Distance must be calculated along pedestrian routes, not bird's eye distance.	Design Teams should review the project Feasibility Study for information relating to documenting this credit.

Project Vicinity Map Showing All Bus and Subway Stops Within 1/4 Mile of Site

Scale: 0' 200'

Bus stop · Subway Stop · Pedestrian Route

CREDIT SUBMITTALS	REFERENCES

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

- Submit a narrative describing whether this credit is feasible.
- Submit a scaled area plan and show all existing and proposed commuter rail, light rail or subway stations within a half mile walk of the site OR all existing bus stops within ¼ mile walk of the site. To indicate compliance, draw a line showing pedestrian path of travel from the site to each station/stop and indicate length of pedestrian path of travel in feet.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED NC 2.2 Credit SS 4.1
Alternate Transportation, Public Transportation Access

SCA DESIGN REQUIREMENTS

DR 1.1.3.1 Feasibility Study

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

Metropolitan Transportation Authority: http://www.mta.nyc.ny.us/

S2.2R ALTERNATIVE TRANSPORTATION, FUEL EFFICIENT VEHICLES/PARKING

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce pollution and land development impacts from automobile use. This credit is required for all projects.	Option 1: (Preferred option) Provide no new parking on site (excluding curb parking on public streets). In narrative describe why no new parking is to be provided. OR Option 2: For schools with on-site parking (excluding curb parking on public streets), designate 5% of parking spaces provided as preferred parking for alternative transportation vehicles. Preferred parking refers to the parking spots that are closest to the main entrance of the project (exclusive of spaces designated for handicapped). Alternative transportation vehicles include low emitting and fuel efficient vehicles and car pool vehicles. Low-emitting and fuel-efficient vehicles are defined as vehicles that are either classified as Zero Emission Vehicles (ZEV) by the California Air Resources Board or have achieved a minimum green score of 40 on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide.	NYC schools typically provide no parking except when mandated by the SEQRA Report. Students and teachers typically travel to school by public transportation or walk. For reference in documenting Option 2, Design Teams should review the project Feasibility Study.

CREDIT SUBMITTALS

REFERENCES

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

• Submit narrative indicating which credit requirement option is to be complied with. For Option 1, summarize why no parking is to be provided. For Option 2, indicate how preferred parking is to be accommodated.

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

For projects that will provide parking:

• Show the location(s) of the preferred parking spaces for alternative transportation vehicles.

• Indicate the number of parking spaces required for the project per local code or ordinance.

• Indicate the number of alternative transportation spaces that are provided on-site.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.

• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 Credit SS 4.3
Alternative Transportation Low Emitting & Fuel-Efficient Vehicles

LEED-NC 2.2 Credit SS 4.4
Alternative Transportation Parking Capacity

SCA DESIGN REQUIREMENTS

DR 1.1.3.1 Feasibility Study

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

S3.1 SITE DEVELOPMENT, PROTECT OR RESTORE HABITAT

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity. This credit is required, if feasible, for all projects.	On previously developed or graded sites, restore or protect a minimum of 50% of the site area (excluding the building footprint) with native or adapted vegetation. This credit should only be carried out on sites where there is no conflict between provision of outdoor student recreation space and the credit requirements. Projects earning credit S 1.4 (Development Density and Community Connectivity) may include vegetated roofing areas in the calculations for this credit. Note that vegetated roofing is not an SCA standard and can only be pursued with special direction from the SCA. (See credit A2.1- Option 2.) Where vegetated roofing is included in the calculations for this credit, site area must include the building footprint. This credit is certified in the construction phase so that the final quantity of site area restored is noted following construction activities.	Design Requirements relating to building siting incorporate the requirements of this credit. Specify native/adapted plants that require minimal or no irrigation following establishment. In consultation with the SCA, specify native/adapted plants that require minimal active maintenance by mowing or chemical inputs such as fertilizers, pesticides, herbicide and irrigation, and which provide habitat value and promote biodiversity through avoidance of monoculture plantings. Compliance with this credits requirements will not be feasible for some sites based on existing site conditions and programmatic need for recreational space.

CREDIT SUBMITTALS

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

- Submit a narrative describing whether this credit is feasible. For projects where the credit is feasible, provide SF calculations, indicate the design approach for credit compliance and identify the applicable SCA standards to be incorporated into design documents.
- For projects where credit is not feasible, include SF Calculations demonstrating that credit can't be met.

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a list, in square feet, of the site area, building footprint area and the area, if any, to be restored using native and/or adapted plantings.
- Submit an annotated, scaled site plan identifying graphically the areas listed above if credit is feasible.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

REFERENCES

LEED Credit NC 2.2 SS 5.1
Site Development, Protect or Restore Habitat

SCA DESIGN REQUIREMENTS

1.1.3.1 Feasibility Study
1.3.1.1 Building Layout and Orientation

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

North American Native Plant Society: www.nanps.org

Native plant directory: www.plantnative.org

Society for Ecological Restoration International: www.ser.org

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide a high percentage of open space, vegetated green with adapted or native plants or pedestrian - oriented hardscape. This credit is required, if feasible, for all projects.	For school sites with no zoning-mandated open space requirements, provide vegetated open space equal to at least 20% of the project's site area excluding the building footprint. Lawns do not promote biodiversity and do not satisfy the intent of this credit. Native or adapted plants satisfy the intent of this credit. This credit should only be carried out on sites where there is no conflict between provision of outdoor student recreation space and the credit requirements, or on special sites where the SCA has determined to use vegetated roofing. (See credit A2.1 - option 2.) Option 1: For projects located in urban areas that earn S 1.4 (Development Density and Community Connectivity), pedestrian - oriented hardscape areas (i.e., accessible play yards, athletic fields, plazas, courtyards) can contribute to credit compliance if a minimum of 25% of the open space counted is vegetated. Option 2: For projects located in urban areas that earn S 1.4 (Development Density and Community Connectivity), vegetated roof areas can contribute to credit compliance. Note that vegetated roofing is not an SCA standard and can only be pursued with special direction from the SCA. (See credit A2.1- Option 2.) Where vegetated roofing is included in the calculations for this credit, site area must include the building footprint.	Design Requirements relating to building siting incorporate the requirements of this credit. Given the high priority of providing opportunities for student recreation and the generally limited size of available urban sites, the number of projects able to achieve this credit will be limited. It is important to note that in the relatively low but dense urban areas where NYC schools are often built, consolidating building mass can have a negative impact on light, air and scale of an adjacent residential neighborhood. These factors should be considered in determining whether this credit should be pursued. For projects with large sites, a master plan should be developed, whern directed by SCA Design Manager, to minimize site disruption. Strategies on applicable sites include stacking building program, locating parking (when provided) below the facility or sharing facilities with adjacent properties to maximize open space on the site. Compliance with this credits requirements will not be feasible for some sites based on existing site conditions and programmatic need for recreational space.

CREDIT SUBMITTALS	REFERENCES

SCHEMATIC DESIGN

ARCHITECT'S RESPONSIBILITY

- Submit a narrative describing whether this credit is feasible.
- For projects where the credit is feasible, provide SF calculations, indicate the design approach for credit compliance and identify the applicable SCA standards to be incorporated into design documents.
- For projects where credit is not feasible, include SF Calculations demonstrating that credit can't be met.

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit the project site area and building footprint area (in square feet).
- Submit a plan highlighting the dedicated vegetated open space and/or pedestrian oriented hardscape.
- Include the area of open space required by local zoning codes-regulations.
- Include the area of the vegetated dedicated open space provided by the project.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.

LEED-NC 2.2 Credit SS 5.2
Site Development Maximize Open Space

SCA DESIGN REQUIREMENTS

1.1.3.1 Feasibility Study
1.3.1.1 Building Layout and Orientation

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce or eliminate water pollution by reducing impervious cover, increasing on-site infiltration, eliminating sources of contaminants and removing suspended solids from stormwater runoff. This credit is required, if feasible, for all projects.	Implement a stormwater management plan that reduces impervious cover, promotes infiltration and captures and treats the stormwater runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs). BMPs used to treat runoff must be capable of removing 80% of the average annual post development total suspended solids (TSS) load based on existing monitoring reports. TSS are particles in a water sample that are of a size and weight that do not settle out of stormwater by gravity but would require filtering. BMPs are considered to meet these criteria if they are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards.	This credit is likely to apply to sites that must meet State Pollutant Discharge Elimination System (SPDES) requirements regarding stormwater quantity and quality control (sites greater than one acre with separate storm sewer systems and located in a Total Maximum Daily Load (TMDL) watershed or discharging to an impaired 303(d) listed water body). For projects that must comply with SPDES, the Design Team must develop documents and file the stormwater pollution prevention plan (SWPPP) with DEC. If requested by the SCA, use alternative surfaces and pursue Credit A 2.2 (e.g., vegetated green roofs, permeable pavement or grid pavers) and non-structural techniques (e.g., rain gardens, vegetated swales, disconnection of imperviousness, rainwater recycling) to reduce imperviousness and promote infiltration, thereby reducing pollutant loadings.

CREDIT SUBMITTALS

SCHEMATIC DESIGN

No credit submittal.

DESIGN DEVELOPMENT

ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY

• Submit a narrative describing whether this credit is applicable/feasible.
For projects where it is applicable summarize the design approach for credit compliance and identify applicable SCA standards to be incorporated into design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY

Non-Structural Controls
• Submit a list of Best Management Practices (BMPs), including a description of the function of each BMP and the percent of annual rainfall treated.
Structural Controls
• Submit a list of structural controls, including a description of the pollutant removal of each control and the percent of annual rainfall treated.
AND
• Include any special circumstances or considerations regarding the approach to the credit.

100% CONSTRUCTION DOCUMENTS

ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit SS 6.2
Stormwater Design Quality Control

SCA DESIGN REQUIREMENTS

6.1.11 Stormwater Management

SCA STANDARD SPECIFICATIONS

02723 Storm Damage Systems

SCA STANDARD DETAILS

None

OTHER REFERENCES

NYS Instruction Manual for Stormwater Construction Permit:
http://www.dec.ny.gov/docs/water_pdf/instr_man_1.pdf

NYS Stormwater Management Design Manual - Stormwater Permit Requirements, Chapter 3:
http://www.dec.ny.gov/docs/water_pdf/swdmchapter3.pdf

INTENT	REQUIREMENTS
Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime, visibility through glare reduction and reduce development impact on nocturnal environments. This credit is required for all projects.	FOR INTERIOR LIGHTING All non-emergency interior lighting shall be automatically controlled to turn off when the school is not in operation with manual override capability for after-hours use. OR The angle of maximum candela from each luminaire as located in the building shall intersect opaque building interior surfaces and not exit through windows. FOR EXTERIOR LIGHTING Illuminate areas only as required for safety and comfort. Do not exceed 80% of the lighting power densities for exterior and 50% for building facades and landscape features as defined in ANSI/ASHRAE/IESNA Standard 90.1-2004, Exterior Lighting Section, without amendments. All projects shall be classified under one of the following zones, as defined in IESNA RP-33-1999, and shall follow the requirements for that specific zone: LZ1 – Dark (Park and Rural Settings) Design exterior lighting so that all site and building mounted luminaries produce a maximum initial illuminance value no greater than 0.01 horizontal and vertical footcandles at the site boundary and beyond. Document that 0% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher than nadir. LZ2 – Low (Residential Area) Design exterior lighting so that all site and building mounted luminaries produce a maximum initial illuminance value no greater than 0.10 horizontal and vertical footcandles at the site boundary and no greater than 0.01 horizontal footcandles 10 feet beyond the site boundary. Document that no more than 2% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site. LZ3 – Medium (Commercial/Industrial, High-Density Residential) Design exterior lighting so that all site and building mounted luminaries produce a maximum initial illuminance value no greater than 0.20 horizontal and vertical foot-candles at the site boundary and no greater than 0.01 horizontal foot-candles 15 feet beyond the site. Document that no more than 5% of the total initial designed fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary. LZ4 – High (Major City Centers, Entertainment Districts) Design exterior lighting so that all site and building mounted luminaries produce a maximum initial illuminance value no greater than 0.60 horizontal and vertical foot-candles at the site boundary and no greater than 0.01 horizontal foot-candles 15 feet beyond the site. Document that no more than 10% of the total initial designed site lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the site boundary.

BEST PRACTICES AND IMPLEMENTATION	CREDIT SUBMITTALS	REFERENCES
Adopt site lighting criteria to maintain safe light levels while avoiding off-site lighting and night sky pollution. Minimize site lighting where possible and model the site lighting using a computer model. Technologies to reduce light pollution include full cutoff luminaries, low-reflectance surfaces and low-angle spotlights. Note that exterior lighting for playing fields is not required to comply with the requirements of this credit per ASHRAE 90.1-2004 Section 9.4.5, exemption C.	**SCHEMATIC DESIGN** No credit submittal. **DESIGN DEVELOPMENT** **ENGINEER'S RESPONSIBILITY** • Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. Indicate site zone classification for the project. **60% CONSTRUCTION DOCUMENTS** **ENGINEER'S RESPONSIBILITY** • Submit a narrative description of the results of light trespass analysis including the highest quantities of horizontal and vertical footacandles at the site boundary and at 10 feet beyond site boundary for LZ2 and 15 feet beyond for LZ3 and LZ4. • Provide plans of the exterior lighting corresponding to the narrative. • Submit the Light Pollution Reduction Form A - Site Lumen Calculation Form. • Submit Light Pollution Reduction Form B - Lighting Power Density (LPD) for both exterior site lighting and façade/landscape lighting. For projects where all non-emergency interior lighting within the scope of the project will not be automatically controlled to turn off when the school is not in operation: • Submit typical classroom plan indicating that the angle of maximum candela from classroom luminaires do not exit classroom windows. **100% CONSTRUCTION DOCUMENTS** **ENGINEER'S RESPONSIBILITY** • Submit Certification Form with completed information for this credit. • Submit updated documentation as necessary. **CONSTRUCTION** No credit submittal.	LEED-NC 2.2 Credit SS 8 Light Pollution Reduction ANSI/ASHRAE/IESNA Standard 90.1-2004 **SCA DESIGN REQUIREMENTS** 7.2.1 Interior Lighting 7.2.5 Exterior / Site / Security Lighting 7.2.6 Athletic Fields / Sports Lighting **SCA STANDARD SPECIFICATIONS** 16145 Lighting Control 16500 Interior Building Lighting 16501 Lamps, Ballasts, and Accessories 16520 Exit Sign Lights and Emergency Lighting Fixtures and Systems 16530 Site/Security Lighting **SCA STANDARD DETAILS** None **OTHER REFERENCES** None

SCA projects will achieve potable water use reduction through the use of water-conserving fixtures and reduction or elimination of irrigation for landscaping.

By reducing potable water use, the demands on sanitary sewage treatment infrastructure and facilities will be minimized.

WATER

W1.1R WATER EFFICIENT LANDSCAPING, REDUCE BY 50%

INTENT	REQUIREMENTS	
Limit or eliminate the use of potable water, or other natural surface or sub-surface water resources on or near the site, for landscape irrigation. This credit is required for all projects.	Option 1 (Preferred): Perform a soil/climate analysis to determine appropriate plant material and design the landscape with native or adapted plants to eliminate irrigation requirements. Temporary irrigation systems used for plant establishment are allowed only if removed within one year of installation. OR Option 2: On projects that use irrigation, reduce potable water consumption for irrigation by 50% from a calculated mid-summer baseline case. Reductions may be attributed to any combination of the following items: • Plant species factor • Irrigation efficiency • Use of captured rainwater • Use of recycled wastewater • Use of water treated and conveyed by a public agency specifically for non-potable uses	Irrigation efficiency may be achieved through use of: high-efficiency equipment, climate-based controllers, soil moisture meters. Note that for this option, calculations are required to indicate how potable water use is reduced by 50%. See the LEED-NC 2.2 Reference Guide for a description of calculations.

BEST PRACTICES AND IMPLEMENTATION

The SCA Design Requirements require use of native or adapted plants with no permanent irrigation system at landscaped areas. SCA standards require maintenance hose bibs around the building, which will be used for temporary irrigation. In addition, the SCA's standard for athletic fields is artificial turf, which requires no irrigation.

Design Teams must receive approval from the SCA to pursue this credit using Option 2 because of the potential costs involved. On the atypical project where it is determined to utilize an irrigation system, one option to consider is the use of captured rainwater or stormwater.

For sites that use storm water tanks and filtration systems to meet State Pollution Discharge Elimination System (SPDES) requirements, the storm water system may be modified with SCA permission to allow use of captured rainwater for irrigation.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents.
- Submit a narrative indicating whether the project is atypical and the Design Team recommends an irrigation system for this project. If so, indicate potable water use reduction techniques.

60% CONSTRUCTION DOCUMENTS

ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY

- Perform soil/climate analysis for plants selected. Analysis is not required for trees and plants listed on Parks Department list for street streets and native plants.
- Incorporate native or adapted plants in landscaping specifications.

If irrigation is to be provided:

- Submit documentation as required for contract specifications and commissioning of irrigation systems. Incorporate requirements in specifications.
- Submit potable water use calculations per LEED-NC 2.2 Reference Guide

100% CONSTRUCTION DOCUMENTS

ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit WE 1.1
Water Efficient Landscaping Reduce by 50%

SCA DESIGN REQUIREMENTS

DR 2.5.1 Trees, Shrubs, Ground Cover and Lawns

SCA STANDARD SPECIFICATIONS

02900 Landscaping

SCA STANDARD DETAILS

None

OTHER REFERENCES

http://www.nycgovparks.org/sub_about/parks_divisions/nrg/documents/NRG_Publication_Gardening_with_NYC_Native_Plants.pdf

W1.2R WATER EFFICIENT LANDSCAPING, NO POTABLE WATER USE OR NO IRRIGATION

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation. This credit is required for all projects.	Option 1 (preferred): Perform a soil/climate analysis to determine appropriate plant material and design the landscape with native or adapted plants to eliminate irrigation requirements. Temporary irrigation systems used for plant establishment are allowed only if removed within one year of installation. OR Option 2: On projects that use irrigation, use only captured rainwater, recycled wastewater or recycled graywater for landscape irrigation. The use of potable water for permanent irrigation is not permitted for projects pursuing this credit. Note that for this option, calculations are required to indicate how no use of potable water is achieved. See the LEED-NC 2.2 Reference Guide for a description of calculations.	The SCA Design Requirements require use of native or adapted plants with no permanent irrigation system at landscaped areas. Provide hose bibb(s) for temporary irrigation. In addition, the SCA's standard for athletic fields is artificial turf, which requires no irrigation. Design Teams must receive approval from the SCA to pursue this credit using Option 2 because of the potential costs involved. On the atypical project where it is determined to utilize an irrigation system, one option to consider is the use of captured rainwater or stormwater. For sites that use stormwater tanks and filtration systems to meet State Pollution Discharge Elimination System (SPDES) requirements, the storm water system may be modified with SCA permission to allow use of captured rainwater for irrigation.

CREDIT SUBMITTALS	REFERENCES

DESIGN DEVELOPMENT

ARCHITECT, LANDSCAPE ARCHITECT OR CIVIL ENGINEER'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents.
- Submit a narrative indicating whether the project is atypical and the Design Team recommends an irrigation system for this project. If so, indicate potable water use elimination techniques.

60% CONSTRUCTION DOCUMENTS

ARCHITECT, LANDSCAPE ARCHITECT OR CIVIL ENGINEER'S RESPONSIBILITY

- Perform soil/climate analysis for plants selected. Analysis is not required for trees and plants listed on Parks Department list for street streets and native plants.
- Incorporate native or adapted plants in landscaping specifications.

If irrigation is to be provided:

- Submit documentation as required for contract specifications and commissioning of irrigation systems. Incorporate requirements in specifications.
- Submit potable water use calculations per LEED-NC 2.2 Reference Guide

100% CONSTRUCTION DOCUMENTS

ARCHITECT AND CIVIL ENGINEER'S RESPONSIBILITY

- Submit Certification Form with information completed for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 Credit WE 1.2 Water Efficient Landscaping, No Potable Water Use or No Irrigation

SCA DESIGN REQUIREMENTS

DR 2.5.1 Trees, Shrubs, Ground Cover and Lawns

SCA STANDARD SPECIFICATIONS

02900 Landscaping

SCA STANDARD DETAILS

None

OTHER REFERENCES

http://www.nycgovparks.org/sub_about/parks_divisions/nrg/documents/NRG_Publication_Gardening_with_NYC_Native_Plants.pdf

INTENT	REQUIREMENTS

Reduce potable water consumption within school buildings by the use of efficient plumbing fixtures in order to reduce the burden on municipal water supply and wastewater systems.

These credits are required for all projects.

Credit	Water Use Reduction	Points
W2.1R	20%	1
W2.2R	30%	1
W2.3R	40%	1

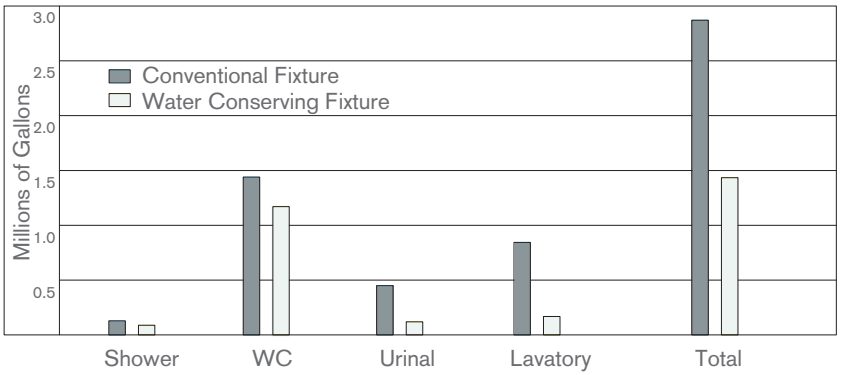
Employ strategies that in aggregate use less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, lavatory faucets, showers, kitchen and food service area sinks.

The SCA requirement is 40% water use reduction, which achieves credits W.2.1R, W2.2R and W 2.3R.

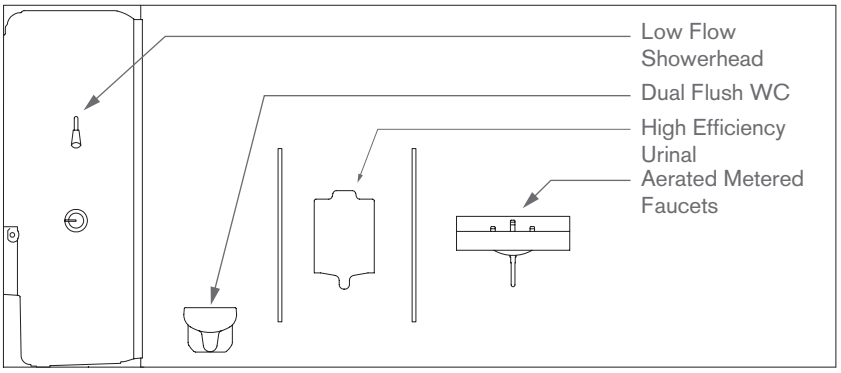
For major school modernizations and renovations of leased building sites there may be atypical projects that, because of their more limited scope, may not achieve 40% water use reduction. For projects where the installation or replacement cost of plumbing fixtures is over $500,000, per LL86/05 these projects must achieve a minimum of 20% water use reduction in aggregate for the facility, or 30% if waterless urinals are approved by the Department of Buildings.

Note that while the text of LL86/05 references LEED 2.1, the rules for implementing LL86/05 clarify that the current version of LEED should be the reference.

Projected Water Use Reduction for Typical IS/HS



Water Conserving Measures



BEST PRACTICES AND IMPLEMENTATION

The SCA standards require the use of the following water-saving fixtures for all projects: aerated metered faucets, dual-flush toilets, low-flow showers and high-efficiency urinals. The use of waterless urinals is being reviewed by the SCA and may be incorporated in the future, if their use is approved by the NYC Department of Buildings. With either type of urinal, schools will typically achieve 40% water use reduction in combination with the other water-saving fixtures in the Standard Specifications.

For atypical projects that cannot achieve the 40% water use reduction – but must achieve 20% or 30% required by LL86/05, the most cost effective way to achieve water use reduction is to use water conserving faucets and urinals. Projects where this might apply include major school modernizations and renovations of leased buildings where not all fixtures are to be replaced.

In modernization projects existing fixtures that are to remain must be included in the design case calculations with their actual flow rate and an indicated assumption about percentage of occupant users for those fixtures.

The above would also apply to addition/modernizations where the addition is over 50% of the size of the building being enlarged.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ENGINEER'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents.

60% CONSTRUCTION DOCUMENTS

ENGINEER'S RESPONSIBILITY

- Submit Water Use Reduction Form.
- Incorporate fixtures per Standard Specifications.

100% CONSTRUCTION DOCUMENTS

ENGINEER'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.
- Submit LL 86/05 Form with water use reduction information.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit WE 3.1
Water Use Reduction 20% Reduction

LEED-NC 2.2 Credit WE 3.2
Water Use Reduction 30% Reduction

LEED-NC 2.2 Credit ID 1.1
Innovation Credit

Local Law 86/05

SCA DESIGN REQUIREMENTS

6.1.16 Compliance with LL86/05

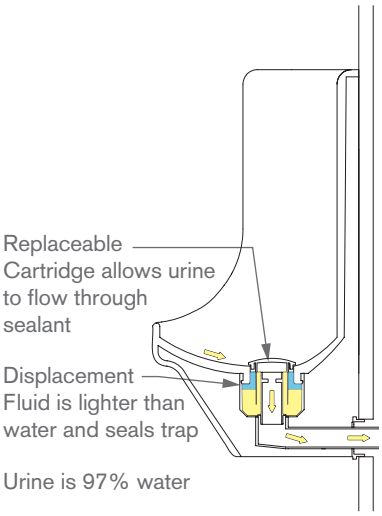
SCA STANDARD SPECIFICATIONS

15440 Plumbing Fixtures

SCA STANDARD DETAILS

None

Waterless Urinal



Urine is 97% water

"You don't need water to transport water" - Klaus Reichardt

ENERGY

Energy efficient schools that are properly commissioned will reduce their environmental impact and operational costs while improving indoor air quality. Efficient design saves money while conserving non-renewable energy resources and reduces atmospheric emissions of pollutants and greenhouse gases. Efficient designs include properly sized equipment and systems while providing the required heating, cooling and ventilation.

The Quality Assurance function of commissioning has always played an important role at the SCA. In recognition of the increasing importance of commissioning, it is now recognized in a separate plan. Commissioning, maintenance and training are vitally important to the performance of the school and to the proper operation of its systems, and are critical to maintaining energy efficiency.

The SCA has investigated various HVAC systems using computerized energy modeling to conform to the requirements of New York City LL86/05. Mandated requirements exceed minimum code and LEED 2.2 energy requirements. The selected HVAC system design and other conservation measures achieve an optimal balance between energy savings, required performance and cost. These systems are a critical part of an integrated building design approach. It is the intent of the SCA to design and construct energy efficient buildings that conform to its building design standards to consistently provide a high-quality educational environment for students, teachers, administrators and operating staff.

INTENT	REQUIREMENTS	
Commissioning ensures that all the building systems are designed, installed, calibrated, functionally tested and are capable of being operated and maintained to perform in conformity with the owner's project requirements, basis of design and construction documents. The benefits of the added oversight provided by commissioning include: • Reduced energy use • Reduced Contractor post-construction involvement. • Lower operating costs • Better building system documentation. • Reduced disturbance to building occupants for repairs and maintenance • Verification of training for building systems • Improved occupant productivity through greater comfort This credit is required for all projects.	The SCA/DOE system of whole building commissioning goes well beyond LEED requirements for commissioning. SCA/DOE whole building commissioning is described in the SCA/DOE commissioning policies and procedures, and in related SCA Design Requirements and Standard Specifications. Below are the commissioning requirements to be carried out under whole building commissioning that are specifically required to comply with this rating system. Commissioning requires the cooperative efforts of the owner, the Commissioning Authority (CxA), the Design Team and Contractor. The SCA/DOE commissioning authority shall: • Have documented commissioning authority experience on at least two projects, be independent of the project's design and construction management team, and be a qualified employee or consultant of the owner. • Report results, findings and recommendations directly to the owner. • Review the Owner's Project Requirements (OPR) and the Design Team's Basis of Design (BOD) for clarity and completeness. • Conduct a design review of the OPR, BOD and DD documents. • Conduct reviews of 60% and 100% submissions to confirm that commissioning comments have been addressed.	• Review Contractor submittals applicable to HVAC, lighting controls, domestic hot water systems, fire alarm system and emergency generator for compliance with the OPR and BOD. This review shall be concurrent with A/E reviews and submitted to the Design Team and owner. • Review systems manual developed by Contractor that provides future operating staff the information needed to understand and optimally operate the commissioned systems. • Verify the installation and performance of the HVAC, lighting controls, domestic hot water systems, fire alarm system and emergency generator. • Verify that operating personnel training has occurred. • Review building operation with custodial and administrative staff within 10 months after substantial completion. Include a plan for resolution of outstanding commissioning-related issues. • Complete a summary commissioning report. The Design Team shall complete the following aspects of commissioning: • Develop and incorporate commissioning requirements into the construction documents. • Modify the standard SCA/DOE School Commissioning Matrix for the specific project for review by the CxA. The OPR consist of the DOE Program of Requirements for the specific project and the SCA Design Requirements. The BOD consists of the Schematic Design report. The owner and Design Team are responsible for updates to their respective documents.

BEST PRACTICES AND IMPLEMENTATION

The SCA/DOE in-house commissioning group consists of staff from the SCA QA/QC Department and the Division of School Facilities (DSF). An individual CxA will be assigned to a project from this group.

This group develops and maintains a standard School Commissioning Plan and Plan Matrix. Design Teams modify this Plan Matrix to be project specific. The Design Team's must advise the commissioning agent if a building system or feature incorporated in the design is not on the standard Matrix.

Commissioning requirements are included through the SCA Standard Specifications.

For the 100% design submission, the Design Team must update the matrix and BOD as required. During construction, the Design Team reviews commissioning-related submittals including as-built documents and operating & maintenance manuals. The Design Team also provides technical support to the commissioning agent as required to address deficient or varying field conditions.

The Contractor's responsibilities as outlined in the Standard Specifications include:

- Submitting a copy of the project specific Commissioning Plan (developed by the SCA with design team input) that has been signed by the Contractor, sub-Contractors and vendors acknowledging responsibility for commissioning items.
- Attending commissioning meetings.
- Performing testing of systems according to contract requirements.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT AND ENGINEER'S RESPONSIBILITY

- Submit narrative summarizing standards to be incorporated and description(s) of building systems not included in the Standard School Commissioning Matrix.
- Submit School Commissioning Matrix modified for particular project.

COMMISSIONING AGENT'S RESPONSIBILITY

- Review narrative and matrix submitted with the DD submission, OPR, BOD and design development documents.

60% CONSTRUCTION DOCUMENTS

- No Credit Submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECTS & ENGINEERING RESPONSIBILITY

- Submit revised matrix if matrix has changed since design development. Martix at 100% submittal required only if matrix has changed.

COMMISSIONING AGENTS RESPONSIBILITY

- Review matrix, BOD and construction documents.

CONSTRUCTION

COMMISSIONING AGENT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit. For the five systems indicated:
- Submit review of Contractor submittals for compliance with the OPR and BOD. This review to be concurrent with A/E review and to be provided to A/E as well as the Contractor.
- Review systems manual submitted by Contractor. Submit recommended schedule of maintenance requirements and frequency as required.
- Verify the installation and performance.

REFERENCES

LEED-NC 2.2 Credit EA Pr 1 Fundamental Commissioning of the Building Energy Systems

LEED-NC 2.2 Credit EA 3 – Enhanced Commissioning

NY CHPS Version 1.0 Credit 3.3.1 Third Party Commissioning

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01650 Facility Start-up, Demonstration, and Training
S01660 Commissioning
References to Commissioning throughout specifications.

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce ozone depletion. This credit is required for all projects.	No CFC-based refrigerants shall be used in new base building equipment for heating, ventilation, air conditioning and refrigeration systems (HVAC&R). For modernization projects, existing base building HVAC equipment containing CFC-based refrigerants must not be re-used; non-CFC systems shall be used in replacement equipment. Incorporate SCA standard “non-CFC” equipment specifications in design and construction documents.	HVAC&R-based equipment and refrigerants referenced in the SCA standards do not use CFC based refrigerants. Utilize fire suppression systems that do not contain HCFCs or Halons.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing how compliance will be achieved. For modernizations/renovations, describe scope relating to existing base building HVAC equipment that contains CFC refrigerants.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• For modernizations/renovations, submit an inventory of existing HVAC&R equipment currently using CFC-based refrigerants that are to be removed. When re-using existing base building HVAC equipment, provide a complete and comprehensive CFC phase-out conversion prior to project completion.

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit EA Pr 3
Fundamental Refrigerant Management

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

11400 Foor Service Equipment
11450 Domestic Type Equipment
11452 Culinary Art Lab & Equipment
13031 Walk-in Trash Refrigerator
15650 Refrigeration
15781 Packaged Heating and Cooling Units
15783 Split Heat Pump System
15853 Custom Packaged Rooftop Heating and Cooling Units (Variable Air Volume System)
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)
15855 Commercial Packaged Rooftop Heating and Cooling Units
15858 Window Air Conditioners

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

E1.3 Enhanced refrigerant management

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to global warming. This credit is required, if feasible, for all projects.	Select refrigerants and HVAC&R equipment that minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming. Complete project-specific average Refrigerant Impact Form following the example under LEED Credit EA 4 to indicate successful compliance with this credit. Enter the number and size of units along with the selected refrigerant. Designer must use the actual refrigerant charge of each of the pieces of HVAC&R equipment. For a detailed explanation of these calculations, see LEED-NC 2.2 Reference Guide Credit EA 4 Enhanced Refrigerant Management Ozone Depletion for comparison tables regarding: ozone depletion and global warming potentials of specific refrigerants, cooling efficiency of various refrigerants and allowable equipment life span.	The base building HVAC&R equipment shall comply with the formula contained on the Refrigerant Impact Form, which sets a maximum threshold for the combined contributions to ozone depletion and global warming potential such that the calculated index number is less than or equal to 100.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing how compliance will be achieved.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit a completed Refrigerant Impact Form.

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit EA 4
Enhanced Refrigerant Management
Ozone Depletion

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

11400 Food Service Equipment
11450 Domestic Type Equipment
11452 Culinary Art Lab & Equipment
13031 Walk-in Trash Refrigerator
15650 Refrigeration
15781 Packaged Heating and Cooling Units
15783 Split Heat Pump System
15853 Custom Packaged Rooftop Heating and Cooling Units (Variable Air Volume System)
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)
15855 Commercial Packaged Rooftop Heating and Cooling Units
15858 Window Air Conditioners

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide for the ongoing measurement and accountability of building energy consumption over time. This credit is required for all projects.	1. Design and install a sub-metering system, based on SCA standards, for measuring major fuel and energy usage by the domestic hot water heater, building heating and cooling equipment, as well as major electrical loads including lighting loads, roof-top HVAC units, boilers and chillers. Integrate the data collection and monitoring into the Building Management System (BMS), providing for the monitoring, display, calculation, reporting and trend-logging of the fuel and energy usage. 2. The Measurement and Verification (M&V) system must be designed to allow for comparing predicted performance to actual performance, broken down by component or system as appropriate. Furthermore, the M&V system is intended to be used past the warranty period functioning as a diagnostic tool for the facility operators to diagnose specific equipment operation. The M&V system must be designed to allow for comparing period-to-period performance, broken down by component or system as appropriate. 3. Incorporate the M&V system in the design and construction documents.	The SCA standards require a system for measurement and verification. The SCA systems incorporate sensors, sub-meters and instrumentation, as well as a Building Management System that provides the energy information in a useful manner to the operator. Some specific elements included in the SCA standards are gas flow meters for heating equipment and domestic hot water heaters, and watt-meters at lighting panels to monitor significant lighting loads such as in the Auditorium and Gymnasium. The SCA standard for predicting the baseline energy performance for new buildings shall be the International Performance Measurement & Verification Protocol (IPMVP) Volume III Option C: Whole Building Comparison. Option C involves the use of utility meters and/or aggregated sub-meters to determine the Post-Construction Energy use of the facility at the whole-building level. The Projected Baseline Energy use is the energy use of a proto-typical school building that was modeled and then validated with a “control group” of similar buildings without the Energy Conservation Measures (ECMs) or design enhancements. In this regard, the Projected Baseline Energy use is a stipulation. The SCA demonstrated that Option C is appropriate to NYC public schools due to the great similarities between school systems for HVAC, lighting, electric and domestic water heating, and the fact that construction practices of the SCA are standardized and that the locations of the NYC schools are similar.

CREDIT SUBMITTALS

REFERENCES

This credit involves criteria relating to the implementation of the Measurement and Verification System for a period of no less than one year of post-construction occupancy. The DOE/Division of School Facilities will use the system to monitor energy performance and alert staff that equipment maintenance is required. Energy system performance will be evaluated when LL86/05 annual reports are submitted to the Mayor's Office of Operations.

Design Teams and Contractors participate with the SCA commissioning agent and the Facilities Management System Integrator to verify that the BMS system meets the owners M&V requirements, the requirements of this credit and the design intent.

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated in the design documents. Identify any potential departures from SCA standards relating to this credit.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Include Specification Sections 15970, 15973 and 15985 in the construction document submittal modified as appropriate for the specific school project and provide appropriate control diagrams on contract drawings.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

HVAC ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

LEED-NC 2.2 Credit EA 5– Measurement & Verification

NY CHPS 3.3.8 - Submetering Submetering

SCA DESIGN REQUIREMENTS

6.2.20 Building Management Control System / Direct Digital Control BMS/ DDC

SCA STANDARD SPECIFICATIONS

15970 Temperature Control System (LonWorks BMS/DDC With School Operating Console)
15973 Facility Management Systems Integration
15985 Sequence of Operations

SCA STANDARD DETAILS

SCA BMS Control Diagrams

OTHER REFERENCES

Local Law 86/05

International Performance Measurement & Verification Protocol (IPMVP) Volume III: Concepts and Options for Determining Energy Savings in New Construction, April 2003. Section 3.2 describes Monitoring and Verification.

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
While Building Management Systems (BMSs) are typically installed with new HVAC systems, care must be taken to specify and install an appropriate system for the school and its maintenance staff. This credit is required for all projects.	1. Provide for design and installation of an open protocol Building Management System in compliance with SCA Design Standards. Open protocol systems are systems that use published/non-proprietary protocols, open to all manufacturers. The SCA current standard is the LonWorks open protocol system by Echelon. 2. Incorporate the BMS in the design and construction documents.	The SCA standardized specification sections for school Building Management System controls for HVAC systems are consistent with the requirements of this credit. The BMS system should be fully commissioned. (See credit E1.1R in this section regarding commissioning.)

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated in the design documents. Identify any potential departures from SCA standards relating to this credit.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Incorporate the BMS specifications and control diagrams into construction documents.

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

NY CHPS Version 1.0 3.3.5
Building Management System Controls HVAC and Hot Water

SCA DESIGN REQUIREMENTS

6.2.20 Building Management Control System / Direct Digital Control BMS/DDC

SCA STANDARD SPECIFICATIONS

15970 Temperature Control System (LonWorks BMS/DDC With School Operating Console)
15973 Facility Management Systems Integration
15985 Sequence of Operations

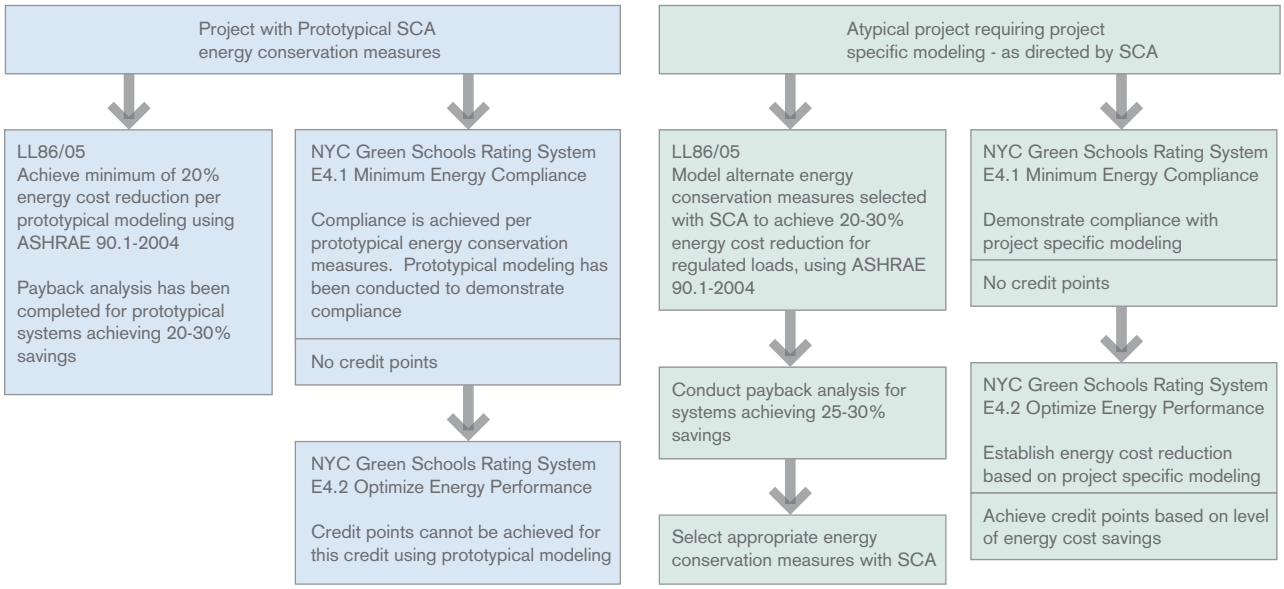
SCA STANDARD DETAILS

BMS Control Diagrams

OTHER REFERENCES

None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Design projects to achieve a minimum established level of energy efficiency for the proposed building when compared to a code compliant building using ASHRAE/IESNA Standard 90.1-2004 as a reference standard. Achieve energy cost reduction of regulated sources per LL86/05. This credit is required for all projects.	1. Design the building projects to comply with both: • The mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments); AND • The prescriptive requirements (Sections 5.5, 6.5, 7.5 and 9.6) or performance requirements (Section 11) of ASHRAE/IESNA Standard 90.1-2004 (without amendments). 2. Incorporate these provisions and requirements throughout the development of the design and construction documents from inclusion in the proposed specification table of contents through assistance with commissioning of the systems. Note that projects required to comply with Local Law 86/05 must achieve a minimum of 20% energy use reduction over those mandated by 2007 New York State ECCC	In 2006, the SCA carried out extensive energy modeling studies of a wide range of HVAC systems, controls and building envelope improvements applied to different size schools using both LEED 2.1 and LEED 2.2 energy modeling criteria. A prototypical set of energy conservation measures was developed by the SCA to meet the requirements of the LEED-NC 2.2 Minimum Energy Performance Prerequisite, on which this credit is based, and to achieve the energy cost reductions mandated by Local Law 86/05 that are required to be calculated using method referenced in LEED 2.1. In 2008-2009, subsequent modeling was performed to determine additional measures needed to meet energy cost reduction mandated by LL86/05 that must be compared against the 2007 NYS ECCC. The double-page diagram, which follows



CREDIT SUBMITTALS

REFERENCES

this credit, schematically depicts the components of the prototypical HVAC system and other energy conservation measures that are incorporated in the SCA Design Requirements, Standard Specifications and Standard Details.

If directed by the Authority to investigate alternative systems, perform the calculations demonstrating compliance with ASHRAE 90.1.2004 and compliance with Local Law 86/05 and Credit A3.1- A-3.4 (Optimize Energy Performance) should be pursued.

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated in the design documents. List individual parameters required in DR1.3.1.10 and table from DR1.1.5.2. Identify any potential departures from SCA standards relating to this credit. Describe compliance with SCA standard HVAC and lighting requirements controls and energy conservation measures to achieve compliance with this credit and LL86/05 energy reduction requirements.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit design drawings and specifications in compliance with SCA Design Requirements.
AND
• Submit the latest table from DR1.1.5.2.
OR
• Submit calculations demonstrating compliance with ASHRAE 90.1-2004 and LL86/05 and submit drawings and specifications for alternative systems.

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit the latest table from DR1.1.5.2.
• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.
• Submit LL86/05 Compliance Form.

CONSTRUCTION

HVAC ENGINEER'S RESPONSIBILITY

• Submit reporting forms for compliance.

LEED-NC v 2.2 Credit EA Pr 2 Minimum Energy Performance

SCA DESIGN REQUIREMENTS

1.1.5.2 Building Areas –Energy Saving and Non-Energy Saving Spaces - Fenestration
1.3.1.10 Prototypical Energy Modeling (Capacity & CIP) / Green Building Multi-Discipline Design Parameters.
4.2.1 Exterior Masonry Wall
6.2.0 General Overview of Heating Ventilation and Air Conditioning Systems
6.2.3 Non-Assembly Spaces
6.2.4 Public Assembly Spaces
6.2.9 Convectors and Enclosures
6.2.11 Existing School Buildings
6.2.20 Building Management Control System/DOC Control BMS
7.2.1 Interior Lighting

SCA STANDARD SPECIFICATIONS

08521 Aluminum Windows DH
08524 Aluminum Windows Projected
15517 Water Treatment Hydronic Systems
15540 HVAC Pumps
15565 Condensing Boilers
15781 Packaged Htg & Cooling Units
15783 Packaged Heat Pump System
15853 Custom Packaged Rooftop Heating and Cooling Units (VAV)
15854 Custom Packaged Rooftop Heating and Cooling Units (CV)
15855 Commercial Packaged Rooftop Heating and Cooling Units
15930 Variable Air Terminals
15970 Temperature Control System
15973 FMS Integration
15985 Sequence of Operations
16145 Lighting Control Devices
16500 Interior Building Lighting

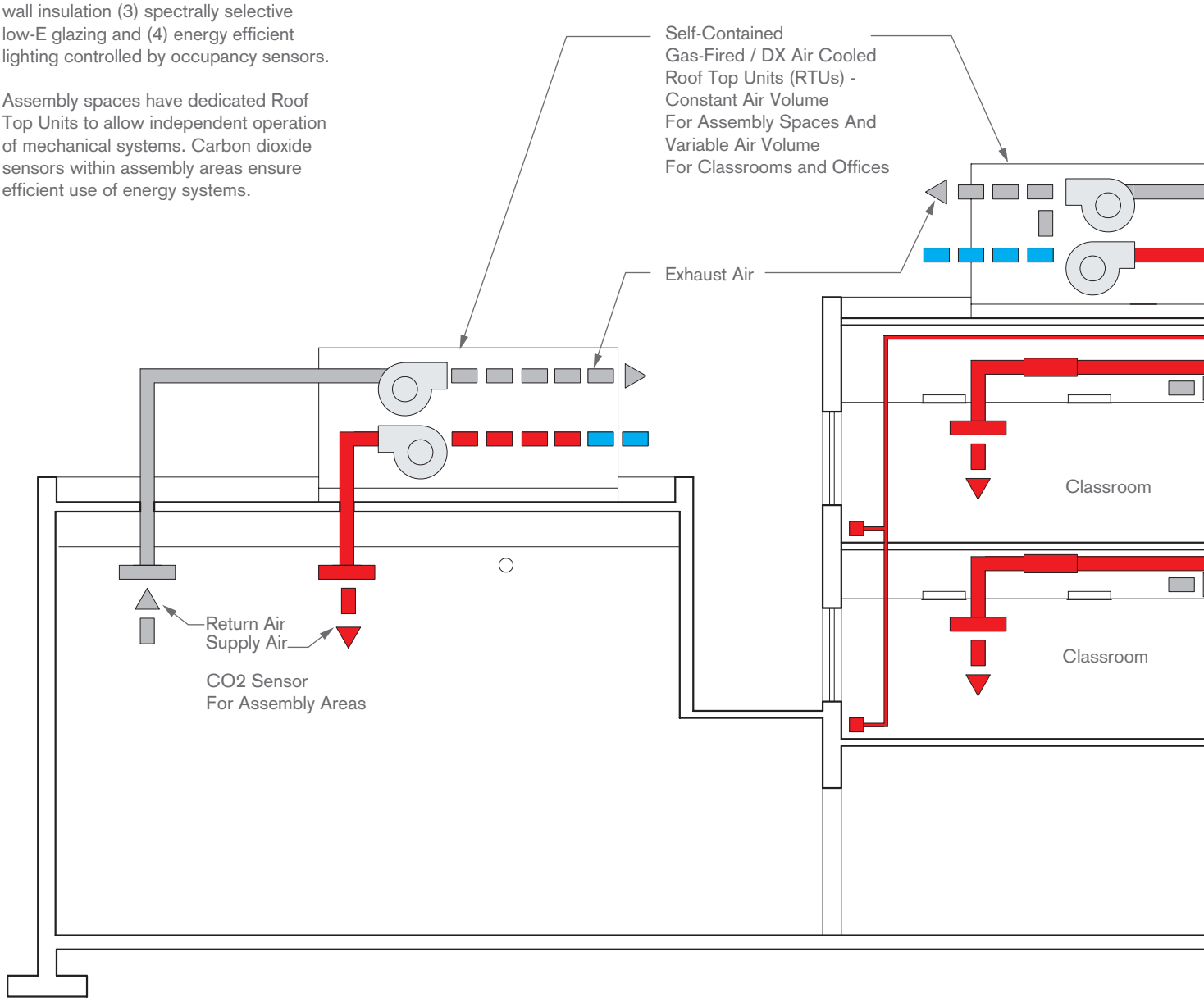
SCA STANDARD DETAILS

04200 Unit Masonry
15970 BMS Control Diagrams

Energy Conservation Measures Systems Summary

The proposed energy efficiency measures are designed to meet LEED NC 2.2 Minimum Energy Performance guidelines. This system achieves energy efficiency primarily through: (1) hydronic heating of classrooms utilizing gas fired modular condensing boilers (2) improved exterior wall insulation (3) spectrally selective low-E glazing and (4) energy efficient lighting controlled by occupancy sensors.

Assembly spaces have dedicated Roof Top Units to allow independent operation of mechanical systems. Carbon dioxide sensors within assembly areas ensure efficient use of energy systems.



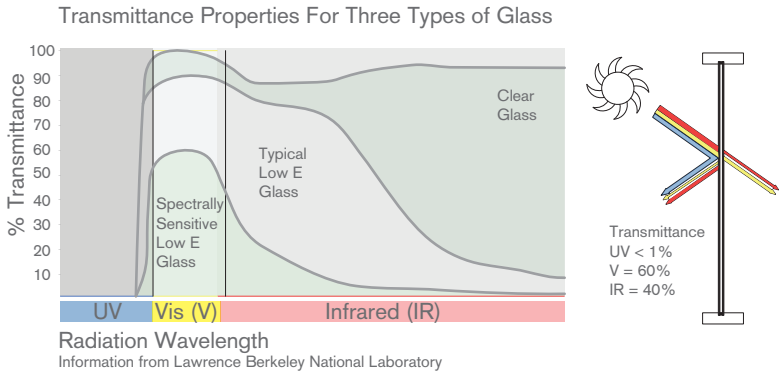
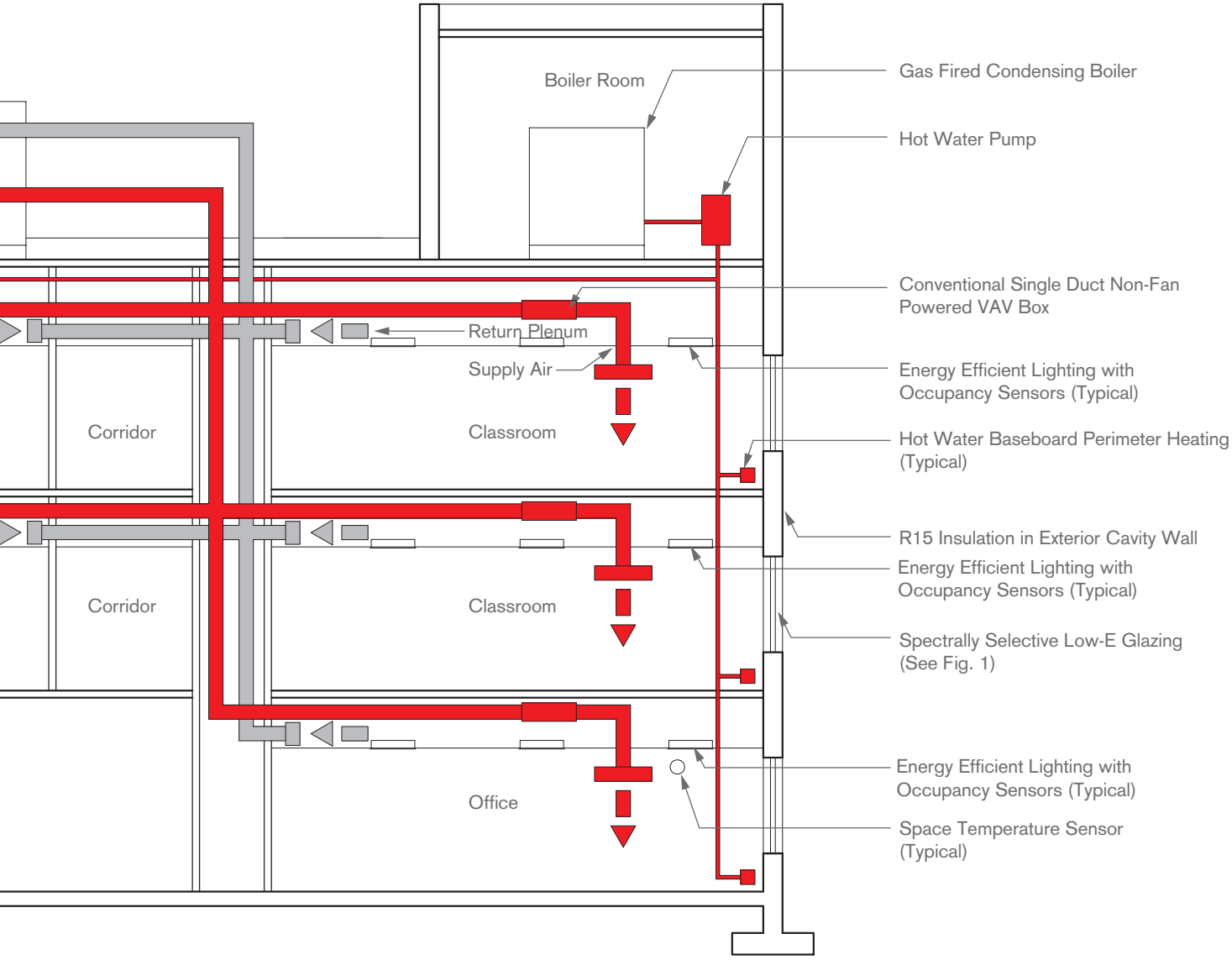


Fig. 1
Laminated spectrally selective low-E coating allows visible daylight and blocks UV transmission while inhibiting infrared light. Graph on left compares light transmission through clear, low-E, and spectrally selective low-E glazing



E4.1R HVAC SYSTEM SIZING, AVOID OVERSIZING

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Design all major HVAC components such that they are correctly matched to loads to preclude unnecessary over-sizing and to ensure energy efficient operation. This credit is required for all projects.	Systems shall be sized and configured to efficiently handle peak and design load conditions, but more importantly to operate in an energy-efficient manner during a wide range of partial load conditions, which are the operating ranges that HVAC systems handle most of the time. Submit the load calculations and a written narrative rationale for selecting the specified equipment and establishing the most efficient system size and configuration.	Best practices for compliance are incorporated in the referenced Design Requirement. Systems should not be sized so tightly that there is no allowance for degradation of equipment.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing how compliance will be achieved.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit the load calculations, design drawings and a written narrative rationale for selecting the specified equipment and establishing the most efficient system size and configuration.

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

NY CHPS Version 1.0 3.1.2
HVAC System Sizing

SCA DESIGN REQUIREMENTS

6.2.9 Heating and Cooling Design Parameters (Load Calculations)
6.2.13 Arrangement and Sizing of Equipment

SCA STANDARD SPECIFICATIONS

15540 HVAC Pumps
15565 Condensing Boilers
15650 Refrigeration
15781 Packaged Heating and Cooling Units
15783 Split Heat Pump System
15852 Air Handling Units
15853 Custom Packaged Rooftop Heating and Cooling Units (Variable Air Volume System)
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)
15855 Commercial Packaged Rooftop Heating and Cooling Units

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

E5.1 GREEN POWER

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Encourage the development and use of grid-source, renewable energy technologies on a net-zero basis.	Provide at least 35% of the building's electricity from renewable sources by engaging in at least a two-year renewable energy contract. Renewable sources are as defined by the Center for Resource Solutions (SRS) Green-e products certification requirements.	There is one approaches for achieving this credit. The City of New York purchases wind credits that support the production of approximately 29,000 MWH a year. The City has arranged with the U.S. Green Buildings Council (USGBC) to utilize this purchase in order to qualify for green power credits that contribute to the achievement of a LEED® rating on city projects. An application may be submitted once construction has begun, i.e. after the Certificate to Proceed into Construction has been approved by OMB. In order to apply, the agency that controls the expenditure of city funds on the project must complete both the Design Phase and Construction Phase portions of the online form entitled 2009 REPORTING FORM for Project Subject to LEED® Rating and/or Water Use Reduction Provisions of Local Law 86 of 2005, including the three lines, highlighted in green, that are related to green power. The MOEC, in consultation with Office of Management and Budget (OMB) and the Department of Citywide Administrative Services (DCAS), will review each application and DCAS will track those which are approved. If approved, the requested green power allocation will be processed by DCAS, who will transmit confirmation to the appropriate parties.

	CREDIT SUBMITTALS	REFERENCES
	DESIGN DEVELOPMENT No credit submittal. **60% CONSTRUCTION DOCUMENTS** **HVAC ENGINEER'S RESPONSIBILITY** •Include calculation of annual Green Power Allocation Request on NYC LL86/05 LEED Reporting Form using lines 39-40-41. **100% CONSTRUCTION DOCUMENTS** No credit submittal. **CONSTRUCTION** No credit submittal.	LEED-NC 2.2 Credit EA 6 Green Power **SCA DESIGN REQUIREMENTS** None **SCA STANDARD SPECIFICATIONS** none **SCA STANDARD DETAILS** None **OTHER REFERENCES** Green-e Program www.green-e.org US EPA www.epa.gov/greenpower NYC MOEC http://www.nyc.gov/html/oec/html/sustain/ll86_green_power_credit.shtml

The NYC Department of Sanitation (DSNY) web site reports that 12,000 tons per day of garbage are exported from New York City to outlying incinerators and landfills.

The selection of materials used in a construction project, and the manner in which materials are disposed of from construction sites and operating school facilities, have a significant impact on the natural and man-made environment. The purpose of this section is to encourage school design and construction that reduces the use of virgin natural resources and decreases the volume of waste materials disposed. This is achieved by:

- Requiring waste material recycling throughout the construction process.
- Limiting waste by encouraging re-use of existing structures and materials.
- Mandating selection of materials with high-recycled content.
- Providing for post-occupancy recycling in school buildings.

Since recycling forms the basis of students' first experience in environmental stewardship, it is important that the materials and building components of their schools are chosen, used, and disposed of responsibly.

MATERIALS

STORAGE & COLLECTION OF RECYCLABLES

INTENT	REQUIREMENTS	
Reduce the amount of waste to be disposed of in landfills by facilitating recycling. This credit is required for all projects.	1. Provide an easily accessible central area dedicated to the collection and storage of non-hazardous materials for recycling, including paper, corrugated cardboard, glass, plastics and metal. Provide space in, or adjacent to, this recycling area, for the storage of utility carts used for collecting trash and recyclables. Recycling, sorting and cart storage are not required at every floor. Equipment for storing and processing recyclables is provided by the SCA/F&E Unit based on a standard list of items per project type. 2. Size central recycling collection/ storage area according to guidelines in the Design Requirement DR1.3.1.8 Refuse and Recycling Storage, which are consistent with LEED-NC 2.2 space guidelines. Allow space for bailers and compactor in the Trash Room.	3. At the cafeteria, provide designated area(s) for bin(s) for recycling. Since the NYC Department of Sanitation sorts glass, plastic, metal, and milk and juice boxes off-site, only one type of recycling container needs to be provided at cafeterias. The amount of space for recycling containers is established by the Design Team based on criteria in DR#1.3.1.8. Provide wall-mounted sign holder(s) at cafeteria trash and recycling areas for the display of recycling instructional posters. 4. Within the kitchen area, provide space for two types of recycling containers to accommodate glass/ plastic/metal and paper/cardboard.

BEST PRACTICES AND IMPLEMENTATION

SCA Standard Details, Standard Specifications and Design Requirements include recycling areas.

The SCA F&E Unit standard furniture equipment lists include: two-bin utility cart and recycling containers for classrooms, offices and cafeteria. Design Team should confirm that these items are included in appropriate quantities on the purchase list developed by the SCA/F&E Unit for the specific project.

Develop layout for central recycling area and food service area to ensure there is sufficient space for required recycling bins, and any equipment such as compactors and balers that may be required. Location of central recycling containers shall promote easy handling and removal of those materials.

A best practice guideline for the minimum size of recycling areas is as follows:

School Area	MInimum Recycling Area
0 to 5000 sf	82 sf
5,001 to 15,000 sf	125 sf
15,001 to 50,00 sf	175 sf
50,001 to 100,000 sf	225 sf
100,001 to 200,000 sf	500 sf

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated in the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Incorporate credit requirements in specifications.
- On 60% construction document plans, indicate areas for recycling, noting recycling area square footage(s) and number of containers assumed at cafeteria and food service areas.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Incorporate requirements in construction documents.
- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Prerequisite MR Prerequisite 1 - Storage and Collection of Recyclables

SCA DESIGN REQUIREMENTS

DR 1.3.1.2 Building Organization - Space Relationships
DR 1.3.1.8 Refuse and Recycling Storage
DR 1.3.5.01 Cafeterias PK-8 and HS

SCA STANDARD SPECIFICATIONS

11172 Waste Handling Equipment

SCA STANDARD DETAILS

None

OTHER REFERENCES

NYC Department of Sanitation general web sites on recycling in schools:
http://www.nyc.gov/html/nycwasteless/html/recycling/recycling_schools.shtml
http://www.nyc.gov/html/nycwasteless/html/at_agencies/at_school_schoolresources.shtml

NYC Department of Sanitation web site lists what to recycle in different areas of the school:
http://www.nyc.gov/html/nycwasteless/html/recycling/recycling_schools.shtml#recyclingchecklist

BUILDING REUSE: EXISTING WALLS, FLOORS & ROOF

INTENT

Extend the useful life of existing building structures, conserve material resources, retain cultural resources, reduce waste and the environmental impacts of school projects as they relate to materials manufacturing and transport.

This credit is required, if feasible, for all applicable projects.

REQUIREMENTS

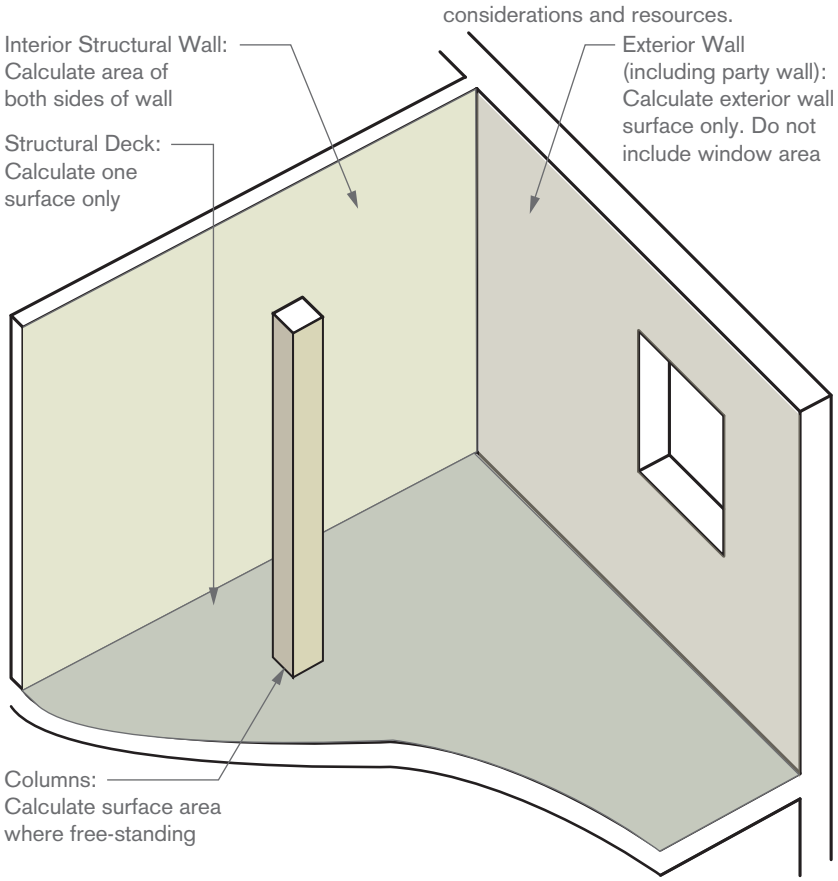
Credit	Existing Structure Re-used (Const. Waste Diverted)	Points
M1.2	75%	1
M1.3	75%	1

Maintain the targeted percentage (based on surface area) of existing building structure (including structural floor and roof deck) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). If the project includes an addition to an existing building, this credit is not applicable when the square footage of the addition is more than two times the square footage of the existing building.

Hazardous materials that are remediated as part of the project scope, and elements requiring replacement due to unsound material condition, shall be excluded from the total for the purpose of calculating the percentage of building materials re-used.

Projects involving modernizations or renovations that do not comply with this credit may use the weight of re-used building materials in their calculations for Construction Waste Management credits M1.5 and M1.6.

See the LEED-NC 2.2 Reference Guide for detail including approach and implementation, calculations, considerations and resources.



Structure and Envelope To Be Re-used

BEST PRACTICES AND IMPLEMENTATION

This credit is only feasible for modernizations, renovations of leased spaces, and for additions fitting the size criteria outlined in the credit requirements.

The design should not be compromised to achieve this credit. This credit should only be pursued when there is no negative impact on design, including cost and program function.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a narrative statement indicating if these credits are feasible or whether the portion of building elements to be reused is so low that their reuse should be used to contribute to credits M1.5 and M1.6 instead .
- For projects that combine a renovation and an addition, submit calculations showing that the addition is less than two times the square footage of the existing building.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit draft Building Reuse Calculation Form.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- No credit submittal.

CONSTRUCTION

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit final Building Reuse Calculation Form (all modernization and renovation projects).

REFERENCES

LEED-NC 2.2 Credit MR 1.1 Building Reuse – Maintain 75% of Existing Walls, Floors and Roof

LEED-NC 2.2 Credit MR 1.2 – Building Reuse – Maintain 95% of Existing Walls, Floors and Roof

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT

Extend the useful life of existing building materials, conserve material resources, retain cultural resources, reduce waste and the environmental impacts of school projects as they relate to materials manufacturing and transport.

This credit is required, if feasible, for all applicable projects.

REQUIREMENTS

Reuse a minimum of 50% of pre-existing interior non-structural elements (interior walls, doors, floor coverings and ceiling systems).

This credit may be pursued independently of credits M1.2 and M1.3.

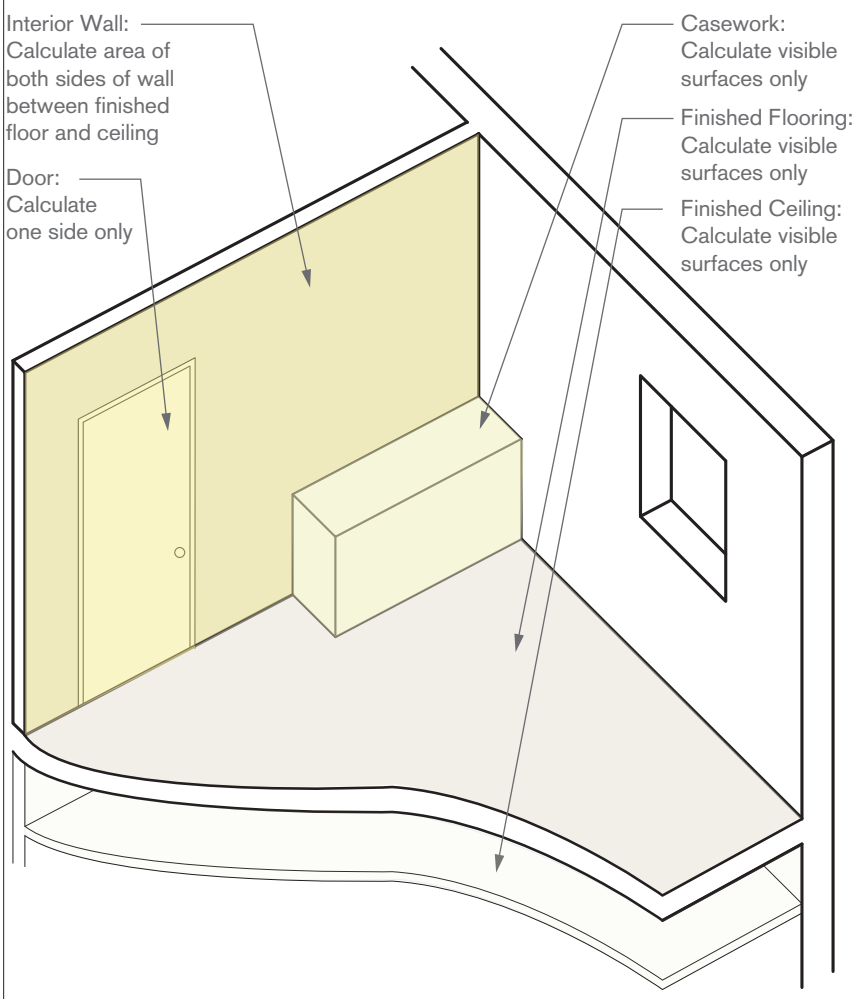
If the project includes an addition to an existing building, this credit is not applicable when the square footage of the addition is more than two times the square footage of the existing building.

When calculating surface areas of materials, count both sides of walls, but only one side of doors.

Hazardous materials that are remediated as part of the project scope, and elements requiring replacement due to unsound material condition, shall be excluded from the total for the purpose of calculating the percentage of building materials re-used.

Projects involving modernizations or renovations that do not comply with this credit may use the weight of re-used building materials in their calculations for Construction Waste Management credits M1.5 and M1.6.

See the LEED-NC 2.2 Reference Guide for details including approach and implementation, calculations, considerations and resources.



Interior Non-Structural Elements Surface Area Calculation Method

BEST PRACTICES AND IMPLEMENTATION

This credit is only feasible for modernizations, renovations of leased spaces, and for additions fitting the size criteria outlined in the credit requirements.

The design should not be compromised to achieve this credit. This credit should only be pursued when there is no negative impact on design, including cost and program function.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a narrative statement indicating if this credit isfeasible, or whether the portion of building elements to be reused is so low that their reuse should be used to contribute to credits M1.5 and M1.6 instead .
- For projects that combine a renovation and an addition, submit calculations showing that the addition is less than two times the square footage of the existing building.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit draft Building Reuse Calculation Form.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- No credit submittal.

CONSTRUCTION

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit final Building Reuse Calculation Form (all modernization and renovation projects).

REFERENCES

LEED-NC 2.2 Credit MR 1.3 Building Reuse – Maintain 50% of Interior Non-Structural Elements

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT

Divert recyclable and reusable construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Credit M1.5R is required for all projects.

Credit M1.6 is required, if feasible, for all projects.

REQUIREMENTS

1. Recycle and/or salvage non-hazardous construction and demolition waste.

Credit	Const. Waste Diverted	Points
M1.5R	50%	1
M1.6	75%	1

2. The Contractor is to develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land-clearing debris does not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.

BEST PRACTICES AND IMPLEMENTATION

The SCA Standard Specifications include requirements for the Contractor to develop a construction waste management plan and to record the amount and type of construction waste diverted/recycled.

In NYC, construction waste for recycling is typically sorted off-site. Typical construction waste materials for recycling are wood, cardboard/paper packaging, masonry and steel.

Projects involving renovations that do not comply with building re-use credits M1.2 to M1.4 may use the weight of re-used building materials calculated on the Building Reuse Form toward credits M1.5R and M1.6.

See LEED-NC 2.2 Reference Guide for detail including approach and implementation, calculations, considerations and resources.

The feasibility of credit M1.6 will be determined during construction based on construction waste documentation submitted by the Contractor.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative identifying applicable SCA standards to be incorporated. Indicate if building structure or non-structural items are anticipated to be re-used in quantities that would contribute to this credit as opposed to credits M1.2-M1.3 or M1.4.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate credit requirements in specifications.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

CONTRACTOR'S RESPONSIBILITY

Per the Project Specifications:

• Submit construction waste management plan.

• Submit waste reduction progress reports with each application for payment.

• Submit construction waste calculations and letter stating total waste material diverted and method of diversion.

• Complete construction waste matrix included in the specifications.

ARCHITECTS'S RESPONSIBILITY

• For projects where portions of existing building elements will be revised in quantities that will comply with this credit, submit Building Reuse Calculation Form.

REFERENCES

LEED-NC 2.2 Credit MR 2.1
Construction Waste Management
– Divert 50% from Disposal

LEED-NC 2.2 Credit MR 2.2
– Construction Waste Management
– Divert 75% from Disposal

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01524 Construction Waste Management
02060 Building Demolition
02070 Selective Removals & Demolition

SCA STANDARD DETAILS

None

OTHER REFERENCES

"Construction and Demolition Waste Manual" Prepared for NYC Department of Design & Construction DDC, 2003: http://www.nyc.gov/html/ddc/downloads/pdf/waste.pdf

M2.1R RECYCLED CONTENT, 10% (POST-CONSUMER + 1/2 PRE-CONSUMER)

INTENT

Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from the extraction and processing of virgin materials.

This credit is required for all projects.

REQUIREMENTS

Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer recycled content constitutes at least 10% (based on cost) of the total value of the materials in the project.

The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value. Recycled contents shall be defined in accordance with the International Organization for Standardization document, ISO 14021 – Environmental labels and declaration – Self-declared environmental claims (Type II environmental labeling).

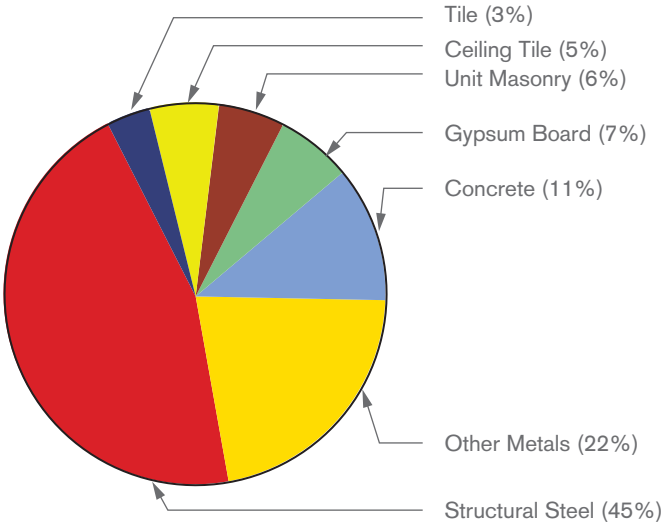
The following materials are not required to be included in calculations for this credit: mechanical, electrical and plumbing components, elevators and furniture, fixtures and equipment.

Pre-consumer material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Per the methodology for this credit in the current version of LEED, the typical value of materials on the project can be assumed to be 45% of the cost of Divisions 2-10. SCA projects should use this assumption as opposed to totaling materials use for each item. In New York City, where labor rates are high, this is a conservative assumption.

Items recycled on-site (e.g., pavement ground on-site and reused as fill) count toward M1.5R and M1.6 Construction Waste Management Credits – not toward this credit.

Breakdown of Approximate Percentage of Recycled Material for Typical School to Achieve 10% Recycled Content



BEST PRACTICES AND IMPLEMENTATION

SCA specification sections include minimum recycled content limits for major project components. The recycled content percentages have been selected to achieve this credit's requirement in the full range of school projects and are typical of those products.

Review of final calculation results from completed school projects will allow for future refinement of products and percentages.

Summary of Materials Specified with Recycled Content

Material	Min. % Post-Cons. Content	Min. % Pre-Cons. Content
Recycled Concrete Aggregate	Ask to report	
Asphalt Pavement	Ask to report	
Concrete	6% Combined	
Concerete Masonry Unit	3% Combined	
Brick	Ask to report	
Stuctural Steel	30%	15%
Non-Structural Steel	25%	0%
Batt Insulation	0%	20%
Rigid Insulation	7% Combined	
Sprayed Fire Resistive Materials	5% Combined	
Roofing Membrane	7%	0%
Aluminum Projected Windows	Ask to report	
GWB	5%	90%
Abuse Resistant GWB	0%	0%
Fire Rated GWB	0%	0%
GB/Tile Backer Board	5%	0%
Ceramic Wall Tile	0%	4%
Ceramic Floor Tile	0%	40%
Ceramic Quarry Tile	0%	8%
Acoustic Ceiling Tile	0%	60%
VCT	0%	1%
Vinyl Sheet Flooring	0%	1%

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate credit requirements in construction documents. Indicate any products beyond those in the Standard Specifications where recycled content is to be reported.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

CONTRACTOR'S RESPONSIBILITY

Per the Project Specifications:

• Submit Contractor's Sustainable Materials Forms with information on recycled content.

• Submit construction cost figure for CSI divisions 2-10.

ARCHITECT'S RESPONSIBILITY

• Review Contractor's submittals for verification of regional content levels.

• Submit Recycled Content Summary Form based on Contractor's Sustainable Materials Forms and construction cost figure.

• Submit Certification Form with completed information for this credit.

REFERENCES

LEED-NC 2.2 Credit MR 4.1
Recycled Content 10% (Post-Consumer + ½ Pre-Consumer)

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

02200 Earthwork
02511 Asphaltic Concrete Paving
02513 Sidewalk and Street Paving
03300 Cast-in-Place Concrete
04200 Unit Masonry
05120 Structural Steel
05210 Open Web Steel Joist, K-Series
05220 Longspan Steel Joists. LH Series
05230 Steel Joist Girders
05710 Steel Stairs
07211 Perimeter Foundation Inslulation
07212 Miscellaneous Building Insulation
07250 Sprayed Fire-Resistive Materials
07560 Fluid-applied Protected Membrane Roofing
08524 Aluminum Projected Windows
09260 Gypsum Board Assemblies
09310 Ceramic Tile
09510 Acoustic Ceilings
09650 Resilient Flooring
09680 Carpet
10151 Toilet Compartments

SCA STANDARD DETAILS

None

OTHER REFERENCES

REGIONAL MATERIALS, 10% EXTRACTED, PROCESSED & MANUFACTURED REGIONALLY

INTENT

Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

This credit is required for all projects.

REQUIREMENTS

Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total material value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (calculate cost contribution by percentage of weight) shall contribute to the regional value.

The following materials are not required to have regional content for compliance with this credit: mechanical, electrical and plumbing components and specialty items such as elevators and furniture fixtures and equipment.

Per the methodology of this credit in the current version of LEED, the typical value of materials on the project can be assumed to be 45% of the cost of Divisions 2-10. SCA projects should use this assumption as opposed to totaling materials use for each item. In New York City, where labor rates are high, this is a conservative assumption.

BEST PRACTICES AND IMPLEMENTATION

To be consistent with city and state requirements the SCA specifications do not mandate regional content for materials. Design teams may not add requirements to the specifications that materials be extracted, processed and manufactured regionally.

The SCA specifications, without mandating regional content, require documentation of any regional content for a select group of materials which are available regionally. It is anticipated that typical projects will meet this credit's requirements by obtaining the specified information on these materials.

Review of final calculation results from completed school projects will allow for future refinement of products.

Summary of Materials for Which Regional Content Documentation Requested

Section Number	Material
02200	Fill & Backfill Materials
02511, 02513	Asphalt Pavement
02900	Landscaping Materials
02513, 03300	Concrete
04200	Concrete Masonry Units
04200	Brick
Division 5	Structural Steel, Steel Joists
05300	Metal Deck
09260	Gypsum Wallboard
09260	Tile Backer Board
09310	Ceramic Tile

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate requirements in specifications.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

CONTRACTOR'S RESPONSIBILITY

Per the Project Specifications:

• Submit Contractor's Sustainable Materials Forms with information on regional content.

• Submit construction cost figure for CSI divisions 2-10.

ARCHITECT'S RESPONSIBILITY

• Review Contractor's submittals for verification of regional content levels.

• Submit Regional Content Summary Form based on Contractor's Sustainable Materials Forms and construction cost figure.

• Submit Certification Form with completed information for this credit.

REFERENCES

LEED-NC 2.2 Credit MR 5.1
Regional Materials 10% Extracted, Processed & Manufactured Regionally

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

02200 Earthwork
02511 Asphaltic Concerete Paving
02513 Sidewalk and Street Paving
02900 Landscaping
03300 Cast-in-Place Concrete
04200 Unit Masonry
05120 Structural Steel
05210 Open Web Steel Joist, K-Series
05220 Longspan Steel Joists, LH-Series
05230 Steel Joist Girders
05300 Metal Deck
09260 Gypsum Board Assemblies

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
To incorporate mold resistant materials at the building envelope, including wallboard and roof deck products. This credit is required for all projects.	Select materials for exterior envelope construction that are resistant to mold. Incorporate mold resistance standards in specifications for applicable materials at the building envelope.	The SCA standards and specifications call for materials at the building envelope that contains little or no organic material. The standard for exterior wall construction is brick and block cavity wall. The standard for roof deck is concrete on metal deck. The Standard Specifications include requirements for compliance with mold resistant standards for wallboard, spray fireproofing, building insulation, exterior and interior paint. The standards referenced in the specification are included for reference in the "Other References" section on the facing page. SCA standard details have been developed to address the critical element in mold resistance: water penetration.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Incorporate credit requirements in specifications.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.

CONSTRUCTION

No credit submittal.

REFERENCES

NY-CHPS Version 1.0 Credit 4.1.1
Wallboard & Roof Deck Products

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

06100 Rough Carpentry
07212 Miscellaneous Building Inslulation
07250 Sprayed Fire-Resistive Materials
09260 Gypsum Board Assemblies
09900 Painting

SCA STANDARD DETAILS

None

OTHER REFERENCES

ASTM G21-02 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

ASTM D4300-01 Standard Test Methods for Ability of Adhesive Films to Support or Resist the Growth of Fungi

ASTM D3273-00(2005) Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

ASTM D2020-92(2003) Standard Test Methods for Mildew (Fungus) Resistance of Paper and Paperboard

ASTM C1338-00 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Fluorescent and HID lamps contain mercury. When broken, incinerated or buried in a landfill, they release mercury into the air, water and soil and endanger human health and the environment. Low-mercury, or "green end cap," lamps do not eliminate the hazardous waste stream but do reduce it considerably. This credit is required for all projects.	Specify low-mercury fluorescent lamps for all new fluorescent light fixtures.	The SCA Standard Specifications include this requirement for light fixtures. Any additional non-standard fluorescent fixtures approved for incorporation in the project by the SCA must also comply.

CREDIT SUBMITTALS	REFERENCES

DESIGN DEVELOPMENT

ELECTRICAL ENGINEER'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ELECTRICAL ENGINEER'S RESPONSIBILITY

- Incorporate credit requirements in specifications.

100% CONSTRUCTION DOCUMENTS

ELECTRICAL ENGINEER'S RESPONSIBILITY

- Update specifications as required for low-mercury fluorescent fixtures of non-standard SCA fixtures.
- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No Credit Submittal.

NY-CHPS Credit 7.2.3
Purchase Low-Mercury Lighting Reduce Mercury Waste

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

16501 Lamps, Ballasts and Accessories

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INDOOR ENVIRONME

Because of the high rates of asthma among NYC school children and current concerns about the health of students and staff, the SCA has expanded and placed great emphasis on this section of the NYC Green Schools Guide. Over one third of the credits in the guide are devoted to indoor environmental quality.

The credits in this section improve indoor environmental quality during construction and after occupancy by requiring a higher standard of performance relating to:

- Construction practices
- Operational and maintenance practices
- Selection of low-emitting materials
- Improved ventilation
- Air-flow monitoring and verification

IEQ improvements are provided throughout the school and include:

- Natural day lighting, views, and glare control measures
- Indirect artificial lighting and controls
- Improved acoustic performance
- Thermal comfort control
- Improved air filtration
- Reduced levels of indoor air contaminants

Together, these measure will provide a healthy, comfortable indoor environmental for NYC public schools

NTAL QUALITY

Q1.1R MINIMUM IAQ PERFORMANCE / INCREASED VENTILATION

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Establish minimum indoor air quality (IAQ) performance to enhance indoor environment in buildings, thus contributing to the comfort and well-being of the occupants. This credit is required for all projects.	1. Meet the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2004 Ventilation for Acceptable Indoor Air Quality. 2. The mechanical system shall be designed using whichever ventilation rates are larger: the NYC DOB Code ventilation rates or 30% above the ASHRAE Standard 62.1-2004 breathing zone outdoor ventilation rates. The exceptions are cafeterias and multipurpose rooms served by rooftop units that also serve an associated kitchen. The mechanical systems for these cafeterias and multi-purpose rooms shall be designed using whichever ventilation rate is larger: NYC DOB Code ventilation rates or ASHRAE Standard 62.1-2004 breathing zone outdoor ventilation rates, without the 30% increase. The auditorium and gymnasium spaces shall achieve the 30% increase as stipulated above and shall use CO2 controls to modulate breathing zone rates. Mechanical ventilation, as opposed to natural ventilation, is the SCA standard because it facilitates control of indoor thermal conditions.	The SCA Design Requirements, specifications, and details are consistent with compliance with this credit. Section 4 of ASRAE 62.1-2004 addresses analysis of outdoor air quality. The SCA/IEH Unit conducts site investigation and research consistent with this section. This information is provided to the Design Team. The MERV 13 filters specified for fresh air intake are sufficient to accommodate any instances where New York City counties are non-attainment area for particulate matter (PM10). When the IEH Unit investigation indicates the county that the project is located in is a non-attainment area for ozone, special filters will be required. Compliance with the other three referenced sections of ASHRAE 62.1-2004 do not involve input from SCA/IEH. The content of those sections is summarized below. Section 5. Systems and Equipment –- requirements for: outdoor air intake and exhaust, filtration, dehumidification, and recirculation of air and relative humidity. Section 6 Procedures – ventilation rate procedures. Section 7 Construction and Systems Start-up – protection, construction, start-up, field testing and balancing.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

- Submit IEH outdoor air analysis report.
- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents. Describe the proposed ventilation system design and note any special considerations relating to compliance.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

- Comply with SCA Design Requirements.
- Edit SCA Standard Specifications.
- Incorporate credit requirements in construction documents. Submit ventilation calculations verifying compliance with Table 6-1 of ASHRAE 62.1-2004 entitled, "Minimum Ventilation Rates in Breathing Zone", increased by 30% (with the exception of the cafeterias and multi-purpose rooms).

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

CONTRACTOR'S RESPONSIBILITY

Per the Project Specifications:

- Provide air balancing reports.

COMMISSIONING AGENT'S RESPONSIBILITY

- Verify outside air quantities.

REFERENCES

LEED NC 2.2 Credit EQ Prerequisite 1 – Minimum IAQ Performance
LEED NC 2.2 Credit EQ 2 – Increased Ventilation
ASHRAE 62.1-2004

SCA DESIGN REQUIREMENTS

6.2.0 General Overview of Heating Ventilation and Air Conditioning Systems
6.2.1 HVAC Unit Centralization and Coordination
6.2.3 Non-Assembly Spaces (Classrooms, Offices, etc.)
6.2.4 Public Assembly Spaces
6.2.9 Heating and Cooling Design Parameters (Load Calculations)

SCA STANDARD SPECIFICATIONS

S01550 Indoor Air Quality Requirements
15781 Packaged Heating and Cooling Units
15852 Air Handling Units
15853 Custom Packaged Rooftop Heating and Cooling Units (Variable Air Volume System)
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)
15855 Commercial Packaged Rooftop Heating and Cooling Units
15985 Sequence of Operations
15992 Cleaning and Testing
15993 Balancing of Systems

SCA STANDARD DETAILS

None

OTHER REFERENCES

The US Environmental Protection Agency:
www.epa.gov/iaq

Information on New York City Region outdoor air quality:
http://www.epa.gov/air/data/repsst.html?st~NY~New%20York

Indoor Air Quality in Large Buildings:
http://www.epa.gov/iaq/largebldgs/index.html

Building Assessment Survey and Evaluation (BASE) Study:
www.epa.gov/iaq/largebldgs/base_page.htm

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Monitor and collect data at all outdoor air intakes to ensure that indoor air quality meets established standards. This credit is required for all projects.	Provide air flow stations on all outdoor air intakes of central ventilating and air-conditioning equipment. These systems must include data accumulation and be down-loadable for printout. Data to be accumulated on cubic feet per minute basis once a day during school operation.	DESIGN SCA Design Requirements and Standard Specifications include air flow stations and monitoring requirements. Air flow stations shall be provided at all outside air intake air systems of central air distribution systems. POST-OCCUPANCY Per the NY-CHPS basis for this credit, there are specific post-occupancy operating and reporting requirements that DOE/DSF shall comply with: • Air flow stations shall be calibrated on a yearly basis by DOE/DSF staff or as indicated by manufacturer recommendations. • Outside air quantities for each air distribution system shall be provided to the NYC DOE Health and Safety Committee on a quarterly basis. • Information shall be kept three years from the date of collection and shall be made available to the public upon request.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents. Describe air flow stations and monitoring system and note any special considerations relating to compliance.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

COMMISSIONING AGENT'S RESPONSIBILITY

• Verify operation of flow measuring stations.

NY-CHPS Version 1.0Credit 5.4.8
Air Flow Stations on Outside Air Intakes

SCA DESIGN REQUIREMENTS

6.2.0 General Overview of Heating Ventilation and Air Conditioning Systems
6.2.1 HVAC Unit Centralization and Coordination
6.2.3 Non-Assembly Spaces (Classrooms, Offices, etc.)
6.2.4 Public Assembly Spaces
6.2.9 Heating and Cooling Design Parameters (Load Calculations)

SCA STANDARD SPECIFICATIONS

15970 Temperature Control System (LonWorks BMS/DDC With School Operating Console)
15985 Sequence of Operations

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS
Reduce indoor air quality problems resulting from the construction process in order to help sustain the comfort and well-being of construction workers and building occupants. This credit is required for all projects.	Per the Project Specifications the Contractor is to: 1. Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building as follows: • During construction, meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 1995, Chapter 3. • Protect absorptive materials that are either stored on-site or installed from moisture damage. • If permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) 8 shall be used at each return air inlet (i.e., grilles, registers, openings in ductwork where ceilings are used as return air plenums) as determined by ASHRAE 52.2-1999. Per LEED-NC 2.2, running mechanical equipment for balancing or commissioning is exempt. • Replace all permanently required filtration media immediately prior to occupancy. 2. Mechanically exhaust materials that emit Volatile Organic Compounds (VOCs) or urea formaldehyde during installation. Continue ventilation of those materials after installation for at least 72 hours or until emissions dissipate. It is reasonable to exempt from these requirements, materials that comply with low emissions criteria in credits Q3.1-Q3.5. 3. Use high-efficiency particulate arrestor (HEPA) vacuum on carpeted and soft surfaces prior to substantial completion. For phased, occupied renovations, HEPA vacuum any carpet daily in occupied areas. 4. During construction or renovation, meet or exceed the following minimum requirements: • Building materials, such as wood, porous insulation, paper and fabric, shall be kept dry to prevent the growth of mold and bacteria. • Schedule deliveries so that materials that are susceptible to mold growth are installed after the construction area is watertight. • During construction, cover these materials to prevent rain damage, and if resting on the ground, use spacers to allow air to circulate between the ground and the materials. Provide site drainage as needed. • Water-damaged materials shall begin to be dried within 24 hours. Due to the possibility of mold and bacterial growth, materials that are damp or wet for more than 48 hours may need to be discarded as determined by the SCA. • Immediately remove materials showing signs of mold and mildew, including any with moisture stains, from the site and properly dispose of them. Replace moldy materials with new, undamaged materials. 5. If it is not possible to install high VOC-emitting products before porous and fibrous materials (such as carpet) are installed, protect porous materials with polyethylene vapor retarders. Install carpet after spaces have been painted.

BEST PRACTICES AND IMPLEMENTATION

The SCA specification Section S01550, Indoor Air Quality Requirements, requires development and implementation of an IAQ plan consistent with this credit's requirements.

Section S01560 Iinstallation Sequence of Finish Materials, requires the Contractor to sequence the installation of materials to avoid contamination of absorptive materials, such as insulation, carpeting, ceiling tile and gypsum wallboard.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ENGINEER'S RESPONSIBILITY

• Include appropriate specification sections with submittal. Review any project specific modifications with SCA Design Manager.

100% CONSTRUCTION DOCUMENTS

ENGINEER'S RESPONSIBILITY

No credit submittal.

CONSTRUCTION

CONTRACTOR'S RESPONSIBILITY

Per the Project Specifications:

• Submit comleted Contractor's Certification Form.

• Submit project specific IAQ Management Plan and digital photos of six SMACNA IAQ measures taken during construction.

REFERENCES

LEED NC 2.2 Credit EQ 3.1 Construction IAQ Management Plan, During Construction

NY-CHPS Version 1.0 Credit 5.4.1 IAQ During Construction

NY-CHPS Version 1.0 Credit 5.4.2 Mold Protection

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01550 Indoor Air Quality Requirements
S01560 Installation Sequence of Finish Materials

SCA STANDARD DETAILS

None

OTHER REFERENCES

Executive Order No. 111, "Green and Clean" State Buildings and Vehicles Guidelines, http://www.nyserda.org/programs/exorder111.asp

SMACNA IAQ Guidelines for Occupied Buildings under Construction, 1995, Chapter 3.

ASHRAE 52.9-1999

Q2.2R CONSTRUCTION IAQ MANAGEMENT PLAN, BEFORE OCCUPANCY

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce indoor air quality problems resulting from the construction process in order to help sustain the comfort and well-being of building occupants. This credit is required for all projects.	LEED describes several alternate methods of flushing out the building at the completion of construction. After construction ends, but prior to occupancy and with all interior finishes installed, perform a building full flush-out. Supply the total air volume of 14,000 cubic foot of outdoor air per square foot of floor area prior to occupancy maintaining an internal temperature higher than 60 ° F dry bulb and relative humidity no higher than 60%. If there is not enough time for full flush-out in the construction schedule, the space may be occupied following delivery of a minimum of 3,500 cubic foot of outdoor air per square foot of floor area to the space. Once the school is occupied, it shall be ventilated at a rate of 0.30 cubic feet per minute per square foot of outside air or the design minimum outside air rate, whichever is greatest. During each day of the flush-out period, ventilation shall begin a minimum of three hours prior to occupancy and continue during occupancy and shall continue until a total of 14,000 cubic square foot of outside air has been delivered to the space.	The SCA specifications include Section S01550, Indoor Air Quality Requirements. For a typical IS/HS, the full 14,000 cubic feet of outdoor air during full flush-out prior to occupancy was calculated to take over 3 weeks, whereas the 3,500 cubic feet of outdoor air for flush-out was estimated to take approximately a third of that time. The Commissioning agent shall verify that the IAQ Management Plan proposed by the Contractor is acceptable. The Commissioning agent shall also verify that the actual procedures used to accomplish this credit have been met, including direct verification by visual inspection of the CFM values on the BMS workstations. The quantity of outside air delivered shall be verified through the BMS and shall include, in the aggregate, the total of all outside air flows as measured by the outside air flow stations.

CREDIT SUBMITTALS	REFERENCES
DESIGN DEVELOPMENT ENGINEER'S RESPONSIBILITY • Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents. **60% CONSTRUCTION DOCUMENTS** ENGINEER'S RESPONSIBILITY • Incorporate credit requirements for IAQ Management Plan in the construction documents. **100% CONSTRUCTION DOCUMENTS** ENGINEER'S RESPONSIBILITY No credit submittal. **CONSTRUCTION** CONTRACTOR'S RESPONSIBILITY Per the Project Specifications: • Submit Contractor Certification Form. • Submit a narrative describing the project's specific flush-out method procedures. • Indicate flush-out period on the construction schedule. • Submit calculations to determine the total volume of outside air required to comply with the flush-out requirement, and the required amount of time to deliver this amount of air (at a minimum position of the designed air flow rate per HVAC unit).	LEED-NC 2.2 Credit EQ 3.2 Construction IAQ Management Plan, Before Occupancy NY-CHPS Credit 5.4.7 and 5.4.8 SMACNA - IAQ **SCA DESIGN REQUIREMENTS** None **SCA STANDARD SPECIFICATIONS** S01550 Indoor Air Quality Requirements **SCA STANDARD DETAILS** None **OTHER REFERENCES** Indoor Air Quality – design tools for schools: http://www.epa.gov/iaq/schooldesign/controlling.html Air Quality Sciences Resource Center: http://www.aerias.org Sheet Metal and Air Conditioning Contractors' National Association: www.smacna.org

INTENT

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well being of installers and occupants.

This credit is required for all projects.

REQUIREMENTS

All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards:

Adhesives, Sealants and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits are listed in the table below and correspond to an effective date of July 1, 2005, and rule amendment date of January 7, 2005.

Aerosol Adhesives Green Seal Standard for Commercial Adhesives GS-36 requirements in effect on October 19, 2000.

SCAQMD VOC Limits - 1/7/05

Architectural Applications	VOC Limit (g/L less water)
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Wood Flooring Adhesives	100
Rubber Floor Adhesives	60
Subfloor Adhesives	50
Ceramic Tile Adhesives	65
VCT & Asphalt Adhesives	50
Drywall & Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70
Structural Glazing Adhesives	100
Substrate Specific Applications	**VOC Limit (g/L less water)**
Metal to Metal	30
Plastic Foams	50
Wood	30
Fiberglass	80
Porous Material (except wood)	50

Specialty Applications	VOC Limit (g/L less water)
PVC Welding	519
CPVC Welding	490
ABS Welding	325
Plastic Cement Welding	250
Adhesive Primer for Plastic	550
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140
Sheet Applied Rubber Lining Operations	850
Top& Trim Adhesive	250
Sealant Applications	**VOC Limit (g/L less water)**
Architectural	250
Architectural Non Porous	250
Architectural Porous	775
Nonmembrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Other	420

BEST PRACTICES AND IMPLEMENTATION

The SCA Standard Specifications specify low-emitting adhesives and sealants and require Contractors to submit documentation of VOC content.

The limits listed below are included in specification section G01600, Material and Equipment . These limits are equal to or more stringent than current New York State VOC limits.

Any adhesives and sealants added to a specific project's specifications must meet these low VOC requirements including products in MEP, structural and architectural sections.

Design teams must review Contractor's construction submittals and include VOC information on the Low-Emitting Material - Summary Form.

Aerosol Adhesives Applications	VOC Limit (g/L less water)
General Purpose Mist Spray	65% VOC's by wt.
General Purpose Web Spray	55% VOC's by wt.
Special Pupose (all types)	70% VOC's by wt.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

ARCHITECT'S RESPONSIBILITY

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.
• Submit Certification Form with completed information for this credit.

LEED-NC 2.2 Credit EQ 4.1
Low- Emitting Materials, Adhesives and Sealants

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

References throughout specifications
G01600 Material and Equipment
07900 Joint Sealers
09680 Carpet
15401 Supplemental General Requirements
15440 Plumbing Fixtures

SCA STANDARD DETAILS

None

OTHER REFERENCES

Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, by the California Department of Health Services:
www.aqmd.gov/rules/reg/reg11/r1168.pdf

Green Seal Standards and Certification for Commercial Adhesives:
http://www.greenseal.org/certification/standards/commercial_adhesives_GS_36.cfm

NYS Department of Environmental Conservation VOC limits:
http://www.dec.ny.gov/regs/4279.html

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants. This credit is required for all projects.	Paints and coatings used on the interior of building (defined as inside of the weatherproofing system and applied on-site) shall comply with the following criteria: Interior Paints and Coating Standards Summary	The SCA Standard Specifications specify low-emitting paints and coatings and require Contractors to submit documentation of VOC content. The limits in the adjacent chart are included in specification section G01600, Material and Equipment. These limits are equal to or more stringent than current New York State VOC limits. Any paints and coatings added to a specific project's specifications must meet these low VOC requirements including products in MEP, structural and architectural sections. Design teams must review Contractor's construction submittals and include VOC information on the Low-Emitting Material - Summary Form.

Architectual Paints, Coatings and Primers applied to Interior Walls and Cellings	
GS-11	
Green Seal Standard	
Paints, 1st Edition, 5/20/1993	
Anti-Corrosive and Anti-Rust Paints applied to Interior Ferrous Metal Substrates	VOC Limit (g/L less water)
GS-03	250
Green Seal Standard	
Anti-Corrosive Paints	
2nd Edition, 1/7/1997	
Clear Wood Finishes, Floor Coating, Stains, Sealers and Shellacs applied to Interior Elements	
SCAQMD Rule 1113	
South Coast Air Quality Management	
District, Architectual Coatings	
1/1/2004	

CREDIT SUBMITTALS	REFERENCES

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

ARCHITECT'S RESPONSIBILITY

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.
• Submit Certification Form with completed information for this credit.

LEED-NC 2.2 Credit EQ 4.2
Low-Emitting Materials, Paints and Coatings

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

References throughout specifications
G01600 Material and Equipment
09900 Painting

SCA STANDARD DETAILS

None

OTHER REFERENCES

Green Seal Standards and Certification for Paints:
http://www.greenseal.org/certification/standards/gs11paintscoatings.cfm

Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, by the California Department of Health Services:
www.aqmd.gov/rules

NY State VOC limits for architectural coatings:
http://www.dec.ny.gov/regs/4279.html

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants. This credit is required for all projects.	All carpet installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program. All carpet adhesive shall meet the requirements of Q3.1 VOC limit of 50g/L. This credit will not be achieved if there is no carpet in the building. School projects to which this guide applies typically include carpet.	The SCA Standard Specifications specify low-emitting carpet and carpet pad complying with this credits requirements. New York State DEC does not currently include VOC limits for carpet or carpet pad. Design Teams must specify complying products. Carpets complying with this standard can be found on referenced Carpet and Rug Institute website. Design teams must review Contractor's construction submittals and include VOC information on the Low-Emitting Material - Summary Form.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

ARCHITECT'S RESPONSIBILITY

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.
• Submit Certification Form with completed information for this credit.

REFERENCES

LEED-NC 2.2 Credit EQ 4.3
Low-Emitting Materials, Carpet Systems

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

G01600 Material and Equipment
09680 Carpet

SCA STANDARD DETAILS

None

OTHER REFERENCES

The Carpet and Rug Institute:
www.carpet-rug.org

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants. This credit is required for all projects.	Composite wood and agrifiber products used on the interior of the building (defined as inside the weatherproofing system) shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins. Composite wood and agrifiber products include particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores. Materials considered fit out, furniture and equipment (F&E) are not included. Examples of products this credit would apply to include casework, millwork, plywood subflooring, wood doors and mounting boards for MEP panels. Because plywood roof deck for metal roofing is within the vapor barrier this credit would apply to that product as well. This credit does not apply to formwork.	The SCA standards specifications specify compliant wood and agrifiber products. For instance, millwork is specified with compliant plywood, wood doors are specified with compliant cores, and MEP mounting panels are specified as fire-rated, non-urea-formaldehyde plywood. Typical composite wood binder alternatives to urea-formaldehyde include phenol formaldehyde and MOI (methylene diphenyl isocyanate) and PVA (polyvinyl acetate). Note that if the composite wood and agrifiber product contains no urea-formaldehyde, fire-rating treatments typically add no urea-formaldehyde. Any composite wood or agrifiber products added to a specific project's specifications must meet this credits requirements. Design teams must review Contractor's construction submittals and include the appropriate information on the Low-Emitting Material - Summary Form.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

ARCHITECT'S RESPONSIBILITY

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.
• Submit Certification Form with completed information for this credit.

LEED-NC 2.2 Credit EQ 4.4 – Low-Emitting Materials, Composite Wood & Agrifiber Products

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

06100 Rough Carpentry
06200 Finish Carpentry
06410 Custom Casework
08210 Wood Doors
09590 Wood Flooring
10100 Visual Display Boards
10415 Bulletin Boards
10652 Folding Metal Partitions
12302 Manufactured Wood Casework
12710 Fixed Audience Seating
12761 Wood Bleachers

SCA STANDARD DETAILS

06200 Finish Carpentry
06410 Custom Casework

OTHER REFERENCES

An update on formaldehyde
www.cpsc.gov/cpscpub/pubs/725.html

INTENT	REQUIREMENTS	
Reduce exposure of building occupants to potentially hazardous particulates and chemical pollutants. This credit is required for all projects.	Design to reduce and control pollutant entry into buildings and later cross-contamination of regularly occupied sites. Employ permanent entryway systems at least six feet long in the primary direction of travel to capture dirt and particulates from entering the building at all entryways that are directly connected to the outdoors. Acceptable entryway systems include permanently installed grates, grilles or slotted systems that allow for cleaning underneath. Qualifying entryways are those that serve as regular entry points for students or staff.	Where hazardous gases or chemicals may be present or are used (including Science Labs, Janitor's Sink Closets, Grounds Equipment Storeroom, Receiving and General Storage, copying/printing rooms and garage areas), exhaust each space sufficiently to create negative air balance with respect to adjacent spaces with the doors to the room closed. For each of these spaces, provide self-closing doors and deck-to-deck partitions or a hard lid ceiling. The exhaust rate shall be designed for at least 0.50 cubic foot per square foot, with no air re-circulation. Any make up air provided in the area, must be a minimum of 10% less than the exhaust air. Provide occupied areas with air filtration media that provides a Minimum Efficiency Reporting Value (MERV) of 13 or better. Unit ventilator filters shall have a MERV of a minimum of 7 (consistent with NY-CHPS requirements). Filtration should be applied to both return and outside air that is to be delivered as supply air.

BEST PRACTICES AND IMPLEMENTATION	CREDIT SUBMITTALS	REFERENCES
Comply with SCA Design Requirements and Standard Specifications.	**DESIGN DEVELOPMENT** ARCHITECT AND HVAC ENGINEER'S RESPONSIBILITY • Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into the design documents. List designated entryways and any special circumstances or non-standard compliance paths taken by the project. **60% CONSTRUCTION DOCUMENTS** ARCHITECT AND HVAC ENGINEER'S RESPONSIBILITY • Incorporate SCA's requirements in construction documents, including showing filter rating on drawings. **100% CONSTRUCTION DOCUMENTS** ARCHITECT AND HVAC ENGINEER'S RESPONSIBILITY • Submit Certification Form with completed information for this credit. • Submit updated documentation as necessary. **CONSTRUCTION** CONTRACTOR'S RESPONSIBILITY • Submit signed and sealed air balancing report and statement that the installation meets the design criteria as specified.	LEED-NC 2.2 Credit EQ 5 Indoor Chemical & Pollutant Source Control NYCHPS Version 1 Credit 5.3.3 Filter Efficiency **SCA DESIGN REQUIREMENTS** 1.3.4.1 Entrances and Exits 6.2.0 General Overview of Heating Ventilation and Air Conditioning Systems 6.2.28 HVAC Design Requirements for Special Spaces **SCA STANDARD SPECIFICATIONS** 12485 Foot Grilles 15781 Packaged Heating and Cooling Units 15852 Air Handling Units 15853 Custom Packaged Rooftop Heating and Cooling Units (Variable Air Volume System) 15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System) 15855 Commercial Packaged Rooftop Heating and Cooling Units 15857 Unit Ventilator **SCA STANDARD DETAILS** None **OTHER REFERENCES** Janitorial products pollution prevention: http://www.westp2net.org/Janitorial/jp4.cfm EPA green cleaning product information: www.epa.gov/opptintr/epp ASHRAE 62.1-2004, Table 6-4

Q4.2R ELECTRIC IGNITION STOVES

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Avoid accumulation of carbon monoxide from pilot lights that can cause dangerous air quality conditions for staff and students by using electric ignition stoves. This credit is required for all projects.	Install only electric ignitions for all gas-fired cooking appliances for which electric ignitions are available.	The SCA Standard Specifications require electric ignition on cooking equipment for which this feature is available. Some equipment such as sectional ovens, gas deck type and the double deck ovens are not available with electric ignition. The SCA Standard Specifications and NYC Local Law 7 of 2004 requires the installation of carbon monoxide detectors in kitchens that contain gas-operated cooking equipment.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a narrative identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Incorporate SCA's requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

NY-CHPS Version 1.0Credit 5.3.5 Electric Ignition Stoves

SCA DESIGN REQUIREMENTS

6.2.17 Gas and Carbon Monoxide Leak Detection and Alarm Systems

SCA STANDARD SPECIFICATIONS

11400 Food Service Equipment
11450 Domestic Type Equipment
11452 Culinary Arts Lab Equipment
15595 Gas Leak/Carbon Monoxide Detection Equipment

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

Q4.3R PROVIDE HEPA VACUUMS

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce indoor airborne dust levels during cleaning activities. This credit is required for all projects.	High Efficiency Particulate Arrestor (HEPA) vacuums shall be provided by through the SCA/F&E Unit as part of the initial equipment for the school. Obtain a written statement from the SCA/F&E Unit to confirm that HEPA vacuums are included in this project's equipment list.	HEPA vacuums are on the Custodial Initial Equipment list so they are part of the entitlement package for each new school or major modernization and renovation.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative identifying applicable SCA standards to be incorporated into the design documents.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.

CONSTRUCTION

SCA PROJECT MANAGER'S RESPONSIBILITY

• Confirm custodial equipment list includes HEPA vacuum.

NY-CHPS Version 1.0 Q Credit 6.2.4 Purchase HEPA Vacuums

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

Q5.1R CONTROLLABILITY OF SYSTEMS, LIGHTING

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (i.e., classrooms, cafeterias, auditoriums, gymnasiums, multi-purpose rooms) to promote the productivity, comfort and well-being of building occupants. This credit is required for all projects.	Provide lighting system controllability in spaces for at least 90% of building occupants to suit task needs and preferences. Provide lighting system controllability for all shared multi-occupant spaces. AND Provide individual lighting controls at individual offices as appropriate. Individual controls are not required at all offices. General area illumination controls for multi-workstation spaces (such as the General Office) may not be counted toward this credit. In schools, this credit can be achieved by following SCA standards for controls by providing controllability at shared group multi-occupancy spaces (i.e., instructional rooms, cafeterias, gyms, libraries, auditorium) and in select individual offices or shared office areas where workstations have task lighting under overhead storage.	SCA Design Requirements and Standard Specifications incorporate standards for lighting controls for shared multi-occupant spaces that comply with this credit's requirements.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

ELECTRICAL ENGINEER'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents.

60% CONSTRUCTION DOCUMENTS

ELECTRICAL ENGINEER'S RESPONSIBILITY

• Incorporate requirements in construction documents.
• Submit floor plans indicating quantity of lighting fixtures, control switches for lights, and furniture layouts for every room.

100% CONSTRUCTION DOCUMENTS

ELECTRICAL ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 EQ Credit 6.1
Controllability of Systems, Lighting

SCA DESIGN REQUIREMENTS

7.2.1 Interior Lighting

SCA STANDARD SPECIFICATIONS

16140 Wiring Devices
16145 Lighting Control Devices

SCA STANDARD DETAILS

SCA Room Planning Standards

OTHER REFERENCES

A Field Study of PEM (Personal Environmental Module) Performance in Bank of America's San Francisco Office Buildings:
www.cbe.berkeley.edu/research/pdf_files/bauman1998_bofa.pdf
Occupancy sensors in the offices not in stroage

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide a thermal comfort control system adjusted by individual occupants or by specific groups in multi-occupant spaces (i.e., classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants. This credit is required for all projects.	Provide comfort controls for 50% of building occupants. In schools, this credit can be achieved by following SCA standards for thermal comfort controls by providing controllability at shared group multi-occupancy spaces (i.e., instructional rooms, cafeterias, gyms, libraries, auditoriums) and in select office areas. Operable windows can be used in lieu of individual comfort controls for occupants of areas that are 20 feet inside of and 10 feet to either side of the operable part of the window. The areas of operable window must meet the requirements of ASHRAE 62.1 -2004, paragraph 5.1, Natural Ventilation, including an operable area that is a minimum of 4% of the net occupied floor area. ASHRAE Standard 55-2004 lists the primary factors of thermal comfort as: air temperature, radiant temperature asymmetry, air speed and humidity. Comfort system control, for the purposes of this credit, is defined as the provision of control over at least one of these primary factors in the occupant's local environment.	SCA Design Requirements and Standard Specifications require temperature controls for shared group multi-occupancy spaces. Additionally, per SCA standards, typical classrooms must have operable windows. Consider locating shared administrative office areas (which would not typically have individual thermostat controls) at perimeter so operable windows provide thermal comfort control for a greater number of staff.

CREDIT SUBMITTALS	REFERENCES

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

- Incorporate SCA's requirements in construction documents.
- Submit floor plans indicating locations of temperature control devices.

100% CONSTRUCTION DOCUMENTS

MEP ENGINEER'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 Credit EQ 6.2 Controllability of Systems, Thermal Comfort

SCA DESIGN REQUIREMENTS

6.2.0 General Overview of Heating Ventilation and Air Conditioning Systems
6.2.1 HVAC Unit Centralization and Coordination
6.2.3 Non-Assembly Spaces (Classrooms, Offices, etc.)
6.2.4 Public Assembly Spaces

SCA STANDARD SPECIFICATIONS

15970 Temperature Control System
15985 Sequence of Operations

SCA STANDARD DETAILS

Automatic temperature control standard details

OTHER REFERENCES

Center for the Built Environment at Berkeley:
www.cbe.berkeley.edu

Q6.1R THERMAL COMFORT, COMPLY WITH ASHRAE 55-2004

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide a comfortable thermal environment that supports the productivity and well-being of building occupants. This credit is required for all projects.	Design HVAC systems and the building envelope to meet ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy. Demonstrate design compliance by providing: • Design parameters in HVAC drawings. • System capacities necessary to attain the design indoor conditions capacities to be indicated on equipment schedules. • Floor plan layouts indicating locations of air outlets (i.e., diffusers, registers), terminal units (i.e,. VAV boxes), and air capacities (CFMs) • Floor plans coordinating location of air outlets, terminal units and control devices with architectural layouts • Floor plans indicating control devices and the terminal unit being controlled, and specifications indicating performance adjustments criteria for control devices. • HVAC drawings showing control network architecture and control diagrams for every typical system. • In the specifications, incorporate requirements for the Contractor to provide the owner with maintenance and operating manuals. • Control specifications indicating specific limits in the adjustment of manual controls. • HVAC calculations.	The SCA standards incorporate requirements for prototypical HVAC systems that allow MEP designs to achieve the credit requirements.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

HVAC ENGINEER'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents.
- Submit a narrative to describe any special circumstances or non-standard compliance paths taken by the project.

60% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

- Incorporate SCA's requirements in construction documents.
- Provide HVAC calculations.

100% CONSTRUCTION DOCUMENTS

HVAC ENGINEER'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 Credit EQ 7.1
Thermal Comfort, Comply with ASHRAE 55-2004

ANSI/ASHRAE 55-2004

SCA DESIGN REQUIREMENTS

6.2.0 General Overview of Heating Ventilation and Air Conditioning Systems
6.2.1 HVAC Unit Centralization and Coordination
6.2.3 Non-Assembly Spaces (Classrooms, Offices, etc.)
6.2.4 Public Assembly Spaces
6.2.9 Heating and Cooling Design Parameters (Load Calculations)
6.2.22 Kitchen Ventilation
6.2.28 HVAC Design Requirement for Special Spaces

SCA STANDARD SPECIFICATIONS

15970 Temperature Control System
15985 Sequence of Operations

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS

Provide the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

This credit is required, if feasible, for all projects.

While all projects are not required to achieve this credit, all projects must submit documentation to show whether or not the credit is achieved.

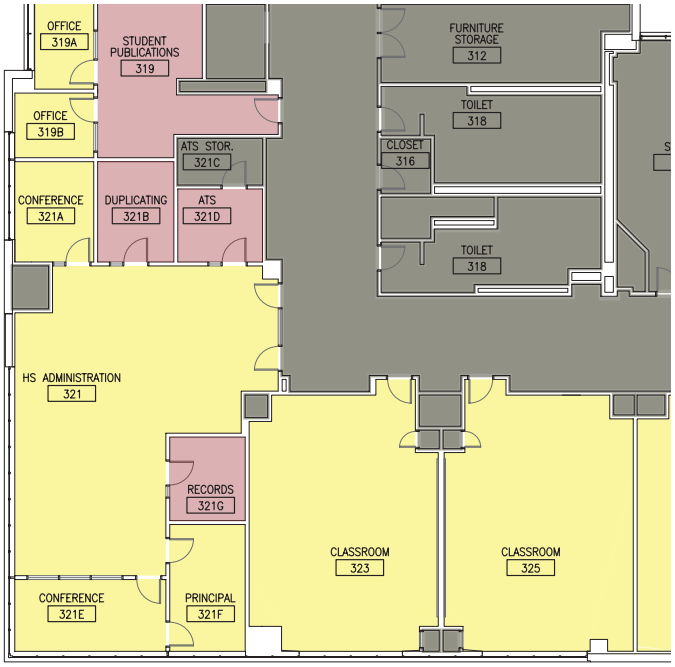
While LEED includes Daylight Modeling or calculations as options for documentation, the SCA recommends documenting compliance with calculations.

Glazing Factor Calculations
Achieve a minimum glazing factor of 2% in a minimum of 75% of all regularly occupied areas. A glazing factor is the ratio of interior to exterior illuminance. Like LEED, this rating system uses a simplified method of calculating the glazing factor based on floor area, window area, window geometry, visible light transmittance of the glazing and window height. Regularly occupied areas do not include storage rooms, mechanical rooms or circulation areas. A spreadsheet calculations form (See Section 5) is attached.
Only the square footage associated with the portions of rooms or spaces meeting the minimum illumination requirements can be applied toward the 75% of total area calculation required to qualify for this credit.

It is permissible to exclude areas where tasks would be hindered by the use of daylight. Exceptions on this basis might include computer rooms, auditoriums and gyms where unwanted glare can negatively affect the program of the room.

In all cases, provide daylight redirection and/or glare control devices to avoid high-contrast situations that could impede visual tasks.

Daylighting Diagram



- Regularly Occupied Areas Meeting Minimum Illumination Requirements
- Regularly Occupied Areas Not Meeting Minimum Illumination Requirements
- Mechanical / Cirulation / Storage

BEST PRACTICES AND IMPLEMENTATION

The SCA specifications include enhanced glazing products and manual shades for glare control to aid compliance with credit requirements. Standard classroom layouts are consistent with achieving this credit in classrooms.

To achieve this credit, consider building orientation, shallow floor plates and lower visible light transmittance values for glazing.

Measures for glare control that go beyond the SCA standard measures for addressing glasre conrol will be evaluated on a project-by-project basis.

The SCA has not made this credit a requirement for all projects because of concerns about the limited applicability to modernization and renovation projects. For schools where a basement is cost effective, this credit may not be achievable.

This credit has been incorporated in the NYC Green Schools Rating System to document to what extent this requirement is applicable and appropriate for new school projects.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. Include a summary of occupancy areas that will be excluded from compliance, indicating why daylight would hinder their normal use.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Daylight and Views Calculations Form to indicate the percentage of spaces that comply.
- Submit plan demonstrating calculations results graphically.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit EQ 8.1 Daylight & Views, Daylight 75% of Spaces

SCA DESIGN REQUIREMENTS

1.3.1.1 Building Location and Orientation

SCA STANDARD SPECIFICATIONS

08521 Aluminum Double-Hung Windows-New Installations
08524 Aluminum Projected Windows
08800 Miscellaneous Glazing
08920 Aluminum Curtain Walls
12501 Chain and Clutch Operated Window Shades

SCA STANDARD DETAILS

None

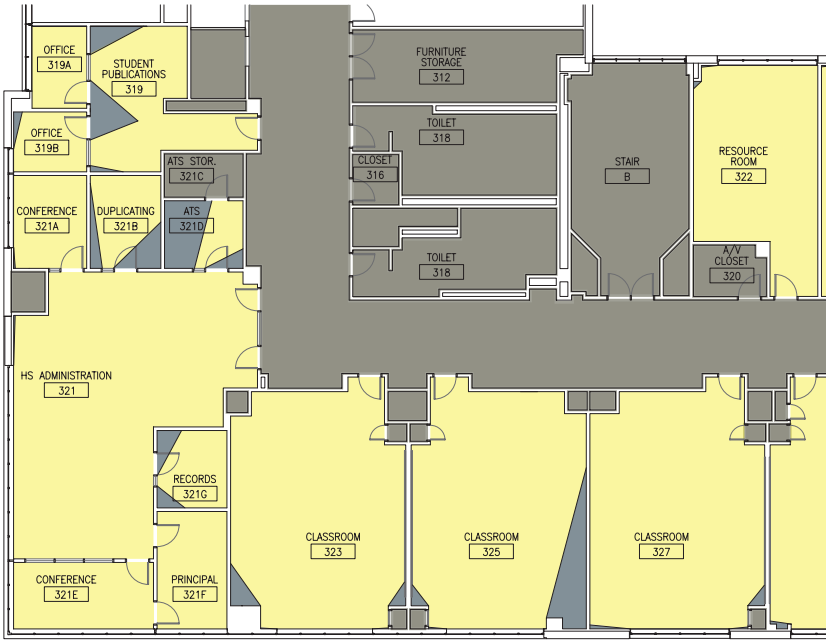
OTHER REFERENCES

Radiance Synthetic Imaging System: http://radsite.lbl.gov/radiance

Day lighting design guidelines: www.wbdg.org/design/electriclighting.php?r=Q

INTENT	REQUIREMENTS	
Provide the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building. This credit is required, if feasible, for all projects.	While all projects are not required to achieve this credit, all projects must submit documentation to show whether or not the credit is achieved. While LEED includes Daylight Modeling or calculations as options for documentation, the SCA recommends documenting compliance with calculations. Achieve direct line of sight to the outdoor environment via vision glazing between 2'-6" and 7'-6" above finish floor for building occupants in 90% of all regularly occupied areas. Regularly occupied areas do not include storage rooms, mechanical rooms or circulation areas. Determine the area with direct line of sight by totaling the regularly occupied square footage that meets the following criteria:	In plan view, the area is within sight lines drawn from perimeter vision glazing. In section view, a direct sight line can be drawn from the area to perimeter vision glazing. Line of sight may be drawn through interior glazing. For multi-occupant spaces, the actual square footage with direct line of sight to perimeter vision glazing is counted. For private offices, the entire square footage of the office can be counted if 75% or more of the area has direct line of sight to perimeter vision glazing. It is permissible to exclude areas where tasks would be hindered by the use of daylight. Exceptions on this basis might include computer rooms, auditoriums and gymnasia.

Views Diagram



- Regularly Occupied Areas With Views
- Regularly Occupied Areas Without Views
- Mechanical / Cirulation / Storage

BEST PRACTICES AND IMPLEMENTATION

The SCA specifications include enhanced glazing products and manual shades for glare control to aid compliance with credit requirements. Standard classroom layouts are consistent with achieving this credit in classrooms.

With this credit the SCA is seeking to document whether the variety of school projects comply and to what extent.

In office areas, consider lower partition height and interior glazing.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. Include a summary of occupancy areas that will be excluded from compliance, indicating why complying fenestration would hinder their normal use.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Incorporate SCA's requirements in construction documents.
•Determine if design as developed complies. Submit calculation spreadsheet form to indicate percentage of spaces that comply.
• Submit annotated drawings showing the line of sight from interior spaces through exterior windows in both plan and sectional views.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit EQ 8.2
Daylight & Views, 90% of Spaces

SCA DESIGN REQUIREMENTS

1.3.1.1 Building Location and Orientation

SCA STANDARD SPECIFICATIONS

None

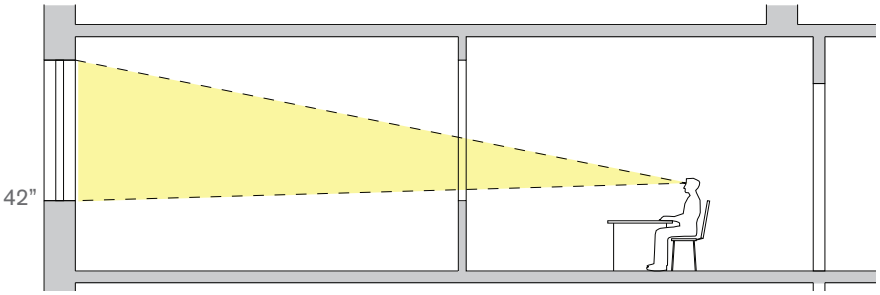
SCA STANDARD DETAILS

None

OTHER REFERENCES

None

Views Section Diagram



INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide pendant-mounted, glare-free ambient lighting in classrooms, improving the visual environment for students and teachers to read, write and interact. This credit is required, if feasible, for all projects.	Install an artificial lighting system to enhance occupants' visual performance with pendant-mounted direct-indirect, semi-indirect or totally indirect luminaires mounted parallel to the window wall. Luminaires shall use T-8 fluorescent lamps with a minimum color-rendering index of 82. Energy efficient, direct-indirect lighting reduces lighting power density (LPD) by using less energy to deliver a better quality of light to the space. This credit applies to renovations where the bottom of fixtures is at 9 feet or higher above the finished floor. The credit also applies to select new school projects as reviewed with the SCA Design Manager. The criteria for applicability of this criteria is acceptability of the height to the bottom of the fixture above the finished floor. At Early Childhood Centers, the bottom of pendant fixtures may be a minimum of 8'-6" above the floor.	SCA Standards for interior lighting layouts incorporates fixture and layout requirements that will assist in achieving this credit. Design Requirement 7.2.1 includes specific dimensions for the acceptable distance between the ceiling and the bottom of light fixtures. Ceiling pendant-mounted "direct-indirect," "semi-indirect" and "totally indirect" luminaires offer low-brightness while providing good definition of objects in the teaching space. The luminance of these lamps is enhanced by white or light colored ceilings, which reflect the light down into the learning space. This credit is generally feasible for renovation, modernization and ECC projects.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ELECTRICAL ENGINEER'S RESPONSIBILITY

- Submit a narrative describing whether this credit is feasible. For projects where it is feasible, summarize the design approach for credit compliance and identify applicable SCA standards to be incorporated into design documents.
- Submit a narrative to describe any special circumstances or non-standard compliance paths taken by the project.

60% CONSTRUCTION DOCUMENTS

ELECTRICAL ENGINEER'S RESPONSIBILITY

- Incorporate SCA's requirements in construction documents including the lighting layouts and lighting fixture schedules.
- Submit point by point lighting level (photometric) calculations for typical and non-typical areas.
- Indicate calculation method and parameters, include LPD (Lighting Power Density)

100% CONSTRUCTION DOCUMENTS

ELECTRICAL ENGINEER'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

NY-CHPS Version 1.0 Credit 5.2.1 Visual Performance, Artificial Indirect Lighting

SCA DESIGN REQUIREMENTS

7.2.1 Interior Lighting

SCA STANDARD SPECIFICATIONS

16500 Interior Building Lighting
16501 Lamps, Ballasts and Accessories

SCA STANDARD DETAILS

None

OTHER REFERENCES

Advanced Lighting Guidelines: 2003 Edition:
http://www.newbuildings.org/lighting.htm

Design Lights™ Consortium Classroom Knowhow™ guide:
http://www.designlights.org

Q8.1 MINIMUM ACOUSTICAL PERFORMANCE

INTENT

Control background sound levels and reverberation for instructional spaces and reduce noise transfer from adjacent spaces to enhance speech communication in the learning environment.

This credit is required, if feasible, for all projects.

Sound Isolation Tables

Adjacent Space	Airborne Sound Isolation, STC
Classroom, Office	50
Corridor	45*
Toilets	53
Music/Dance	60
Mechanical	60
Gym	60

Adjacent Overhead Space	Impact Sound Isolation, ITC**
Overhead Space	45
Music/Dance	60***
Mechanical	60
Gym (if overhead)	60***

* Excluding main entry doors.
** Impact Insulation Class (IIC) ratings shall apply without carpeting installed on the floor above.
See Credit Q 8.2

REQUIREMENTS

Confirm that project instructional spaces meet the following requirements:

BACKGROUND SOUND LEVELS

Classrooms shall be designed so that the background sound level does not exceed the following values at any location where a student may be situated:

- Pre-Kindergarten through 6th Grade Classrooms: 35 dBA.
- 7th through 12th Grade Classrooms: 40 dBA.

REVERBERATION TIMES

All classrooms shall have: 0.6-second maximum (unoccupied) mid-frequency (500, 1,000 and 2,000 Hz bands) reverberation times for classrooms with volumes of up to 10,000 ft³; 0.7-second maximum (unoccupied) mid-frequency reverberation time for classrooms of 10,000 to 20,000 ft³; consult a qualified acoustic consultant for requirements for spaces larger than 20,000 ft³.

SOUND ISOLATION

Design and select classroom exterior façade construction assemblies to achieve STC-50.

SCA standard windows approximate STC-40 but are not acoustically rated or tested.

Between instruction rooms and the adjacent spaces, provide construction to yield the degree of sound isolation listed in the tables to the left.

BEST PRACTICES AND IMPLEMENTATION

BACKGROUND SOUND LEVELS

HVAC systems generally capable of meeting these low background noise level requirements include standard non fan powered VAV boxes with a silencer used in the downstream supply duct system. Successful installations of floor mounted unit ventilators usually require oversizing and slowing fans. Exposed fan coil or unit ventilator equipment can rarely be selected to meet these goals.

REVERBERATION TIMES

Use of a lay-in sound-absorptive ceiling having a minimum NRC/SAA of 0.70 is an effective method for meeting the reverberation time goals in classrooms. On occasion, it may be necessary to provide supplemental sound absorption on upper wall areas should the net area of sound absorptive ceiling be limited by flat-lensed light fixtures or gypsum board soffits.

SOUND ISOLATION - EXTERIOR

STC-50 exterior walls can be met with CMU and face brick. Lightweight (curtain wall) façade constructions need careful review for sound isolation performance by the acoustical consultant.

SOUND ISOLATION - INTERIOR

Partition assemblies to meet the required STC ratings have been incorporated into the Design Requirement 1.3.1.9 on Architectural Acoustics and interior partition details. Specific conditions and proximities should be reviewed by the project acoustical consultant.

Outlets and other partition penetrations should be offset.

	CREDIT SUBMITTALS	REFERENCES
The project acoustical consultant should also evaluate required measures for classrooms adjacent to the cafeteria. Impact Insulation Class IIC-45 for instructional/office spaces above classrooms (not gymnasiums, music, dance or auditoriums) may be met via use of a concrete slab and a well-sealed suspended lay-in acoustical panel ceiling in the classroom below. This credit is typically feasible for new construction projects and may apply to some renovation and modernization projects as well. This credit is not feasible for projects using a decoupled HVAC system with floor-mounted unit ventilators.	**DESIGN DEVELOPMENT** ARCHITECT AND HVAC ENGINEER'S RESPONSIBILITY • Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. **60% CONSTRUCTION DOCUMENTS** ARCHITECT AND HVAC ENGINEER'S RESPONSIBILITY • Integrate the design criteria into the design documents. • Provide write-up describing each special separation for each location and detailed construction. • Submit 60% documents to a qualified acoustical consultant and obtain a report verifying that the project has been designed to meet the relevant requirements. **100% CONSTRUCTION DOCUMENTS** ARCHITECT'S RESPONSIBILITY • Submit 100% documents to a qualified acoustical consultant and obtain confirmation that project design meets the relevant requirements. • Submit large scale details • Submit Certification Form with completed information for this credit. • Submit updated documentation as necessary. **CONSTRUCTION** No credit submittal.	LEED-NC 2.2 ID Credit 1.2 Acoustical Requirements USGBC CIR dated 1/24/05 CHPS Version 1.0 Prerequisite 5.5.1 Minimum Acoustical Performance CHPS Version 1.0 Credit 5.5.2 Sound Isolation **SCA DESIGN REQUIREMENTS** 1.3.1.9 Architectural Acoustic Standards 4.2.1 Exterior Masonry Walls 4.3.1 Window Types 5.1.1 Typical Room Finishes 5.2.2 Interior Partitions 5.3.1 Floor Types 5.4.1 Suspended Ceilings 5.5.1 Interior Doors and Frames 6.2.25 HVAC Acoustical Standards **SCA STANDARD SPECIFICATIONS** 08521 Aluminum D.H. Wndows 08524 Aluminum Projected Windows 09260 Gypsum Board Assemblies 09510 Acoustical Ceilings 15853 Custom Rooftop Units (VAV) 15854 Custom Rooftop Units (CV) 15855 Commercial Rooftop Units 15891 Metal Ductwork 15910 Duct Accessories 15993 Balancing of Systems **SCA STANDARD DETAILS** 0926010a Partition Details 0926010b Partition Details **OTHER REFERENCES** American National Standard: "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools" (ANSI S12.60-2002) Acoustical Society of America: http://asa.aip.org/ and http://asa.aip.org/classroom/booklet.html

INTENT

Reduce noise transfer from vertically adjacent spaces that generate significant sound or impact noise levels to offices, classrooms and other noise sensitive spaces located below.

This credit is required, if feasible, for all projects.

REQUIREMENTS

Provide structural sound-isolation slab construction to isolate the special noise source space from spaces below to yield the degree of sound isolation listed in the table.

Special Space	Airborne Sound Isolation (STC)	Impact Sound Isolation (IIC**)
Music / Dance	60	60
Gym	60	60

** Impact Insulation Class (IIC) ratings shall apply without carpeting installed on the floor above.

BEST PRACTICES AND IMPLEMENTATION

Building planning should avoid vertical adjacency of noisy spaces above instructional spaces or offices.

To meet IIC-60 for spaces with high noise levels or impact noise, such as music suites or gymnasiums, that are located over instructional rooms and offices, as well as if instructional and office spaces are located over the gym, a special floated concrete floor construction is needed. Adequate floated floor construction is comprised of a 4-inch thick normal weight concrete slab on isolators with a 2-inch air space to the base slab. The most convenient systems are so-called “jack-up” slab systems available from Kinetics Noise Control, Mason Industries, and Vibration Mountings & Controls.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITIES

• Submit a narrative statement describing whether this credit is applicable. For project where this credit applies, summarize the specific design approach at each condition for credit compliance and identify applicable SCA standards to be incorporated into design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITIES

• Incorporate requirements in construction documents.
• Provide write-up describing each special separation for each location and detailed construction
• Submit 60% documents to a qualified acoustical consultant and obtain a report verifying that the project has been designed to meet the relevant requirements.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITIES

• Submit 100% documents to a qualified acoustical consultant and obtain confirmation that project design meets the relevant requirements.
• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

Reference NY-CHPS Version 1.0 Credit 5.5.2 — Sound Isolation

SCA DESIGN REQUIREMENTS

1.3.1.9 Architectural Acoustic Standards

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

American National Standard: "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools" (ANSI S12.60-2002)

National Clearinghouse for Educational Facilities: http://www.edfacilities.org

Acoustical Society of America: http://asa.aip.org/classroom/booklet.html

American National Standards Institute: http://www.ansi.org

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide adequate control of exterior noise potentially penetrating into instruction rooms and offices at sites adjoining objectionable exterior transportation noise sources - highways, railroads and airports. This credit is required, if feasible, for all projects.	Typical requirement for credit Q8.1 is to design and select exterior façade construction to achieve STC-40 (minimum) for fenestration and STC-50 for all other façade elements. Higher STC levels for fenestration should be considered on a case-by-case basis as recommended by project acoustical consultant. This credit would apply to schools severely impacted by transportation noise sources such as aircraft or elevated trains.	Plan the location of instructional spaces away from objectionable noise sources. Consider acoustically improved windows for sites where there are high levels of inbound transportation noise. External wall and fenestration design need careful review for sound isolation performance by a qualified acoustical consultant.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITIES

• Submit a narrative statement describing whether this credit is applicable. For project where this credit applies, summarize the design approach for credit compliance and identify applicable SCA standards to be incorporated into design documents.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITIES

• Obtain acoustical laboratory test reports from window manufacturers on candidate window assemblies to verify STC ratings on operable assemblies. Submit a report from a qualified acoustical consultant documenting that the façade elements meet the above requirements as a minimum and evaluating the need for improved fenestration performance.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITIES

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

CONTRACTOR'S RESPONSIBILITY

• Provide a report from a qualified acoustical consultant verifying that the relevant requirements have been met.

REFERENCES

SCA DESIGN REQUIREMENTS

1.3.1.9 Architectural Acoustic Standards

SCA STANDARD SPECIFICATIONS

08521 Aluminum Double Hung - New
08524 Aluminum Hopper Windows

SCA STANDARD DETAILS

None

OTHER REFERENCES

American National Standard: "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools" (ANSI S12.60-2002)

National Clearinghouse for Educational Facilities:
http://www.edfacilities.org

Acoustical Society of America:
http://asa.aip.org/classroom/booklet.html

American National Standards Institute:
http://www.ansi.org

American Speech-Language-Hearing Association:
http://www.asha.org

AD

This section requires a LEED accredited professional as part of the design team and includes optional credits that may be applied to unique projects when pre-authorized by the SCA.

Optional credits include provisions for vegetated 'green' roofs; optimizing energy performance; renewable energy systems; additional sustainable materials and furnishings; daylight harvesting and using the building to inform users about sustainable design features.

The SCA supports the added sustainable benefits afforded by the optional additional credits and will encourage application of these credits for projects that receive special funding and/or have unique conditions that warrant exploration of the alternatives offered by these credits.

DITIONAL CREDITS

A 1.1 LEED®ACCREDITED PROFESSIONAL

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
To support and encourage the design integration required by an established level of familiarity with LEED, upon which the NYC Green Schools Guide is based, and to facilitate the sustainable design application and certification process for school. This credit is required for all projects.	At least one principal participant of the project team shall be a LEED Accredited Professional (AP)	To become a LEED Accredited Professional, the LEED NC Accreditation Exam offered by the Green Building Certification Institute (GBCI) must be successfully passed and an accreditation issued by GBCI.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

- Submit a narrative listing the names and firm of the LEED Accredited Professional (LEED AP) participating on the Design Team. Include a brief description of the LEED AP's project role(s).
- Submit a copy of the LEED AP certificate.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 Credit ID 2
LEED Accredited Professional

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

LEED website:
www.usgbc.org

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate, and human and wildlife habitat. This credit is optional and may only be pursued with SCA direction/permission.	Option 1: Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than 79 for low sloped roofs slope (<2:12), and 29 for steep sloped roofs slope (>2:12) for a minimum of 75% of the roof surface. OR Option 2: Install a vegetated roof for at least 50% of the roof area.	Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect. Option 1: With SCA approval, use compliant products for a coated metal roofing. This is not an SCA standard. Note that white gravel does not meet the SRI requirements. OR With SCA approval, use roof paver system with an SRI > 79. This option represents a significant added cost and is not an SCA standard. Note that where some roof area is lower than the surrounding building, glare may cause undesireable condition in these adjacent spaces. Option 2: With SCA approval, use vegetated-green roof over 50% of the roof area or an area of roof such that the green roof system and SRI compliant area covers 75% of roof area. SCA specifications and details describe green roof for both

Green Roof Installations

CREDIT SUBMITTALS

REFERENCES

stormwater detention and non-detention roof applications.

For sites in areas that do not have a combined sewer, use the modified green roof assembly with interstitial egg crate drainage system to comply with NYC DEP stormwater detention regulations (design stormwater detention systems for 10-year / 24-hour storm events with a maximum allowable water level on the roof of 3 inches). This approach represents a significant added cost and is not an SCA standard. Exclusive use of roof vegetation to meet 100% DEP stormwater detention requirements has not been approved at this time by DEP.

If this credit is achieved with a green roof, projects may also pursue credits:
S 3.1 Site Development Protect or Restore Habitat
S3.2 Maximize Open Space
S4.1 Stormwater Quality
A2.2 Stormwater Quantity
A6.1 Building as Educational Tool

An extensive green roof system should consist of 'adapted' plants - plants that grow well in a given habitat with minimal attention from humans in the form of winter protection, pest protection, water irrigation, or fertilization once root systems are established in the soil.

Provide hose bibb(s) for temporary watering of planted roofs.

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Summarize what systems are proposed to achieve compliance.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit a diagram showing project roof areas to highlight the location of specific roof materials and/or green roof systems. AND

Option 1
• Submit calculation of total area of installed SRI compliant roofing materials and/or vegetated green roof area expressed as a percentage of total roof areas.
• Submit a listing of installed roofing materials and their SRI values.

OR

Option 2
• Submit calculation of area of installed green roof systems expressed as a percentage of total roof areas.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

DESIGN TEAM'S RESPONSIBILITY

• Review Contractor's submittals for compliance with credit requirements.

LEED-NC 2.2 Credit SS 7.2
Heat Island Effect: Roof

SCA DESIGN REQUIREMENTS

6.1.11 Stormwater Management

SCA STANDARD SPECIFICATIONS

07560 Fluid Applied Protected Membrane Roofing
07561 Fluid Applied Protected Membrane Roofing (Planted Roof)
07610 Sheet Metal Roofing

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, and managing stormwater runoff. This credit is optional and may only be pursued with SCA direction/permission. Porous Asphalt Construction Sequence Site testing Geotextile fabric Stone infiltration bed Porous Asphalt	OPTION 1 – EXISTING IMPERVIOUSNESS IS LESS THAN OR EQUAL TO 50% Implement a stormwater management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one- and two-year, 24-hour design storms. OR OPTION 2- EXISTING IMPERVIOUSNESS IS GREATER THAN 50% Implement a stormwater management plan that results in a 25% decrease in the volume of stormwater runoff from the two-year, 24-hour design storm.	Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect. Potential Non-Roof Measures: 1. Specify vegetated surfaces to minimize impervious surfaces and maintain natural stormwater flows. 2. Use porous asphalt playyards. SCA specification 02516 Exposed Porous Ashpalt Paving and Aggregate Base applies to this use. NY State DEC is currently developing Best Practice Standards for porous asphalt paving. NYC DEP acceptance of infiltration will have to be aquired. Design parameters for asphalt paving include the following: • Impervious area to infiltration area ratio should be 5:1 • Suitable permeable soil conditions are required for infiltration • Maintain bottom of stone base of drainage layer 3 ft above high water table and 2 ft above bedrock • Not recommended for slopes > 6% Potential Roof Measures: 1. Stormwater from roofs may be channeled into appropriately sized stone infiltration bed under porous asphalt used for non-roof conditions, if and when NYC DEP allows this practice. 2. Green roofs can reduce the stormwater runoff substantioally. NYC DEP acceptance of the

CREDIT SUBMITTALS

REFERENCES

contribution of green roofs must be aquired if the green roof (s) are to be part of the calculations.

Green roofs can reduce stormwater runoff of the roof by 25%, by using either 5" depth extensive green roof over 50% of the roof or 4" modular planter system over 75% of the roof.

Green roofs can also be installed over an egg crate drainage layer to comply with DEP stormwater detention regulations (stormwater detention systems sized for 10-year / 24-hour storm events with a maximum allowable water level on the roof of 3 inches).

If this credit is achieved with a green roof, projects may also pursue credits:
S3.1 Site Development Protect or Restore Habitat
S3.2 Maximize Open Space
S4.1 Stormwater Quality
A2.1 Heat Island Effect Roof
A6.1 Building as Educational Tool

3. Stormwater drainage structures: Sites greater than an acre with separate storm sewer systems and located in a TMDL watershed or discharging to an impaired 303(d) listed water source must develop a Stormwater Pollution Prevention Plan (SWPPP) that includes water quantities and quality control measures.

Following the NYS Stormwater Management Design Manual, determine the water quanity storage volume (volume of rain water to be detained and treated on site). Confirm calculated volume of stormwater system to meet SPDES requirement is greater than or equal to LEED requirement.

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Summarize what systems are proposed to achieve compliance.

60% CONSTRUCTION DOCUMENTS

CIVIL ENGINEER'S RESPONSIBILITY

• Submit calculations confirming that stormwater reductions to achieve this credit have been met. Include:
• the pre-development site run-off rate (cfs).
• the pre-development site run-off quantity (cf).
• the post-development site run-off rate (cfs).
• the post-development site run-off quantity (cf).

(see LEED-NC 2.2 Reference Guide Credit SS6.1 for reference on calculations)

100% CONSTRUCTION DOCUMENTS

CIVIL ENGINEER'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

LEED-NC 2.2 Credit SS 6.1
Stormwater Design Quantity Control

SCA DESIGN REQUIREMENTS

2.1.1 Asphalt and Concrete Pavements
4.4.1.1 Roof Types
6.1.11 Stormwater Management

SCA STANDARD SPECIFICATIONS

02516 Exposed Porous Asphalt Paving and Aggregate Base
02723 Storm Drainage System
07561 Fluid Applied Protected Membrane Roofing (Planted Roof)

SCA STANDARD DETAILS

None

OTHER REFERENCES

Porous Asphalt Information:
http://www.hotmix.org/PDFs/Asphalt_The_Right_Choice_For_Porous_Pavements.pdf

Porous Asphalt Installation:
http://www.ldeo.columbia.edu/news/2006/09_20_06.htm

NYS Stormwater Manuals:
http://www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf
http://www.dec.state.ny.us/website/dow/toolbox/swmanual/nysswmdm03.pdf

PA Stormwater BMP Design Manual:
http://www.dep.state.pa.us/dep/deputate/watermgt/wc/subjects/stormwatermanagement/BMP%20Manual/BMP%20Manual.htm

Green roof information:
http://www.hrt.msu.edu/greenroof

INTENT

Achieve energy cost reduction levels above the required minimum standard in credit E3.1R to reduce environmental impacts associated with excessive energy use.

This credit is optional and may only be pursued with SCA direction/permission.

REQUIREMENTS

Credit	New	Renovation	Points
A 3.1	10.5%	3.5%	1
A 3.2	14%	7%	1
A 3.3	17.5%	10.5%	1
A 3.4	21%	14%	1

1. This credit should only be pursued when project specific energy modeling is required because: the SCA prototypical energy cost modeling does not apply; it is required for the project to meet NY State Energy Code; or the SCA has directed that school specific modeling be conducted.

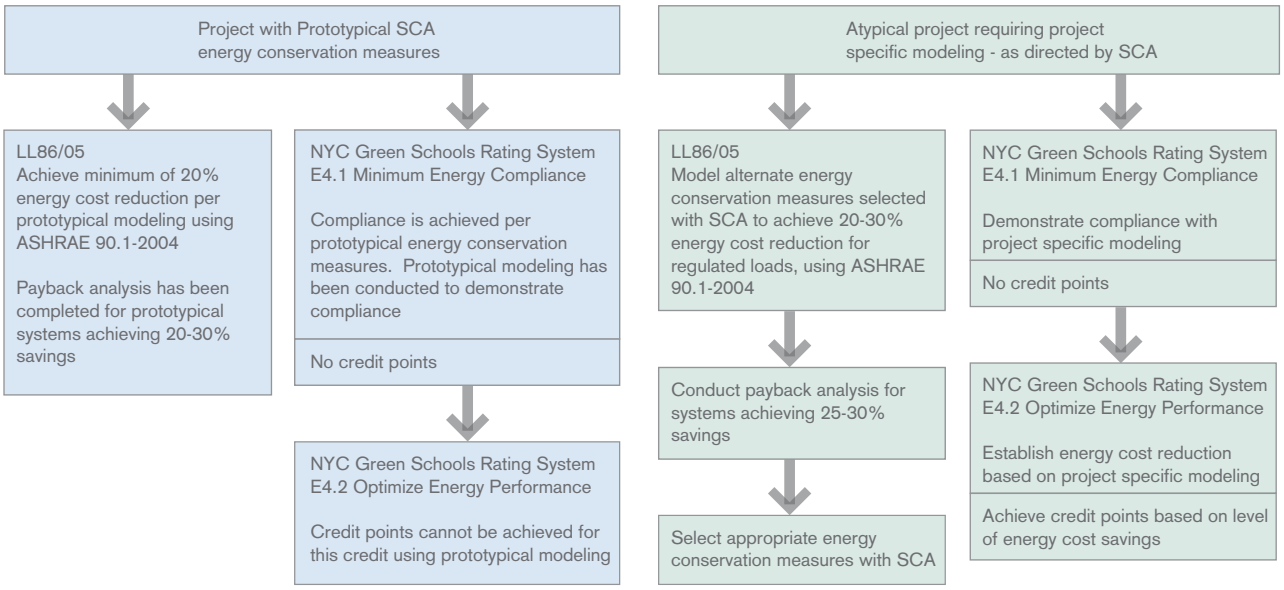
The SCA may direct project specific modeling be conducted because either the SCA prototypical energy systems do not apply to a specific site, or the SCA has determined that there are opportunities for non-standard energy systems at particular sites such as geothermal systems at a site with an underlying aquifer available for heat transfer.

2. Points for these credis are based on project specific energy cost reduction modeling per ASHRAE 90.1-2004, Schedule G. These credits cannot be achieved with prototypical modeling.

3. To demonstrate energy cost reduction as required by this credit, conduct a whole building energy simulation per ASHRAE/IESNA standard 90.1-2004 (without amendments) using the building performance rating method in Appendix G.

4. Projects pursuing this credit must also demonstrate energy cost reduction by conducting a whole building energy simulation per ASHRAE 90.1-2004 as referenced in NYS-ECCC, to confirm compliance with Local Law 86/05 energy cost reduction requirements.

5. A payback analysis must be completed per LL86/05 to determine if proposed systems that achieve 25% or 30% energy cost savings have a less than seven year payback – in which case they must be pursued.



BEST PRACTICES AND IMPLEMENTATION

Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect.

Some of the key differences between energy cost reduction modeling using ASHRAE 90.1-1999 and ASHRAE 2004, Schedule G include:

1. In ASHRAE 90.1-1999, proposed energy systems are compared to a corresponding baseline energy system. Under ASHRAE 2004, proposed energy systems are compared to common baseline energy systems: buildings under 150,000 square foot are compared to air cooled HVAC systems and buildings over 150,000 square foot are compared to water cooled HVAC systems. Thus ASHRAE 90.1-2004 facilitates comparisons between different energy systems.

2. The baseline energy system in ASHRAE 90.1-2004 have smaller window areas than the baseline energy systems in ASHRAE 90.1-1999.

3. ASHRAE 90.1-2004 includes non-regulated energy loads (including plug loads, exterior lighting and elevators), while ASHRAE 90.1-1999 doesn't include plug-loads.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

MEP ENGINEER'S RESPONSIBILITY

- For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Summarize what systems are proposed to achieve compliance.

60% CONSTRUCTION DOCUMENTS

MEP ENGINEER'S RESPONSIBILITY

- Submit LL86/05 Reporting Form with energy system related information. Provide preliminary energy reduction calculation results.
- Incorporate requirements in construction documents.
- Submit payback analysis per LL86/05 requirements.
- Submit LL86/05 Reporting Form.

100% CONSTRUCTION DOCUMENTS

MEP ENGINEER'S RESPONSIBILITY

- Submit Certification Form with completed information for this credit.
- Submit updated documentation as necessary.
- Submit LL86 Reporting Form.

CONSTRUCTION

- Submit LL86 Reporting Form.

REFERENCES

LEED-NC Version 2.2 Credit EA 1 Optimize Energy Performance

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

Local Law 86/05

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Encourage and recognize use of on-site renewable energy self-supply in order to reduce environmental and economic impacts associated with fossil fuel energy use. This credit is optional and may only be pursued with SCA direction/permission.	Use on-site renewable energy systems to offset building energy cost by a minimum of 2.5%. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building annual energy use using the references below. Use the building annual energy cost calculated in E 3.1R or use the Department of Energy (DOE) Commercial Buildings Energy Consumption Survey (CBECS) database to determine the estimated electricity use. (Table of use for different building types is provided in the LEED-NC Reference Guide.)	Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect. Currently, the cost of renewable energy is high. With the advent of future technology, renewable energy costs may decrease to the point they are economically viable for schools. Assess the project for non-polluting and renewable energy potential including solar, wind and geothermal strategies. When applying these strategies, take advantage of net metering with the local utility.

Photovoltaic (PU) Solar Panels at Bronx High School of Science

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

MEP ENGINEER'S RESPONSIBILITY

• For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Summarize what systems are proposed to achieve compliance.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

MEP ENGINEER'S RESPONSIBILITY

• Submit description of the On-Site Renewable Energy Source(s) used, the annual energy generated from each source and the backup fuel for each source (i.e., the fuel that is used when the renewable energy source is unavailable). Include the source of the annual energy cost information (energy model or industry database) and provide the appropriate energy values and costs.
• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED-NC 2.2 Credit EA 2
On-Site Renewable Energy

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

American Wind Energy Association:
www.awea.com

Net Metering:
www.eere.energy.gov/greenpower/netmetering

National Renewable Energy Laboratory:
www.nrel.gov

Database of State Incentives for Renewable Energy:
www.dsireusa.org

Solar Hot Water Collectors at Bronx High School of Science

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Increase demand for building materials and products that: Incorporate recycled content, reducing impacts resulting from the extraction and processing of virgin materials OR Are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation This credit is optional and may only be pursued with SCA direction/permission.	This credit may be pursued with SCA direction where there is specific additional funding for compliance with this credit, or where calculations have demonstrated to SCA that credit can be achieved in a cost-effective manner, using one of the following: Recycled Content – Comply with SCA Green Schools Rating System Credit M2.1 requirements but research and specify additional recycled materials such that the overall combined recycled content of construction materials is at least 20%. OR Regionally Extracted Materials – Comply with SCA Green Schools Rating System Credit M2.2 requirements but research and specify additional regionally extracted materials such that the overall combined regionally extracted content of construction materials is at least 20%. Salvaged materials may be included in calculations for regional materials. Note that project specifications may not mandate regional content for materials, they may only require submittal of regional content documentation.	Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect. The SCA standards do not incorporate materials and products that would achieve this credit. If the SCA approves pursuit of this credit, Design Teams must research and specify complying materials that typically meet the requirements. Design Teams should refer to the LEED-NC 2.2 Reference Guide for additional detail on approach and implementation.

CREDIT SUBMITTALS	REFERENCES
DESIGN DEVELOPMENT ARCHITECT'S RESPONSIBILITY • For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Summarize what materials are proposed to be used to achieve compliance. **60% CONSTRUCTION DOCUMENTS** ARCHITECT'S RESPONSIBILITY • Incorporate credit requirements in construction documents. • Submit calculations based on project estimate demonstrating that established levels of sustainable material are likely to be achieved. • Submit analysis of cost of compliance for this credit. **100% CONSTRUCTION DOCUMENTS** ARCHITECT'S RESPONSIBILITY • Submit Certification Form with completed information for this credit. • Submit updated documentation as necessary. **CONSTRUCTION** CONTRACTOR'S RESPONSIBILITY • Complete Contractors recycled and regional materials reporting forms for products with minimum recycled content specified. • Submit final costs for divisions 2-10. ARCHITECT'S RESPONSIBILITY • Review submittals for compliance. • Using Contractor's Sustainable Materials Form and final costs for divisions 2-10. Confirm that the established percentages of sustainable materials are achieved.	LEED-NC 2.2 Credit MR 4.2- Recycled Content 20% (Post-Consumer + ½ Pre-Consumer) LEED-NC 2.2 Credit MR 5.2 - Regional Materials: 20% Extracted, Processed and Manufactured Regionally **SCA DESIGN REQUIREMENTS** None **SCA STANDARD SPECIFICATIONS** Existing SCA Standard Spefications would need to be revised by the Design Team to achieve this credit. **SCA STANDARD DETAILS** None **OTHER REFERENCES** None

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide uniform light with minimal glare. Make ample use of natural daylight. Evaluate lighting quality during the design process through computer modeling. This credit is optional and may only be pursued with SCA direction/permission.	Conduct daylight modeling to demonstrate that 75% of the classrooms in the school meet the daylight autonomy criteria established below. Daylight Autonomy (DA) is the percentage of time over a year when daylight can provide a given illuminance at a given point. Daylight Autonomy calculations should use the continuous method, meaning if the target is 50 footcandles, and there are 30 footcandles from the sun, the result is 60% DA for that time step. MaxDA < 1% for 5% of the classroom AND DA 40-60% for 60% of the classroom For this credit, classrooms include: general classrooms, art rooms, music rooms, science rooms, computer rooms and special needs, remedial and multi-purpose classrooms. One simplified daylight modeling program that may be used is the Sensor Placement Optimization Tool (SPOT) program which was originally designed to support use of daylighting in classrooms. The program has a design tool and and an analysis tool - use of the analysis tool is what is referred to in this credit. This program is publicly available on the Internet.	Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect. To design good daylighting in classrooms, the following four issues should be considered: 1. Optimize Interior material reflectance values - For optimal daylighting quality in classrooms, the US Department of Energy recommends the following material reflectance values: ceilings > 80%, walls 50%-70%, floors 20%-40%, and furnishings 25%-45%. The most important interior light-reflecting surface is the ceiling. Tilting the ceiling plane toward the daylight source also increases the daylight that is reflected from this surface. The SCA sets the maximum light reflectance for classroom VCT flooring at 45%. 2. Effective aperture, as defined by the equation below should be set to 0.30: EA = VT x WWR should = 0.30 DA - Daylight Autonomy EA - Effective Aperture VT - Visible Transmittance WWR - Window-to-Wall Ratio 3. Window/skylight placement - Positioning windows high in the walls allows light to penetrate deep into rooms. Continuous strip windows allow for uniform dispersion of light. Windows with a sill height below 3'6" at the corners of the classroom can provide views as well as lighting at the instructional walls.

CREDIT SUBMITTALS

REFERENCES

4. Glare control/shading devices - The SCA typical system for control glare is manual shades. The following glazing and shading systems that reduce glare and operate without manual user adjustment may be proposed for SCA approval: solatube skylights, translucent glass, light shelves and fixed exterior shading devices.

DESIGN DEVELOPMENT

ARCHITECT'S RESPONSIBILITY

• For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Include a summary of the design measures to be used to achieve compliance.

60% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit daylight modeling or SPOT data regarding classrooms demonstrating compliance with credit criteria. Input visible light transmittance for the selected glazing in the light model.

100% CONSTRUCTION DOCUMENTS

ARCHITECT'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.

CONSTRUCTION

No credit submittal.

NY CHPS Credit 5.1.3
Daylighting in Classrooms

MA CHPS Credit 1.1
Daylighting in Classrooms

LEED NC 2.2 credit ID 1.3
Innovation credit

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

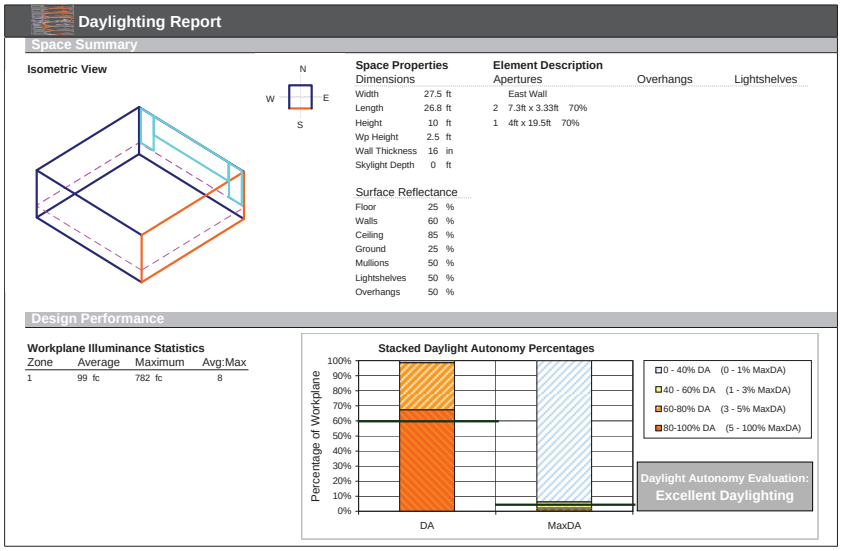
None

OTHER REFERENCES

SPOT software may be downloaded at: http://www.archenergy.com/SPOT/index.html

CHPS Best Practices Manual: Volume II: Daylighting and Fenestration Design Chapter.

Typical SPOT Dalyighting Analysis Report



INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants. This credit is optional and may only be pursued with SCA direction/permission.	Use furniture systems and seating that are low VOC, either Greenguard certified or registered, or whose emissions meet, or are lower than, the best practice air emissions standards as established by the US EPA's Environmental Technology Verification (ETV) test method in a qualified testing laboratory. Emission Limits for furniture systems: Total VOC < .5mg/m3, Formaldehyde < .05 ppm, Total Aldehydes < .01 ppm, 4-PC as an odorant below the limits of detection. For seating: Total VOC < .25 mg/m3, formaldehyde < .025 ppm. Furniture systems as referred to in this credit refers to work station systems.	Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect. The Design Team should coordinate with SCA/F&E Unit during the DD and 60% construction document phases so that research on complying furniture items can begin as necessary. While this credit only requires furniture systems and seating to meet VOC/ Greenguard requirements, the SCA may choose to review additional items for this requirement. One compliance option is to consider pre-conditioning furniture products offsite.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

SCA / F&E UNIT RESPONSIBILITY

• For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Summarize how credit will be achieved.

• Submit package of drawings and program for SCA/F&E Unit's use in preliminary research as required into furniture and equipment contracts.

60% CONSTRUCTION DOCUMENTS

SCA / F&E UNIT RESPONSIBILITY

• Following submission by Design Team of 60% construction documents SCA/F&E Unit, should submit a draft list of furniture items indicating which will comply with this credit to the SCA Design Manager so Design Team may make any necessary modifications to construction documents.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

SCA F&E UNIT RESPONSIBILITY

• Submit a list of F&E items indicating which items meet the VOC requirements of this credit.

ARCHITECT'S RESPONSIBILITY

• Submit Certification Form with completed information for this credit.

WA-CHPS Credit Q 3.2
Low-Emitting Materials, Furniture

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers by the California Department of Health Services.

Greenguard Product Emission Standard For Children & Schools: http://www.greenguard.org/DesktopDefault.aspx?tabindex=4&tabid=95

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Introduce students to the environmental design features of the building. This credit is optional and may only be pursued with SCA direction/permission.	Develop architectural elements or curriculum to engage students with the environmental design features of the building.	Design Teams should list this credit as being pursued on the Schematic Submission Green Schools Rating System Project Checklist only if the SCA has provided direction to that effect. Using the building as an educational tool may include a combination of architectural and programatic elements. Architectural elements might include special signage, display boxes, view panels of building elements. Programmatic elements might include a monograph appropriate for students or provision of background information and training for teachers. As coordinated with the school administration, students may participate in projects that educate each other and visitors about the environmental design features. Design Teams pursuing this credit may review the USGBC credit interpretation ruling on education programs for LEED-NC projects.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

ARCHITECTS RESPONSIBILITY

• For projects where the SCA has agreed that this credit may be pursued, indicate specific conditions that make this credit achievable. Iinclude a summary of the design approach and a description of the sustainable design measures to be used to support educational curriculum on the environment.

60% CONSTRUCTION DOCUMENTS

ARCHITECTS RESPONSIBILITY

• Incorporate requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

CONSTRUCTION

ARCHITECTS RESPONSIBILITY

• Submit Certification Form with completed information for this credit.
• Submit updated documentation as necessary.
• Submit sustainable curriculum to be implemented for the project.

LEED-NC 2.2 ID 1.4
Educational Program

WA CHPS Extra Credit 2.1
Environmental Education

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

USGBC Credit Interpretation Ruling on Educational Program
usgbc.org

FORMS FOR DESIGN TEAM
(ALL FORMS DOWNLOADABLE FROM SCA WEB SITE)

Project Checklist

Credit Compliance Narrative

S1.4: Development Density & Community Connectivity Form

S5.1R Light Pollution Reduction Form A - Site Lumen Calculation Form

S5.1R Light Pollution Reduction Form B - Lighting Power Density (LPD)

W2.1R, W2.2R and W2.3R: Water Use Reduction Form

E1.3: Refrigerant Impact Form

M1.2, M1.3 and M1.4: Building Reuse Form

M2.1R: Recycled Content - Summary Form

M2.2R: Regional Content - Summary Form

Q3.1R: Low Emitting Materials - Summary Form A Adhesives and Sealants

Q3.2R, Q 3.3R and Q3.4R: Low Emitting Materials Summary Form B - Paints, Coatings, Carpets, Composite Wood and Agrifiber Products

Q7.1: Daylight Calculation Form

Q7.2: Views Calculation Form

Design Team Certification - Design Phase

Design Team Certification - Construction Phase

REFERENCE FORMS
(ALL FORMS DOWNLOADABLE FROM SCA WEB SITE)

M1.5R and M1.6: Construction Waste Management Form

M2.1R and M2.2R: Contractors Sustainable Materials Form

M2.1R and M2.2R: Contractors Sustainable Materials - Tracking Form

Commissioning Certification Form

Contractor Certification Form

LL86/05 Reporting Form

FORMS

Project Checklist - page 1 of 2

School Construction Authority
NYC Green Schools Ratings System

Project: _____ Submission(Check one): SD | DD | 60% | 100% | Const

Address: _____ Date: _____

LLW #: _____

Design #: _____ Reviewer : _____

Architect: _____ Reviewer Sign Off: _____

	LEED Reference	CHPS Reference	NYC GSG Credit Name		Required For all Projects	Required if Feasible*	Optional Credits**	Anticipated / Documented***: Enter 1, or Enter 0 if NP Leave Blank if Not Feasible/Not Pursued: Design Phase	Construction Phase	Leave Blank if Pursued Enter 1 if Not Feasible or Additional Credit Not Pursued:
Site										**10 Points**
Site Selection	SS Pr 1		S 1.1R	**Construction Activity Pollution Prevention**	NP				0	
	SS 1		S 1.2R	**Site Selection**	1					
		1.1.7	S 1.3	**Sustainable Site & Building Layout**		1				
	SS 2		S 1.4	**Development Density & Community Connectivity**		1				
		1.1.2	S 1.5R	**Joint Use of Facilities, Community Access**	NP			0		
	SS 3		S 1.6	**Brownfield Redevelopment**		1				
Transportation	SS 4.1		S 2.1	**Alternative Transportation, Public Transportation Access**		1				
	SS 4.3/SS 4.4		S 2.2R	**Alternative Transportation, Fuel-Efficient Vehicles/Parking**	1					
Minimize Impact on Site	SS 5.1		S 3.1	**Site Development, Protect or Restore Habitat**		1				
	SS 5.2		S 3.2	**Site Development, Maximize Open Space**		1				
Stormwater Design	SS 6.2		S 4.1	**Stormwater Design, Quality Control**		1				
Outdoor Lighting	SS 8		S 5.1R	**Light Pollution Reduction**	1					
				Totals:	3	7		0	0	0
Water										**5 Points**
Outdoor Systems	WE 1.1		W 1.1R	**Water Efficient Landscaping**, Reduce by 50%	1					
	WE 1.2		W 1.2R	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1					
Indoor Systems	WE 3.1		W 2.1R	**Water Use Reduction**, 20% Reduction	1					
	WE 3.2		W 2.2R	**Water Use Reduction**, 30% Reduction	1					
	ID 1.1		W 2.3R	**Water Use Reduction**, 40% Reduction	1					
				Totals:	5	0		0		0
Energy										**3 Points**
Commissioning	EA Pr 1/EA 3		E 1.1R	**Enhanced Commissioning**	1					
Refrigerant Management	EA Pr 3		E 1.2R	**Fundamental Refrigerant Management**	NP			0		
	EA 4		E1.3	**Enhanced Refrigerant Management**		1				
Verification	EA 5		E 2.1R	**Measurement & Verification**	1					
		3.3.5	E 2.2R	**Energy Management System Controls,** HVAC and Hot Water	NP			0		
Energy Efficiency	EA Pr 2		E 3.1R	**Minimum Energy Performance**	NP			0		
HVAC Optimization		3.1.2	E 4.1R	**HVAC System Sizing,** Avoid Oversizing	NP			0		
Green Power	EA 6		E 5.1	**Green Power**		1				
				Totals:	2	2		0	0	0
Materials										**8 Points**
Efficient Material Use	MR Pr 1		M 1.1R	**Storage & Collection of Recyclables**	NP			0		
	MR 1.1		M 1.2	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof		1				
	MR 1.2		M 1.3	**Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof		1				
	MR 1.3		M 1.4	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements		1				
	MR 2.1		M 1.5R	**Construction Waste Management**, Divert 50% from Disposal	1					
	MR 2.2		M 1.6	**Construction Waste Management**, Divert 75% from Disposal		1				
Sustainable Materials	MR 4.1		M 2.1R	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1					
	MR 5.1		M 2.2R	**Regional Materials**, 10% Extracted, Processed & Manuf. Regionally	1					
		4.1.1	M 2.3R	**Wallboard & Roof Deck Products,** Mold Resistance	NP			0		
		7.2.3	M 2.4R	**Low-Mercury Lighting,** Reduce Mercury Waste	1					
				Totals:	4	4		0	0	0

Project Checklist - page 2 of 2

SCA School Construction Authority
NYC Green Schools Ratings System

Project: _____ Submission(Check one): SD [ ] DD [ ] 60% [ ] 100% [ ] Const [ ]

Address: _____ Date: _____

LLW #: _____

Design #: _____ Reviewer : _____

Architect: _____ Reviewer Sign Off: _____

	LEED Reference	CHPS Reference	NYC GSG Credit Name		Required For all Projects	Required if Feasible*	Optional Credits**	Anticipated / Documented***: Enter 1, or Enter 0 if NP Leave Blank if Not Feasible/Not Pursued: Design Phase	Construction Phase	Leave Blank if Pursued Enter 1 if Not Feasible or Additional Credit Not Pursued:
Indoor Environmental Quality										**17 Points**
IAQ Post-occupancy	EQ Pr 1/EQ2		Q 1.1R	**Minimum IAQ Performance / Increased Ventilation**	1					
		5.4.8	Q 1.2R	**Air Flow Stations,** Outside Air Intakes	1					
IAQ Pre-occupancy	EQ 3.1		Q 2.1R	**Construction IAQ Management Plan**, During Construction	1					
	EQ 3.2		Q 2.2R	**Construction IAQ Management Plan**, Before Occupancy	1					
Low-Emitting Materials	EQ 4.1		Q 3.1R	**Low-Emitting Materials**, Adhesives & Sealants	1					
	EQ 4.2		Q 3.2R	**Low-Emitting Materials**, Paints & Coatings	1					
	EQ 4.3		Q 3.3R	**Low-Emitting Materials**, Carpet Systems	1					
	EQ 4.4		Q 3.4R	**Low-Emitting Materials**, Comp Wood & Agrifiber Products	1					
Pollution Source Control	EQ 5		Q 4.1R	**Indoor Chemical & Pollutant Source Control**	1					
		5.3.5	Q 4.2R	**Electric Ignition Stoves**	NP			0		
		6.2.4	Q 4.3R	**Provide HEPA Vacuums**	NP			0		
Controllability of Systems	EQ 6.1		Q 5.1R	**Controllability of Systems**, Lighting	1					
	EQ 6.2		Q 5.2R	**Controllability of Systems**, Thermal Comfort	1					
Thermal Comfort	EQ 7.1		Q 6.1R	**Thermal Comfort**, Comply with ASHRAE 55-2004	1					
Lighting and Views	EQ 8.1		Q 7.1	**Daylight & Views**, Daylight 75% of Spaces		1				
	EQ 8.2		Q 7.2	**Daylight & Views**, Views for 90% of Spaces		1				
		5.2.1	Q 7.3	**Visual Performance,** Artificial Direct-Indirect Lighting		1				
Acoustics	ID 1.2	5.5.1	Q 8.1	**Minimum Acoustical Performance**		1				
		SCA	Q 8.2	**Sound Isolation for Special Spaces**		1				
		SCA	Q 8.3	**Acoustic Windows**		1				
				Totals:	12	6		0	0	0

Additional Credits										**12 Points**
Required for All	ID 2		A 1.1R	**LEED® Accredited Professional**	1					
Optional - Green Roofs	SS 7.2		A 2.1	**Heat Island Effect**, Roof			1			
	SS 6.1		A 2.2	**Stormwater Design**, Quantity Control			1			
Optional - Energy	EA 1.1		A 3.1	**Optimize Energy Performance** (new 10.5%, Existing 3.5%)			1			
	EA 1.2		A 3.2	**Optimize Energy Performance** (new 14%, Existing 7%)			1			
	EA 1.3		A 3.3	**Optimize Energy Performance** (new 17.5%, Existing 10.5%)			1			
	EA 1.4		A 3.4	**Optimize Energy Performance** (new 21%, Existing 14%)			1			
	EA 2		A 3.5	**Renewable Energy**			1			
Optional - Materials	MR 4.2, 5.2		A 4.1	**Additional Sustainable Materials**			1			
Optional - IEQ	ID 1.3	5.1.3	A 5.1	**Daylight in Classrooms**			1			
		WA 3.2	A 5.2	**Low-Emitting Materials,** Furniture			1			
Optional - Education	ID 1.4		A 6.1	**Building as Educational Tool**			1			
				Totals:	1	0	11	0	0	0
				Summary Totals:				0	0	0
				Grand Total				0		

SCA Credit Name : Letter prefix indicates credit section (S, W, E, M, Q, A)
First number indicates the category within the section
Second number indicates the specific credit within the section category
Suffix "R" is added for credits that are required of all projects

* Projects required to achieve all "feasible" credits that are possible for a particular project
** Projects may only pursue optional "Additional" section credits with permission from SCA
*** At Schematic, DD and 60% submissions, enter anticipated design and construction credits
At 100% Submission, enter documented design credits and anticipated construction credits.
NP: To be consistent with LEED, the NYC Green Schools Rating System assigns no point value to credits based on prerequisites.

NYC Green Schools Rating System	Credits Required for all Projects (with no Point Value)	Credits Required for all Projects	Credits Required if Feasible*	Optional Credits**	Total Number of Available Credit Points
Totals	**10 NP**	**27**	**19**	**11**	**57**
THIS PROJECT	**10**	**27**	**19**	**11**	**57**

School Construction Authority

NYC Green Schools Rating System

Credit Compliance Narratives

Project:_____ Date:_____
Address:_____ Architect:_____
LLW #:_____ Submission:_____
Design #:_____ Reviewer:_____
Reviewer Sign Off:_____

Directions:

- Nine of the Site narratives are submitted with the Schematic Submission as indicated below. All other required narratives are submitted with the Design Development submittal.

- Design Teams must submit narratives for all credits in the Site, Water, Energy, Materials and Indoor Environmental Quality sections. For the Additional Credits, all projects must include a narrative for credit A1.1R. Narratives for the other Additional Credits should only be provided when it has been determined with the SCA that the additional credit(s) are to be pursued for this project. Include explanation of why the additional credit is to be pursued on this project.

- Narratives should summarize the design approach to credit compliance and identify SCA standards to be incorporated into the design documents. Include any specific information requested under the "Credit Submittals" heading from the second page of credit text. Provide explanations for credits that are determined to be "not feasible" for this project.

Site Credits

Site Selection

S 1.1R **Construction Activity Pollution Prevention**

S 1.2R **Site Selection** NARRATIVE AT SCHEMATIC SUBM.

S 1.3 **Sustainable Site & Building Layout** NARRATIVE AT SCHEMATIC SUBM.

S 1.4 **Development Density & Community Connectivity** NARRATIVE AT SCHEMATIC SUBM.

S 1.5R **Joint Use of Facilities,** Community Access NARRATIVE AT SCHEMATIC SUBM.

S 1.6 **Brownfield Redevelopment** NARRATIVE AT SCHEMATIC SUBM.

Transportation

S 2.1 **Alternative Transportation**, Public Transportation Access **NARRATIVE AT SCHEMATIC SUBM.**

S 2.2R **Alternative Transportation**, Fuel-Efficient Vehicles/Parking **NARRATIVE AT SCHEMATIC SUBM.**

Minimize Impact on Site

S 3.1 **Site Development**, Protect or Restore Habitat **NARRATIVE AT SCHEMATIC SUBM.**

S 3.2 **Site Development**, Maximize Open Space **NARRATIVE AT SCHEMATIC SUBM.**

Stormwater Design

S 4.1 **Stormwater Design**, Quality Control

Outdoor Lighting

S 5.1R Light Pollution Reduction

Water Credits

Outdoor Systems

W 1.1R Water Efficient Landscaping, Reduce by 50%

W 1.2R **Water Efficient Landscaping**, No Potable Use or No Irrigation

Indoor Systems

W 2.1R **Water Use Reduction**, 20% Reduction

W 2.2R **Water Use Reduction**, 30% Reduction

W 2.3R **Water Use Reduction**, 40% Reduction

Energy

Commissioning

E 1.1R **Enhanced Commissioning**

Refrigerant Management

E 1.2R **Fundamental Refrigerant Management**

E 1.3 Enhanced Refrigenrant Management

Verification

E 2.1R **Measurement & Verification**

E 2.2R **Energy Management System Controls,** HVAC and Hot Water

Energy Efficiency
E 3.1R **Minimum Energy Performance**

HVAC Optimization
E 4.1R **HVAC System Sizing,** Avoid Oversizing

Green Power
E 5.1 **Green Power**

Materials Credits

Efficient Material Use
M 1.1R **Storage & Collection of Recyclables**

M 1.2 **Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof

M 1.3 **Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof

M 1.4 **Building Reuse**, Maintain 50% of Interior Non-Structural Elements

M 1.5R **Construction Waste Management**, Divert 50% from Disposal

M 1.6 **Construction Waste Management**, Divert 75% from Disposal

Sustainable Materials
M 2.1R **Recycled Content**, 10% (post-consumer + ½ pre-consumer)

M 2.2R **Regional Materials**, 10% Extracted, Processed & Manuf. Regionally

M 2.3R **Wallboard & Roof Deck Products,** Mold Resistance

M 2.4R **Low-Mercury Lighting,** Reduce Mercury Waste

Indoor Environmental Quality Credits

IAQ Post-occupancy
Q 1.1R **Minimum IAQ Performance / Increased Ventilation**

Q 1.2R **Air Flow Stations,** Outside Air Intakes

IAQ Pre-occupancy

Q 2.1R **Construction IAQ Management Plan**, During Construction

Q 2.2R **Construction IAQ Management Plan**, Before Occupancy

Low-Emitting Materials

Q 3.1R **Low-Emitting Materials**, Adhesives & Sealants

Q 3.2R **Low-Emitting Materials**, Paints & Coatings

Q 3.3R **Low-Emitting Materials**, Carpet Systems

Q 3.4R **Low-Emitting Materials**, Comp Wood & Agrifiber Products

Pollution Source Control

Q 4.1R **Indoor Chemical & Pollutant Source Control**

Q 4.2R **Electric Ignition Stoves**

Q 4.3R **Provide HEPA Vacuums**

Controllability of Systems

Q 5.1R **Controllability of Systems**, Lighting

Q 5.2R **Controllability of Systems**, Thermal Comfort

Thermal Comfort

Q 6.1R **Thermal Comfort**, Comply with ASHRAE 55-2004

Lighting and Views

Q 7.1 **Daylight & Views**, Daylight 75% of Spaces

Q 7.2 **Daylight & Views**, Views for 90% of Spaces

Q 7.3 **Visual Performance,** Artificial Indirect Lighting

Acoustics

Q 8.1R **Minimum Acoustical Performance**

Q 8.2 **Sound Isolation for Special Spaces**

Q 8.3 **Acoustic Windows**

Additional Credits

A 1.1R **LEED® Accredited Professional**

Optional - Green Roofs
A 2.1 **Heat Island Effect**, Roof

A 2.2 **Stormwater Design**, Quantity Control

Optional - Energy
A 3.1 **Optimize Energy Performance** (new 10.5%, Existing 3.5%)

A 3.2 **Optimize Energy Performance** (new 14%, Existing 7%)

A 3.3 **Optimize Energy Performance** (new 17.5%, Existing 10.5%)

A 3.4 **Optimize Energy Performance** (new 21%, Existing 14%)

A 3.5 **Renewable Energy**

Optional – Materials
A 4.1 **Additional Sustainable Materials**

Optional - IEQ
A 5.1 **Daylight in Classrooms**

A 5.2 **Low-Emitting Materials**, Furniture

Optional - Education
A 6.1 **Building as Educational Tool**

DEVELOPMENT DENSITY &
COMMUNITY CONNECTIVITY FORM
Credit S1.4

School Construction Authority
NYC Green Schools Rating System

Project: _____
Address: _____
LLW #: _____ Design #: _____
Date: _____

Architect: _____
Preparer: _____
Telephone: _____

Fill in either Option 1 or Option 2

Option 1 - Community Connectivity (Submit site plan with basic service locations noted matching table numbering and separate plan verifying dwelling unites per acre)

Plan Key Identification	Business Name within 1/2 mile (2,640 feet) radius and accessible by pedestrian access	Service Type
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Option 2 - Development Density Density radius within which lots must be included = 3 X √ (site area in sf) = [ ]

Sequential Number Assigned to Lot	Block No.	Lot No.	Lot Area in SF	Lot Area in Acres	Gross Building Square Footage per lot*
Project Site:	1000	1	10,000	0.23	15,000
		2	10,000	0.23	15,000
		15	10,000	0.23	15,000
		25	10,000	0.23	15,000
	2000	1	10,000	0.23	15,000
		3	10,000	0.23	15,000
		12	10,000	0.23	15,000
[insert rows as necessary					
	Combined Total Lot Area in SF		70,000		
	Combined Total Lot Area in Acres			1.61	
	Combined Total Building Gross Area in SF				105,000

Development Density = SF/Acre of Gross Bulding Square Footage = 65,340

If number above is greater than or equal to 60,000 sf/acre, then project complies using this criteria.

Note: Include project site in development density calculations
* Lot Area and Building Gross Area information may be obtained through oasisnyc.net. This site is a project of the New York City Open Accessible Space Information System Cooperative (OASIS).

05/01/09

Light Pollution Reduction - Form A
Exterior Light Tresspass - Site Lumen Calculation
Credit S5.1R

School Construction Authority
NYC Green Schools Rating System

Project: _____
Address: _____
LLW: _____
Date: _____

Architect: _____
Preparer: _____
Telephone: _____

Site Lumen Calculation

Fixture Type	Quantity of Installed Luminaries	Initial Lamp Lumens per Luminaire	Total Lamp Lumens	Initial Lamp Lumens Above 90 degrees from Nadir	Total Lamp Lumens Above 90 degrees
lt-1a	4	5,000	20,000	50	200
lt-1b	2	5,000	10,000	50	100
lt-1c	1	5,000	5,000	50	50
lt-1d	14	5,000	70,000	50	700
[insert rows as necessary]					
			Total Lamp Lumens	**105,000**	
				Total Lamp Lumens above 90 degrees	**850**

Percentage of Site Lamp Lumens above 90 degrees 1%

If Percentage of Site Lamp Lumens above 90 degrees is less than or equal to the value referenced for the select site LZ then site complies. Yes or No

LZ1: 0%, LZ2: 2%, LZ3:5%, LZ4: 10%

Light Pollution Reduction - Form B
Light Power Density Calculations
Credit S5.1R

School Construction Authority
NYC Green Schools Rating System

Project: _____
Address: _____
LLW: _____
Date: _____

Consulting Engineer: _____
Preparer: _____
Telephone: _____

1. Exterior Site Areas (applies to school yards, parking lots, building grounds and plazas)

Site Location	Fixture Type	Fixture Wattage	Fixture Quantity	Total Fixture Power (Watts)	Area Illum-inated (SF)	Actual LPD (per design)	ASHRAE Allowable LPD (Watts/SF)	SCA Allowable LPD 20% below ASHRAE	Site Lighting Fixture Complies
Play Roof - North	Z1	250	2	500	6,267	0.080			
Play Roof - North	Z4	175	2	350	6,267	0.056			
[insert additional lines as necessary]									
Play Roof - North Totals						**0.136**	0.2	0.16	Yes
Play Roof - South	Z1	150	1	150	5,733	0.026			
Play Roof - South	Z4	175	1	175	5,733	0.031			
[insert additional lines as necessary]									
Play Roof - South Totals						**0.057**	0.2	0.16	Yes
Total Actual Designed LPD						**0.192**			
SCA Allowable LPD (adds 5% unrestricted allowable per ASHRAE 90.1-2004 Table 9.4.5)								**0.32**	
Is Actual Designed LPD less than or equal to SCA allowable LPD? Project Complies									Yes

2. Building Entrance, Canopy & Overhang and Other Exterior Lighting (No Façade Lighting to be included)

Site Location	Fixture Type	Fixture Wattage	Fixture Quantity	Total Fixture Power (Watts)	Entrance Length (LF)	Actual W/LF (per design)	ASHRAE Allowable LPD (Watts/LF)	SCA Allowable LPD 80% below ASHRAE	Site Lighting Fixture Complies
Building Entry	Z3	150	1	150	6.33	24	30	24	YES
[insert additional lines as necessary]							30	24	
Building Entry TOTAL						24	30	24	YES
Stair Y Egress	Z6	100	1	100	6.33	16	20	16	YES
[insert additional lines as necessary]							20	16	
Stair Egress TOTAL						16	20	16	YES
Designer's Note: ADA HC-Ramp treated as Stairway in ASHRAE 901.-2004 Table 9.4.5 @ 1.0 W/sf									
Site Location	**Fixture Type**	**Fixture Wattage**	**Fixture Quantity**	**Total Fixture**	**Area Illum-**	**Actual LPD (per**	**ASHRAE Allowable LPD**	**SCA Allowable**	**Site Lighting Fixture**
ADA HC-Ramp	Z3	150	1	150	259.00	0.6	1	0.8	YES
							0		
[insert additional lines as necessary]							0		
Total Actual Designed LPD						0.6			
SCA Allowable LPD (adds 5% unrestricted allowable per ASHRAE 90.1-2004 Table 9.4.5)								**0.84**	
Is Actual Designed LPD less than or equal to SCA allowable LPD? Project Complies									YES

Note: The Allowable ASHRAE 90.1-2004 Lighting Power Densities can be found in ASHRAE and in the LEED-NC 2.2 Reference Guide.

WATER USE REDUCTION FORM
Credit W 2.1R, W 2.2R and W2.3R

School Construction Authority
NYC Green Schools Rating System

Project: _____
Address: _____
LLW: _____
Date: _____

Engineer: _____
Preparer: _____
Telephone: _____

School in Full Operation

BASE CASE

Base Case Flush Fixture Type		Daily Uses	Flow Rate [gpf]	Duration [Flush]	Occupant Users (Fill In Only the three Un-Shaded Boxes)	Sewage Generated [Gal] (Fill In Only the one Un-Shaded Box)
Conventional Water Closet	male	1.00	1.6	1.0	0	0
Conventional Water Closet	female	3.00	1.6	1.0	0	0
Conventional Urinal	male	2.00	1.0	1.0	0	0

Base Case Flow Fixture Type	Daily Uses	Flow Rate [GPM]	Duration [Flush]	Occupant Users	Sewage Generated [Gal]
Conventional Lavatory	3.00	2.5	15.0	0	0
Shower	0.10	2.5	300.0		0
Food Service Area Sink	1.00	2.5	15.0	0	0

Total Design and Base Case "School In Full Operation" Uses by All Occupants	0
Total Base Case "School In Full Operation" Daily Volume [Gal]	0
Annual Days School In Full Operation	**180**
Total Base Case Annual "School in Full Operation" Volume	***0***

DESIGN CASE

Fill In Un-Shaded Boxes Below

Design Case Flush Fixture Type		Daily Uses	Flow Rate [gpf]	Duration [Flush]	Occupant Users	Sewage Generated [Gal]
Conventional Water Closet	male	1.00	1.6	1.0	0	0
Dual Flushometer Water Closet	female	1.00	1.6	1.0	0	0
Dual Flushometer Water Closet	female	2.00	1.1	1.0	0	0
High Efficiency Urinal	male	2.00	0.5	1.0	0	0

Design Case Flow Fixture Type	Daily Uses	Flow Rate [GPM]	Duration [sec]	Occupant Users	Sewage Generated [Gal]
Aerated Lavatory w/Automatic Shut-Off Control	3.00	0.5	12.0		0
Low Flow Shower	0.10	1.8	300.0		0
Food Service Area Sink	1.00	1.6	15.0		0

Total Design and Base Case "School In Full Operation" Uses by All Occupants	0
Total Design Case "School In Full Operation" Daily Volume [Gal]	0
Annual Days School In Full Operation	**180**
Total Design Case "School in Full Operation" Volume	***0***

Sub-Total: Water Use Reduction for "School in Full Operation"	***#DIV/0!***

Notes:

1. Figures in shaded boxes are based on EPA 1992 per LEED (base case), SCA standards (design case) or are calculated by this spreadsheet. No design team revision required.

2. Figure entered by Design Team for occupant users for "conventional lavatory" should include all combined total of all students and staff. (From this figure spread sheet will calculate occupant users for water closets and urinals for design and base case using 50/50 assumption).

3. Staff includes all adult "full time equivalent" adult occupants of the building - such as teachers, administrators, custodial and food services staff. Full Time Equivalent refers to the fact that if there are four half time staff, they would be counted as two full time equivalent occupants in these calculations. For further detail design teams may review LEED-NC 2.2 Reference Guide for Credit WE 3.1-3.3.

4. Figure entered by Design Team for occupant users for showers - should include all high school students and also any physical education staff that would regularly take showers at the school.

5. Figure entered by Design Team for occupant users for "food service sinks" should include total Full Time Equivalent Food Service Staff.

6. For "Summer Operation", occupant users include anticipated average combined total of students and full time equivalent staff and should be assumed to be 30% of "Full Operation Population".

7. For "Annual Days of Summer Operation" include anticipated number of days for regular summer operation, excluding weekends and days when school is closed.

8. Modernization projects should include the actual fixture flow rate of fixtures to remain in the design case calculations and indicate assumptions about percentage of occupant users who will use those existing fixtures to remain.

WATER USE REDUCTION FORM
Credit W 2.1R, W 2.2R and W2.3R

School Construction Authority
NYC Green Schools Rating System

Project:
Address:
LLW:
Date:

Engineer:
Preparer:
Telephone:

Summer Operation

BASE CASE

Base Case Flush Fixture Type		Daily Uses	Flow Rate [gpf]	Duration [Flush]	Occupant Users (Fill In Only the three Un-Shaded Boxes)	Sewage Generated [Gal] (Fill In Only the one Un-Shaded Box)
Conventional Water Closet	male	1.00	1.6	1.0	0	0
Conventional Water Closet	female	3.00	1.6	1.0	0	0
Conventional Urinal	male	2.00	1.0	1.0	0	0

Base Case Flow Fixture Type	Daily Uses	Flow Rate [GPM]	Duration [Flush]	Occupant Users	Sewage Generated [Gal]
Conventional Lavatory	3.00	2.5	15.0	0	0
Shower	0.10	2.5	300.0	0	0
Food Service Area Sink	1.00	2.5	15.0	0	0

Total Design and Base Case "Summer Operation" Uses by All Occupants	0
Total Base Case "Summer Operation" Daily Volume [Gal]	0
Annual Days Summer Operation	30
Total Base Case Annual "Summer Operation" Volume	*0*

DESIGN CASE — Fill In Un-Shaded Boxes Below

Design Case Flush Fixture Type		Daily Uses	Flow Rate [gpf]	Duration [Flush]	Occupant Users	Sewage Generated [Gal]
Conventional Water Closet	male	1.00	1.6	1.0	0	0
Dual Flushometer Water Closet	female	1.00	1.6	1.0	0	0
Dual Flushometer Water Closet	female	2.00	1.1	1.0	0	0
High Efficiency Urinal	male	2.00	0.5	1.0	0	0

Design Case Flow Fixture Type	Daily Uses	Flow Rate [GPM]	Duration [sec]	Occupant Users	Sewage Generated [Gal]
Aerated Lavatory w/Automatic Shut-Off Control	3.00	0.5	12.0	0	0
Low Flow Shower	0.10	1.8	300.0	0	0
Food Service Area Sink	1.00	1.6	15.0	0	0

Total Design and Base Case "Summer Operation" Uses by All Occupants	0
Total Design Case "Summer Operation" Daily Volume [Gal]	0
Annual Days Summer Operation	30
Total Design Case "Summer Operation" Volume	*0*

Sub-Total: Water Use Reduction for "Summer Operation"	*#DIV/0!*

Total Water Use Reduction	*#DIV/0!*

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 1 - General and Supplementary Requirements												
S01350	Sustainability Requirements											
S01370	Environmental Protection Proced.											
S01524	Construction Waste Management											
S01650	Facility Start-Up, Demonstration & Training											
S01660	Supplementary Commissioning Requirements											
Division 2 - Sitework												
02100	Site Preparation											
02200	Earthwork											
02200A	Earthwork (Flow-through Turf AF)											
02200B	Earthwork (Float Drain Turf / Natural Grass AF)											
02201	Earthwork											
02250	Foundation and Other Change Adjustments											
02360	Pile Foundations											
02511	Asphaltic Concrete Paving											
02512	Porous Asphalt Paving											
02513	Sidewalk and Street Paving											
02514	Porous Asphalt Pavement Test Strip											
02515	Unit Pavers											
02516	Exposed Porous Asphalt Paving											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

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02521	Concrete Curbs and Pavements											
02531	Resilient Surfacing											
02532	Resilient Surface - Porous Base											
02533	Colored Athletic Wearing Surface											
02540	Synthetic Turf											
02580	Track / Court/ Playground Markings											
02711	Wall Subdrainage Systems											
02721	Trench Drains											
02722	Precast Conc CB/Detention Basins/MH											
02723	Storm Drainage Systems											
02724	Underdrain System - Asphalt Paving											
02725	Underdrain System for Skinned Areas											
02831	Chain Link Fences and Gates											
02860	Early Childhood Playground Equipment											
02862	Outdoor Game Equipment											
02870	Site and Street Furnishings											
02900	Landscaping											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
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Division 3 - Concrete												
03005	Concrete Work											
03100	Concrete Formwork											
03200	Concrete Reinforcement											
03200A	Concrete Reinforcement - (Epoxy)											
03300	Cast-In-Place Concrete											
03610	Grouting											
03733	Concrete Repair Work											
03740	Migrating Corrosion Inhibitor											
Division 4 - Masonry Systems:												
04200	Unit Masonry											
04250	Terra Cotta											
04270	Glass Unit Masonry											
04420	Exterior Cut Stone											
04435	Cast Stone											
04510	Masonry Cleaning											
04510A	Masonry Cleaning (SHPO)											
04520	Masonry Restoration											
04520A	Masonry Restoration (SHPO)											
04700	Simulated Masonry											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
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Division 5 - Metals:												
05120	Structural Steel											
05121	Structural Steel											
05170	Support System For Suspended Ceilings											
05210	Open Web Steel Joist, K-Series											
05220	Longspan Steel Joists, LH-Series											
05230	Steel Joist Girders											
05300	Metal Deck											
05500	Metal Fabrications											
05580	Sheet Metal Fabrications											
05700	Ornamental Metal											
05710	Steel Stairs											
05810	Prefabricated Expansion Joint Covers											
Division 6 - Wood & Plastics:												
06100	Rough Carpentry											
06200	Finish Carpentry											
06410	Custom Casework											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 7 - Thermal & Moisture Protection												
07110	Sheet Membrane Waterproofing											
07115	Sheet Membrane Waterproofing FDNS											
07120	Fluid-Applied Waterproofing Plazas											
07147	Crystalline Waterproofing											
07160	Bituminous Damproofing											
07211	Perimeter Foundation Insulation											
07212	Miscellaneous Building Insulation											
07250	Sprayed Fire Resistive Materials											
07270	Firestopping/Smoke Seals											
07272	Fluid-Applied Membrane Air Barrier, Vapor Retarding											
07314	Slate Shingles											
07510	Built-Up Bituminous Roofing											
07560	Fluid-applied Protected Membrane Roofing											
07561	Fluid-applied Protected Membrane Roofing (Planted Type I)											
07600	Flashing and Sheet Metal											
07610	Sheet Metal Roofing											
07720	Roof Accessories											
07820	Metal Framed Skylights											
07900	Joint Sealers											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 8 - Doors & Windows												
08110	Steel Doors and Frames											
08210	Wood Doors											
08305	Access Doors											
08330	Coiling Doors, Grilles and Shutters											
08510	Stl. Windows - Projected/Casement/Pivot/ DH											
08521	AL. Dbl-Hung Windows - New											
08522	AL. Dbl-Hung Windows - Repl											
08524	Aluminum Projected Windows											
08610	Replacement Wood Windows											
08662	Security Screens/Barriers											
08710	Finish Hardware											
08730	Thresholds, Weatherstripping and Seals											
08800	Miscellaneous Glazing											
08920	Aluminum Curtain Walls											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 9 - Finishes												
09205	Furring and Lathing											
09210	Plaster											
09260	Gypsum Board Assemblies											
09310	Ceramic Tile											
09410	Terrazzo - Portland Cement											
09510	Acoustical Ceilings											
09590	Wood Flooring											
09626	Resilient Athletic Flooring											
09650	Resilient Flooring											
09680	Carpet											
09705	Resinous Flooring											
09800	Special Coatings											
09860	Graffiti Resistant Coatings											
09900	Painting											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 10 - Specialties												
10100	Visual Display Boards											
10151	Toilet Compartments											
10160	Factory-Painted Steel Toilet Compartments											
10185	Plastic Shower and Dressing Compartments											
10214	Stationary Metal Wall Louvers											
10270	Access Flooring											
10350	Flagpole											
10400	Identifying Devices											
10415	Bulletin Boards, Display Boards, Display Cabinets and Cases											
10505	Metal Lockers											
10522	Fire Extinguishers and Cabinets											
10605	Wire Mesh Work											
10652	Folding Panel Partitions											
10655	Accordion Folding Partitions											
10675	Metal Storage Shelving											
10720	Window Guards											
10810	Toilet and Bath Accessories											
10830	Mirrors											
10840	Grab Bars											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 11 - Equipment												
11061	Platform Curtains, Auditorium Window Curtains, Projection Screen											
11172	Waste Handling Equipment											
11400	Food Service Equipment											
11450	Domestic Type Equipment											
11452	Culinary Arts Lab Equipment											
11460	Unit Kitchen											
11480	Gymnasium Equipment											
11500	Shop Equipment											
11600	Laboratory Equipment											
Division 12 - Furnishings												
12302	Manufactured Wood Casework											
12345	Soapstone											
12485	Foot Grilles											
12500	Window Shades											
12501	Chain and Clutch Operated Window Shades											
12545	Draperies											
12710	Fixed Audience Seating											
12761	Wood Bleachers											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 13 - Special Construction												
13120	Steel Bleachers											
13031	Walk-In Trash Refrigerator											
Division 14 - Conveying Systems												
14120	Electric Dumbwaiter											
14211	Geared Traction Passenger Elevators											
14240	Hydraulic Passenger Elevators											
14250	Dual-Jack Roped Hydraulic Passenger Elevators											
14315	Hydraulic Sidewalk Elevators											
14316	Geared Traction Sidewalk Elevators											
14420	Vertical Wheelchair Lift											
14510	Escalators											
Division 15 - Mechanical (Plumbing & Drainage)												
15403	Vibration Isolation and Seismic Controls											
15410	Plumbing Piping											
15411	Hangers and Supports											
15412	Valves											
15413	Insulation (P & D)											
15414	Tests											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
15415	Drainage											
15416	Gas Piping System											
15417	Cold Water Supply											
15418	Hot Water Supply											
15431	Tags, Charts and Identification											
15432	Miscellaneous											
15440	Plumbing Fixtures											
15451	Water Heaters											
15453	Pumping Apparatus and Tanks											
15456	Dry Standpipe System											
Division 15 - Mechanical (HVAC)												
15501	Basic Heating, Ventilating and Air Cond. Req.											
15502	HVAC Identification											
15503	Vibration Isolation and Seismic Controls, HVAC Systems											
15504	Vibration Isolation											
15510	HVAC Piping											
15511	Valves (HVAC)											
15512	Piping Insulation (HVAC)											
15513	Equipment Insulation (HVAC)											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
15514	Ductwork Insulation											
15515	Hydronic Specialties											
15516	Water Treatment for Steam Boilers											
15517	Water Treatment for Hydronic Systems											
15525	Steam and Condensate Specialties											
15540	HVAC Pumps											
15555	Fire-Tube Boilers (Steam)											
15556	Cast-Iron Boilers											
15557	Fire-Tube Boilers (Hot Water)											
15559	Flexible-Water Tube Boilers (Steam)											
15560	Flexible-Water Tube Boilers (Hot Water)											
15565	Hot Water Condensing Boilers											
15570	Boiler Accessories											
15575	Breeching, Chimney and Stacks											
15580	Feedwater Equipment											
15590	Emergency Generator System - Accessories											
15592	Fuel Burning/Pumping Equipment (For Steam Boilers)											
15593	Fuel Burning/Pumping Equipment (For Hot Water Boilers)											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
15594	Fuel Storage Equipment											
15595	Gas Leak/Carbon Monoxide Detection Equipment											
15610	Gas-Fired Duct Furnaces											
15650	Split Air Cooled Chillers											
15660	Packaged Modular Outdoor Chiller											
15670	Plate Heat Exchangers											
15756	Converters											
15781	Packaged Heating and Cooling Units											
15783	Split Heat Pump System											
15792	Coils											
15835	Convectors											
15836	Unit Heaters/Cabinet Heaters											
15838	Fan Coil Units											
15852	Air Handling Units											
15853	Custom Packaged Rooftop Heating and Cooling Units (Variable Air Volume System)											
15854	Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)											
15855	Commercial Packaged Rooftop Heating and Cooling Units											
15857	Unit Ventilator											
15858	Windows Air Conditioners											
15860	Centrifugal Fans											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
15864	Propeller Fans											
15865	Axial Flow Fans											
15872	Gravity Roof Ventilator											
15885	Air Filters											
15891	Metal Ductwork											
15910	Duct Accessories											
15915	Dampers											
15930	Variable Air Terminals											
15931	Fan-Powered Variable Air Volume (VAV) Terminal Units											
15940	Air Outlets and Inlets											
15970	LonWorks BMS/DDC W/School Console											
15971	TC System (LonWorks DDC Only)											
15972	Temperature Control System (Pneumatic)											
15973	Facility Management Systems Integration											
15980	Thermometers and Gauges											
15985	Sequence of Operations											
15990	Fire Pumps/Sprinkler Booster Pumps											
15991	Sprinkler Work											
15992	Cleaning and Testing											
15993	Balancing of Systems											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 16 - Electrical												
16020	Temporary Light and Power											
16120	Wiring Systems											
16130	Raceways, Fittings, Supporting Devices, Boxes and Accessories											
16140	Wiring Devices											
16145	Lighting Control Devices											
16231	Emergency Generator System											
16289	Transient Voltage Surge Suppression											
16420	Service Entrance Equipment											
16425	Switchboards											
16441	Enclosed Switches											
16450	Grounding and Bonding											
16460	Transformers											
16470	Panelboards											
16471	Auditorium and Television Studio Dimming System											
16472	Science Laboratory Power Units											
16475	Overcurrent Protective Devices, Circuit Breakers and Fuses											
16480	Motors, Motor Control Centers, Starters, and Control Equipment											
16500	Interior Building Lighting											
16501	Lamps, Ballasts and Accessories											
16503	Vibration Isolation And Seismic Controls, Electrical Systems											
16520	Illuminated Exit Sign and Emergency Lighting Fixtures											
16530	Site/Security Lighting											

SCA Total Building Commissioning Construction Document Verification Matrix

(Name of Project)

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
16670	Lighting Protection											
16701	Auxiliary Signal Systems											
16720	Fire Detection and Alarm System											
16721	City Fire Alarm System											
16724	Intrusion Alarm System											
16725	Telephone and Intercom Cabling System											
16726	Intercom System for Holding Areas and Elevators											
16727	Data Cabling System											
16728	Fiber Optic Cabling System											
16770	Sound, Intercom and Teacher Activated Security System											
16771	Projection System											
16780	TV Distribution System											
16783	Internet Protocol Digital Video Surveillance (IPDVS) Cabling System											
16791	Self-Corrective Clock System											
16792	Wireless Clock System											
16855	Heat Trace Cable System											

REFRIGERANT IMPACT FORM
Credit E1.3

School Construction Authority
NYC Green Schools Rating System

Project: _____ Engineering Firm: _____
Address: _____ Preparer: _____
LLW #: _____ Design #: _____ Telephone: _____
Date: _____

The matrix below is to assist in calculating the refrigerant impact using the following calculation: **LCGWP + LCODP x 100,000 is less than or equal to 100**

Weighted average for multiple pieces of **[Σ (LCGWP + LCODP x 100,000) x Qunit] / Qtotal is less than or equal to 100**

Inputs - **Enter project specific project information in below**										Calculations - shaded cells will calculate automatically					
Description HVAC&R equipment	**N** No. of Units	**Q unit** (Tons)	**Refrig-erant**	**GWPr**	**ODPr**	**Rc** (lb/ton)	**Life** (yrs)	**Lr** (%)	**Mr** (%)	**Q total Tons**	**Tr** (Lr x Life +Mr)	**LCGWP** (GWPr x Tr x Rc/Life)	**LCODP x 10000**	**RAI =** LCGWP+ LCODPx 100000	**(LCGWP + LCODP x 100000) x Qtotal**
	12	**5**	**R410a**	**1,890**	**0**	**1.8**	**15**	**2.0%**	**10%**	**60**	**40%**	**90.7**	**0**	**90.7**	**5443**
	12	**1**	**R410a**	**1,890**	**0**	**1.8**	**15**	**2.0%**	**10%**	**12**	**40%**	**90.7**	**0**	**90.7**	**1089**
	1	**1**	**R407c**	**1,890**	**0**	**1.5**	**15**	**2.0%**	**10%**	**1**	**40%**	**75.6**	**0**	**75.6**	**76**
	1	**1**	**R410a**	**1,700**	**0**	**2.1**	**15**	**2.0%**	**10%**	**1**	**40%**	**95.2**	**0**	**95.2**	**95**
	6	**1**	**R22**	**1,780**	**0.04**	**3.3**	**15**	**2.0%**	**10%**	**6**	**40%**	**156.6**	**35.2**	**191.8**	**1151**
	1	**1**	**R22**	**1,780**	**0.04**	**2.1**	**10**	**2.0%**	**10%**	**1**	**30%**	**112.1**	**25.2**	**137.3**	**137**
										81				**Subtotal =**	**7991**
														Weighted Average Atmospheric Impact [Σ (LCGWP + LCODP x 100,000) x Qunit] / Qtotal =	**98.7**

Definitions:

LCGWP: Lifecycle Direct Global Warming Potential (lbCFC11.Ton-Year) = [GWPr x (Lr x life + Mr) x Rc]/life
LCODP: Lifecycle Ozone Depletion Potential (lbCFC11.Ton-Year) = [ODPr x (Lr x life + Mr) x Rc]/life
GWPr: Global Warming Potential of Refrigerant (0 to 12,000 lbCO2/lbr). See on following page.
ODPr: Ozone Depletion Potential of Refrigerant (0 to .2lbCFC11/lbr). See on following page.
Q unit: Cooling capacity of an individual HVAC or refrigeration unit in tons.
Rc: ACTUAL Refrigerant Charge (0.5 to 5.0 lbs of refrigerant per ton of mechanical-cooling capacity)
Life: Equipment Life (based on equipment type, 15 years unless otherwise demonstrated)
Lr: Refrigerant Leakage Rate (0.5% to 2%; default of 2% unless otherwise demonstrated)
Mr: End-of-life Refrigerant Loss (2% to 10%; default of 10% unless otherwise demonstrated)
Q total: Total mechanical-cooling capacity for a given type of HVAC or refrigeration unit on the project.
RAI: Refrigerant Atmosheric Impact

Ozone-depletion and global-warming potentials of refrigerants (100-yr values)

Refrigerant		**ODP**	**GWP**	**Common Building Application**
Chlorofluorocarbons	CFC-11	1.0	4,680	Centrifugal chillers
	CFC-12	1.0	10,720	Refrigerators, chillers
	CFC-114	0.94	9,800	Centrifugal chillers
	CFC-500	0.605	7,900	Centrifugal chillers, humidifiers
	CFC-502	0.221	4,600	Low-temperature refrigeration
Hydrochloroflurocarbons	HCFC-22	0.04	1,780	Air conditioning, chillers,
	HCFC-123	0.02	76	CFC-11 replacement
Hydrofluorocarbons	HFC-23	~0	12,240	Ultra-low-temperature refrigeration
	HFC-134a	~0	1,320	CFC-12 or HCFC-22 replacement
	HFC-245fa	~0	1,020	Insulation agent, centrifugal chillers
	HFC-404A	~0	3,900	Low-temperature refirifugal chillers
	HFC-407C	~0	1,700	Low-temperature refrigeration
	HFC-410A	~0	1,890	HCFC-22 replacement
	HFC-507A	~0	3,900	Air conditioning
Natural Refrigerants	Carbon Dioxide (CO2)	0	1.0	
	Ammonia (NH3)	0	0	
	Propane	0	3	

Default Maximum Allowable Equipment Refrigerant Charge (lb/ton)

Refrigerant	**10 Year Life**	**15 Year Life**	**20 Year Life**	**23 Year Life**
	(Room or window AC & heat pumps)	(Unitary, split and packaged AC and heat pumps)	(Reciprocating compressors & chillers)	(Centrifugal, Screw & Absorption Chillers)
R-22	0.57	0.64	0.69	0.71
R-123	1.60	1.80	1.92	1.97
R-134a	2.52	2.80	3.03	3.10
R-245fa	3.26	3.60	3.92	4.02
R-407c	1.95	2.20	2.35	2.41
R-410a	1.76	1.98	2.11	2.17

Building Reuse Calculation
Credit M1.2, M1.3 and M1.4

School Construction Authority
NYC Green Schools Rating System

Project: _____
Address: _____ Engineer: _____
LLW #: _____ Design #: _____ Preparer: _____
Date: _____ Telephone: _____

Table 1: Credit M1.2 and M1.3 - Building Structure / Envelope Reuse Calculation M1.2 - Projects that reuse/divert from landfill 75% or more of the existing structure achieve this credit. M1.3 - Projects that reuse/divert from landfill 95% or more of the existing structure achieve this credit.				These columns to be completed only if project does not achieve percentage reuse specified in Credit M1.2 or M1.3	
Structure / Envelope Element	**Existing Area (SF)**	**Existing / Reused Area (SF)**	**Percentage Reused (%)**	**Weight of Material in lbs***	**Source of Weight Assumption**
Foundation / Slab on Grade		0	0%	0	
2nd Floor Deck		0	0%	0	
1st Floor Interior Structural Walls		0	0%	0	
2nd Floor Interior Structural Walls		0	0%	0	
[insert additional lines as necessary]		0	0%	0	
Roof Deck		0	0%	0	
North Exterior Wall (excl. windows)		0	0%	0	
East Exterior Wall (excl. windows)		0	0%	0	
West Exterior (excl. windows)		0	0%	0	
South Exterior (excl. windows)		0	0%	0	
[insert additional lines as necessary]		0	0%	0	
TOTALS	0	0	0%	0	

Table 2: Credit M1.4 - Interior Non-Structural Reuse Calculation Projects that reuse/divert from landfill 50% or more of interior non-structural elements achieve this credit.				These columns only to be completed if project does not achieve percentage reuse specified in Credit M1.4	
Interior Non-Structural Element	**Total Area* (SF)**	**Existing / Reused Area (SF)**	**Percentage Reused (%)**	**Weight of Material in lbs***	**Source of Weight Assumption**
Gypsum Board Wall Partitions - Full Height		0	0%	0	
Gypsum Board Wall Partitions - Partial Height		0	0%	0	
Masonry partitions, non-structural		0	0%	0	
Carpeting		0	0%	0	
Resilient Flooring		0	0%	0	
Ceramic Tile		0	0%	0	
Suspended Ceiling systems		0	0%	0	
Gypsum Board Ceilings		0	0%	0	
Interior Doors (Wood)		0	0%	0	
Interior Windows / Sidelights		0	0%	0	
Interior Doors (Metal)		0	0%	0	
Interior Casework / cabinetry		0	0%	0	
[insert additional lines as necessary]		0	0%	0	
		0	0%	0	
TOTALS	0	0	0%	0	

***Note: The Total Area Calculation includes both existing materials to remain and existing materials to be reused.**

Assumption - Weight of materials assumptions may be taken from Architectural Graphic Standards or other established source.
Below are a selection of materials weight assumptions from Architectural Graphic Standards.

4" brick:	40 lbs per square foot
6" light weight CMU:	31 lbs per square foot
8" light weight CMU:	35 lbs per square foot
Hardwood Flooring:	4lbs per square foot
Concrete Floor/Roof:	light weight 6 lbs per square foot per inch of slab
Built-up Roofing:	6.5 lbs per square foot
Metal Deck:	2.2 lbs per square foot

05/01/09

RECYCLED CONTENT - SUMMARY FORM
Credit M2.1R

School Construction Authority
NYC Green Schools Rating System

Project: _____ Architect: _____
Address: _____ Preparer: _____
LLW #: _____ Design #: _____ Telephone: _____
Date: _____

Contractors Total Construction Cost for CSI Divisions 2-10:	$1,000
Assumed Materials Cost based on 45% of cost above:	$450
Recycled Materials Content Target (10% of the cost of Materials):	**$45**

Product Name	Manufacturer	Material Cost (no Labor & Equip.)	Percentage **Post** Consumer* by weight	Percentage **Pre-**Consumer** by weight	Cost of Complying Material	Recycled Content Information Source
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
		$1,000	1%	1%	$15	
				Total Cost of Complying Material	**$300**	

Confirm that Total Cost of Complying Materials is greater than or equal to Project's Recycled Materials Content Target: Yes or No

Definitions:

* **Post-Consumer Recycled Content:** Material or finished product that has served its intended consumer use and has been discarded by consumer.

** **Pre-Consumer Recycled Content:** Recovered industrial and manufacturing materials diverted from municipal solid waste for the purpose of collection and recycling.

Notes:

1. Recycled content for concrete - provide cost for cementitious materials and percentage of cementitious materials that are recycled content.
2. Recycled content for steel products - where it is not possible to determine recycled content - use default assumption of 25% post-consumer recycled content

REGIONAL MATERIALS - SUMMARY FORM
Credit M2.2R

School Construction Authority
NYC Green Schools Rating System

Project: _____ Architect: _____
Address: _____ Preparer: _____
LLW #: _____ Design #: _____ Telephone: _____
Date: _____

Contractors Total Construction Cost for CSI Divisions 2-10:	$1,000
Assumed Materials Cost based on 45% of cost above:	$450
Regional Materials Content Target (10% of the cost of Materials):	**$45**

Product Name	Manufacturer	Material Cost (no Labor & Equip.)	Percentage Regionally Extracted*** by weight	Cost of Complying Material	Distance in miles between project site and site of		Regional Materials Information Source
					extraction	manufacture	
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
		$1,000	1%	$10			
Total Cost of Complying Material				**$260**			

Confirm that Total Cost of Complying Materials is greater than or equal to Project's Regional Materials Content Target: Yes or No

Definitions:

*** **Regional Materials:** Regionally manufactured materials that have their origin within 500 miles of the project site. These would included products that are regionally mined, harvested or re-used (including those salvaged from the site).

Notes:

1. Regional content for concrete provide combined cost for all concrete materials, and distance information requested.
2. Regional content for materials with various points of extraction all within the 500-mile radius list single item with the greatest distance.

LOW EMITTING MATERIALS - SUMMARY FORM A (page 1)
Adhesives and Sealants
Credit Q 3.1R

School Construction Authority
NYC Green Schools Rating System

Project: _____ Architect: _____
Address: _____ Preparer: _____
LLW #: _____ Design #: _____ Telephone: _____
Date: _____

Adhesives

Product Use	Manufacturer's Name	Product Name	Product's VOC Level [g/L less water]	VOC Limit [g/L less water]
Architectural Applications				
Indoor Carpet Adhesives				50
Carpet Pad Adhesives				50
Wood Flooring Adhesives				100
Rubber Floor Adhesives				60
Subfloor Adhesives				50
Ceramic Tile Adhesives				65
VCT & Asphalt Adhesives				50
Drywall & Panel Adhesives				50
Cove Base Adhesives				50
Multipurpose Construction Adhesives				70
Structural Glazing Adhesives				100
Specialty Applications				
PVC Welding				510
CPVC Welding				490
ABS Welding				325
Plastic Cement Welding				250
Adhesive Primer for Plastic				550
Contact Adhesive				80
Special Purpose Contact Adhesive				250
Structural Wood Member Adhesive				140
Sheet Applied Rubber Lining Operatio				850
Top & Trim Adhesive				250

LOW EMITTING MATERIALS - SUMMARY FORM A (page 2)
Adhesives and Sealants
Credit Q 3.1R

School Construction Authority
NYC Green Schools Rating System

Project: _____ Architect: _____
Address: _____ Preparer: _____
LLW #: _____ Design #: _____ Telephone: _____
Date: _____

Adhesives

Product Use	Manufacturer's Name	Product Name	Product's VOC Level [g/L less water]	VOC Limit [g/L less water]
Architectural Applications				
Substrate Specific Applications				
Metal to Metal				30
Plastic Foams				50
Porous Material (except wood)				50
Wood				30
Fiberglass				80
Substrate Specific Applications				
General purpose mist spray				65% VOCs by wt.
General purpose web spray				55% VOCs by weight
Special purpose aerosol adhesives (all types)				70% VOCs by weight

Sealants

Product Use	Manufacturer's Name	Product Name	Product VOC Level [g/L less	VOC Limit [g/L less water]
Architectural				250
Nonmembrane Roof				300
Roadway				250
Single-Ply Roof Membrane				450
Other				420
Architectural Non Porous				250
Architectural Porous				775
Other				750

LOW EMITTING MATERIALS - SUMMARY FORM B
Paints, Coatings, Carpets
Composite Wood & Agrifiber Products
Credit Q 3.2R, 3.3R and 3.4R

SCA School Construction Authority
NYC Green Schools Rating System

Project: _____ Architect: _____
Address: _____ Preparer: _____
LLW #: _____ Design #: _____ Telephone: _____
Date: _____

Paints and Coatings

Product Use	Manufacturer's Name	Product Name	Product's VOC Level [g/L less water]	VOC Limit [g/L less water]
Architectural paints				
Flats				50 g / L
Non-Flats				150 g / L
Anti-corrosive, anti-rust paints				250 g / L
Clear wood finishes				
varnish				350 g / L
lacquer				550 g / L
Floor coatings				100 g / L
Sealer				
waterproofing sealers				250 g / L
sanding sealers				275 g / L
all other sealers				200 g / L
Stains				250 g / L

Carpet and Carpet Cushions

Product Use	Manufacturer's Name	Product Name	Type of CRI Green Label Plus Documentation Attached

Composite Wood & Agrifiber Products

Product Use	Manufacturer's Name		Product Name	Documentation of Lack of added Urea Formaldehyde

05/01/09

DAYLIGHT & VIEWS
Daylight Calculation Form
Credit Q7.1

School Construction Authority
NYC Green Schools Rating System

Project: _____ Architect: _____

Address: _____ Preparer: _____

LLW: _____ Design #: _____ Date: _____

RM #	RM NAME	OCC AREA		Glazing Area		Window Geometry		Transmittance		Window Height	Daylight Factor		Daylit Area	Glare Control (Y / N)
						Type	Factor	Actual	Min.	Factor	Each	Room		
BASEMENT														
B00	ROOM NAME	0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
		0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
		0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
	Sub-Total This Floor	**0**											**0**	
1ST FLOOR														
100	ROOM NAME	0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
		0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
		0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
	Sub-Total This Floor	**0**											**0**	
2ND FLOOR														
200	ROOM NAME		SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
			SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
			SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
			SF	0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
	Sub-Total This Floor	**0**											0	
3RD FLOOR														
300	CLASSROOM	0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
				0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
		0	SF	0	SF	VIS	0.10	0.62	0.40	0.80	#DIV/0!	#DIV/0!	0	
				0	SF	DAY	0.10	0.62	0.62	1.40	#DIV/0!			
	Sub-Total This Floor	**0**											0	

SF OF AREA BEING EVALUATED FOR 2% DAYLIGHT FACTOR: **0**

SF OF AREA THAT ACHIEVES 2% DAYLIGHT FACTOR: **0**

Percentage achieved: #DIV/0!

Requirement to achieve credit Q 7.1 is Daylight in 75% of occupiable project area ***Complies? (Y/ N):*** **no**

Directions

1. *Determine which spaces are regularly occupied and require daylight. Include only these spaces on this form. Types of spaces that would not be regularly occupied include: circulation areas, MEP spaces, storage rooms. Types of spaces where daylight/glare could negatively impact space use include computer rooms, auditoriums.*
2. *Copy additional pairs of lines as required for each room to be included on this form.*
3. *Enter room number, room name, SF of room, area of visible glazing (between 2'6 and 7'6), area of daylight glazing (above 7'6) for each room.*
4. *Enter Window Geometry Factor, Minimum Visible Transmittance and Height Factor. These can be obtained from LEED-NC Reference Guide. Sample factors entered on first line are those for typical classroom vision and daylight glazing.*
5. *Verify/enter actual transmittance for specified glazing. For projects in design use lowest figure for specified glass.*
6. *For projects where resulting Daylight Factor for the room is not over 2 change daylit area to 0.*
7. *Check that all sub-total figures are included in worksheet cells summing SF OF AREA BEING EVALUATED and SF OF AREA THAT ACHIEVES 2% DAYLIGHT FACTOR.*
8. *Add notes in the last column indicating type of glare control being provided such as shades for classrooms.*

Notes

1. *In all cases, only the square footage associated with the portions of rooms or spaces meeting the minimum illumination requirements can be applied towards the 75% of total area calculation required to qualify for this credit.*
2. *In all cases provide daylight redirection and/or glare control devices to avoid high-contrast situations that could impede visual tasks.*
3. *It is permissible to exclude areas where tasks would be hindered by the use of daylight. Exceptions on this basis might include computer rooms, auditoriums and gyms. In gyms for example, where glare control measures are incorporated (such as glass block) and glazing area is limited, it would be difficult for glazing appropriate to the space to comply with the credit requirements.*

DAYLIGHT & VIEWS

Views Calculation Form

Credit Q7.2

School Construction Authority

NYC Green Schools Rating System

Project: _____ Architect: _____

Address: _____ Preparer: _____

LLW #: _____ Date: _____

Design #: _____

RM #	RM NAME	Total Occupiable Area in SF	Step 1: Horizontal View at 42in. (Y /N)	Step 2: Calculated Area of Room that Does Not have Direct Line of Sight to Perimeter Vision Glazing	Compliant Area (sf)
BASEMENT					
B00	ROOM NAME	200	**N**	200	0
B01	ROOM NAME	200	**Y**	50	150
			Y	0	0
			Y	0	0
			Y	0	0
		400			**150**
1ST FLOOR					
100	ROOM NAME	200	**N**	200	0
101	ROOM NAME	200	**Y**	50	150
			Y	0	0
			Y	0	0
			Y	0	0
		400			**150**
2ND FLOOR					
200	ROOM NAME	200	**N**	200	0
201	ROOM NAME	200	**Y**	50	150
			Y	0	0
			Y	0	0
			Y	0	0
		400			**150**
3RD FLOOR					
300	ROOM NAME	200	**N**	200	0
301	ROOM NAME	200	**Y**	50	150
			Y	0	0
			Y	0	0
			Y	0	0
		400			**150**
4TH FLOOR					
400	ROOM NAME	200	**N**	200	0
401	ROOM NAME	200	**Y**	50	150
			Y	0	0
			Y	0	0
			Y	0	0
		400			**150**
	SF OF AREA BEING EVALUATED FOR VIEWS:	**2,000**		**SF OF AREA WITH VIEWS:**	**750**
				Percent Access to Views	**37.5%**

Requirement to achieve credit Q 7.2 is Views for 90% of occupiable project area ***Complies? (Y / N):*** _____

Directions:

1. *Determine which spaces are regularly occupied and where tasks would not be hindered by daylight and views. Include only these spaces on this form. The types of spaces that would not be regularly occupied include: circulation areas, MEP spaces, storage rooms. The types of spaces where vision glazing could negatively impact space use include computer rooms, auditoriums and gym. Further clarification on these items are available in the Green Schools Guide and the LEED-NC Reference Guide.*
2. *Copy additional lines as required for each room to be included on this form.*
3. *Determine which spaces/portions of spaces do not have horizontal view to glazing above 42" (such as gymnasium). Enter "0" in Compliant Area column for these spaces.*
4. *For regularly occupied spaces requiring views, calculate from plans the area of room that does not have direct line of site view to glazing.*
5. *Enter room number, room name, SF of room, whether room has glazing at 42" and non compliant floor area in room (for those spaces with glazing at 42").*
6. *Check that all sub-total figures are included in worksheet cells summing SF OF AREA BEING EVALUATED FOR VIEWS and SF OF AREA*

Notes:

1. *Line of sight may be drawn through interior glazing. For multi-occupant spaces, the actual square footage with direct line of sight to perimeter vision glazing is counted. For private offices, the entire square footage of the office can be counted if 75% or more of the area has direct line of sight to perimeter vision glazing.*

Design Team Certification Form
DESIGN PHASE

School Construction Authority
NYC Green Schools Rating System

Architect:	Firm Name:		Date:	
	Address:		Project Name:	
			Project Address:	
	Telephone:			
	email:			
			LLW #:	
			Design #:	
Engineer:	Firm Name:		BCC #:	
	Address:		Design Manager:	
			PDM:	
	Telephone:		BCC Reviewer:	
	email:		Commissioning:	

Architect's Statement - Design Phase:

As Architect of Record, I verify that the statements initialed by me on the following pages are accurate to the best of my knowledge and are compliant with credit requirements of the NYC Green Schools Guide.

Narratives for all credits have been provided and updated as necessary with the final design submission.

Calculations have been provided, according to the credit requirements, and updated as necessary with the final design submission.

Name	Title	Signature	Date

Engineer's Statement - Design Phase:

As Engineer of Record, I verify that the statements initialed by me on the following pages are accurate to the best of my knowledge and are compliant with credit requirements of the NYC Green Schools Guide.

Narratives for all credits have been provided and updated as necessary with the final design submission.

Calculations have been provided, according to the credit requirements, and updated as necessary with the final design submission.

Name	Title	Signature	Date

Architects Initials	OR	Engineers Initials	
			Site

S1.1R - Construction Activity Pollution Prevention

This credit applies to projects that are required to provide a full Stormwater Pollution Prevention Plan under SPDES. For other projects, this credit is certified by the contractor in the construction phase.

An erosion and sedimentation control plan and narrative have been submitted that complies with 2003 EPA Construction General Permit or NYS DEC SPDES General Permit for Construction Activity, whichever is more stringent.

S1.2R - Site Selection

The construction documents for this project call for no buildings, roads or parking areas to be developed on land meeting the following criteria: *(For projects with special circumstances, a detailed narrative describing compliance with prescribed site selection criteria has been provided.)*

- ☐ Previously undeveloped land whose elevation was less than 5-feet above the 100 year FEMA designated flood elevation.

  AND
- ☐ Land that is specifically identified as habitat for any species on Federal or State threatened or endangered species lists.

  AND
- ☐ Land within 100 feet of any wetlands as defined by Unites States Code of Federal Regulations 40 CFR Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, OR within setback distances from wetlands prescribed in state or local regulations as defined by local or state rule or law, whichever is more stringent.

  AND
- ☐ Previously undeveloped land that is within 50 feet of a water body, defined as seas, lakes, rivers, streams and tributaries that support or could support fish, recreation or industrial use, consistent with the terminology of the Clean Water Act.

  AND
- ☐ Land that prior to acquisition for this project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public landowner.

S1.3 - Sustainable Site and Building Layout

The following design measures have been undertaken and a narrative, site plan and section (as required) have been submitted to document the measures undertaken. (**Check no fewer than three**)

- ☐ Orient and compose building to take advantage of natural daylighting.
- ☐ Plot shadow patterns from surrounding buildings onto project site to optimize access to daylight.
- ☐ Plot shadow patterns from proposed building(s)/addition onto adjacent properties and buildings, and consider design options to address impact as necessary.
- ☐ Take advantage of existing adjacent building and natural land formations and vegetation to provide shelter from extreme weather or to deflect unwanted noise.
- ☐ Design landscaping to mitigate solar gain and winter winds.
- ☐ Identify locations on roof for potential renewable energy generation.

S1.4 - Development Density and Community Connectivity

This project is on a previously developed site that meets one of the criteria indicated below.

☐ This project is on a previously developed site within a 1/2 mile of a residential zone/neighborhood with an average density of 10 dwelling units/acre AND is within a 1/2 mile radius of at least 10 basic services and with pedestrian access to those services. An annotated plan has been submitted as documentation.

OR

☐ This project is on a previously developed site AND in a community with a minimum density if 60,000 sqft per acre net. A Development Density Form has been submitted as documentation.

S1.5R - Joint Use of Facilities/Community Access

The building design facilitates shared use of facilities by the community. A narrative has been provided describing design features incorporated to facilitate community access.

S1.6 - Brownfield Development

This project site was determined to be contaminated by the method indicated below. A narrative summary of the site contamination and remediation approach have been provided. The information below is based on documentation provided by the SCA to the design team on the brownfield/contamination status of this project's site.

☐ ASTM E 1903-97 Phase II Environmental Site Assessment.

OR

☐ defined as a Brownfield by a New York City, New York State, or federal government agency.

OR

☐ Reg. 40CFR Part 763

OR

☐ local Voluntary Cleanup Program (Such as with NYC DEC).

S2.1 - Alternative Transportation / Public Transportation Access

This project site is within 1/2 mile (2,640 feet) pedestrian route of an existing, or planned and funded, commuter rail, light rail or subway stations OR within 1/4 mile (1,320 feet) pedestrian route of at least one stop on two different public bus lines as indicated below. A scaled annotated site plan showing the length of the pedestrian route and identifying the stations has been provided as documentation. Summary information is below.

Distance to Stop/Station in Feet	Line Designation

S2.2R - Alternative Transportation / Low Emitting & Fuel-Efficient Vehicles

This project implements **one** of the following alternative transportation strategies:

☐ No new parking is provided on this project site. A narrative has been provided summarizing proximity to public transportation and why no new parking is required.

OR

☐ If on-site parking is provided, 5% of spaces provided to be designated preferred parking spaces reserved for low-emitting and fuel-efficient vehicles, vanpool or carpool. A narrative and site plan outlining compliance have been provided as documentation.

S3.2 - Site Development: Maximize Open Space

For projects with no zoning-mandated open space requirement, the area of open vegetated space, qualifying hardscape or qualifying green roof for this project is equal to at least 20% of the site area. An annotated site plan with area information has been provided as documentation.

S4.1 - Stormwater Design Quality Control

This project was designed to include best management practices (BMPs) capable of treating stormwater runoff from 90% of the average annual rainfall. These BMP's are capable of removing 80% of the average annual post development total suspended solids (TSS) load. A narrative has been submitted describing Best Management Practices per NYSPDES and structural controls as documentation.

S5.1R - Light Pollution Reduction

For Interior Lighting

☐ The construction documents include automatic controls that turn off non-essential interior lighting during hours when the school is not in operation.

OR

☐ For projects with lights not automatically controlled to turn off, the angle of the maximum candella from each luminaire shall not exit through buildings.

For Exterior Lighting

☐ This project scope includes no exterior lighting.

OR

☐ For projects with exterior lighting, Light Pollution Reduction Forms have been submitted including calculations for exterior site areas and building façade/landscape areas indicating compliance with the credit requirements.

Water

W1.1R and W1.2R - Water Efficient Landscaping Reduce by 50%, 100%

This project reduces the use of potable water for landscape irrigation by doing one of the following:

☐ The landscaping designed does not require a permanent irrigation system using potable water. Any temporary irrigation systems called for in the construction documents for plant establishment are specified to be removed within one year of installation.

OR

☐ The landscaping and irrigation system have been designed to reduce the use of potable water for irrigation from a calculated baseline. Calculations have been submitted based on methodology from LEED-NC 2.2, credit WE1.1 and updated based on final construction documents.

W2.1R, W2.2R and 2.3R - Water Use Reduction 20%, 30%, 40%

This project uses 40% less water than the baseline fixture performance requirements of the Energy Policy Act of 1992. A completed Water Use Reduction Form has been submitted for this project to demonstrate this.

Energy

E1.2R - Fundamental Refrigerant Management

No CFC-based refrigerants have been used in the HVAC or refrigerant systems of this project. For modernization and renovation projects, CFC-based refrigerants have not be re-used and non-CFC systems have been specfied for any replacement equipment.

E1.3 - Enhanced Refrigerant Management

The Weighted Average Atmospheric Impact of HVAC refrigieration units on this project is less than 100. A completed Refrigerant Impact Form, updated as necessary based on the final design submission, has been submitted for this project to demonstrate this.

E2.2R - Energy Management System Controls HVAC and Hot Water

This project utilizes an open protocol Facility Management System (FMS) that controls the HVAC and Hot water systems.

E3.1R - Minimum Energy Performance

This project's construction documents comply with the following energy code requirements:

☐ The mandatory provisions (Sections 5.4, 6.4, 7.24, 8.4, 9.4 and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments)

AND

☐ The prescriptive requirements (Sections 5.5, 6.5, 7.5 and 9.5) or performance requirements (Section 11) of ASHRAE/IESNA Standard 90.1-2004 (without amendments).

AND

☐ I have provided the LL86 reporting form with energy system related information as documentation.

E4.1R - HVAC System Sizing, Avoid Over sizing

All major HVAC components of this project have been designed to correctly match loads to avoid system over-sizing.

☐ Load calculations, design drawings and a written narrative rationale for selecting the specified equipment and establishing the most efficient system size and configuration.

Materials

M1.1R - Storage and Collection of Recyclables

The final project construction documents include collection and storage areas for recyclable materials. The collection areas have been sized to meet the schools needs. The recycling area will accommodate recycling of plastics, metals, paper, cardboard and glass.

M 2.3R - Wallboard & Roofdeck Products

The wallboard and roofdeck products specified in this project comply with the referenced mold resistance standards.

M2.4R - Provide Low - Mercury Lighting Reduce Mercury Waste

All the fluorescent lighting fixtures and lamping specified for this project are low-mercury.

Indoor Environmental Quality

Q1.1R - Minimum IAQ Performance and Increased Ventilation

This project implements the following strategies for improved Indoor Air Quality:

☐ The project meets the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2004 Ventilation for Acceptable Indoor Air Quality. Construction documents submitted reflect this compliance.

AND

☐ The mechanical system was designed using whichever ventilation rates are larger: the NYC DOB Code ventilation rates or 30% above the ASHRAE Standard 62.1-2004 breathing zone outdoor ventilation rates. The exceptions are cafeterias and multipurpose rooms served by rooftop units that also serve an associated kitchen. The mechanical systems for these cafeterias and multi-purpose rooms shall be designed using whichever ventilation rate is larger: NYC DOB Code ventilation rates or ASHRAE Standard 62.1-2004 breathing zone outdoor ventilation rates, without the 30% increase.

AND

☐ A design narrative has been provided describing this project's ventilation design as documentation. This narrative includes specific information regarding fresh air intake volumes for each occupied zone to demonstrate that the design exceeds the referenced standard by at least 30%.

Q1.2R - Air Flow Stations

This project includes air flow stations on all outside air intakes of central heating, ventilating and air-conditioning equipment. Construction documents showing the air flow stations have been provided as documentation.

Q4.1R - Indoor Chemical & Pollutant Source Control

This project employs the following strategies to reduce exposure to potentially hazardous particulates and chemical pollutants:

☐ Entries have permanent entryway systems at least six feet long in the primary direction of travel that capture dirt and particulates.

AND

☐ All areas where hazardous gases and/or chemicals are present/used have been designed to be fully sealed from adjacent spaces and have been provided with an exhaust sytem that provides sufficient exhaust with respect to adjacent spaces to prevent cross-contamination to adjacent spaces.

AND

☐ Regularly occupied areas of the building are specified to have air filtration media that provides a Minimum Efficiency Reporting Value (MERV) of 13 or better.

AND

☐ A design narrative has been provided listing affected spaces, how they are sealed and separated and related exhaust systems.

Q4.2 R - Electric Ignition Stoves

This project employs only electric ignitions for gas-fired cooking appliances that have that capability. Specifications for

Q4.3R - Specify HEPA Vacuums

The F&E Unit list for this project developed by the SCA/F&E Unit group includes only HEPA vacuums. The SCA has provided written documentation to the design team confirming HEPA vacuums are on the F&E Unit list for this project.

Q5.1R - Controllability of Systems, Lighting

This project has been designed with the following lighting controls:

☐ Lighting controllability has been provided for a minimum of 50% of the building occupants in regularly occupied spaces.

AND

☐ A narrative has been provided describing the project's lighting control strategy. Information on the type and location of controls is included in that narrative.

Q5.2R - Controllability of Systems, Thermal Comfort

This project has been designed with the following thermal comfort controls:

☐ Comfort controls have been provided for a minimum of 50% of the building occupants in regularly occupied spaces.

AND

☐ A narrative has been provided describing the project's comfort control strategy. Information on the type and location of controls is included in that narrative.

Q6.1R - Thermal Comfort, Comply with ASHRAE 55-2004

This project's HVAC system and building envelope have been designed to meet the requirements of ASHRAE Standard 55-

☐ As documentation, a narrative has been provided describing the method used to establish the thermal comfort conditions. Relevant thermal data is included in the chart below:

Season	Maximum Indoor Space	Minimum Indoor Space Design	Maximum Indoor Space Design Relative
Spring			
Summer			
Fall			
Winter			

Q7.1 - Daylight & Views, Daylight 75% of Spaces

This project is designed to provide the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight . A completed Daylight Calculation Form for this project has been provided, updated as necessary based on the final design documents. A detailed narrative has been provided describing any special areas excluded from compliance, and why daylighting would hinder these areas functions.

Q7.2 - Daylight & Views, View 90% of Spaces Required if feasible

Occupants in 90% of regularly occupied spaces will have direct lines of site to perimeter glazing. A completed Views Calculation Form for this project has been provided, updated as necessary based on the final design documents. A detailed narrative has been provided describing any special areas excluded from compliance, and why views would hinder these areas functions.

Q7.3 - Visual Performance, Artificial Direct-Indirect Lighting

This project uses only pendant mounted high-efficacy T-8 fluorescent lamps in all classrooms. I have provided a lighting schedule and reflected ceiling plans as documentation.

Q8.1 - Minimum Acoustical Performance

This project employs the following strategies for good acoustic performance:

☐ Kindergarten through 6th Grade Classrooms have a maximum background noise level of 35 dBA.

AND

☐ 7th through 12th Grade Classrooms have a maximum background noise level of 40 dBA.

AND

☐ All classrooms have 0.6-second maximum (unoccupied) mid-frequency (average of 500, 1,000 and 2,000 Hz) reverberation times for classrooms with volumes of up to 10,000 ft^3; 0.7-second maximum (unoccupied) mid-frequency reverberation time for classrooms of 10,000 to 20,000 ft^3.

AND

☐ A report from a qualified acoustical consultant has been provided as documentation.

Q8.2 - Sound Isolation for Special Spaces

This project has been designed to acoustically isolate loud rooms from noise sensitive spaces. A report from a qualified acoustical consultant has been submitted as documentation.

Q8.3 - Acoustic Windows

This building has acoustically rated windows with a minimum STC level for classrooms of 40, or higher as recommended by the acoustic consultant for this project. A report from a qualified acoustical consultant has been submitted as documentation.

Additional Credits

A1.1R - LEED Accredited Professional

There is a LEED accredited professional on the design team. Copy of accreditation certificate has been provided.

A2.1 - Heat Island Effect Roof

The roof surfaces comply with **one** of the following (annotated roof plan with area calculations has been submitted as documentation):

☐ The roof materials have a Solar Reflectance Index (SRI) equal to or greater than 79 for low sloped roofs (< 2:12), and 29 for steep sloped roofs (>2:12) for a minimum of 75% of the roof surface.

OR

☐ The roof has vegetation for at least 50% of the roof area.

☐ 75% of the roof area is covered with either roof materials having Solar Reflectance Index compliant with the standard listed above, or with vegetated roofs.

A2.2 - Stormwater Design Quantity Control

This project minimized stormwater runoff by implementing **one** of the following:

☐ Project site is on average less than 50% impervious. The post-development discharge rate is less than the pre-development rate.

OR

☐ Project site is on average greater than 50% impervious. The post-development stormwater runoff has been decreased by 25%.

AND

☐ Quantity calculations have been provided as documentation. A narrative has also been provided that describes site conditions, measures taken and controls implemented to prevent excessive velocities and associated erosion. The following chart has been completed for structural and non-structural Best Management Practices (BMPs).

Best Management Practice	Description of BMP's contribution to	% of Annual Rainfall Volume treated by

A3.1, A3.2, A3.3 and A3.4 - Optimize Energy Performance

☐ Project specific energy cost reduction modeling has been completed for this project. A copy of the energy modeling report has been submitted, updated as necessary based on the final design submission.

The energy modeling program used was: _____
The principal heat source is: _____
The percentage of energy cost reduction per ASHRAE 90.1-1999 was: _____
The percentage of energy cost reduction per ASHRAE 90.1-2004 was: _____

☐ A LL86 reporting forms with energy system related calculations and energy reduction calculations has been provided as documentation.

A3.5 - Renewable Energy

Project specific energy cost reduction modeling has been completed for this project. The results from that modeling were used to project annual building energy costs and the percentage of energy use has been offset by on-site renewable sources.

Renewable Energy Source Summary

Renewable source: _____
Back-up fuel used when renewable source unavailable: _____
Rated capacity of the renewable energy source: _____
Annual energy generated from renewable source: _____
Renewable energy cost: _____
The total annual proposed design site energy use: _____
The total annual proposed design site energy cost: _____

Percentage of annual energy cost saved by on-site renewable energy according to energy modeling calculations: _____

A5.1 - Daylight in Classrooms

Daylight modeling has been conducted to demonstrate that the classrooms meet the daylight autonomy ratio specified in the credit text. Calculations and summary narrative have been submitted as documentation.

Design Team Certification Form

CONSTRUCTION PHASE

School Construction Authority
NYC Green Schools Rating System

Architect: Firm Name: _____ Date: _____
Address: _____
_____ Project Name: _____
Telephone: _____ Project Address: _____
email: _____

LLW #: _____
Engineer: Firm Name: _____ Design #: _____
Address: _____ BCC #: _____
_____ Design Manager: _____
Telephone: _____ Constr Specialist: _____
email: _____ BCC Reviewer: _____
Commissioning: _____

Architect's Statement - Construction Phase:

As Architect of Record, I verify that the statements initialed by me on the following pages are accurate to the best of my knowledge.

Narratives for all credits have been provided and updated as necessary with the final design submission.

Calculations have been provided, according to the credit requirements, and updated as necessary with the final design submission.

Name	Title	Signature	Date

Engineer's Statement - Construction Phase:

As Engineer of Record, I verify that the statements initialed by me on the following pages are accurate to the best of my knowledge.

Narratives for all credits have been provided and updated as necessary with the final design submission.

Calculations have been provided, according to the credit requirements, and updated as necessary with the final design submission.

Name	Title	Signature	Date

Design Team Certification Form
CONSTRUCTION PHASE

School Construction Authority
NYC Green Schools Rating System

Architects Initials	Engineers Initials	
		Site
_____	_____	**S3.1 - Site Development : Protect or Restore Habitat** The project site was previously developed or graded and 50% of the site area was restored using native and/or adaptive platings. The total site area excluding the buildng footprint) is: _____ The total site area that has been restored using native and/or adaptive plantings is: _____ The percentage of site that has been restored using native and/or adaptive plantings is: _____
		Water
		There are no construction Phase Water Section credits.
		Energy
_____	_____	**E2.1R - Measurement & Verification** This project implements a Measurement & Verification (M&V) Plan consistent with IPMVP Option C - Whole Building Comparison.
_____	_____	**E5.1 - Green Power** The SCA has provided documentation to the Design Team that they have applied for and have received approval for obtaining the required 35% building electrical consumption through Green Power credits.
		Materials
_____	_____	**M1.2 & M1.3- Building Reuse 75%** On this project the following percentage of the existing floor, wall and roof structure of the existing building were reused. I have provided a completed copy of the Building Reuse Form. ☐ 75% ☐ 95%
_____	_____	**M1.4 - Building Reuse 50% Interior** On this project, 50% of the existing interior non-structural elements from the existing building were reused. I have provided a completed copy of the Building Reuse Form.
_____	_____	**M2.1R - Recycled Content 10%** The materials for this project include 10% or more recycled content. A Recycled Content Summary Form has been submitted as documentation.

M2.2R - Regional Materials 10% Extracted, Processed & Manufactured Regionally

The materials for this project include 10% or more regional materials (extracted, processed and manufactured). A Regional Materials Summary Form has been submitted as documentation.

Indoor Environmental Quality

Q3.1R - Low Emitting Materials, Adhesives and Sealants

All adhesives and sealants used on the interior of the building comply with the VOC limits and requirements. A Low Emitting Materials - Summary Form has been submitted as documentation.

Q3.2R - Low Emitting Materials, Paints and Coatings

All paints and coatings used on the interior of the building comply with the VOC limits and requirements as established by Green Seal Standard GS-11 Paints, and Green Seal Standard GC-03, Anti-Corrosive Paints, and South Coast Air Quality Management District. A Low Emitting Materials - Summary Form has been submitted as documentation.

Q3.3R - Low Emitting Materials, Carpet Systems

All carpet and carpet cushions for the project meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. A Low Emitting Materials - Summary Form has been submitted as documentation.

Q3.4R - Low emitting Materials, Composite Wood & Agrifiber Products

All composite wood and agrifiber products used on the interior of the bulding (defined as inside the weatherproofing system) contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-appled composite wood and agrifiber assemblies contain no added urea-formaldehyde resins.

Additional Credits

A4.1 - Additional Sustainable Materials

The materials for this project meet one of the following criteria. A descriptive narrative and summary calculations or form have been submitted as documentation. The percentage of materials indicated below is based on cost.

☐ The materials for this project include at least 20% or more recycled content. A Recycled Content Summary Form has been submitted as documentation.

OR

☐ The materials for this project include at least 20% or more regional materials (extracted, processed and manufactured). A Regional Materials Summary Form has been submitted as documentation.

OR

☐ The materials for this project include at least 2.5% rapidly renewable materials (made from plants that are typically harvested within a ten-year cycle or shorter)

A5.2 - Low Emitting Materials, Furniture

The SCA/FFE group has provided written documentation to the design team indicating that each furniture system (work station) and seating product item is Greenguard certified or registered or that its emissions meet or exceed the best practice air emissions standards as established by the US EPA's Environmental Technology Verification (ETV).

A6.1 - Building as Educational Tool

Built-in architectural features or signage have been developed to communicate the sustainable features of this project. These are supported by educational program, literature or curriculum related to the sustainable features of this project. A descriptive narrative has been submitted as documentation.

Construction Waste Mangement

Credit M1.5R and M1.6

School Construction Authority

NYC Green Schools Rating System

Project: _____

Address: _____

LLW: _____

Date: _____

Contractor: _____

Preparer: _____

Telephone: _____

Table 1: Construction Waste Management diversion Summary

Diverted / Recycled Materials Description	Diversion / Recycling Hauler or Location	Quantity of Diverted / Recycled Waste	Units (tons or cubic yards)
Concrete		1	
Wood		1	
Gypsum Wallboard		1	
Steel		1	
Crushed Asphalt		1	
Masonry		1	
Cardboard		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
Other:		1	
TOTAL CONSTRUCTION WASTE DIVERTED		23	

Landfill materials Description	Landfill Hauler or Location	Quantity of Diverted / Recycled Waste	Units (tons or cubic yards)
General Mixed Waste		1	
Other:		1	
Other:		1	
TOTAL CONSTRUCTION WASTE SENT TO LANDFILL		3	

TOTAL OF ALL CONSTRUCTION WASTE	26	
PERCENTAGE OF CONSTRUCTION WASTE DIVERTED FROM LANDFILL	88%	

CONTRACTOR'S SUSTAINABLE MATERIALS FORM
Credit M 2.1R and M 2.2R

School Construction Authority
NYC Green Schools Rating System

Project: _____ Contractor: _____

Address: _____ Contractor Contact: _____

LLW: _____ Date: _____ Spec Section: _____ Telephone: _____

Product Name	Manufacturer	Material Cost (no Labor & Equip.)	Recycled Content		Regional*** Materials		
			Percentage **Post-**Consumer* by weight	Percentage **Pre-** Consumer** by weight	Percentage Regionally Extracted*** by weight	Distance between project site and extraction site	Distance between project site and manufacture site
		$1,000	1%	1%	1%	miles	miles
						miles	miles
						miles	miles
						miles	miles
						miles	miles
						miles	miles

Definitions:

* **Post-Consumer Recycled Content:** Material or finshed product that has served its intended consumer use and has been discarded by consumer.

** **Pre-Consumer Recycled Content:** Recovered industrial and manufacturing materials diverted from municipal solid waste for the purpose of collection, recycling and disposition. Examples include fly-ash and synthetic gypsum, because they are waste products from coal burning electricity plants. (Scrap raw materials that can be reused in the same manufacturing process from which they are recovered are not considered Pre-Consumer Recycled Content.)

*** **Regional Materials:** Regionally manufactured materials that have their origin within 500 miles of the project site. These would included products that are regionally mined, harvested, salvaged or re-used (including those salvaged from the site.)

Notes:

1. Recycled content for concrete - provide cost for cementitious materials and percentage of cementitious materials that are recycled-content.
2. Recycled content for steel products - where it is not possible to determine recycled content use default assumption of 25% post-consumer recycled content
3. Regional content for concrete - provide combined cost for all concrete materials and distance information requested.
4. Regional content - for materials with varyone point of extraction all within the 500-mile radius list a single item with the greatest distance.
5. Provide back-up documentation for information on form above - such as product data or manufacturer's statements.

Contractor Certification:

I, _____ a duly authorized representative of _____ hereby certify that the material information herein is an accurate representation of the material qualifications provided, as components of the final building construction. Furthermore, I understand that any change in such qualifications during the purchasing period will require prior written approval from the Construction Manager and Owner.

Signature of Authorized Representative: _____ Date: _____

CONTRACTOR'S SUSTAINABLE MATERIALS - TRACKING FORM
Credit M 2.1R and M 2.2R

SCA School Construction Authority
NYC Green Schools Rating System

Project: _____ Contractor: _____

Address: _____ Contractor Contact: _____

LLW: _____ Date: _____ Telephone: _____

Spec. Section (in CSI order)	Material For which recycled or regional content documentation must be submitted	Vendor/Sub-Contractor Name	Recycled Content Documentation		Regional Content Documentation		Cost Information	
			Required (Yes/No)	Submitted (Date)	Required (Yes/No)	Submitted (Date)	Required (Yes/No)	Submitted (Date)
02200	Earthwork							
02512/3	Asphalt Pavement							
02900	Landscape Materials							
03200	Concrete Reinforcement							
03300	Foundation Concrete							
03300	Cast-in-place Concrete							
04200	Concrete masonry Units							
04200	Brick							
04435	Cast Stone							
05120	Structural Steel							
05210/20/30	Steel Joists							
05300	Metal Deck							
05710	Steel Stairs							
07212	Batt Insulation							
07212	Rigid Insulation							
07250	Sprayed Fire Resistive Materials							
07560	Roofing Membrane							
07560	Roofing Insulation							
08110	Steel Doors and Frames							
08521/2/4	Aluminum Window Frames							
09260	Gypsum Wall Board and Cement bd							
09310	Tile							
09510	Acoustic Ceilings							
09650	Vinyl Comp. Tile and Sheet Flooring							
09680	Carpet							
10151	Toilet and Dressing Rm Compartments							
10505	Lockers							

Note: For Tracking Form Initial Submission include any vendor/subcontractor names available and complete yes/no boxes.

Commissioning Agent Certification Form
POST CONSTRUCTION PHASE ONLY

School Construction Authority
NYC Green Schools Rating System

LLW #: _____ Date: _____
Design #: _____ Project Name: _____
BCC #: _____ Project Address: _____
Design Manger: _____
BCC Reviewer: _____
Commissioning: _____

Commissioning Agent's Statement - Construction Phase:

As Commissioning Agent, I verify to the best of my knowledge and belief, that the NYC Green Schools Guide credit requirements, for commissioning, have been achieved as indicated below.

Name	Title	Signature	Date

E1.1R - Enhanced Commissioning

- ☐ There CxA has conducted at least one Commissioning Design Review of the Owner's Project Requirements (OPR), Basis of Design and the design documents prior to mid-construction document phase and back-checked the CxA comments in the subsequent design submissions.
- ☐ Commissioning requirements have been incorporated into the construction documents.
- ☐ A commissioning plan has been developed and utilized.
- ☐ The CxA has reviewed contractor submittals for compliance with the Owners Project Requirements and the Basis of Design for the following systems: HVAC, lighting controls, domestic hot water , fire alarm and emergency generator.
- ☐ The installation and performance of the following systems have been verified: HVAC, lighting controls, domestic hot water , fire alarm and emergency generator.
- ☐ A systems manual has been prepared for the project that provides operating staff the information needed to understand and optimally operate the following systems: HVAC, lighting controls, domestic hot water , fire alarm and emergency generator.

  Items required for this manual that are not developed by the contractor have been provided and incorporated. These items include the final basis of design and the recommended schedules for maintenance, testing, and calibration.
- ☐ Appropriate DSF staff have been trained in the operation and maintenance of the following systems: HVAC, lighting controls, domestic hot water , fire alarm and emergency generator.
- ☐ The CxA has reviewed building operations within 10 months after substantial completion and a plan for resolution of outstanding issues has been completed for the following systems: HVAC, lighting controls, domestic hot water , fire alarm and emergency generator.
- ☐ A commissioning report has been completed.

Contractor's Certification Form
CONSTRUCTION PHASE

School Construction Authority
NYC Green Schools Rating System

Contractor: Firm Name: _____ Date: _____
Address: _____ Project Name: _____
_____ Project Address: _____
Telephone: _____
email: _____

Contractor's Statement

I verify that the sustainable requirements summarized below have been achieved.

Name	Title	Signature	Date

Contractor's Initials

Site

_____ **S 1.1R - Construction Activity Pollution Prevention**

(For projects where specifications indicate that an erosion and sedimentation control plan is to be provided by contractor)

☐ An erosion and sedimentation control plan has been submitted complying with NYS DEC SPDES General Permit for Construction Activity, including measures from NYS DEC Standards and Specifications for Erosion and Sediment Control in accordance with the specification Section 02200 and such plan was implemented.

OR

☐ Project is completely interior and a dust control plan has been submitted in accordance with specification Section S01900 and such plan was implemented.

Materials

_____ **M 1.5R - Construction Waste Management 50%**

The project implements a waste management plan that diverts 50% of the construction waste away from landfills and incinerators. A Construction Waste Management Plan and calculation tables have been submitted as documentation in accordance with Specification Section 501524.

_____ **M 1.6 - Construction Waste Management 75%**

The project implements a waste management plan that diverts 75% of the construction waste away from landfills and incinerators. A Construction Waste Management Plan and calculation tables have been submitted as documentation in accordance with Specification Section 501524.

Indoor Environmental Quality

Q2.1R - Construction IAQ Management Plan, During Construction

☐ A copy of the Indoor Air Quality (IAQ) Management Plan for construction developed and implemented for this project has been submitted as documentation in accordance with Specification Section 01550.

☐ Permantently installed air handling equipment **was not** used during construction.

☐ Permantently installed air handling equipment **was** used during construction. The chart below has been completed for filtration media used during construction.

Merv Rating	Filter Manufacturer	Filter Model #	Location of Installed Filter	Filter Replaced immediately prior to Occupancy (YES or NO)

☐ I have provided six photos showing IAQ practices which were used during the building construction from SMACNA IAQ Guideline for Occupied Buildings under Construction, 1995, Chapter 3. Each photo is labelled indicating which SMACNA IAQ practice is shown.

☐ For Phased Occupancy or Modernization Projects, a letter has been submitted stating that carpeting in occupied areas was HEPA vacuumed daily.

Q2.2R - Construction IAQ, Management Plan, Before Occupancy

A building flush-out was carried out per the specification requirements in Specification Section 01550.

☐ I have provided a narrative describing the project's specific flush-out procedures including data regarding temperature, airflow, filters used during flush-out and duration of the flush out.

AND

☐ I have provided a construction schedule showing building flush-out as documentation.

2009 REPORTING FORM for Project Subject to the LEED® Rating and/or Water Use Reduction Provisions of Local Law 86 of 2005

1.15.09

DESIGN PHASE

General	1	Client Agency[1]……	
	2	Reporting Agency[2]……	
	3	Project Type (New Building, Addition, and/or Substantial Reconstruction), Name, and Address:	
	4	Building Identification Number (BIN)[3]……	
	5	Block(s) and Lot(s)……	
	6	FMS Number……	
	7	Occupancy Group[4]……	
	8	Floor Area Subject to LEED® Requirements[5]……	
	9	Is All Energy Use in Project Area Metered Independently (Y/N)?	
Schedule[6]	10	Date of CP for Design or CP for Design and Construction……	
	11	Date of DOB Application……	
	12	Date of CP for Construction……	
	13	Date of Completion……	
Costs	14	Construction Cost (CC) of Work Subject to LEED® Requirements[7]	
	15	Project Cost[8]……	
	16	Capital Allocation for FY09[9]……	
	17	Domestic Plumbing Construction Cost ……	
Requirements		**LEED Rating**	
	18	LEED® Silver (All occupancies except G, H-2) (Y/N)……	
	19	LEED® Certified (Only G, H-2 Occupancies) (Y/N)……	
	20	Application to the USGBC for LEED Rating (Y/N)……	
		Energy Cost Reduction	
	21	20-25% (Occupancies other than G; $12M≤CC<$30M) (Y/N)……..	
	22	25-30% (Occupancies other than G; CC≥$30M) (Y/N)……	
	23	20-30% (Only G Occupancies; CC≥$12M) (Y/N)……	
		Domestic Water Use Reduction	
	24	Minimum 20% (Domestic Plumbing CC≥$.5M)	
	25	Minimum 30% (Domestic Plumbing CC≥$.5M)	

CONSTRUCTION PHASE

Energy	26	Energy Sources Used in Project (electric, gas, purchased steam, #2 oil, #4 (mixed) oil, and/or #6 oil)……	
	27	Electric Provider (Con- Ed or NYPA)……	
	28	Gas Provider (Con-Ed or Keyspan)……	
	29	Reduction in Annual Electric Use (kwh)[10]……	
	30	Reduction in Sum of Monthly Peak Demands (kw/yr)[10]……	
	31	Reduction in Peak Demand (kw)[10]……	
	32	Reduction in Annual Gas Use (therms/yr)[10]……	
	33	Reduction in Annual #2, #4, and/or #6 Oil Use (gals/yr)[10]	
	34	Reduction in Annual Purchased Steam Use (mlbs summer/ mlbs winter)[10]……	
Water	35	Potable Water Use Reduction[11] (gals/yr)……	
	36	Storm Water Runoff Reduction[11] (gals/yr)……	
Added Costs	37	Cost Attributable to LEED Compliance (include fees for energy analysis, commissioning agent, USGBC filing, and LEED expert)	
	38	Additional Construction Cost to Reduce Energy Cost (report only if subject to one of Energy Cost Reduction requirements above)….	
Green Power[12]	39	Annual Green Power Allocation Requested (kwh)……	
	40	Number of Years Annual Green Power Allocation is Required (yrs)	
	41	Start Date of Power Allocation (mo/yr)……	

POST CONSTRUCTION PHASE

LEED	42	LEED® Rating Achieved (Certified, Silver, Gold, or Platinum)	
	43	Certification by the USGBC (Y/N)	

Notes:

1. The client agency is the agency that either will occupy the project or will sponsor another occupant.
2. The reporting agency is the agency responsible for identifying projects within their portfolio that are subject to LL86, for the expenditure of city funding on such projects, and for reporting to the Mayor's office. Note that, in some cases, the client agency may also be the reporting agency.
3. If the capital project involves an addition to and/or substantial reconstruction in an existing building, enter the BIN of the existing building. If available and if the capital project involves a new building, the BIN assigned by the Department of City Planning (DCP) should be entered. If a BIN is not available, enter N/A in the space provided.
4. The primary occupancy group classification is that under which the project would have been filed with the Department of Buildings (DOB) in accordance with the NYC Building Code that was in effect in 2005.
5. Floor areas indicated refer to the portion of the project that is subject to the LEED® or alternative rating system provisions in the law. 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.
6. Where actual dates are not yet available, they must be projected.
7. Construction costs requested here are only for the portion of the project that is subject to the relevant LL86 provisions. For example, where a project that has a large landscaping component as well as a smaller enclosed building component over $2,000,000, the construction cost reflects only the enclosed building portion of the project that is subject to the LEED® related provisions of the law. Note that all construction costs reported should be derived from or anticipate costs in the final CP for Construction or for Design and Construction and should include all mark-ups and contingencies as well as construction management fees.
8. Project cost is the sum of capitally eligible costs associated with an entire capital project, regardless of funding source. It could include such costs related to site acquisition, furniture, fittings, and equipment, as well as to design and construction, and covers work on all portions of the project, including portions that may not be subject to the provisions of LL86.
9. Since projects typically take several years to complete and the city budget process runs on an annual cycle, each project is allocated a portion of the total project funds over several of the City's annual fiscal years until a project is complete and total project funds are expended. The allocations requested here represent the amount spent during fiscal year 2009 that ends June 30, 2009.
10. Consistent with the Rules for LL86, the baseline for energy use reduction must be calculated in accordance with the NYS Energy Conservation Code in effect at the time the project is filed with the Department of Buildings.
11. Consistent with the Rules for LL86, the baseline for stormwater runoff and potable water use reduction must be calculated in accordance with the LEED® NC 2.1 or 2.2 rating system.
12. The information regarding green power must be provided here as part of the application for green power equivalents that may be submitted to the USGBC in order to achieve LEED® green power credits. See Green Power Credit Application for Project Subject to LEED® Provisions of Local Law 86 of 2005 for more information.