New York City School Construction Authority
New York City Department of Education

NYC GREEN SCHOOLS GUIDE




2016

CONTRIBUTORS

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United States Green Building Council (USGBC), Washington, DC
These guidelines are adapted in part from and with the permission of the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Green Building Rating System® for new construction, LEED for Schools 2009 and v4. References to LEED are incorporated in this guide because LEED is the most widely used nationally accepted green standard and because the USGBC provides many resources, including its reference guides, to support the design and construction of green buildings. The New York City School Construction Authority would like to acknowledge its appreciation to the USGBC for their national and international efforts and leadership in the promotion of green building design, operation and practices.

The Collaborative for High Performance Schools, Inc. (CHPS), San Francisco, CA
 Published 2005, Printed in the United States of America, www.chps.net.
These guidelines are adapted, in part, from the CHPS Best Practices Manual by permission of the Collaborative for High Performance Schools, Inc. References to CHPS are incorporated in the guide because CHPS specifically addresses needs of schools and contains credits for district-wide school policies. The CHPS Best Practices Manual is copyrighted by CHPS, Inc. End users of the Best Practices Manual content are permitted to use and copy the content without further consent. However, prior permission from CHPS, Inc., must be granted in order to relicense, publish or develop derivative works from CHPS-copyrighted materials.

NY-CHPS – Version 1.1, High Performance Schools Guidelines
Appendix of the NY State Department of Education Manual of Planning Standards, September 2007.

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NYC Green Schools Guide Rating System Summary

Credits	BD&C Reference LEED for Schools 2009	CHPS Reference	NYC GSG 2016	Credit Description and Relevant Information	Credits with No Points Required For all Projects	Credit with Points Required For all Projects	Required if Feasible [1]	Optional Credits [2]
Site (19 points)								
Site Selection	SS Pr 1		S 1.1P	**Construction Activity Pollution Prevention**	**NP**			
	SS 1		S 1.2R	**Site Selection**		**1**		
		1.1.7	S 1.3R	**Sustainable Site & Building Layout**	**NP**			
	SS 2		S 1.4	**Development Density & Community Connectivity**			**4**	
	SS 10	1.1.2	S 1.5R	**Joint Use of Facilities, Community Access**		**1**		
	SS Pr 2		S 1.6P	**Environmental Site Assessment**	**NP**			
	SS 3		S 1.7	**Brownfield Redevelopment**			**1**	
Transportation	SS 4.1		S 2.1	**Alternative Transportation,** Public Transportation Access			**4**	
	SS 4.2		S 2.2	**Alternative Transportation,** Bicycle Storage & Changing Room			**1**	
	SS 4.3/4.4		S 2.3R	**Alternative Transportation,** Fuel-Efficient Vehicles/Parking Ca		**2**		
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**	
Heat Island Effect	SS 7.2		S 5.1	**Heat Island Effect,** Roof		**1**		
Outdoor Lighting	SS 8		S 6.1	**Light Pollution Reduction**			**1**	
				Site Category Sub-Total:	**3NP**	**5**	**14**	**0**
Water (8 points)								
Outdoor Systems	WE 1.1		W 1.1	**Water Efficient Landscaping**, Reduce by 50%			**2**	
	WE 1.1		W 1.2	**Water Efficient Landscaping**, Reduce by 100%			**2**	
Indoor Systems	WE Pr 1		W 2.1P	**Minimum Water Use Reduction**, 20% Reduction	**NP**			
	WE 3		W 2.2R	**Enhanced Water Use Reduction**, 30% Reduction		**2**		
	WE 3		W 2.3	**Enhanced Water Use Reduction**, 35% Reduction			**1**	
	WE 3		W 2.4	**Enhanced Water Use Reduction**, 40% Reduction			**1**	
				Water Category Sub-Total:	**1NP**	**2**	**6**	**0**
Energy (5 points)								
Commissioning	EA Pr 1		E 1.1P	**Fundamental Commissioning**	**NP**			
Refrigerant Management	EA Pr 3		E 2.1P	**Fundamental Refrigerant Management**	**NP**			
	EA 4		E 2.2	**Enhanced Refrigerant Management**			**2**	
Verification	EA 5		E 3.1R	**Measurement & Verification**		**1**		
		3.3.5	E 3.2R	**Energy Management System Controls,** HVAC & H. W. Syster	**NP**			
Energy Efficiency	EA Pr 2		E 4.1P	**Minimum Energy Performance**	**NP**			
		3.1.2	E 4.2R	**HVAC System Sizing,** Avoid Oversizing	**NP**			
Power	EA 6		E 5.1R	**Green Power**		**2**		
				Energy Category Sub-Total:	**5NP**	**3**	**2**	**0**
Materials (10 points)								
Efficient Material Use	MR Pr 1		M 1.1P	**Storage & Collection of Recyclables**	**NP**			
	MR 1.1		M 1.2	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof			**1**	
	MR 1.1		M 1.3	**Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof			**1**	
	MR 1.2		M 1.4	**Building Reuse**, Maintain 50% of Interior Non-Structural Eleme			**1**	
	MR 2		M 1.5R	**Construction Waste Management**, Divert 50% from Disposal		**1**		
	MR 2		M 1.6R	**Construction Waste Management**, Divert 75% from Disposal		**1**		
	MR 2		M 1.7	**Construction Waste Management**, Divert 95% from Disposal			**1**	
Sustainable Materials	MR 4		M 2.1R	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)		**1**		
	MR 4		M 2.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)			**1**	
	MR 5		M 2.3	**Regional Materials**, 10% Extracted, Processed & Manufactured			**1**	
	MR 5		M 2.4	**Regional Materials**, 20% Extracted, Processed & Manufactured			**1**	
		4.1.1	M 2.5R	**Wallboard & Roof Deck Products,** Mold Resistance	**NP**			
				Materials Category Sub-Total:	**2NP**	**3**	**7**	**0**

Credit Names	BD&C Reference LEED for Schools 2009	CHPS Reference	NYC GSG 2009	Credit Description and Relevant Information	Credits with No Points Required For all Projects	Credit with Points Required For all Projects	Required if Feasible [1]	Optional Credits [2]
Indoor Environmental Quality (16 points)								
IAQ Post-occupancy	IEQ Pr 1		Q 1.1P	**Minimum IAQ Performance**	**NP**			
	IEQ 1		Q 1.2R	**Air Flow Stations,** Outside Air Intakes		**1**		
IAQ Pre-occupancy	IEQ 3.1		Q 2.1R	**Construction IAQ Management Plan**, During Construction		**1**		
	IEQ 3.2		Q 2.2R	**Construction IAQ Management Plan,** Before Occupancy		**1**		
Low-Emitting Materials	IEQ 4.1		Q 3.1R	**Low-Emitting Materials**, Adhesives & Sealants		**1**		
	IEQ 4.2		Q 3.2R	**Low-Emitting Materials**, Paints & Coatings		**1**		
	IEQ 4.3		Q 3.3R	**Low-Emitting Materials**, Flooring Systems		**1**		
	IEQ 4.4		Q 3.4R	**Low-Emitting Materials**, Comp Wood & Agrifiber Products		**1**		
Pollution Source Control	IEQ 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	**Post Construction Indoor Air Quality**	**NP**			
Controllability of Systems	IEQ 6.1		Q 5.1R	**Controllability of Systems**, Lighting		**1**		
	IEQ 6.2		Q 5.2R	**Controllability of Systems**, Thermal Comfort		**1**		
Thermal Comfort	IEQ 7.1		Q 6.1R	**Thermal Comfort**, Design		**1**		
Lighting and Views	IEQ 8.1		Q 7.1	**Daylight & Views**, Daylight 75% of Classrooms			**1**	
	IEQ 8.1		Q 7.2	**Daylight & Views**, Daylight for 90% of Classrooms			**1**	
	IEQ 8.1		Q 7.3	**Daylight & Views**, Daylight for 75% of Other Spaces			**1**	
	IEQ 8.2		Q 7.4	**Daylight & Views**, Views			**1**	
		5.2.1	Q 7.5R	**Visual Performance,** Artificial Direct-Indirect Lighting	**NP**			
Acoustics	IEQ Pr 3	5.5.1	Q 8.1P	**Minimum Acoustical Performance**	**NP**			
	IEQ 9		Q 8.2	**Enhanced Acoustical Performance** & Sound for Special Spac			**1**	
		SCA	Q 8.3R	**Acoustic Windows**	**NP**			
				IEQ Category Sub-Total:	**6NP**	**11**	**5**	**0**
Regional (4 points)								
Regionally Appropriate [5]	RP 1.1		R 1.1	**Regionally Defined Credit Achieved**			**1**	
	RP 1.2		R 1.2	**Regionally Defined Credit Achieved**			**1**	
	RP 1.3		R 1.3	**Regionally Defined Credit Achieved**			**1**	
	RP 1.4		R 1.4	**Regionally Defined Credit Achieved**			**1**	
				Regional Category Sub-Total:	**0NP**	**0**	**4**	**0**
Additional Credits (33 points)								
Innovation in Design	ID 2		A 1.1R	**LEED® Accredited Professional**		**1**		
	ID 1		A 1.2	**Innovation or Exemplory Performance**				**1**
	ID 1		A 1.3	**Innovation or Exemplory Performance**				**1**
Optional - Site Impact	SS 7.1		A 2.1	**Heat Island Effect,** Non-Roof				**1**
	SS 6.1		A 2.2	**Stormwater Design**, Quantity Control				**1**
	ID 1		A.2.3	**Active Design in a School Environment**				**1**
Optional - Energy	EA 3		A 3.1	**Enhanced Commissioning**				**2**
	EA 1		A 3.2	**Optimize Energy Performance**				**16**
	EA 2		A 3.3	**On-Site Renewable Energy**				**7**
		3.3.5	A 3.4	**Enhanced Energy Management System Controls,** HVAC & H	**NP**			
Optional - IEQ	IEQ 4.6		A 4.1	**Low-Emitting Materials,** Ceiling and Wall Systems				**1**
Optional - Education	ID 3		A 5.1	**The School Building as a Teaching Tool**				**1**
					1NP	**1**	**0**	**32**

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

1 Projects required to achieve all "feasible" credits that are possible for a particular project.

2 Projects may only pursue optional "Additional" section credits with permission from SCA unless otherwise noted.

NP: To be consistent with LEED®, the NYC GSG assigns no point value to prerequisites and non-LEED® credits.

NYC GSG: Requires that all credits be attempted and proof through calcuation for those which are not-feasible.

NYC Green Schools Rating System	Credits Required for All Projects (No Points)	Credits Required for All Projects	Optional Credits	Total Number of Available Points
Totals	18NP	25	38	95

INTRO

DUCTION

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

LL86/05 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 had chosen to develop an independent sustainable design rating system to certify sustainability of applicable public school projects, as allowed by LL86/05.

GSG-2007 - Based on careful consideration of the analysis and conclusions of an independent review dated March 12, 2007, of the NYC Green Schools Guide (2007), the Director of the Office of Environmental Coordination, on behalf of the Mayor, found the SCA's NYC Green Schools Rating System to be no less stringent than LEED New Construction, version 2.2, for the achievement of a LEED certified rating.

GSG-2009 - As per rules promulgated by the City, on June 26, 2009, LEED version 3 2009 became the standard required to comply with LL86/05. On 7/1/12, USGBC issued an addendum for the LEED for Schools New Construction and Major Renovations Rating System. The SCA/DOE revised their NYC GSG to comply with this new standard and is now known as NYCGSG-2009, issued September 3, 2012.

GSG-2016 - In April, 2016, SCA has revised their GSG to comply with the 2014 NYC Energy Code and all Addenda issued for the LEED for Schools New Construction and Major Renovations Rating systems by USGBC.

ENERGY COST REDUCTION

LL86/05 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 for Schools 2009/EA Credit 1 or the New York State Energy Conservation and Construction Code (NYSECCC), whichever is more stringent. 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

LL86/05 requires all capital projects involving the installation or replacement of plumbing fixtures (where that work has a construction budget $0.5M or greater) to reduce potable water consumption by a minimum of 30% compared to the baseline criteria referenced in LEED for Schools 2009 WE Credit 3. This requirement applies to new schools, substantial reconstruction projects and applicable 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 for Schools 2009/EA Credit 1 or the NYC 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 for Schools 2009/EA Credit 1 or the NYC 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 20% compared to the baseline criteria referenced in LEED for Schools 2009 /WE Credit 3

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 for Schools 2009 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 and by the NYC Energy Code.
- 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

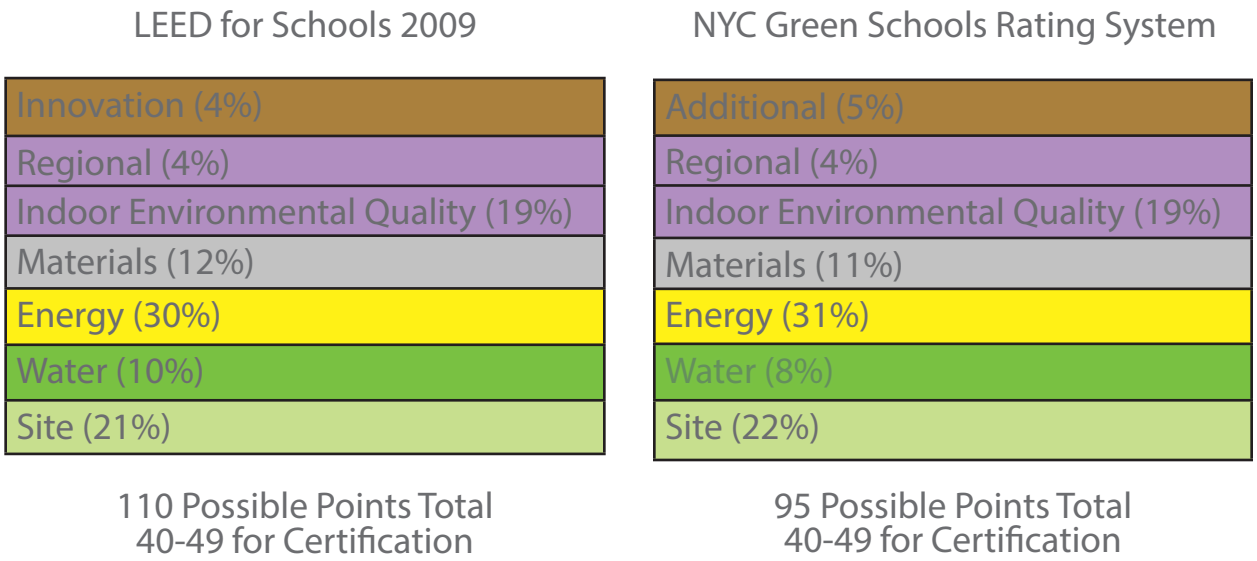
The original reason the SCA and DOE had chosen to create a sustainable rating system for New York City Schools is that the LEED rating system was not school specific at that time; LEED was originally created by the USGBC to address a wide variety of building types including commercial, office, retail, institutional and residential. The USGBC has sub-sequentially developed a LEED application guide for schools.

The SCA continues to believe that the students, staff and general public will better served 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 for Schools 2009 for the achievement of a LEED® Certified rating. This newly developed system is an adaptation of the award-winning "NYC Green Schools Guide".

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 prerequisite/required for all 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 small building, large building, and substantial reconstruction. Modeling for each system evaluated has been updated to reflect updates to the LEED version behind the GSG and the New York City Energy Codes. The prototypical models now utilize ASHRAE 90.1-2010 Appendix G to demonstrate compliance with the GSG, and the ASHRAE 90.1-2013 Energy Cost Budget Method to demonstrate compliance with LL86/05. Parametric studies have been performed to confirm that results continue to apply as various site and design factors have changed. The SCA selected standard energy conservation measures for schools are 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 environs. The SCA/DOE determined that basing the system directly on LEED would facilitate demonstration of equivalency as required by LL86/05.

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 9 of the 10 LEED prerequisites and 95 of the 110 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 32

optional credits) are required, if they are possible given the constraints of a specific project. Credits based on LEED prerequisites and CHPS prerequisites and credits have no point value in the NYC Green Schools Rating System 2016 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" prerequisites and credits must be achieved by all applicable projects. This category includes 34 LEED-based points, though there may be an occasional project unable to comply with a "Required for All" LEED-based credit.

"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.

All projects are required to achieve at least 40 points of the LEED-based points included in the NYC Green Schools Rating System to achieve system equivalency.

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
ASTM	American Society of Testing and Materials
BCC	Building Code Compliance
BOD	Basis of Design (Typically SCA Standards)
BMP	Best Management Practice
BMS	Building Management System
CAC	Ceiling Attenuation Class
CBECS	Commercial Buildings Energy Consumption Survey
CFC	Chlorofluorocarbons
CGP	Construction General Permit
CHPS	Collaborative for High Performing Schools
CI	Commercial 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 Authority
DEC	NYC Department of Environmental Conservation
DEP	NY State Department of Environmental Protection
DOE	NYC Department of Education
DOT	NYC Department of Transportation
DSNY	NYC Department of Sanitation
EA	Effective Aperture
ECC	Early Childhood Center
ECM	Energy Conservation Measure (ECM)
EEM	Energy Efficiency Measure
EP	Exemplary Performance
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
HCFC	Hydrochlorofluorocarbons
HEPA	High – Efficiency Particulate Arresting
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
IFO	Interior Fit-Out
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
NYCECC	New York City Energy Conservation Code
NYSECCC	New York State Energy Conservation and Construction Code
OITC	Outdoor Indoor Transmission Class
PS	Primary School
POR	Program of Requirements
QA/QC	Quality Assurance/Quality Control (typically SCA QA/QC Department)
RH	Relative Humidity
RPC	Regional Priority Credit
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 is administered by trained SCA Architecture and Engineering (A&E) Department reviewers and SCA CxA who 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 DOCUMENTATION 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.

At the conclusion of the 100% Design Phase, the A/E of Record will prepare a Sustainable Design Compliance Certification package, which will include the aggregate of all prior approved design phases with supporting documentation. This package is provided to the Green Schools' Review Committee 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 (SD) – Submit the project checklist and, for site selection credits, compliance narratives and completed documentation.
- Design Development (DD) – Submit Sustainable Design Report including compliance narratives for all credits. The GSG Design Development submission should be concurrent with DD Construction Documents (CD) submission.
- 60% Design – Submit a Sustainable Design Report including design phase credit calculations and forms. The 60% Design GSG submission should be concurrent with 60% design CD submission.
- 100% Design – Submit a Sustainable Design Report including design phase credit calculations and forms. The 100% Design GSG submission should be concurrent with 100% design CD submission. All design credit documentation should be complete and updated to respond to all outstanding issues raised during the 60% design review.
- Design Phase Certification – Submit a final Sustainable Design Report, updated to reflect the 100% CD design submission including a complete and signed Design Compliance Certification form.

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 project design and construction.

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 to require testing on a case-by-case basis to determine viability of sustainable measures such as geothermal wells or on-site stormwater disposal.

PRE-SCHEMATIC DESIGN GSG ANALYSIS

Perform the following in the Sustainable Design Analysis:

1. The Design Team is required to familiarize themselves with the NYC Green Schools Guide and Project Checklist.
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 GSG ANALYSIS, CONCURRENT WITH THE SCHEMATIC DESIGN SUBMISSION

Include the following in the Sustainable Design Report:

1. Submit initial Project Checklist
2. Submit a Credit Compliance Narrative for each of the site selection credits required to be submitted at this phase (per the submittal section of each credit). 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. Information may be drawn from the project feasibility study or test fit.

DESIGN DEVELOPMENT GSG SUBMITTAL, CONCURRENT WITH THE DESIGN DEVELOPMENT CONSTRUCTION DOCUMENT SUBMISSION

Include the following in the Sustainable Design Report:

1. Submit updated Project Checklist. If there have been any changes to the Checklist, include a narrative explanation.
2. Submit a Credit Compliance Narrative for each credit (including previously documented site selection credits - note any modifications to those credits). 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.
3. CxA is to submit the Project Commissioning Plan
4. Submit a cost analysis for NYC Green Schools Rating System Additional Credit cost allocation when applicable.
5. Indicate whether the project will be able to use Prototypical Energy modeling or if Project-specific Energy Modeling will be required.

60% DESIGN GSG SUBMITTAL, CONCURRENT WITH 60% CONSTRUCTION DOCUMENT SUBMISSION

1. Construction documents submitted must incorporate sustainable requirements.

Include the following in the Sustainable Design Report:

2. Submit updated Project Checklist – explain any changes.
3. Submit any revised Credit Compliance Narratives, as required.
4. Submit calculations, design studies, forms and other required credit documentation for all design phase credits (except for site selection credits previously documented).
5. Submit an Energy Modeling if the project requires Project-specific Energy Modeling.
6. Submit a cost analysis for NYC Green Schools Rating System Additional Credit cost allocation when applicable.
7. Provide documentation on any changes in the SCA/DOE's project requirements.

100% DESIGN GSG SUBMITTAL, CONCURRENT WITH 100% CONSTRUCTION DOCUMENT SUBMISSION

CDs submitted with this submittal shall be updated from the 60% submission and must incorporate sustainable requirements to allow final documentation of design credits as included in the Sustainable Design Report. 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 Updated Energy Model update if the project requires Project-specific Energy Modeling.
5. Submit a cost analysis for NYC Green Schools Rating System Additional Credit cost allocation when applicable.
6. Provide documentation on any changes in the SCA/DOE's project requirements.

DESIGN PHASE GSG CERTIFICATION SUBMITTAL

Submit any outstanding CDs from the 100% submission required to document the design credits or to ensure construction credits will be met. Construction documents submitted must incorporate sustainable requirements. Include the following in the Final Sustainable Design Report:

1. Submit final design Project Checklist.
2. Submit Design Team Certification Form initialed by both the Architect and Engineer of Record.

2.2 CONSTRUCTION PHASE DOCUMENTATION PROCESS

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

PREPARING THE CONSTRUCTION GSG SUBMITTAL

1. Review construction submittals for compliance with specified sustainable requirements. For substitutions, indicate that the item meets or exceeds the sustainable standards specified.
2. Review Contractor's complete construction submission including Compliance Certificate Forms and supporting documentation for all construction credits.
3. Submit complete GSG Construction Phase submittal package including complete and signed Design Team and Contractor Compliance Certificate Forms.

2.3 COMMISSIONING

Commissioning will be conducted by a joint commissioning group comprised of SCA departments, SCA Consultants, and Contractor's personnel as presented in the Commissioning plan. The commissioning process will be monitored by the designated project Commissioning Authority (CxA) assigned to the subject project by the SCA Commissioning Unit. A description of the commissioning process and a copy of the project specific Commissioning Plan are provided at the beginning of Construction. Commissioning requirements are provided in the applicable specifications sections.

2.4 CERTIFICATION PROCESS

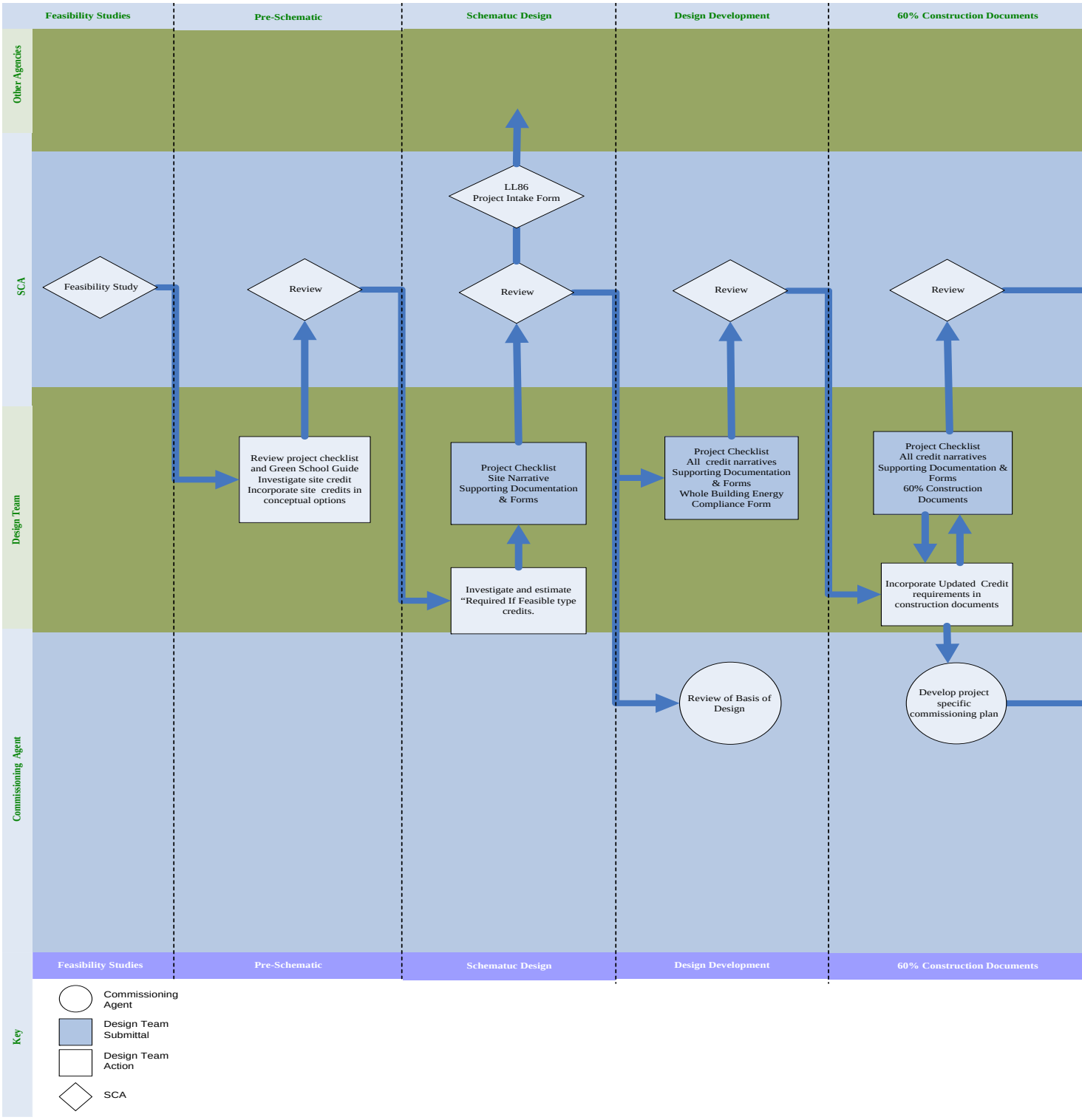
After successful completion and documentation of GSG Construction Phase and GSG Commissioning, GSG Committee will hold a GSG Project Certification Meeting to review all previously issued meeting minutes by the Committee, if any, to verify that all electronic and hard copies of documentation was revised, if necessary, and submitted.

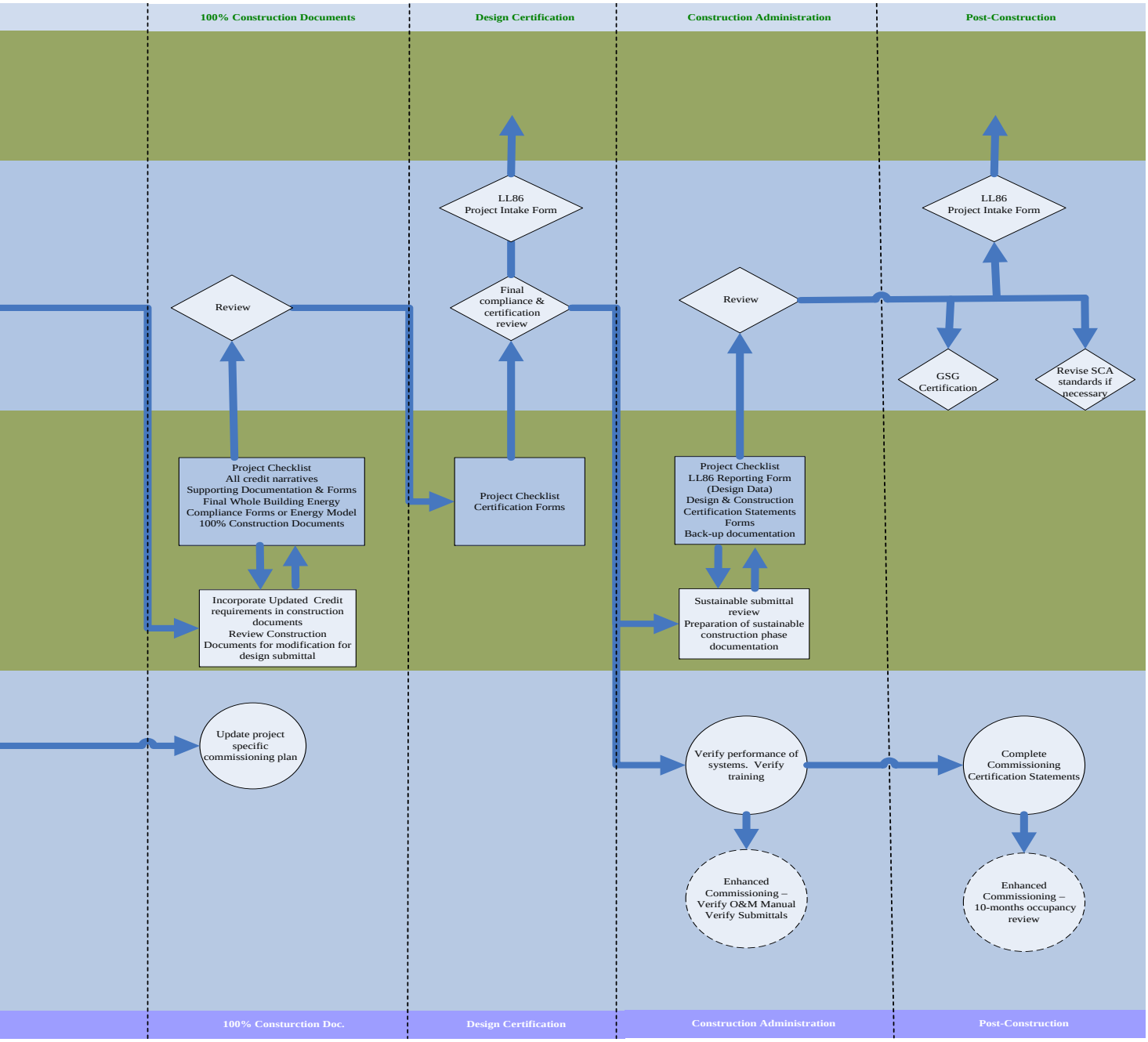
Upon Certification awarded to the project, a Certification Plaque will to be erected on the building, as outlined in SCA specifications.

2.5 THIRD-PARTY AUDIT OF PROJECTS

At the end of each fiscal year, the SCA will provide The Mayor's Office of Sustainability (MOS) with a list of new construction, addition and substantial reconstruction projects completed during that fiscal year. The MOS may 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 MOS.

NYC GREEN SCHOOLS RATING SYSTEM
2.6 CERTIFICATION PROCESS DIAGRAM




100% Construction Documents
Design Certification
Construction Administration
Post-Construction
LL86
Project Intake Form
Review
Final
compliance &
certification
review
Review
LL86
Project Intake Form
GSG
Certification
Revise SCA
standards if
necessary
Project Checklist
All credit narratives
Supporting Documentation & Forms
Final Whole Building Energy
Compliance Forms or Energy Model
100% Construction Documents
Project Checklist
Certification Forms
Project Checklist
LL86 Reporting Form
(Design Data)
Design & Construction
Certification Statements
Forms
Back-up documentation
Incorporate Updated Credit
requirements in construction
documents
Review Construction
Documents for modification for
design submittal
Sustainable submittal
review
Preparation of sustainable
construction phase
documentation
Update project
specific
commissioning plan
Verify performance of
systems. Verify
training
Complete
Commissioning
Certification Statements
Enhanced
Commissioning –
Verify O&M Manual
Verify Submittals
Enhanced
Commissioning –
10-months occupancy
review
100% Consturction Doc.
Design Certification
Construction Administration
Post-Construction

LL86/05 CO
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REPORTING

3.0 LL86/05 COMPLIANCE AND REPORTING

3.1 LEED COMPLIANCE OR EQUIVALENCY

LL 86/05 revisions effective as of June 26, 2009, states that alternative green building standards, no less stringent than applicable LEED 2009 standard, may be used with Mayoral approval. Following previous extensive study and preparation of the NYC Green Schools Guide (GSG), the SCA/DOE prepared an Equivalency Report and Equivalency Analysis documentation to demonstrate to the Mayor's Office that the NYC Green Schools Rating System 2009 has developed schools that achieve sustainable standards equivalent to, or more stringent than, LEED for Schools 2009 Certified rating. The NYC Mayor's Office of Sustainability (MOS) has issued findings demonstrating that this rating system developed by the SCA/DOE is no less stringent than LEED standards for LEED for Schools 2009. 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, made specific reference to, and required compliance with, LEED-NC version 2.1 Energy & Atmosphere credits, which used ASHRAE 90.1-1999 as a reference standard for measuring energy efficiency or the latest New York State Energy Conservation Construction Code (NYS-ECCC), whichever was more stringent. The prototypical modeling conducted by the SCA in developing the original NYC GSG 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.

3.3 LEED-NC VERSION 2.2 AND LEED VERSION 3 2009 ENERGY COST REDUCTION MODELING

After the enactment of LL 86/05, the USGBC updated the LEED-NC Rating System and issued LEED-NC version v2.2. LEED 2.2 Energy and Atmosphere credits referenced ASHRAE 90.1–2004 and Appendix G. The energy performance levels prescribed by LEED v2.2 were ASHRAE 90.1-2004 and Appendix G, which were more stringent than the 1999 version. When the USGBC's issued the v3 2009 LEED-NC Rating System, ASHRAE 90.1-2007 became the reference standard and surpassing that performance standard by 10% was a prerequisite requirement, which was thus more stringent than the LEED NC v2.2 or the New York State and New York City Energy Codes.

The NYC Green Schools Guide energy credits referenced the same 2007 ASHRAE standard as LEED v3 2009. LEED currently allows the 2010 ASHRAE standard to be utilized. The SCA has conducted prototypical modeling to demonstrate compliance of typical schools with this standard and SCA credit E 4.1R. Atypical schools must demonstrate compliance on a project specific basis.

Optimized Energy Performance credit points cannot be achieved using prototypical modeling. Earning points under GSG credit A3.2 requires project specific documentation and SCA direction/permission to pursue. Projects that conduct project specific modeling must follow ASHRAE 90.1-2010 to demonstrate LL86/05 compliance. ASHRAE 90.1-2007 or ASHRAE 90.1-2010 with the Adjusted Point Scale should be used to achieve energy cost reduction credit points.

Upon passage of the latest NYS-ECCC/NYCECC, further prototypical modeling was performed. Atypical schools will require project specific demonstration of energy cost reduction using NYS-ECCC methodology referencing the Energy Cost Budget Method of ASHRAE 90.1-2010, per LL86/05. The project will use the version of ASHRAE 90.1 which is applicable under NYS-ECCC/ NYCECC at the time of the pre-schematic design report.

3.4 LL86/05 ANNUAL REPORTING REQUIREMENTS

LL86/05 PROJECT REPORTING

The SCA will complete and submit reporting forms for each capital project in accordance with guidelines issued by the Mayor's Office of Sustainability (MOS), based on documentation provided by the A/E of Record during both the design and construction GSG submittal phases.

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 pre-determined 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 NYC 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 model templates, 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.

UTILITY RATE CHANGES

As the utility rates paid by Department of Citywide Administrative 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 MOS with a copy of the updated energy report and revisions to the applicable portions of the NYC Green Schools Guide.

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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.

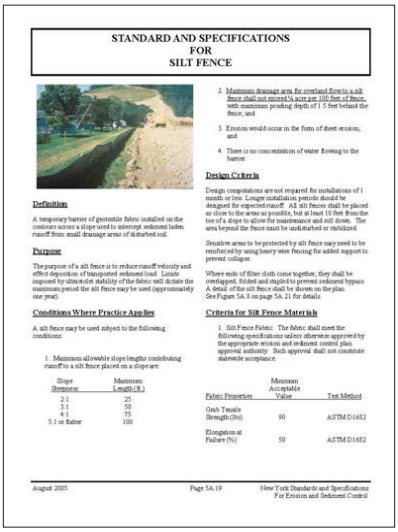
The credits in this section address site selection, massing and orientation of buildings, conservation of natural resources, and reduction of building impacts. Prudent site selection is essential for utilizing existing infrastructure, promoting appropriate density in urban development and protecting 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.

S1.1P CONSTRUCTION ACTIVITY POLLUTION PREVENTION

INTENT	REQUIREMENTS	
Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation 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 activities associated with the project. LEED requires that the plan conform to the erosion and sedimentation requirements of the 2012 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 receiving 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 (NPDES) 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 all projects, the Design Team must develop the Erosion and Sedimentation Control Plan. For projects less then one acre and that discharge into a combined sewer, the Erosion and Sedimentation Control Plan shall be shown schematically on the drawings and 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 shown 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

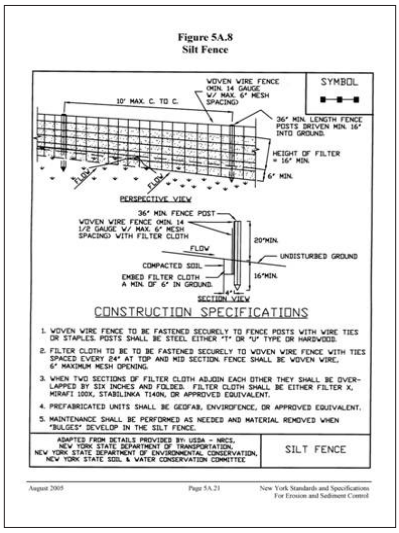


Figure 5A.8
Silt Fence

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

SILT FENCE

August 2005 Page 5A.21 New York Standards and Specifications For Erosion and Sediment Control

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

BEST PRACTICES AND IMPLEMENTATION

The SCA specifications Section 02200 details these requirements and related submittals. The specification references the New York State Discharge Pollution Elimination System (NYS-DPES), 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 than 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, silt 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.

Dust Control Plan
SCA specification section S01900 outlines this requirement.
For interior projects without excavation, document should include a requirement for contractor to provide a dust control plan.

CREDIT SUBMITTALS

SCHEMATIC DESIGN
No credit submittal.

DESIGN DEVELOPMENT
A/EoR's Responsibility
- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. Indicate who on the Design Team will develop the Erosion and Sedimentation Control Plan and Dust Control Plan, if applicable.
- Include the Notification of Intent for SWPP application, if required.

60% CONSTRUCTION DOCUMENTS
A/EoR's Responsibility
- Submit appropriate specification sections modified for the project.
- Submit the Erosion and Sedimentation Control Plan design document, along with SWPP if required.

100% CONSTRUCTION DOCUMENTS
A/EoR's Responsibility
- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION
No credit submittal.

CONSTRUCTION
Contractor's Responsibility
Per the Project Specifications:
- Implement and/or develop the Erosion and Sedimentation Control Plan, or dust control plan if interior project only.
- Submit digital dated photos and inspection logs of measures taken during the course of construction.
- Submit initialed and complete Contractor's Certification Form.

A/EoR's Responsibility
- Review Contractor's submittal for compliance.

REFERENCES

LEED for Schools 2009 SS Pr 1
Construction Activity Pollution Prevention

SCA DESIGN REQUIREMENTS
None

SCA STANDARD SPECIFICATIONS
S01352 Sustainability
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/docs/water_pdf/gp015002.pdf
NYS DEC Sample Erosion and Sediment Control Plan:
http://www.dec.ny.gov/docs/water_pdf/appendixf1.pdf
NPDES EPA Construction General Permit:
https://www.epa.gov/npdes/epas-2012-construction-general-permit-cgp-and-related-documents

S1.2R SITE SELECTION

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 5 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 50 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 100 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 a 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 or test fit has been completed, the Design Team may find useful information for documenting this credit in the feasibility study or test fit report. The SCA Design Requirements 1.1.3.1 Feasibility Study and 1.1.3.2 Test Fit include requirements for this credit. Wetland and water body buffers may be undertaken to enhance appreciation of them, provided such facilities are open to all building users. Only the following improvements are considered minor & acceptable: - Bicycle and pedestrian pathways no more than 12 feet wide, of which no more than 8 feet may be impervious; - Grade changes necessary to ensure public access

CREDIT SUBMITTALS

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 100 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

Architect's Responsibility

- Submit updated documentation as necessary through to Design Development.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 1
Site Selection

LEED for Schools v4 LT Credit 2
Sensitive Land Protection

SCA DESIGN REQUIREMENTS

1.1.3.1 Feasibility Study
1.1.3.2 Test Fit

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

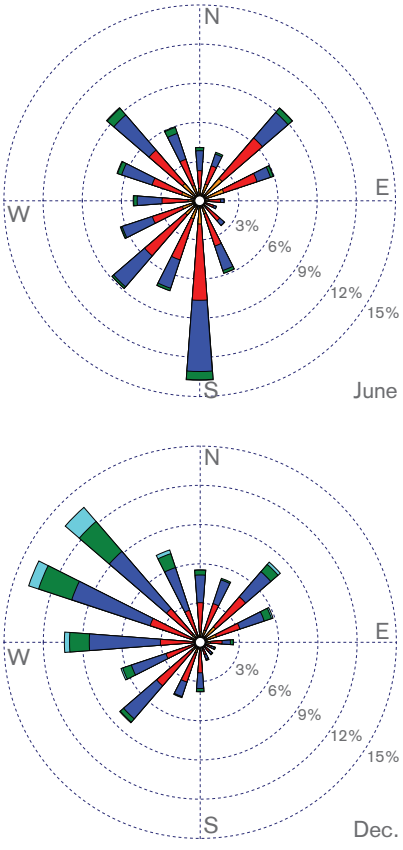
OTHER REFERENCES

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

Environmental Resource Mapper
http://www.dec.ny.gov/gis/erm
New York Natural Heritage Program
http://www.dec.ny.gov/animals/31181.html
US Fish and Wildlife Service
Environmental Conservation Online System, Information for Planning and Consultation
https://ecos.fws.gov/ipac OR
https://ecos.fws.gov/ecp/

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 the following analyses: 1. Identify viable locations on the roof(s) for potential renewable energy generation. The intent of this requirement is to identify potential sites for renewable measures but not to modify building infrastructure. 2. Plot shadow patterns from surrounding buildings onto project site to optimize access to daylight. AND Implement no fewer than two of the following sustainable site analyses: 3. Orient and compose the building to take advantage of natural daylighting. 4. Plot shadow patterns from proposed building(s)/addition on adjacent properties and buildings and consider design options to address impact as necessary. 5. Consider prevailing winds when determining the site and building layout. 6. Take advantage of existing adjacent building and natural land formations and vegetation to provide shelter from extreme weather or to deflect unwanted noise. 7. Design landscaping to mitigate solar gain and winter winds.	In the future, harvesting renewable energy may become more cost effective. Roofs can be designed to accommodate renewable energy sources such as photovoltaics and solar domestic hot water. Potential rooftop positions should not be shaded and should be oriented to maximize solar energy collection. 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. 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. 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.

Windrose Data for New York City



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

CREDIT SUBMITTALS

REFERENCES

SCHEMATIC DESIGN

Architect's Responsibility

• Submit a narrative summarizing which sustainable analyses will be carried out.

• In addition to the locations for potential on-site renewable energy generation and plot of shadow patterns from surrounding buildings, submit annotated site plans and sections demonstrating no fewer than two 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.

• Submit updated documentation as necessary through Design Development.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

NY CHPS Version 1.1 2007 Credit 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

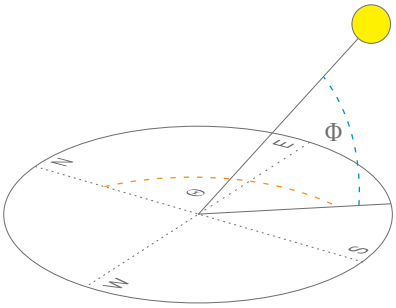
OTHER REFERENCES

Wind roses for New York City: https://www.wcc.nrcs.usda.gov/ftpref/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://aa.usno.navy.mil/data/docs/RS_OneDay.php

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

S1.4 DEVELOPMENT DENSITY & COMMUNITY CONNECTIVITY

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. For mixed use projects, one service within the project boundary may be counted as one of the ten basic services, provided it is open to the public. No more than 2 of the 10 services required may be anticipated (at least 8 must be existing and operational). In addition, the anticipated services must be documented appropriately to demonstrate that these other services will be operational in the locations indicated within one year of occupation of the school project. 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 Salon; 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. 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 SUBMITTALS

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

No credit submittal.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

LEED for Schools 2009 SS Credit 2 Development Density & Community Connectivity

SCA DESIGN REQUIREMENTS

1.1.3.1 Feasibility Study

1.1.3.2 - Test Fit/Sketch Studies

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

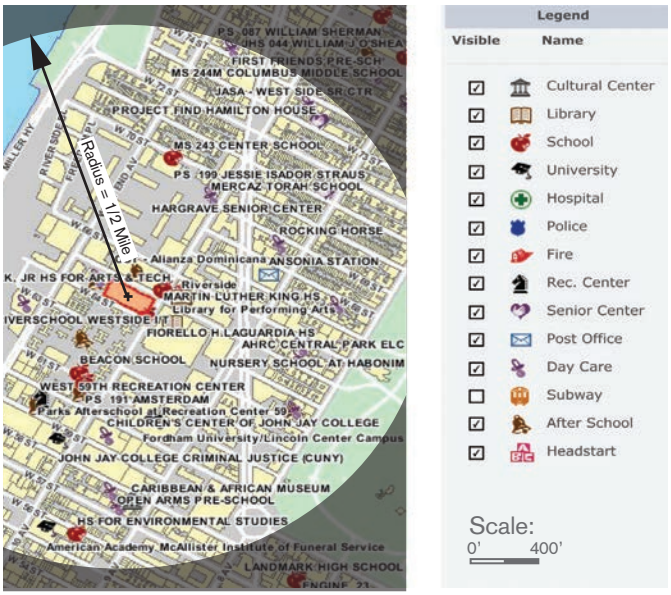
OTHER REFERENCES

For building density information:
http://www.oasisnyc.net/map.aspx

For zoning information:
http://www1.nyc.gov/site/planning/zoning/zoning-map-table.page

For NYC census information:
https://popfactfinder.planning.nyc.gov

Area plan showing community services within 1/2 mile



Area plan for development density calculations

S1.5R JOINT USE OF FACILITIES, COMMUNITY ACCESS

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, libraries and exercise rooms. 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 and other possible community use spaces. Show on annotated plan path of travel from building entrance to community use spaces.

100% CONSTRUCTION DOCUMENTS
Architect's Responsibility
- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION
Architect's Responsibility
- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION
No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 10
Joint Use of Facilities

NY CHPS Version 1.1 2007 Credit 1.1.2
Joint Use of Facilities

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

S1.6P ENVIRONMENTAL SITE ASSESSMENT

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
To ensure that the site is assessed for environmental contamination and if contaminated, that the environmental contamination has been remediated to protect children's health. This credit is required for all projects.	Conduct a Phase I Environmental Site Assessment (ESA) to determine whether environmental contamination exists at the site (as described in ASTM E1527-05). If contamination is suspected, conduct a Phase II ESA (as described in ASTM E1903-11). If a school site is contaminated and requires regulatory oversight, remediate the site to meet local, state, or federal EPA region standards, whichever is most stringent. Documentation must be provided to prove that safe levels of contamination have been achieved. If site does not require regulatory oversight, the site must be rendered suitable for use as a school.	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.

CREDIT SUBMITTALS

SCHEMATIC DESIGN

Architect's Responsibility

- Submit a brief narrative summary of the site assessment work done to date and the site's contamination/brownfield status. Indicate which entity has declared the site contaminated.
- Provide the executive summary of the Phase I ESA, and when required, the executive summary of the Phase II ESA.
- For projects with contamination, as confirmed by Phase II ESA, provide a document that describes the site contamination and associated remediation methods.

DESIGN DEVELOPMENT

No credit submittal.

60% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Update narrative of proposed remediation measures.
- Incorporate specifications and details by SCA Industrial & Environmental Hygiene (IEH) Division into construction documents.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Team Certification Form, Deisgn Phase

CONSTRUCTION

Architect's Responsibility

For all projects:

- Provide narrative briefly summarizing the actions taken to make the site suitable for school use and the results of these actions.
- Obtain documentation from the SCA's Construction Management unit that all remedial measures have been implemented and environmental engineering controls are functioning in accordance with the Contract Document, including the required PE certifications for the gas vapor barrier and SSDS (if required) installation. Obtain confirmation that environmentally clean soil has been installed over all exposed surfaces of the site as required in the Contract and any required IEH Remediation Group clearance letters or reports pertaining to non-scope items, including ACM, lead-based paint and mold.
- Submit the complete and initialed Design Team Certification Form-Construction Phase.

If remediation requiring regulatory oversight is required:

- Provide documentation from authority having jurisdiction confirming that remediation has been completed to its justification.

Provide in narrative briefly summarizing the actions taken to remediate the site and the results of these actions.

- Submit the complete and initialed Construction Phase Design Team Certification Form.

Contractor's esponsibility:

If remedial measures or environmental engineering controls are required:

- Provide required PE certifications for environmental barrier and SSDS (if required) to Construction Management that the systems were installed and functioning properly in accordance with the Contract Documents.
- Provide photographs that exposed soils have been removed to the depths required by the Contract Documents and backfilled with environmentally clean fill.

REFERENCES

LEED for Schools 2009 SS Pr 2

Environmental Site Assessment

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

ASTM E1527-05

ASTM E1903-11

S1.7 BROWNFIELD REDEVELOPMENT

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 Document as contaminated by means of ASTM E 1903-11 Phase II Environmental Site Assessment (ESA) Reg. 40 CFR Part 763 required in credit S1.6P 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 according to 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. If a proposed school site is contaminated, it must be remediated to meet local, state, or federal EPA region residential (unrestricted) standards, whichever is most stringent. Documentation from the authority (such as DEP or DEC) must be provided to prove that safe levels of contamination have been achieved. Because the remediation process leads to significant benefits, one point in this credit can be achieved for successful documented remediation of the site.	Environmental site assessments are conducted through the SCA Industrial & Environmental Hygiene (IEH) Division 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 Division 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
- Update narrative with description of proposed remediation measures.
- Incorporate specifications and details by SCA IEH Division into construction documents.

100% CONSTRUCTION DOCUMENTS
Architect's Responsibility
- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION
No credit submittal.

CONSTRUCTION
Architect's Responsibility

For all projects:
- Provide narrative briefly summarizing the actions taken to make the site suitable for school use and the results of these actions.
- Submit the complete and initialed Construction Phase Design Team Certification Form.

If remediation requiring regulatory oversight is required:
- Provide documentation from Authority having jurisdiction confirming that remediation has been completed to its satisfaction.

REFERENCES

LEED for Schools 2009 SS Credit 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
ASTM E1903-11 Standard Guide for Phase II Environmental Site Assessment Process
http://www.astm.org/Standards/E1903.htm

Site cleanup strategies:
www.brownfieldstsc.org

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

S2.1 ALTERNATIVE TRANSPORTATION, PUBLIC TRANSPORTATION ACCESS

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 walking distance (2,640 feet) of an existing – or planned and funded – commuter rail, light rail, subway station, bus rapid transit (operating on exclusive bus lanes or other transit rights-of-way) or commuter ferry terminal. Distance must be measured from main building entrance and calculated along pedestrian routes, not bird's eye distance. OR Option 2: Confirm project site is within one fourth mile walking distance (1,320 feet) of one or more stops for two or more public bus campus or private school bus lines usable by building occupants (measured from main building entrance). 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

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, subway stations, bus rapid transit or commuter ferry terminal within a half mile walk of the site OR all existing bus stops within ¼ mile walk of the main building entrance.

To indicate compliance, draw a line showing pedestrian path of travel from the main building entrance 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

No credit submittal.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 4.1 Alternate Transportation, Public Transportation Access

SCA DESIGN REQUIREMENTS

DR 1.1.3.1 Feasibility Study

1.1.3.2 - Test Fit/Sketch Studies

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

Metropolitan Transportation Authority: http://www.mta.info/

S2.2 ALTERNATIVE TRANSPORTATION, BICYCLE STORAGE & CHANGING ROOMS

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Reduce pollution and land development impacts from automobile use. This credit is required, if feasible, for all projects.	Provide secure bicycle racks and/or storage (within 200 yards of building entrance) for 5% or more of all building staff and students above third grade level (measured at peak periods). AND Provide shower and changing facilities in the building for 0.5% of Full-Time Equivalent (FTE) staff. Provide dedicated bike lanes, without any barriers, e.g., fences without gates from building entrance and/or bicycle racks to the sidewalk. For addition projects, bicycle storage and changing rooms may be provided in the existing building if the existing building and the new addition are interconnected at each floor.	Design the building with transportation amenities such as bicycle racks and showering/changing facilities. NYC Zoning laws require a certain amount of interior bike storage. Design to include the minimum number of spaces requried per zoning, which can be utilized towards this credit.

CREDIT SUBMITTALS

SCHEMATIC DESIGN

Architect's Responsibility

- Submit a narrative describing whether this credit is feasible. The narrative must include:

1. Location of bicycle storage/racks
2. Location of the shower, changing facility
3. The applicable SCA standards to be incorporated into design documents

DESIGN DEVELOPMENT

Architect's Responsibility

- Submit calculations and scaled plans to demonstrate compliance.

Calculations to include:

- Total number of users i.e. staff plus all students above third grade level.
- Number of full time staff
- Number of bicycle racks
- Number of lockers and showers in the changing facility.

Floor Plan(s) and site plan to include:

- Distance of bicycle storage/racks from building entrance
- Bike lane from building entrance and/or bicycle racks to the sidewalk.

60% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Incorporate layout, details and specifications in construction documents.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 4.2
Alternate Transportation, Bicycle Storage and Changing Rooms

SCA DESIGN REQUIREMENTS

DR 1.3.1.12 Bicycle Storage
DR 2.3.3 Bicycle Racks

SCA STANDARD SPECIFICATIONS

02870 Site and Street Furnishings
05700 Ornamental Metal

SCA STANDARD DETAILS

1040009b - Bicycle Parking Disclaimer Sign

OTHER REFERENCES

None

S2.3R ALTERNATIVE TRANSPORTATION, FUEL EFFICIENT VEHICLES/PARKING CAPACITY

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 or Test Fit, if available.

CREDIT SUBMITTALS

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.

60% CONSTRUCTION DOCUMENTS
Architect's Responsibility
• If parking is provided, indicate special requirements on the contract drawings.

100% CONSTRUCTION DOCUMENTS
Architect's Responsibility
• Incorporate credit requirements in construction documents.
• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION
Architect's Responsibility
• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION
No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 4.3
Alternative Transportation Low-Emitting & Fuel-Efficient Vehicles

LEED for Schools 2009 SS Credit 4.4
Alternative Transportation Parking Capacity

SCA DESIGN REQUIREMENTS
DR 1.1.3.1 Feasibility Study
1.1.3.2 - Test Fit/Sketch Studies

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) or 20% of the total site area (including building footprint), whichever is greater, 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 S1.4 (Development Density and Community Connectivity) may include vegetated roofing areas to this calculation if the plants meet the definition of native/ adapted and provide the habitat and biodiversity intent of this credit. Note that vegetated roofing is not an SCA standard and can only be pursued with special direction from the SCA. (See credit S5.1R - 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. If project includes work outside the lot lines, the site boundary shall include those areas (e.g. sidewalks). 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

Architect's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

- Submit the complete and initialed Construction Phase Design Team Certification Form.
- Submit updated documentation as necessary.

REFERENCES

LEED for Schools 2009 SS Credit 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

02200 Earthwork
02900 Landscaping

SCA STANDARD DETAILS

None

OTHER REFERENCES

North American Native Plant Society:
www.nanps.org

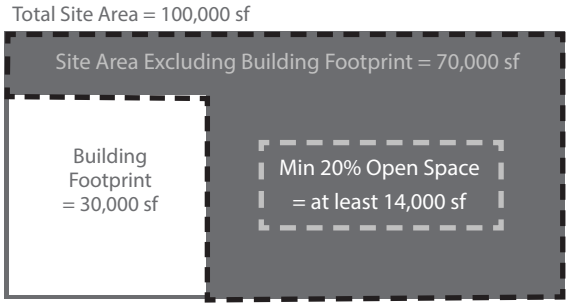
Native plant directory:
www.plantnative.org

Society for Ecological Restoration International: www.ser.org

S3.2 SITE DEVELOPMENT, MAXIMIZE OPEN SPACE

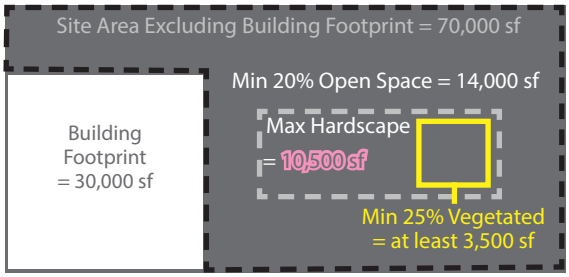
INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide a high percentage of open space, vegetated green with adapted or native plants or pedestrian - oriented hardscape. This credit is required, if feasible, for all projects.	For school sites with no zoning-mandated open space requirements, provide 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 S5.1R - Option 2.) Option 1: For projects located in urban areas that earn S1.4 (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 S1.4 (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 S5.1R -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. If project includes work outside the lot lines, the site boundary shall include those areas (e.g. sidewalks). For projects with large sites, a master plan should be developed, when 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.

Provide an area of open space equal to at least 20% of the site area excluding building footprint. Sample calculations:

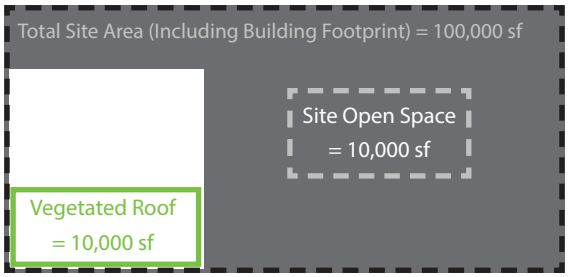


Options for projects in an urban area that earn S1.4:

Option 1 - Hardscape can be considered open space if at least 25% of the total open space is vegetated.



Option 2 - To include a vegetated roof as open space, the total open space provided must equal at least 20% of the total site area, including the building footprint. Approval by SCA required.



Vegetated Roof + Site Open Space Must = Min 20,000 sf (20% Total Site Area)

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

60% CONSTRUCTION DOCUMENTS

No credit submittal

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal

REFERENCES

LEED for Schools 2009 SS Credit 5.2
Site Development Maximize Open Space

SCA DESIGN REQUIREMENTS

1.1.3.1 Feasibility Study
1.1.3.2 - Test Fit/Sketch Studies
1.3.1.1 Building Layout and Orientation

SCA STANDARD SPECIFICATIONS

02533 - Landscaping

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

S4.1 STORMWATER DESIGN, QUALITY CONTROL

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
A/EoR'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
A/EoR'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.

100% CONSTRUCTION DOCUMENTS
A/EoR's Responsibility
- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION
A/EoR's Responsibility
- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION
No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 6.2
Stormwater Design Quality Control

SCA DESIGN REQUIREMENTS
6.1.11 Stormwater Management

SCA STANDARD SPECIFICATIONS
02723 Storm Drainage Systems

SCA STANDARD DETAILS
None

OTHER REFERENCES
None

S5.1R HEAT ISLAND EFFECT, ROOF

INTENT	REQUIREMENTS

Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate, and human and wildlife habitat.

This credit is required for all projects.

Rooftop playgrounds may be excluded from calculations for either option.

Option 1:
Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than 78 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.

Roofing materials having lower SRI values than required and roofs with combined high SRI and vegetated surfaces can demonstrate equivalent compliance using one of the following equations:

$$\frac{\text{Area of Roof Meeting Min SRI}}{\text{Total Roof Area}} \times \frac{\text{SRI of Installed Roof}}{\text{Required SRI}} \geqq 75\%$$

$$\frac{\left[\text{Area of Roof A} \times \frac{\text{SRI of Roof A}}{\text{Required SRI}}\right] \left[\text{Area of Roof B} \times \frac{\text{SRI of Installed Roof}}{\text{Required SRI}}\right]}{0.75} \geqq \text{Total Roof Area}$$

OR

Option 2:
Install a vegetated roof for at least 50% of the roof area.

$$\frac{\text{Area of Roof Meeting Min SRI}}{0.75} \times \frac{\text{Area of Vegetated Roof}}{0.50} \geqq 75\%$$

Green Roof Installations

BEST PRACTICES AND IMPLEMENTATION

Option 1:
• Use roof paver system with an SRI > 78.
• Use compliant coated metal roofing products.

OR

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 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:
S3.1 Site Development Protect or Restore Habitat
S3.2 Maximize Open Space
S4.1 Stormwater Quality
A2.2 Stormwater Quantity
A5.1 The School Building as a Teaching 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 bibs(s) for temporary watering of planted roofs.

CREDIT SUBMITTALS

SCHEMATIC DESIGN
No credit submittal.

DESIGN DEVELOPMENT
Architect's Responsibility
• Submit a narrative summarizing the design approach for credit compliance and identify applicable SCA standards to be incorporated into the design.

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 proposed SRI compliant roofing materials and/or vegetated green roof area expressed as a percentage of total roof areas.
• Submit a listing of proposed roofing materials and their SRI values.
OR
Option 2:
• Submit calculation of area of proposed green roof systems expressed as a percentage of total roof areas.

100% CONSTRUCTION DOCUMENTS
Architect's Responsibility
• Incorporate credit requirements in construction documents.
• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION
Architect's Responsibility
• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION
No credit submittal

REFERENCES

LEED for Schools 2009 SS Credit 7.2
Heat Island Effect: Roof

SCA DESIGN REQUIREMENTS
6.1.11 Stormwater Management

SCA STANDARD SPECIFICATIONS
02533 - Colored Athletic Wearing Surface
07560 Fluid Applied Protected Membrane Roofing
07561 Fluid Applied Protected Membrane Roofing (Planted Roof)

SCA STANDARD DETAILS
None

OTHER REFERENCES
ASTM E903 Standard Test Method for Solar Absorptance, Reflectance, and Transmittance
http://www.astm.org/Standards/E903.htm

S6.1 LIGHT POLLUTION REDUCTION

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 from lighting on nocturnal environments. This credit is required, if feasible for all projects.	FOR INTERIOR LIGHTING All non-emergency interior lighting fixtures with a direct line of sight to any openings in the envelope must be automatically controlled and programmed to turn off for a time period according to referenced SCA Design Requirements for Interior Lighting. Controls can be automatic sweep timers, occupancy sensors, or programmed master lighting control panels. The design can include manual or occupancy based override capabilities to turn on lights after hours. FOR EXTERIOR LIGHTING Illuminate areas only as required for safety and comfort. Lighting Power Densities shall not exceed ASHRAE/IESNA Standard 90.1-2013 (with errata but without addenda) for the classified zone. Meet exterior lighting control requirements from ASHRAE/IESNA Standard 90.1-2013 , Section 9, table 9.4.5, Exterior Lighting Section, without amendments (with errata but without addenda). To this end, the Rules of City of New York RCNY-5000-01 designates the lighting zones for the city based on zoning districts. All projects shall follow the requirements for their specific lighting zone, as defined in RCNY-5000-1: LZ1 – Dark (park land) 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 (sum total of all fixtures on site) are emitted at an angle of 90 degrees or higher than nadir. LZ2 – Low (all R districts, R districts with C overlays and MX districts) 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 (sum total of all fixtures on site) are emitted at an angle of 90 degrees or higher from nadir (straight down). LZ3 – Medium (M districts, except MX; C districts, except C5, C6 and C overlays on R) 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 (sum total of all fixtures on site) are emitted at an angle of 90 degrees or higher from nadir (straight down). LZ4 – High (C5 and C6 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 fixture lumens are emitted at an angle of 90 degrees or higher from nadir (straight down). For ALL Zones - The lighting boundary is located at property lines. However, the boundary can be expanded if one or more of the following conditions exist: • When the property line abuts a public street, alley, or transit corridor, the lighting boundary may be moved to the center line of that street, alley, or corridor. • When property line abuts a public area that is not a street, the lighting boundary may be moved to five feet beyond the property line. • When there are additional contiguous properties that are owned by the same entity and having the same or higher lighting zone designation, the lighting boundary may be expanded to include those properties. Illuminance generated from a single luminaire placed at the intersection of a vehicular driveway and public roadway accessing the site, is allowed to use the centerline of the public roadway as the site boundary for a length of 2 times the driveway width centered at the centerline of the driveway.

BEST PRACTICES AND IMPLEMENTATION

SCA Standards require that all non-emergency interior lighting be automatically turned off when the school is not in operation with manual override capability for after hours use.

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. Follow ASHRAE 90.1-2010 Section 9.4.2 Exception E.

CREDIT SUBMITTALS

SCHEMATIC DESIGN

No credit submittal.

DESIGN DEVELOPMENT

A/EoR's Responsibility

- Submit a narrative summarizing the design approach for credit compliance and list applicable SCA standards to be incorporated into design documents. Indicate the project's site zone classification.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Submit a narrative description of the results of light trespass analysis including the highest quantities of horizontal and vertical footcandles at the applicable site boundary.
- 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

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 8
Light Pollution Reduction

ANSI/ASHRAE/IESNA Standard 90.1-2013

SCA DESIGN REQUIREMENTS

7.2.1 Interior Lighting
7.2.3 Emergency Lighting
7.2.5 Exterior / Site / Security Lighting
7.2.6 Athletic Fields / Sports Lighting

SCA STANDARD SPECIFICATIONS

16145 Lighting Control
16502 LED Interior Building Lighting
16520 Exit Sign Lights and Emergency Lighting Fixtures and Systems
16530 Site/Security Lighting

SCA STANDARD DETAILS

None

OTHER REFERENCES

RCNY 5000-01 New York City Energy Conservation Code

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

W1.1 WATER EFFICIENT LANDSCAPING, REDUCE BY 50%

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Limit or eliminate the use of potable water for landscape irrigation. This credit is required, if feasible, for all projects.	Reduce potable water consumption for irrigation by 50%. Provide ground vegetation comprised strictly of plant materials that require minimal amount of or no potable water for irrigation. Determination of 50% reduction in potable water consumption must be modeled after a mid-summer baseline case. It must also result from any combination of the following factors: • Irrigation efficiency • Plant species, density and microclimate factor • Harvested rainwater • Use of captured rainwater • Use of water treated and conveyed by a public agency specifically for non-potable uses In keeping with USGBC credit interpretation rulings, a minimum of 5% of the total building site area (including building footprint, hardscape area, etc.) must be allocated for vegetation. Calculations are required to indicate how potable water use is reduced by 50%. Playgrounds and synthetic turf athletic fields are excluded from calculations for this credit. No calculations are required when plant species selected require no irrigation. See the LEED Reference Guide For Green Building Design And Construction (Schools) 2009 Edition for calculation details.	Projects without vegetation on the grounds must include a roof or courtyard garden space or outdoor planters – equal to a minimum of 5% of the total building site area. If project includes work outside the lot lines, the site boundary shall include those areas (e.g. sidewalks). Reduction in potable water consumption must be documented as described under "Requirements". The SCA Design Requirements require use of native or adapted plants with no permanent irrigation system at landscaped areas. SCA defers to the NYC Parks Dept. for the selection of trees that are native to the northeastern US or adapted to the climate in NY City. SCA standards require maintenance hose bibs around the building, which may be used for temporary irrigation. In addition, the SCA's standard for athletic fields is artificial turf, which requires no irrigation. Hose bibs are not considered permanent irrigation systems and can be used for temporary irrigation during periods of drought. Including ground cover from playgrounds and athletic fields in the pursuit of this credit is optional. However, if these areas are included in this credit's calculation, they must be included in all other applicable credit calculations. Design Team must receive approval from the SCA to pursue this credit using irrigation because of the potential cost 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

A/EoR's Responsibility

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. Include statements that no permanent irrigation is being provided.
- Provide calculations to verify that the vegetated area provided meets the 5% requirement.
- If the project is atypical and the Design Team recommends an irrigation system for this project, submit narrative indicating such and indicate potable water use reduction techniques.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- If irrigation is to be provided, include calculations demonstrating that the 50% reduction in potable water use requirements have been met. No calculations required when the plant species selected require no irrigation.
- Include technical data on plants verifying native or adaptive species requirements.
- Incorporate native or adapted plants on landscaping drawings and in specifications.

If irrigation is to be provided:

- Submit documentation as required for contract specifications and commissioning of irrigation systems. Incorporate requirements in specifications.
- Submit updated documentation as necessary through to 100%.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 WE Credit 1
Water Efficient Landscaping

SCA DESIGN REQUIREMENTS

DR 2.5.1 Trees, Shrubs, Ground Cover and Lawns
DR 6.1.7 Wall Hydrant Requirements for Window Washing and General Maintenance

SCA STANDARD SPECIFICATIONS

02900 Landscaping

SCA STANDARD DETAILS

None

W1.2 WATER EFFICIENT LANDSCAPING, REDUCE BY 100%

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Limit or eliminate the use of potable water, or other natural surface or sub-surface water resources available on or near the project site, for landscape irrigation. This credit is required, if feasible, for all projects.	No Potable Water Use or Irrigation. Meet the requirements for Credit W1.1 AND PATH 1 Use only captured rainwater, recycled wastewater, recycled graywater or water treated and conveyed by a public agency specifically for non-potable uses for irrigation. OR PATH 2 Install landscaping that does not require permanent irrigation systems. Temporary irrigation systems used for plant establishment are allowed only if removed within 18 months of installation. In keeping with USGBC credit interpretation Rulings, a minimum of 5% of the total building site area (including building footprint, hardscape area, etc.) must be allocated for vegetation. If the building footprint covers 100% of the total building site area, the 5% requirement does not apply. No calculations are required when plant species selected require no irrigation.	Projects without enough vegetation on the grounds must include a roof or courtyard garden space or outdoor planters equal to a minimum of 5% of the total building site area. If project includes work outside the lot lines, the site boundary shall include those areas (e.g. sidewalks). The SCA Design Requirements require use of native or adapted plants with no permanent irrigation system at landscaped areas. SCA defers to the NYC Parks Dept. for the selection of trees that are native to the northeastern US or adapted to the climate in NY City. SCA standards require maintenance hose bibs around the building, which may be used for temporary irrigation. In addition, the SCA's standard for athletic fields is artificial turf, which requires no irrigation. Hose bibs are not considered permanent irrigation systems and can be used for temporary irrigation during periods of drought. Including ground cover from playgrounds and athletic fields in the pursuit of this credit is optional. However, if these areas are included in this credit's calculation, they must be included in all other applicable credit calculations. Design Team must receive approval from the SCA to pursue this credit using irrigation 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

A/EoR's Responsibility

- Submit a narrative summarizing the design approach for credit compliance and identifying applicable SCA standards to be incorporated into design documents. State whether permanent irrigation is being provided and describe any non-potable water source.
- Provide calculations to verify that the vegetated area provided meets the 5% requirement. Calculations are not necessary if the building footprint covers 100% of the site area.
- If the project is atypical and the Design Team recommends an irrigation system for this project, submit narrative indicating such and indicate potable water use reduction techniques.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Include technical data on plants verifying plants meet native or adaptive species requirements.
- Incorporate native or adapted plants on landscaping drawings and in specifications.

If irrigation is to be provided:

- Provide calculations demonstrating that the 50% reduction in potable water use requirements of credit W1.1 have been met.
- Submit documentation as required for contract specifications and commissioning of irrigation systems. Incorporate requirements in specifications.
- Submit updated documentation as necessary through to 100%.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal

REFERENCES

LEED for Schools 2009 WE Credit 1
Water Efficient Landscaping

SCA DESIGN REQUIREMENTS

DR 2.5.1 Trees, Shrubs, Ground Cover and Lawns
DR 6.1.7 Wall Hydrant Requirements for Window Washing and General Maintenance

SCA STANDARD SPECIFICATIONS

02900 Landscaping

SCA STANDARD DETAILS

None

W2.1P MINIMUM WATER USE REDUCTION

INTENT	REQUIREMENTS

INTENT

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.

This credit is required for all projects.

REQUIREMENTS

Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 (and as amended) and 2005 fixture performance requirements. This is also in compliance with LL86.

Calculations are based on estimated occupant usage and must include only the following fixtures and fixture fittings (as applicable to the project scope): water closets, urinals, lavatory faucets, showers, kitchen sink faucets and pre-rinse spray valves.

The following fixtures, fittings and appliances are outside the scope of the water use reduction calculation:

- Commercial Steam Cookers
- Commercial Dishwashers
- Automatic Commercial Ice Makers
- Commercial (family-sized) Clothes Washers

Calculating Occupancy

Identify the total number of building occupants for each occupancy type.

a. Full-time staff
b. Part-time staff
c. Students
d. Transients (volunteers, visitors, parents, etc.)

In buildings with multiple shifts, use the number of full-time equivalents (FTEs) from all shifts. Calculate the FTE number of occupants based on a standard 8-hour occupancy period. An 8-hour occupant has an FTE value of 1.0, and part-time occupants have an FTE value based on their hours per day divided by 8.

Estimate the transient building occupants, such as volunteers, visitors, and customers. Transients include building visitors and other part-time or occasional building occupants. Transient occupants can be reported as either daily totals or full-time equivalents. Use a transient occupancy number that is a representative daily average over the course of a year.

When using daily totals for transients, match the fixture uses for each occupancy type with the values shown in Table 2 (e.g., for the daily total of volunteers counted as transients, assume 0.5 lavatory faucet uses per transient volunteer).

If transients are reported as a daily full-time equivalent value, fixture uses for FTEs must be assumed regardless of the transient population's identity (e.g., for volunteers reported as FTEs, assume 3 lavatory faucet uses per volunteer FTE).

In deciding whether to count individuals as transients or FTE occupants, consider their plumbing fixture use patterns. For example, a volunteer who serves 4 hours each day in an elementary school will likely have the same plumbing usage patterns as FTE staff. This volunteer could therefore be considered to have a staff FTE value of 0.5. On the other hand, an individual who attends a high school basketball game may be expected to use the water closets and lavatory faucets in the school building only 50% of the time, and therefore should be reported as a visitor. FTE and transient calculations must be used consistently for all LEED credits.

See the LEED Reference Guide For Green Building Design And Construction (Schools) 2009 Edition and the US Green Building Council's Water Use Reduction Additional Guidance for calculation details.

Table 1 Baseline Flush and Flow Rates

Commercial Fixtures and Fittings	Baseline for Fixtures Used in Schools
Commercial toilets	1.6 gallons per flush (gpf)
Commercial urinals	1.0 (gpf)
Commercial lavatory (restroom) faucets	0.5 (gpm) at 60 (psi) OR 0.25 gallons per cycle for metering faucets
Commercial pre-rinse spray valves (for food service applications)	Flow rate is less or equals to 1.6 (gpm) (no pressure specified; no performance requirement)

BEST PRACTICES AND IMPLEMENTATION

The SCA standards require the use of the following water-saving fixtures for all projects: aerated metered faucets, low-flow toilets, low-flow showers and low-flow urinals. Schools will typically achieve 30% water use reduction in combination with the other water-saving fixtures in the Standard Specifications.

For atypical projects that cannot achieve the 35% 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.

Table 2 Default Daily Use by Occupant Group

Fixture Type	FTE	Student	Transient
Water Closet			
-----Female	3	3	0.5
-----Male	1	1	0.1
Urinals			
-----Female	0	0	0
-----Male	2	2	0.4
Lavatory faucet, duration 15 sec; 12 sec with autocontrol	3	3	0.5
Shower	0.1	0	0
Kitchen sink, nonresidential, duration 15 sec	1	0	0

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR's Responsibility

- Submit Water Use Reduction Form showing achievement over EPAct 92 and LL86.
- Incorporate fixtures per Standard Specifications.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 WE Pr 1

Water Use Reduction with supporting Water Use Reduction Additional Guidance document

The Energy Policy Act (EPAct) of 1992 (and as amended)

The Energy Policy Act (EPAct) of 2005

Local Law 86/05

SCA DESIGN REQUIREMENTS

6.1.16 Compliance with LL86/05

SCA STANDARD SPECIFICATIONS

11400 Food Service Equipment includes pre-rinse spray valve flow rate

15440 Plumbing Fixtures

SCA STANDARD DETAILS

None

ENHANCED WATER USE REDUCTION

INTENT

To further 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.

Credit w2.2R is required for all projects. Credits w2.3 and w2.4 are required, if feasible, for all projects.

REQUIREMENTS

Credit	Water Use Reduction	Points
w2.2R	30%	2
w2.3	35%	1
w2.4	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 (and as amended) and 2005 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 objective is 40% water use reduction, which achieves credits W.2.2R W2.3 and W2.4, though 30% is typically achievable.

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 35% 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.

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.

Table 1 Baseline Flush and FLow Rates

Commercial Fixtures and Fittings	Baseline for Fixtures Used in Schools
Commercial toilets	1.6 gallons per flush (gpf)
Commercial urinals	1.0 (gpf)
Commercial lavatory (restroom) faucets	0.5 (gpm) at 60 (psi) OR 0.25 gallons per cycle for metering faucets
Commercial pre-rinse spray valves (for food service applications)	Flow rate is less or equals to 1.6 (gpm) (no pressure specified; no performance requirement)

Table 2 Default Daily Use by Occupant Group

Fixture Type	FTE	Student	Transient
Water Closet			
-----Female	3	3	0.5
-----Male	1	1	0.1
Urinals			
-----Female	0	0	0
-----Male	2	2	0.4
Lavatory faucet, duration 15 sec; 12 sec with autocontrol	3	3	0.5
Shower	0.1	0	0
Kitchen sink, nonresidential, duration 15 sec	1	0	0

BEST PRACTICES AND IMPLEMENTATION

The SCA standards require the use of the following water-saving fixtures for all projects: aerated metered faucets, low-flow toilets, low-flow showers and low-flow urinals. Schools will typically achieve 30% water use reduction in combination with the other water-saving fixtures in the Standard Specifications.

For atypical projects that cannot achieve the 35% 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

A/EoR'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

A/EoR's Responsibility

- Submit Water Use Reduction Form showing achievement over EPAct 92 and LL86.
- Incorporate fixtures per Standard Specifications.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 WE Credit 3 Water Use Reduction

The Energy Policy Act (EPAct) of 1992 (and as amended)

The Energy Policy Act (EPAct) of 2005

Local Law 86/05

SCA DESIGN REQUIREMENTS

6.1.16 Compliance with LL86/05

SCA STANDARD SPECIFICATIONS

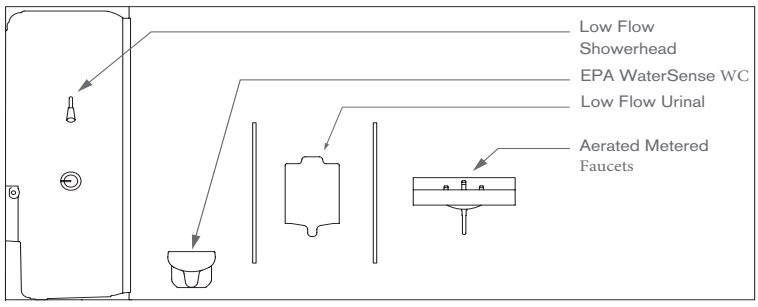
15440 Plumbing Fixtures

11400 Food Service Equipment

SCA STANDARD DETAILS

None

Water Conserving Measures



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 2009 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.

E1.1P FUNDAMENTAL COMMISSIONING OF THE BUILDING ENERGY SYSTEMS

INTENT	REQUIREMENTS	
Verify that the project's energy related systems are installed, calibrated and perform according to the owner's project requirements, basis of design, and construction documents. Benefits of commissioning include • Reduced energy use • Lower operating costs • Reduced contractor callbacks • Better building documentation • Improved occupant productivity, and verification that the systems perform in accordance with the owner's project requirements. This credit is required for all projects.	Below are the commissioning requirements to be carried out that are specifically required to comply with this rating system. The following commissioning process activities shall be completed by the project team. • The SCA shall designate an individual/ firm as the Commissioning Authority (CxA) to lead, review and oversee the completion of the commissioning process activities. • The CxA shall have documented commissioning authority experience in at least two building projects. • The individual serving as the CxA shall be independent of the project's design and construction management, though they may be employees of the firms providing those services. The CxA may be a qualified employee or consultant of the SCA. • The CxA shall report results, findings and recommendations directly to the SCA. • For projects smaller than 50,000 gross square feet, the CxA may include qualified persons on the design or construction teams who have the required experience. The SCA shall document the Owner's Project Requirements (OPR). The design team shall develop the Basis of Design (BOD). The CxA shall review these documents for clarity and completeness. The Owner and design team shall be responsible for updates to their respective documents. • Develop and incorporate commissioning requirements into the construction documents. • Develop and implement a commissioning plan. • Verify the installation and performance of the systems to be commissioned. • Complete a summary commissioning report.	COMMISSIONED SYSTEMS Commissioning process activities shall be completed for the following energy-related systems, at a minimum: • Heating, ventilating, air conditioning, and refrigeration (HVAC&R) systems (mechanical and passive) and associated controls • Lighting and daylighting controls • Domestic hot water systems • Renewable energy systems (wind, solar etc.) • Emergency Generator

BEST PRACTICES AND IMPLEMENTATION

The SCA/DOE commissioning team consists of staff from the SCA's ERC and A&E Departments, Commissioning consultants (FMSI and CxA) and the Department of Education (DOE).

This CxA develops and maintains the School Commissioning Plan.

Commissioning requirements are included through the SCA Standard Specifications.

For submission concurrent with100% CONSTRUCTION DOCUMENTS, the Design Team must update the 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 Section S01660 of the SCA Standard Specifications include:

- Attending commissioning meetings.
- Perform Functional Performance and Acceptance Tests for all equipment and systems as detailed in the Contract Documents .
- Provide relevant submittals and system manuals as required by Contract Documents.
- Provide training and training data as required by Contract Documents.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR's Responsibility

- Submit narrative summarizing standards to be incorporated and description(s) of building systems not part of the SCA Standards.
- Submit specification Table of Contents modified for particular project.

commissioning authority's responsibility

- Review OPR and BOD.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate commissioning requirements into construction documents
- Submit updated specification Table of Contents (TOC) if the Table of Contents has changed since design development.

Commissioning Authority's Responsibility

- Review TOC, BOD and construction documents.
- Develop Commissioning Plan.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Submit Table of Contents if TOC has changed since 60% CDs.
- Incorporate credit requirements in construction documents.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Commissioning Authority's Responsibility

- Submit Commissioning Certification Form with completed information for this credit.
- Submit the completed Commissioning Report.

For the five systems indicated:

- Verify the installation and performance of these systems.
- Verify that operating personnel training has occurred.

REFERENCES

LEED for Schools 2009 EA Pr 1
Fundamental Commissioning of the Building Energy Systems.

NYCHPS Version 1.1 2007 Credit 3.3.1
Third Party Commissioning

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
S01650 Facility Start-up, Demonstration, and Training
S01660 Commissioning
References to Commissioning throughout specifications
15970 -Temperature Control System (Lonworks Bms/Ddc With School Operating Console)
15992 -Cleaning and Testing
15993 -Balancing of Systems

SCA STANDARD DETAILS

None

E2.1P FUNDAMENTAL REFRIGERANT MANAGEMENT

INTENT	REQUIREMENTS
Reduce stratospheric 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 projects that include demolition, all refrigerants must be recovered according to EPA regulations For modernization projects, existing base building HVAC equipment containing CFC-based refrigerants must not be re-used. Follow the SCA Design Requirements for a CFC phase out plan. Non-CFC systems shall be used in replacement equipment. Incorporate SCA standard "non-CFC" equipment specifications in design and construction documents.

BEST PRACTICES AND IMPLEMENTATION	CREDIT SUBMITTALS	REFERENCES
HVAC&R-based equipment and refrigerants referenced in the SCA standards do not use CFC based refrigerants.	DESIGN DEVELOPMENT A/EoR's Responsibility • Submit a narrative summarizing how compliance will be achieved. • Identify applicable SCA standards to be incorporated into the Design Documents. For modernizations/ renovations, describe scope relating to existing base building HVAC equipment that contains CFC refrigerants. 60% CONSTRUCTION DOCUMENTS A/EoR's Responsibility • For projects that include demolition, submit inventory of HVAC&R equipment to be removed and a list of associated CFC-based refrigerants to be recovered. • When re-using existing base building HVAC equipment as part of GSG project, provide a complete and comprehensive CFC phase-out conversion prior to project completion. • For projects that include demolition, include a statement confirming the recovery of CFC-based refrigerants. 100% CONSTRUCTION DOCUMENTS A/EoR's Responsibility • Incorporate credit requirements in construction documents. • Provide updated documentation to address incomplete and outstanding issues. DESIGN PHASE CERTIFICATION A/EoR's Responsibility • Submit the complete and initialed Design Phase Design Team Certification Form. CONSTRUCTION No credit submittal.	LEED for Schools 2009 Credit EA Pr 3 Fundamental Refrigerant Management SCA DESIGN REQUIREMENTS None SCA STANDARD SPECIFICATIONS 02060 Demolition 02070 Selective Removal and Demolition 11400 Food Service Equipment 11450 Domestic Type Equipment 11452 Culinary Art Lab & Equipment 13031 Walk-in Trash Refrigerator 15650 Split Air Cooled Chillers 15660 Packaged Modular Outdoor Chillers 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 SCA STANDARD DETAILS None OTHER REFERENCES None

E2.2 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 for Schools 2009 Reference Guide Credit EA 4 Enhanced Refrigerant Management for comparison tables regarding: ozone depletion and global warming potentials of specific refrigerants, cooling efficiency of various refrigerants and allowable equipment life span. Do not operate or install fire suppression systems that contain ozone depleting substances such as CFCs, hydrofluorocarbons (HCFC)or Halons.	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. Utilize fire suppression systems that do not contain HCFCs or Halons.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR's Responsibility

• Submit a narrative summarizing how compliance will be achieved.

• Identify applicable SCA standards to be incorporated into the Design Documents.

60% construction documents

A/EoR's Responsibility

• Submit a completed Refrigerant Impact Form.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

• Incorporate credit requirements in construction documents.

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

No credit submittal

CONSTRUCTION

A/EOR's Responsibility

Submit a completed Refrigerant Impact Form using Rc values of units installed

• Submit the complete and initialed Design Team Certification Form, Construction Phase

REFERENCES

LEED for Schools 2009 EA Credit 4 Enhanced Refrigerant Management

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability

11400 Food Service Equipment

11450 Domestic Type Equipment

11452 Culinary Art Lab & Equipment

13031 Walk-in Trash Refrigerator

15650 Split Air Cooled Chillers

15660 Packaged Modular Outdoor Chillers

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

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

E3.1R MEASUREMENT & VERIFICATION

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 building-level energy meters or submeters based on SCA standards, and/or use existing meters 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, receptacle 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. Ensure that meters can be aggregated to provide building-level data representing total building energy consumption (electricity, natural gas, chilled water, steam, fuel oil, propane, biomass, etc). 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 prototypical 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.

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.

For the corrective action process, consider installing diagnostics within the control system to alert the staff that equipment is not being optimally operated. Alarms to alert staff could include:

- Leaking valves in the cooling and heating coils within air handling units
- Missed economizer opportunities (e.g., faulty economizer damper controls)
- Software and manual overrides allowing equipment to operate 24/7.
- Equipment operation during unusual circumstances (e.g., boiler on when outside air temperature above 65°F).

Besides control diagnostics, consider employing retro-commissioning services or dedicating staff to investigate increases in energy usage (such a staff member is usually a resource conservation manager).

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR'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

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

A/EoR's Responsibility

- Submit complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

LEED for Schools 2009 EA Credit 5 Measurement & Verification

NY CHPS Version 1.1 2007 Credit 3.3.8 Submetering

SCA DESIGN REQUIREMENTS

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

SCA STANDARD SPECIFICATIONS

15416-Gas Piping System
15970 Temperature Control System (LonWorks BMS/DDC With School Operating Console)
15973 Facility Management Systems Integration
15985 Sequence of Operations

SCA STANDARD DETAILS

15985 HVAC Standard Detail Series

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.

E3.2R ENERGY MANAGEMENT SYSTEM CONTROLS, HVAC AND HOT WATER SYSTEMS

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, if feasible, 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 E1.1P in this section regarding commissioning.)

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR's Responsibility

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

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

• Incorporate credit requirements in construction documents.

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

NY CHPS Version 1.1 2007 Credit 3.3.5 Energy Management System Controls

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

15985 HVAC Standard Detail Series

OTHER REFERENCES

None

E4.1P MINIMUM ENERGY PERFORMANCE

INTENT	REQUIREMENTS

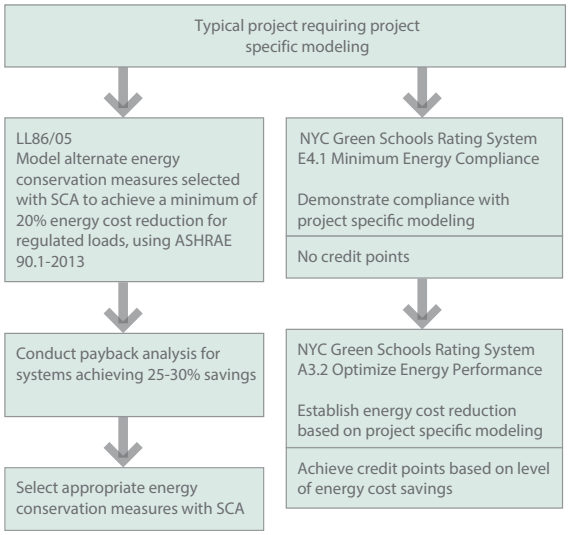
Establish the minimum level of energy efficiency for the proposed building and systems to reduce environmental and economic impacts associated with excessive energy use.

This credit is required for all projects.

1. Whole Building Energy Simulation
Demonstrate a 5% improvement for new buildings or a 3% improvement for major renovations to existing buildings in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2010 (with errata but without addenda, as permitted by LEED Interpretation ID #10421) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard.

To achieve points using this credit, the proposed design must comply with:
• The mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of ASHRAE/IESNA Standard 90.1-2010 (without addenda);
• Must include all the energy costs within and associated with the building project.
• Must be compared against a baseline building that complies with Appendix G to Standard 90.1-2010 (with errata but without addenda).

To utilize the standard SCA Operation Schedules as defined in the 'eQuest Input Summary for Prototypical Models" on the SCA website www.nycsca.org



For the purpose of this analysis, process energy is considered to include, but is not limited to, office and general miscellaneous equipment, computers, elevators and escalators, kitchen cooking and refrigeration, laundry washing and drying. Regulated (non-process) energy includes lighting (such as for the interior, façade, or building grounds, except as noted above), HVAC (such as for space heating, space cooling, fans, pumps, toilet exhaust, kitchen hood exhaust, etc.), and service water heating for domestic or space heating purposes.

Utilize the Space-by-Space Plug Loads (W/ft2) and Process Loads (BTUH/SF for interior gas appliance power density and W/ft2 for Refrigeration Power Density) as defined in the "eQuest Input Summary for Prototypical Models" COMNET database Rev. 9 released 7/24/16. COMNET is based on the Commercial Buildings. Energy Consumption Survey (CBECS) issued by the U.S. Energy Information Administration (EIA).

Process loads shall be identical for both the baseline building performance rating and for the proposed building performance rating. However, project teams may follow the Exceptional Calculation Method (ASHRAE 90.1-2010 G2.5) to document measures that reduce process loads. Documentation of process load energy savings shall include a list of the assumptions made for both the base and proposed design, and theoretical or empirical information supporting these assumptions.

Note that projects required to comply with Local Law 86/05 must achieve a minimum of 20% regulated energy cost reduction over the minimum requirements of the governing New York State Energy Conservation Construction Code (ECCC) at the beginning of design.

BEST PRACTICES AND IMPLEMENTATION

With the evolution of LEED 2009, the requirement for the total energy cost savings compared to the ASHRAE 90.1 Appendix G baseline has decreased from 14% for LEED 2.2 based on ASHRAE 90.1-2004 to 10% for LEED v3 (90.1-2007), and now to 5% per LEED Credit Interpretation ID #10421. Furthermore, Local Law 86-05 requires that a design energy model demonstrate at least 20% regulated energy cost savings vs a baseline model complying with the requirements of the ASHRAE 90.1-2013 as defined by the Energy Cost Budget Method of Chapter 11.

Perform the calculations demonstrating compliance with ASHRAE 90.1.2010 and compliance with Local Law 86/05.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR's Responsibility

- Submit a narrative summarizing how the project will comply with this credit, LL86/05 energy reduction requirements, and SCA Design Requirements. Organize the narrative by building system (architectural, mechanical, electrical, and plumbing) and for each section include the following:

a. Description of the design approach including energy conservation measures
b. A list of applicable SCA standards to be incorporated in the design and any potential departures relating to this credit.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Submit completed project specific energy model demonstrating compliance with this credit and LL86/05
- Submit summary of spaces and representative pages of LV-D, LV-H and LV-I reports that include any two typical classrooms.
- Include hard copies for all cases of ES-D, BEPU, LV-B and BEPS reports.
- Submit eQuest/Energy Plus Model Review Checklist -Level 1.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 EA Pr 2 Minimum Energy Performance

SCA DESIGN REQUIREMENTS

4.2.1 Exterior Masonry Wall
6.2.0 General Overview of HVAC
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 BMS/DDC Controls
7.2.1 Interior Lighting
7.2.5 Exterior/Site/Security Lighting

SCA STANDARD SPECIFICATIONS

08522 Aluminum Double-Hung Windows
08524 Aluminum Projected Windows
08921 Aluminum Storefront
15540 HVAC Pumps
15565 Condensing Boilers
15781 Packaged Htg & Cooling Units
15783 Packaged Heat Pump System
15852 Air Handling Units
15853 Custom Packaged Rooftop Heating and Cooling Units (VAV System)
15854 Custom Packaged Rooftop Heating and Cooling Units (CV System)
15855 Commercial Packaged Rooftop Heating and Cooling Units
15857 Unit Ventilator
15930 Variable Air Terminals
15932 Active Chilled Beams
15933 DOAS Air Handling Units
15935 Single Zone Variable Air Volume (SZVAV) Air Handling Units for Public Assembly Spaces
15937 Displacement Induction Units
15970 Temperature Control System
15973 FMS Integration
15985 Sequence of Operations
15992 Cleaning and Testing
15993 Balancing of Systems
16145 Lighting Control Devices
16502 LED Interior Building Lighting
16530 Site/Security Lighting

SCA STANDARD DETAILS

04200 Unit Masonry
15985 BMS Control Diagrams

OTHER REFERENCES

ASHRAE/IESNA Standard 90.1-2013
New York City Energy Conservation Code
Local Law 86/05

E4.2R 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

DESIGN DEVELOPMENT

A/EoR's Responsibility

- Submit a narrative summarizing how compliance will be achieved.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

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

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

NY CHPS Version 1.1 2007 Credit 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
6.2.34 Verification of Air System Design

SCA STANDARD SPECIFICATIONS

15540 HVAC Pumps
15565 Condensing Boilers
15650 Split Air Cooled Chillers
15660 Packaged Modular Outdoor Chillers
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
15932 Active Chilled Beam
15933 Dedicated Outside Air System (DOAS) Air Handling Units (Constant Volume System)
15934 Rooftop Air Handling Units for Public Assembly Spaces (Constant Volume System)
15935 Single Zone Variable Air Volume (Szvav) Air Handling Units for Public Assembly Spaces
15937 Displacement Induction Units

SCA STANDARD DETAILS

None

E5.1R GREEN POWER

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Encourage the development and use of grid-source, renewable energy technologies on a net-zero pollution basis. This credit is required for all projects.	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. All purchases of green power shall be based on the quantity of energy consumed, not the cost. OPTION 1. Calculate Baseline Use the annual electricity consumption from the results of LEED for Schools 2009 EA Credit 1: Optimize Energy Performance, using either prototypical or project specific modeling results which ever is appropriate for the project. OR OPTION 2. Estimate Electricity Use the U.S. Department of Energy's Commercial Buildings Energy Consumption Survey database to determine the estimated electricity use. See Table 1 Table 1 summarizes median annual electrical intensities (kWh/sf/yr) for different building types, based on data from the latest survey. The energy intensity multiplied by the square footage of the project represents the total amount of green power (in kWh) that would need to be purchased over a 2-year period to qualify for this credit using this option.	There is one approach 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 2016 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 Mayor's Office of Sustainability (MOS), 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

DESIGN DEVELOPMENT

A/EoR's Responsibility

Submit a narrative that credit will be pursued.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Include a calculation of annual green power allocation based on the completed applicable modeling results.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

A/EoR's Responsibility

- Submit the complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

LEED for Schools 2009 EA Credit 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

Table 1

Building Type	Median Electrical Intensity(kWh/sf-yr)
Education	6.6
Food Sales	58.9
Food Service	28.7
Office	11.7
Public Assembly	6.8
Public Order & Safety	4.1
Other	13.8

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

M1.1P STORAGE & COLLECTION OF RECYCLABLES

INTENT	REQUIREMENTS
To facilitate the reduction of waste generation by building occupants that is hauled to and disposed of in landfills. This credit is required for all projects.	1. Provide an easily accessible dedicated area dedicated to the collection and storage of non-hazardous materials for recycling for the entire building. Materials must include at a minimum 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 DR 1.3.1.8 Refuse and Recycling Storage. Allow space for balers and compactor in the Trash Room. 3. At the cafeteria, provide designated area(s) for bin(s) for recycling. 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.

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

- On 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 credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 MR Pr 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 web site lists what to recycle in different areas of the school:
http://www1.nyc.gov/assets/dsny/zerowaste/schools/school-recycling-checklist.shtml

BUILDING REUSE, MAINTAIN 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

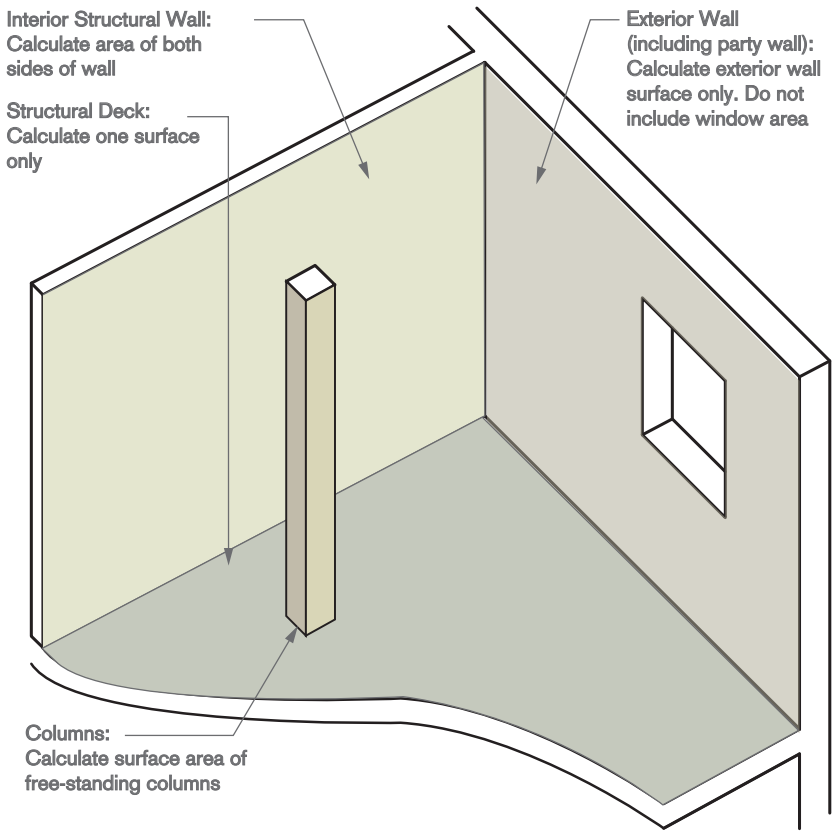
Credit	Existing Structure Re-used (Const. Waste Diverted)	Points
M1.2	75%	1
M1.3	95%	1

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 M1.5R, M1.6R, and M 1.7

See the LEED for Schools 2009 Reference Guide for detail including approach and implementation, calculations, considerations and resources.



Existing Structures & Envelope 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 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 M1.5R, M1.6R, and M 1.7 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

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

construction

Architect's Responsibility

- Submit complete and initialed Construction Phase Design Team Certification Form.
- Submit final Building Reuse Calculation Form (for all modernization and renovation projects).

REFERENCES

LEED for Schools 2009 MR Credit 1.1 Building Reuse – Maintain 75%/95% of Existing Walls, Floors and Roof

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

M1.4 BUILDING REUSE, MAINTAIN INTERIOR NON-STRUCTURAL ELEMENTS

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

Credit	Existing Structure Re-used (Const. Waste Diverted)	Points
M1.4	50%	1

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

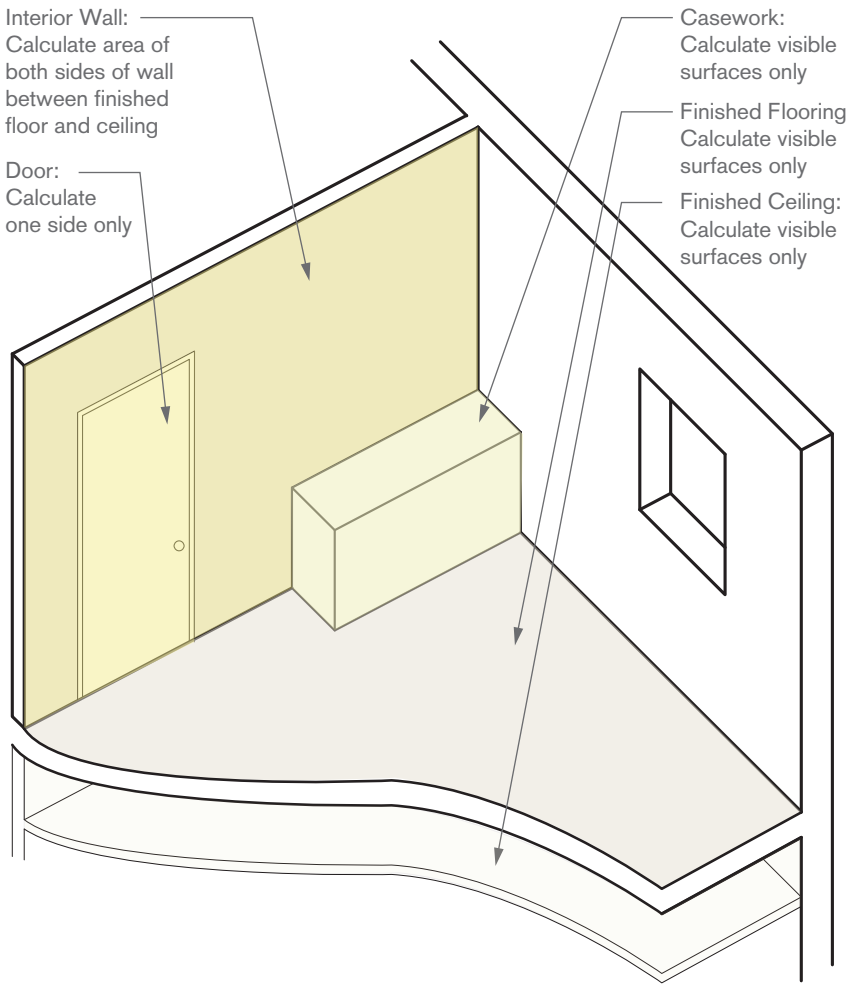
This credit may be pursued independently of credits M1.2 and M1.3.

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 M1.5R, M1.6R and M 1.7.



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 is feasible, or whether the portion of building elements to be reused is so low that their reuse should be used to contribute to credits M1.5R, M1.6R and M 1.7 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

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

- Submit complete and initialed Construction Phase Design Team Certification Form.
- Submit final Building Reuse Calculation Form (for all modernization and renovation projects).

REFERENCES

LEED for Schools 2009 Credit MR 1.2 Building Reuse – Maintain 50% of Interior Non-Structural Elements

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

CONSTRUCTION WASTE MANAGEMENT

INTENT

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

Credits M1.5R and M1.6R are required for all projects.

Credit M1.7 is required, if feasible, for all projects.

REQUIREMENTS

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

Credit	Waste Diverted	Points
M1.5R	50%	1
M1.6R	75%	1
M1.7	95%	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.

Construction debris processed into a recycled content commodity which has an open market value – e.g. Wood Derived Fuel (WDF), alternative daily cover material, etc. – may be applied to the construction waste calculation.

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, M1.6R and M 1.7.

See LEED for Schools 2009 Reference Guide for detail including approach and implementation, calculations, considerations and resources.

The feasibility of credit M1.7 will be determined during construction based on construction waste documentation submitted by the Contractor.

Calculations for this credit are based on the amount of waste diverted from landfill or incineration compared with the total amount of waste generated on-site. Convert all materials to either weight or volume to calculate the percentage. Exclude excavated soil and land-clearing debris from calculations.

Projects that crush and reuse existing concrete, masonry, or asphalt on-site should include the weight or volume of these materials in the calculations. Any construction debris processed into a recycled content commodity that has an open-market value (e.g., alternative daily cover material) may be applied to the construction waste calculation.

Projects that use commingled recycling rather than on-site separation should obtain summaries of diversion rates from the recycler. Typically, the recycler should provide monthly reports.

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

Architect's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

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.
- Submit complete and initialed Construction Phase Contractor's Certification Form.

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 for Schools 2009 MR Credit 2
Construction Waste Management

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
S01524 Construction Waste Management
02060 Building Demolition
02070 Selective Removals & Demolition

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

M2.1R, M2.2 RECYCLED CONTENT

INTENT

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

Credit M2.1R is required for all projects.

Credit M2.2 is required, if feasible, 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 40% 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.

OR

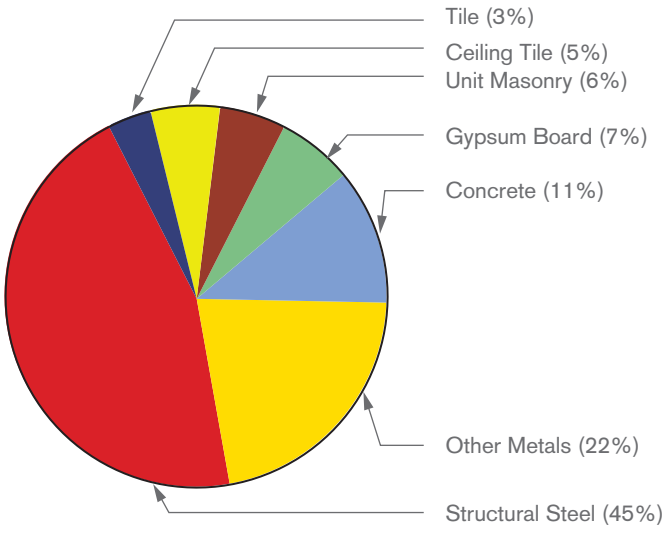
Value can be based on actual cost of materials in divisions 2-10 if such cost is provided by the Contractor.

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.

Achieving a level of 20% recycled content will result in an additional point.

Credit	Recycled Content	Points
M2.1R	10%	1
M2.2	20%	1

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.

Summary of Materials Specified with Recycled Content

Material	Min. % Post-Cons. Content	Min. % Pre-Cons. Content
Asphaltic Concrete Pavement	Min 30%	
Concrete Paving	6% Dry Weight	
Concrete	6% Combined	
Concrete Masonry Units	Ask to Report	3%
Structural Steel	30%	15%
Batt Insulation	0%	20%
Sprayed Fire Resistive Materials	5% Combined	
Fluid Applied Membrane Roofing	7%	0%
Aluminum Projected Windows	Ask to report	
Gypsum Wall Board	0%	90%
Abuse Resistant Gypsum Wall Board	0%	90%
Fire Rated GWB	0%	0%
Tile Backer Board	0%	10%
Acoustic Ceiling Tile	60% Combined	

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

Architect's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

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.
- Submit a letter stating material cost for divisions 2-10

Architect's Responsibility

- Review Contractor's submittals for verification of recycled content levels.
- Submit Recycled Content Summary Form based on Contractor's Sustainable Materials Forms and construction cost figure.
- Submit Design Team Certification Form, Construction Phase with completed information for this credit.

REFERENCES

LEED for Schools 2009 MR Credit 4
Recycled Content

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
02200 Earthwork
02511 Asphaltic Concrete Paving
02513 Sidewalk and Street Paving
02516 Exposed Porous Asphalt Paving and Aggregate Base
03200 Concrete Reinforcement
03300 Cast-in-Place Concrete
04200 Unit Masonry
04437 Precast Concrete U-lintels
05120 Structural Steel
05210 Open Web Steel Joist, K-Series
05220 Longspan Steel Joists. LH Series
05230 Steel Joist Girders
05300 Metal Deck
05710 Steel Stairs
07120 Fluid-Applied Waterproofing For Plaza Decks
07211 Perimeter Foundation Inslulation
07212 Miscellaneous Building Insulation
07250 Sprayed Fire-Resistive Materials
07560 Fluid-applied Protected Membrane Roofing
07561 Fluid-Applied Protected Membrane Roofing (Planted Type I)
08110 Steel Doors And Frames
08220 Fiberglass Reinforced Polyester Doors
08330 Coiling Doors, Grilles And Shutters
08510 Steel Windows - Projected, Casement, Pivoted, Hung
08522 Aluminum Double-Hung Windows
08524 Aluminum Projected Windows
08621 Fiberglass Sandwich Panel Skylights
08662 Security Screens/Barriers
08920 Aluminum Curtain Walls
08921 Aluminum Storefront
09260 Gypsum Board Assemblies
09310 Ceramic Tile
09410 Terrazzo - Portland Cement
09510 Acoustic Ceilings
09650 Resilient Flooring
09680 Carpet
09685 Tile Carpeting
10151 Toilet Compartments
10185 Plastic Shower and Dressing Compartments
10350 Flagpole
10505 Metal Lockers

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

REGIONAL MATERIALS

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.

These credit must be reported on 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 40% 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.

Credit	Regional Materials	Points
M2.3	10%	1
M2.4	20%	1

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

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. Note, that recycled content contributing to credits M 2.1-2.2 may also be considered regional content if the recycling facility, scrap yard, depository, stockpile, or other location where the material was collected, as well as the manufacturing facility, are both within 500 miles.

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

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

No credit submittal.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Incorporate credit requirements in construction documents.

DESIGN PHASE CERTIFICATION

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 complete and initialed Construction Phase Contractor's Certification Form.

REFERENCES

LEED for Schools 2009 MR Credit 5 Regional Materials

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
02200 Earthwork
02511 Asphaltic Concrete Paving
02513 Sidewalk and Street Paving
02516 Exposed Porous Asphalt Paving and Aggregate Base
02900 Landscaping
03300 Cast-in-Place Concrete
04200 Unit Masonry
04435 Cast Stone
04437 Precast Concrete U-lintels
05120 Structural Steel
05210 Open Web Steel Joist, K-Series
05220 Longspan Steel Joists, LH-Series
05230 Steel Joist Girders
05300 Metal Deck
07211 Perimeter Foundation Insulation
07212 Miscellaneous Building Insulation
08921 Aluminum Storefront
09260 Gypsum Board Assemblies
09310 Ceramic Tile
09410 Terrazzo - Portland Cement
09510 Acoustical Ceilings
09590 Wood Flooring
09626 Resilient Athletic Flooring
09650 Resilient Flooring
09670 Vinyl Sheet Athletic Flooring
09680 Carpet
09685 Tile Carpeting
10151 Toilet Compartments
10185 Plastic Shower & Dressing Compartments
10350 Flagpole
10505 Metal Lockers

SCA STANDARD DETAILS

None

M2.5R WALLBOARD & ROOF DECK PRODUCTS, MOLD RESISTANCE

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
To incorporate mold resistant materials at the building envelope and interior, 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 and building insulation. 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

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit complete and initialed Construction Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

NY-CHPS Version 1.1 2007 Credit 4.1.1 Wallboard & Roof Deck Products

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
07212 Miscellaneous Building Inslulation
07250 Sprayed Fire-Resistive Materials
09260 Gypsum Board Assemblies

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 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

INDOOR ENVIRON

MENTAL QUALITY

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.
- Managing air contaminants.

IEQ improvements are provided throughout the school and include:

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

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

Q1.1P MINIMUM IAQ PERFORMANCE

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 62.1-2007 Ventilation for Acceptable Indoor Air Quality (with errata but without addenda). 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 ASHRAE 62.1-2007 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 62.1-2007 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 – For mechanically ventilated spaces, calculations pertaining to the ventilation rate procedure (VRP) methodology found in Section 6.2 of ASHRAE 62.1-2007 shall be used. Section 7 Construction and Systems Start-up – Protection, construction, start-up, field testing and balancing.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR's Responsibility

- Submit a narrative summarizing the design approach for credit compliance and include in the narrative:
  - The results of the ASHRAE Outdoor Air Assessment report and note any suspected source pollutants and if the report recommends a more detailed analysis.
- Describe the proposed ventilation system design and note any special consideration relating to compliance. Indentify remedial measures planned to be taken (filtration/air cleaning, etc.) to address problematic air contaminants.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Comply with SCA Design Requirements.
- Edit SCA Standard Specifications.
- Submit ventilation calculations verifying compliance with Table 6-1 of ASHRAE 62.1-2007 entitled, "Minimum Ventilation Rates in Breathing Zone".
- Submit the results of the detailed screening level model and design recommendations to implement results, if any. Identify remedial measures planned to be taken (filtration/air cleaning, etc.) to address problematic air contaminants and include the design in the documents where applicable.
- Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

Contractor's Responsibility

Provide air balancing report cover page including approval stamp.

REFERENCES

LEED for Schools 2009 IEQ Pr 1 Minimum IAQ Performance

ASHRAE 62.1-2007-Ventilation for Acceptable Indoor Air Quality

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
15934 Rooftop Air Handling Units for Public Assembly Spaces (Constant Volume System)
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:
https://www1.nyc.gov/site/doh/health/health-topics/air-quality-air-pollution-protection.page

Creating Healthy Indoor Air Quality in Schools
https://www.epa.gov/iaq-schools

Building Assessment Survey and Evaluation (BASE) Study:
https://www.epa.gov/indoor-air-quality-iaq/building-assessment-survey-and-evaluation-study

Q1.2R OUTDOOR AIR DELIVERY MONITORING

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide capacity for ventilation system monitoring to help sustain occupant comfort and well-being. This credit is required for all projects	Install permanent monitoring systems that provide feedback on ventilation system performance to ensure that ventilation systems maintain design minimum ventilation requirements. Configure all monitoring equipment to generate an alarm when the conditions (either airflow value or CO_2 level) vary by 10% or more from the value expected at design conditions, via the building automation system alarm to the building operator. FOR MECHANICALLY VENTILATED SPACES • Monitor carbon dioxide concentrations within all public assembly spaces. For densely occupied non-assembly spaces (those with a design occupant density greater than or equal to 25 people per 1000 sq.ft.) served by a common Central Variable Air Volume System, monitor total outside ventilation airflow. CO_2 monitoring locations shall be between 3 feet and 6 feet above the floor. • Provide a direct outdoor airflow measurement device capable of measuring the minimum outdoor air intake flow with an accuracy of plus or minus 15% of the design minimum outdoor air rate, as defined by ASHRAE 62.1-2007 (with errata but without addenda) for mechanical ventilation systems where 20% or more of the design supply airflow serves non-densely occupied spaces.	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 • Air flow stations shall be calibrated on a yearly basis by DOE staff or as indicated by manufacturer recommendations. • Information shall be kept three years from the date of collection and shall be made available to the public upon request. Provide air flow stations on all outdoor air intakes of central ventilating and air-conditioning equipment. These systems must include data accumulation and be downloadable for printout. Data to be accumulated on cubic feet per minute basis once a day during school operation.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit complete and initialed Construction Phase Design Team Certification Form.

CONSTRUCTION

Commissioning Agent's Responsibility

- Verify operation of flow measuring stations and CO2 sensors.

REFERENCES

LEED for Schools 2009 IEQ Credit 1
Outdoor Air Delivery Monitoring

NY-CHPS Version 1.1 2007 Credit 5.3.13
Air Flow Stations

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

15985 HVAC Standard Detail Series

OTHER REFERENCES

None

Q2.1R CONSTRUCTION IAQ MANAGEMENT PLAN, DURING CONSTRUCTION

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, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3). • Protect absorptive materials that are either stored on-site or installed from moisture damage. • Develop and implement a dust control plan. • 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. • Replace all permanently required filtration media immediately prior to occupancy. • Prohibit smoking inside the building and within 25' of building entrances. 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 Q3.1R-Q3.4R. 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, Installation 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

A/EoR'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

A/EoR's Responsibility

- Incorporate credit requirements in Construction Documents. Review any project specific modifications with SCA Design Manager.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Contractor's Responsibility

Per the Project Specifications:

- Submit project specific IAQ Management Plan and six unique annotated digital photos of SMACNA IAQ measures taken during construction.
- Submit complete and initialed Construction Phase Contractor's Certification Form.

REFERENCES

LEED for Schools 2009 IEQ Credit 3.1 Construction IAQ Management Plan, During Construction

NY-CHPS Version 1.1 2007 Credit 5.4.3 Filters During Construction and Credits 5.4.4-5.4.6 Construction IAQ: Ventilation of VOCs, HEPA Vacuuming, and Dust Protection

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, https://ogs.ny.gov/BU/DC/docs/pdf/exorder111guidelines.pdf

(SMACNA) IAQ Guidelines For Occupied Buildings Under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3).

ASHRAE 52.2-2007; Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.

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. The SCA preferred option is to perform a full building flush-out after construction ends with all interior finishes installed, but prior to occupancy. Install new filtration media, then 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 at least 60ºF dry bulb and relative humidity no higher than 60%. Only if it is determined that 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 foot of outside air per square foot of floor area 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 three weeks, whereas the 3,500 cubic feet of outdoor air for flush-out was estimated to take approximately a third of that time. The A/E of Record shall verify that the IAQ Management Plan proposed by the Contractor is acceptable. The A/E of Record, through the SCA's Construction Manager, shall also verify that the actual procedures used to accomplish this credit have been met. The quantity of outside air delivered shall include, in the aggregate, the total of all outside air flows as measured by the outside air flow stations.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR's Responsibility

• Incorporate credit requirements for IAQ Management Plan in the construction documents.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Contractor's Responsibility

Per the Project Specifications:

• 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).

• Submit a document signed by the Contractor attesting to the successful completion of the flush out in accordance with the Contractor's IAQ plan. State details of the project specific flush-out that was performed, including the flush-out start and end date, the date of occupancy, as well as air rates, air volumes, and temperature and humidity levels maintained during the flush out.

• Submit a document signed by the Contractor attesting to the completion of the final cleaning of all surfaces according to contract requirements.

• Submit complete and initialed Construction Phase Contractor's Certification Form.

REFERENCES

LEED for Schools 2009 IEQ Credit 3.2 Construction IAQ Management Plan, Before Occupancy

NY-CHPS Version 1.1 2007 Credit 5.4.7 Construction IAQ, Building Flush Out

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability

S01550 Indoor Air Quality Requirements

SCA STANDARD DETAILS

15985 Sequence of Operations

OTHER REFERENCES

Indoor Air Quality – design tools for schools:
https://www.epa.gov/iaq-schools/indoor-air-quality-design-tools-schools

Sheet Metal and Air Conditioning Contractors' National Association:
www.smacna.org

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Q3.1R LOW-EMITTING MATERIALS, ADHESIVES & SEALANTS

INTENT	REQUIREMENTS

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 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.

OR

All adhesive & sealants to meet the testing and product requirements of the California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1.

SCAQMD VOC Limits

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
Roadway	250
Other	420

Aerosol Adhesives Applications	VOC Limit
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.

*This table excludes adhesives and sealants listed in Rule #1168 that are nonbuilding related or that are integral to the roof waterproofing system.

*Project teams may classify duct sealants under "Other".

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.

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

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.

• Submit complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

LEED for Schools 2009 IEQ Credit 4.1 Low- Emitting Materials, Adhesives and Sealants

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
G01600 Material and Equipment
06100 Rough Carpentry
06200 Finish Carpentry
06410 Custom Casework
07900 Joint Sealers
08210 Wood Doors
08211 Wood Doors
08522 Aluminum Double-Hung Windows
08524 Aluminum Projected Windows
08510 Steel Windows - Projected, Casement, Pivoted, Hung
08610 Replacement Wood Windows
08800 Miscellaneous Glazing
08920 Aluminum Curtain Walls
08921 Aluminum Storefront
09260 Gypsum Board Assemblies
09310 Ceramic Tile
09510 Acoustical Ceilings
09650 Resilient Flooring
09680 Carpet
09685 Tile Carpeting
10100 Visual Display Boards
10400 Identifying Devices
10415 Bulletin Boards, Glazed Display Boards, Display Cabinets and Cases
10652 Electrically Operated Folding Panel Partitions
10653 Manually Operated Folding Panel Partitions
10830 Mirrors
11600 Laboratory Equipment
12345 Soapstone
Div 15 - All HVAC and P&D adhesives and sealers

SCA STANDARD DETAILS

None

OTHER REFERENCES

California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1
http://standards.nsf.org/apps/group_public/download.php/11782/CDPH-IAQ_StandardMethod_V1_1_2010%5B1%5D.pdf

Green Seal Standards and Certification for Commercial Adhesives:
http://www.greenseal.org/Portals/0/Documents/Standards/GS-36/GS-36Ed2-1_Adhesives_for_Commercial_Use%202018.pdf

INTENT	REQUIREMENTS
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: OR All paints and coatings to meet the testing and product requirements of the California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1.

INTERIOR PAINTS AND COATING STANDARDS SUMMARY

Table 1. Applicable VOC Limits

Product Type	Referenced Standard	VOC Limit (g/L minus water)
Interior Flat Coating	Green Seal GS-11, 1993	50
Interior Non-Flat Coating	Green Seal GS-11, 1993	150
Anti-Corrosive/ Anti-Rust Paint	Green Seal GC-03, 2nd Edition, 1997	250
Clear Wood Finish: Lacquer	SCAQMD Rule 1113, 2004	550
Clear Wood Finish: Sanding Sealer	SCAQMD Rule 1113, 2004	350
Clear Wood Finish: Varnish	SCAQMD Rule 1113, 2004	350
Clear Brushing Lacquer	SCAQMD Rule 1113, 2004	680
Floor Coatings	SCAQMD Rule 1113, 2004	100
Sealers and Undercoaters	SCAQMD Rule 1113, 2004	200
Shellac: Clear	SCAQMD Rule 1113, 2004	730
Shellac: Pigmented	SCAQMD Rule 1113, 2004	550
Stain	SCAQMD Rule 1113, 2004	250
Concrete Curing Compounds	SCAQMD Rule 1113, 2004	350
Japans/ Faux Finishing Coatings	SCAQMD Rule 1113, 2004	350
Magnesite Cement Coatings	SCAQMD Rule 1113, 2004	450
Pigmented Lacquer	SCAQMD Rule 1113, 2004	550
Waterproofing Sealers	SCAQMD Rule 1113, 2004	250
Waterproofing Concrete/ Masonry Sealers	SCAQMD Rule 1113, 2004	400
Wood Preservatives	SCAQMD Rule 1113, 2004	350
Low-Solids Coatings	SCAQMD Rule 1113, 2004	120*

*Note: VOC levels for Low-Solids Coatings are measured in grams of VOC per liter of material, including water.

BEST PRACTICES AND IMPLEMENTATION

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.

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

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.

• Submit complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

LEED for Schools 2009 IEQ Credit 4.2 Low-Emitting Materials, Paints and Coatings

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
G01600 Material and Equipment
09410 Terrazzo - Portland Cement
09590 Wood Flooring
09626 Resilient Athletic Flooring
09675 Fluid-Applied Equipment Room Flooring
09705 Resinous Flooring
09800 Special Coatings
09900 Painting
10270 Access Flooring
12345 Soapstone
Div 15 - All HVAC and P&D adhesive and sealers

SCA STANDARD DETAILS

None

OTHER REFERENCES

Green Seal Standards and Certification for Paints:
http://www.greenseal.org/Portals/0/Documents/Standards/GS-36/GS-36Ed2-1_Adhesives_for_Commercial_Use%202018.pdf

California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1
http://standards.nsf.org/apps/group_public/download.php/11782/CDPH-IAQ_StandardMethod_V1_1_2010%5B1%5D.pdf

Q3.3R LOW-EMITTING MATERIALS, FLOORING SYSTEMS

INTENT	REQUIREMENTS	
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 flooring must comply with the following as applicable to the project scope. 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. AND All of the hard surface flooring must be certified as compliant with the FloorScore standard (current as of the date of this Rating System, or more stringent version) by an independent third-party. Flooring products covered by FloorScore include vinyl, linoleum, laminate flooring, wood flooring, ceramic flooring, rubber flooring, wall base, and associated sundries. AND Concrete, wood, bamboo, and cork floor finishes such as sealer, stain and finish must meet the requirements of South Coast Air Quality Management District (SCAQMD) Rule #1113, Architectural Coatings, rules in effect on January 1, 2004. AND	Tile setting adhesives and grout must meet South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits correspond to an effective date of July 1, 2005, and rule amendment date of January 7, 2005. OR All flooring elements installed in the building interior must meet the testing and product requirements of the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda. Mineral-based finish flooring products such as tile, masonry, terrazzo, and cut stone without integral organic based coatings and sealants and unfinished/ untreated solid wood flooring qualify for this credit without any IAQ testing requirements. However, associated site-applied adhesives, grouts, finishes and sealers must meet emission requirements for a mineral-based or unfinished/ untreated solid wood flooring system to qualify for credit.

BEST PRACTICES AND IMPLEMENTATION

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.

FloorScore is a voluntary, independent certification program that tests and certifies hard surface flooring and associated products for compliance with criteria adopted in California for indoor air emissions of Volatile Organic Compounds (VOCs) with potential health effects. The program uses a small-scale chamber test protocol and incorporates VOC emissions criteria developed by the California Department of Health Services, which are widely known as Section 1350.

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

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.

• Submit complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

LEED for Schools 2009 IEQ Credit 4.3
Low-Emitting Materials, Flooring Systems

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
G01600 Material and Equipment
09310 Ceramic Tile
09590 Wood Flooring
09650 Resilient Flooring
09680 Carpet
09685 Tile Carpeting

SCA STANDARD DETAILS

None

OTHER REFERENCES

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

California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1
http://standards.nsf.org/apps/group_public/download.php/11782/CDPH-IAQ_StandardMethod_V1_1_2010%5B1%5D.pdf

Q3.4R LOW-EMITTING MATERIALS, COMPOSITE WOOD & AGRIFIBER PRODUCTS

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 fixtures, 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 MDI (methylene diphenyl isocyanate) and PVA (polyvinyl acetate). Review product cut sheets, MSD sheets, signed attestations or other official literature from the manufacturer. 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

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

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.

• Submit complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

LEED for Schools 2009 IEQ Credit 4.4 Low-Emitting Materials, Composite Wood & Agrifiber Products

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

S01352 Sustainability
06100 Rough Carpentry
06200 Finish Carpentry
06410 Custom Casework
08210 Wood Doors
08211 Wood Doors
09590 Wood Flooring
10415 Bulletin Boards
10652 Folding Partitions
10653 Manually Operated Folding Panel Partitions
11500 Shop Equipment
11600 Laboratory Equipment
12710 Fixed Audience Seating
12761 Wood Bleachers

SCA STANDARD DETAILS

06200 Finish Carpentry
06410 Custom Casework

OTHER REFERENCES

An update on formaldehyde
https://www.cpsc.gov/s3fs-public/An-Update-On-Formaldehyde-725_0.pdf

Q4.1R INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL

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 all occupied areas. • Employ permanent entryway systems at least ten feet long in the primary direction of travel to capture dirt and particulates from entering the building at regular entry points 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 minute 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.	• Provide containment (a closed container for storage for off-site disposal in a regulatory compliant storage area, preferably outside the building) for appropriate disposal of hazardous liquid wastes in places where water and chemical concentrate mixing occurs (e.g. housekeeping, janitorial, etc).

BEST PRACTICES AND IMPLEMENTATION

Design facility cleaning and maintenance areas with isolated exhaust systems for contaminants. Maintain physical isolation from the rest of the regularly occupied areas of the building. Install permanent architectural entryway systems such as grills or grates to prevent occupant-borne contaminants from entering the building. Install high-level filtration systems in air handling units processing both return air and outside supply air. Ensure that air handling units can accommodate required filter sizes and pressure drops.

Use of hazardous materials in schools is limited and a separate containment area will typically not need to be provided.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR's Responsibility

- Incorporate credit requirements in construction documents, including showing filter rating on drawings.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

Contractor's Responsibility

- Submit a copy of the air balancing report cover page and include the approval stamp.

REFERENCES

LEED for Schools 2009 IEQ Credit 5 Indoor Chemical & Pollutant Source Control

NY-CHPS Version 1.1 2007 Credit 5.3.2 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://wsppn.org/studies/janitorial
EPA green cleaning product information: www.epa.gov/opptintr/epp

ASHRAE 62.1-2007, 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. In cases where compliant equipment is not available, provide a key operated safety shut off valve.	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.

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 credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

NY-CHPS Version 1.1 2007 Credit 5.3.5 Electric Ignition Stoves

SCA DESIGN REQUIREMENTS

7.3.13 Carbon Monoxide Detection and Alarm Systems

SCA STANDARD SPECIFICATIONS

11400 Food Service Equipment
11450 Domestic Type Equipment
11452 Culinary Arts Lab Equipment
15416 Gas Piping System

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

Q4.3R POST CONSTRUCTION INDOOR AIR QUALITY

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 through the SCA F&E Unit as part of the initial equipment for the school. All carpeted and other soft surface floors must be vacuumed with HEPA vacuums after construction is completed and prior to occupancy.	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

DESIGN DEVELOPMENT

Architect's Responsibility

• Submit a narrative stating that the initial equipment selection list provided by DOE/DSF includes two (2) HEPA vacuums.

60% CONSTRUCTION DOCUMENTS

Architect's Responsibility

• Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

• Submit custodial equipment list which includes HEPA vacuum. Obtain copy of the list from SCA Project Manager.

• Submit complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

NY-CHPS Version 1.1 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 (e.g. 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 the following for two cases: CASE 1. Administrative Offices and Other Regularly Occupied Spaces Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences AND Provide lighting system controls for all learning spaces including classrooms, chemistry laboratories, art rooms, shops, music rooms, gymnasiums and dance and exercise studios to enable adjustments that meet group needs and preferences. CASE 2. Classrooms and Offices In classrooms and all spaces with windows, provide vacancy sensors and daylight harvesting. Provide manual override of daylight sensors with switches for three lighting levels (on, off, and midlevel) to allow occupant adjustments in classrooms and group spaces. Midlevel lighting should be 30% to 70% of the maximum illumination level.	SCA Design Requirements and Standard Specifications incorporate standards for lighting controls for shared multi-occupant spaces that comply with this credit's requirements by providing controllability at shared group multi-occupancy spaces (i.e., instructional rooms, cafeterias, gyms, libraries, auditorium) and in individual offices or shared office areas where workstations have task lighting under overhead storage.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR 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

A/EoR Responsibility

- Incorporate credit 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

A/EoR Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 IEQ 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 STANDARDS

SCA Room Planning Standards

OTHER REFERENCES

None

Q5.2R CONTROLLABILITY OF SYSTEMS, THERMAL COMFORT

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 workspaces. 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 62.1-2007, paragraph 5.1, Natural Ventilation (with errata but without addenda), including an operable area that is a minimum of 4% of the net occupied floor area. ASHRAE Standard 55-2004 (with errata but without addenda) 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

DESIGN DEVELOPMENT

A/EoR 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

A/EoR Responsibility

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

100% CONSTRUCTION DOCUMENTS

A/EoR Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 IEQ Credit 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

15985 HVAC Standard Detail Series

OTHER REFERENCES

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

Q6.1R THERMAL COMFORT, DESIGN

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 Environmental 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. • For natatorioums, demonstrate compliance with the "Typical Natatorium Design Conditions" defined in chapter 4 (Places of Assembly) of ASHRAE HVAC Applications Handbook, 2003 edition (with errata but without addenda).	The SCA standards incorporate requirements for prototypical HVAC systems that allow MEP designs to achieve the credit requirements.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide HVAC calculations to demonstrate design compliance in accordance with Section 6.1.1 of ASHRAE Standard 55-2004.

100% CONSTRUCTION DOCUMENTS

A/EoR Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 IEQ Credit 7.1 Thermal Comfort-Design

ANSI/ASHRAE Standard 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

15985 Sequence of Operations

OTHER REFERENCES

None

INTENT

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.

These credits are required, if feasible, for all projects.

REQUIREMENTS

Achieve daylighting through one of three options according to thresholds in table below:

	Thresholds for Achievement	Points
Q7.1	75% classrooms	1
Q7.2	90% classrooms	1
Q7.3	75% other spaces	1

OPTION 1 - SIMULATION

Demonstrate through computer simulation that the applicable spaces achieve daylight illuminance levels of a minimum of 10 footcandles (fc) (110 lux) and a maximum of 500 fc (5,400 lux) in a clear sky condition on September 21 at 9 a.m. and 3 p.m. Provide glare control devices to avoid high-contrast situations that could impede visual tasks.

The calculation grid should be set at a maximum of 5-foot intervals to provide a detailed illumination diagram for each area. Include the approximate glazing properties and representative surface reflectance settings for interior finishes.

OPTION 2 - MEASUREMENT

For existing spaces within modernization and renovation projects, demonstrate through indoor light measurements that a minimum daylight illumination level of 10 fc and a maximum of 500 fc has been achieved in the applicable existing spaces. Measurements must be taken on a 10 ft grid and shall be recorded on building floor plans.

OPTION 3 - PRESCRIPTIVE

Use a combination of side-lighting and/or top-lighting to achieve a total Daylighting Zone that is at least 75% of all the regularly occupied classrooms.

Sidelighting Daylight Zone:

• Achieve a product of the visible light transmittance (VLT) and window to floor area ratio (WFR) of daylight zone between the values of 0.150 and 0.180. Window area included in the calculation must be of the portion of the window at least 2'-6" above the floor.

• $0.150 < VLT \times WFR < 0.180$

• Ceiling should not obstruct a line in section that joins the window-head to a line on the floor that is parallel to the plane of the window and is, in distance from the plane of the glass as measured perpendicular to the plane of the glass, two times the height of the window head above the floor. See diagram on adjoining page.

• Provide sunlight redirection and/or glare control devices to ensure daylight effectiveness.

For Option 1 and Option 3, the horizontal calculation or measurement grid should be 30 inches above the floor or at the appropriate desk or work height level for the intended use of the space.

OPTION 4 - COMBINATION

Any of the above calculation methods may be combined to document the minimum daylight illumination according to thresholds in table above. The different methods used in each space must be clearly recorded on all building plans.

For all options:

• Only the square footage associated with the portions of rooms or spaces meeting the requirements can be applied towards the threshold of total area calculation required to qualify for this credit.

• Provide glare control devices to avoid high-contrast situations that could impede visual tasks.

• Exceptions for areas where tasks would be hindered by the use of daylight will be considered on their merits. Exceptions on this basis may include auditoriums.

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 higher visible light transmittance values for glazing.

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

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

60% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 IEQ Credit 8.1 Daylight & Views, Daylight
LEED for Schools v4 IEQ Credit 7 Daylight

SCA DESIGN REQUIREMENTS

1.3.1.1 Building Location and Orientation
1.3.1.2 Planning Guidelines for New Schools and Additions

SCA STANDARD SPECIFICATIONS

08522 Aluminum Double-Hung Windows
08524 Aluminum Projected Windows
08621 Fiberglass Sandwich Panel Skylights
08800 Miscellaneous Glazing
08920 Aluminum Curtain Walls
08921 Aluminum Storefront
12500 Window Shades
12501 Chain and Clutch Operated Window Shades

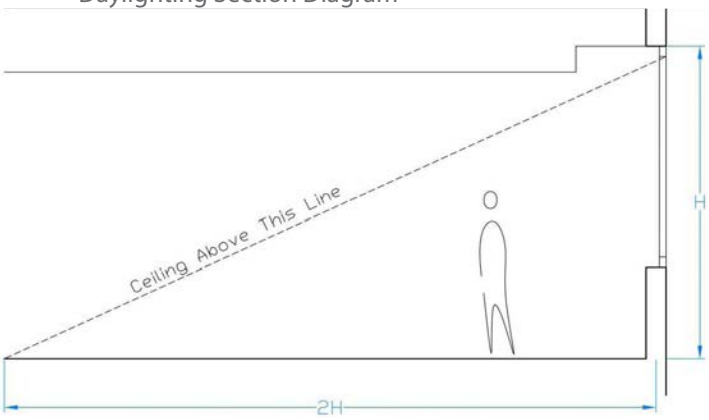
SCA STANDARD DETAILS

None

OTHER REFERENCES

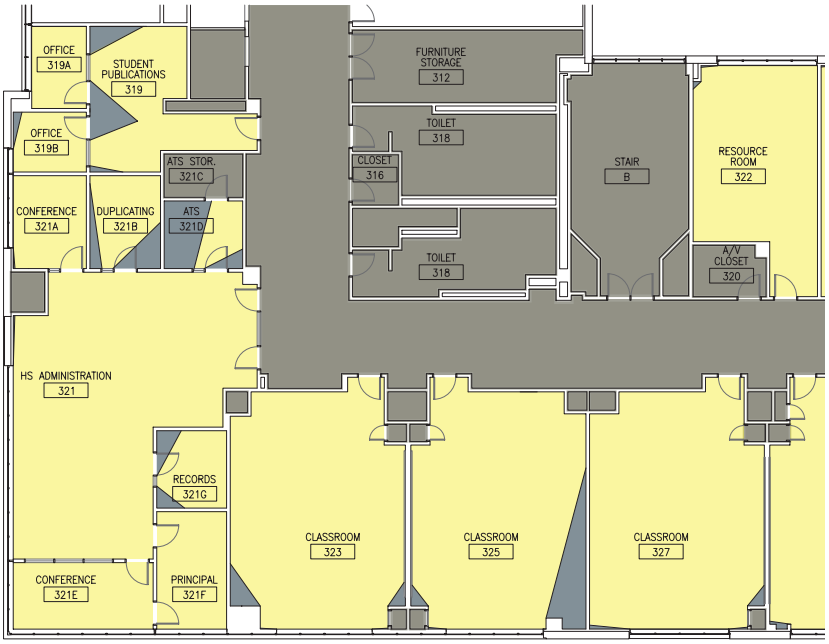
Radiance Synthetic Imaging System: http://radsite.lbl.gov/radiance
http://www.wbdg.org/resources/electriclighting.php

Daylighting Section Diagram



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. For classrooms and other multi-occupant spaces, the actual square footage with a direct line of sight to perimeter glazing is counted. It is permissible to exclude areas where tasks would be hindered by the use of daylight or the need for views. Exceptions on this basis might include auditoriums, gymnasiums, gymatotriums and exercise rooms.

Views Diagram



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.

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.
- Determine if design as developed complies. Submit views calculation 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.

60% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Incorporate credit requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 IEQ Credit 8.2 Daylight & Views, Views

SCA DESIGN REQUIREMENTS

1.3.1.1 Building Location and Orientation

SCA STANDARD SPECIFICATIONS

08522 Aluminum Double-Hung Windows
08524 Aluminum Projected Windows
08921 Aluminum Storefront

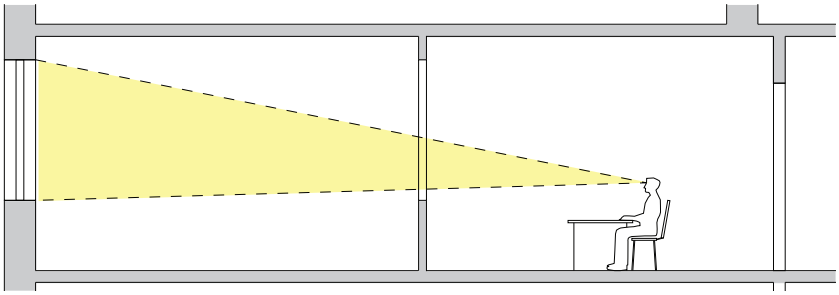
SCA STANDARD DETAILS

None

OTHER REFERENCES

None

Views Section Diagram



Q7.5R VISUAL PERFORMANCE, ARTIFICIAL DIRECT-INDIRECT LIGHTING

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 LED 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. 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. The luminance of these luminaires 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

A/EoR 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

A/EoR 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

A/EoR Responsibility

- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

NY-CHPS Version 1.1 2007 Credit 5.2.1 Visual Performance

SCA DESIGN REQUIREMENTS

7.2.1 Interior Lighting

SCA STANDARD SPECIFICATIONS

16502 LED Interior Building Lighting

SCA STANDARD DETAILS

None

OTHER REFERENCES

IESNA The Lighting Handbook 10th Edition
https://www.ies.org/product/lighting-handbook-10th-edition

Q8.1P MINIMUM ACOUSTICAL PERFORMANCE

INTENT	REQUIREMENTS	
To provide classrooms that are quiet, so that teachers can speak to their class without straining their voices and students can effectively communicate with each other. This credit is required for all projects.	Design classrooms and other core learning spaces to include sufficient sound-absorptive finishes for compliance with reverberation time requirements as specified in ANSI Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools. Achieve a maximum background noise level from heating, ventilating and air conditioning (HVAC) systems in classrooms and other core learning spaces of 45 dBA. The SCA goal is to provide 40 dBA for all systems except unducted unit ventilators where 40 dBA is not feasible. AND CASE 1. Classrooms & Core Learning Spaces < 20,000 Cubic Feet. For classrooms and core learning spaces less than 20,000 cubic feet, options for compliance include, but are not limited to the following: OPTION 1 Confirm that 100% of all ceiling areas (excluding lights, diffusers and grilles) in all classrooms and core learning spaces are finished with a material that has a Noise Reduction Coefficient (NRC) of 0.70 or higher. OR OPTION 2 Confirm that the total area of acoustical wall panels, ceiling finishes, and other sound-absorbent finishes equals or exceeds the total ceiling area of the room (excluding lights, diffusers and grilles) Materials must have an NRC of 0.70 or higher to be included in the calculation. CASE 2. Classrooms and Core Learning Spaces>20,000 Cubic Feet	For classrooms and core learning spaces 20,000 cubic feet or greater. Confirm through calculations described in ANSI Standard S12.60-2002 that all classrooms and core learning spaces greater than or equal to 20,000 cubic feet are designed to have a reverberation time of 1.5 seconds or less. Spaces that contain only unit ventilators are only required to meet the maxmimum allowed HVAC background noise of 45 dBA.

BEST PRACTICES AND IMPLEMENTATION

background sound levels

HVAC systems generally capable of meeting these low background noise level requirements include a variety of standard strategies; e.g. non-fan powered VAV boxes with a silencer used in the downstream supply duct system, chilled beam, displacement induction units.

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.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR'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

A/EoR Responsibility

- Submit 100% documents to a qualified acoustical consultant and obtain confirmation that project design meets the relevant requirements including compliance with NYCDEP Code for roof top or outdoor equipment
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 IEQ Pr 3 Minimum Acoustical Performance

ANSI/ASHRAE Standard S12.60-2002 Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools.

ASHRAE Handbook Chapter 47 Sound and Vibration Control 2003 HVAC Applications

SCA DESIGN REQUIREMENTS

1.3.1.9 Architectural Acoustic Standards
4.2.1 - Exterior Masonry Wall
4.3.1 - Window Types
5.4.1 Suspended Ceilings
6.2.25 HVAC Acoustical Standards

SCA STANDARD SPECIFICATIONS

08110 Steel Doors and Frames
08210 Wood Doors
08211 Wood Doors
08522 Aluminum Double-Hung Windows
08524 Aluminum Projected Windows
09510 Acoustical Ceilings
15853 Custom Rooftop Units (VAV)
15854 Custom Rooftop Units (CV)
15855 Commercial Rooftop Units
15857 Unit Ventilator
15891 Metal Ductwork
15910 Duct Accessories
15932 Active Chilled Beam
15933 DOAS & DRU Units
15937 Displacement Induction Units
15993 Balancing of Systems

SCA STANDARD DETAILS

None

OTHER REFERENCES

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

Noise Control for Building Exterior HVAC Equipment Guidance Sheet
http://www.nyc.gov/html/dep/pdf/exterior_hvac_guidance_sheet.pdf

Q8.2 ENHANCED ACOUSTICAL PERFORMANCE & SOUND ISOLATION FOR SPECIAL SPACES

INTENT

To provide classrooms that facilitates better teacher-to-student and student-to-student communication through effective acoustical design and to 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

Sound Transmission
Design the building shell, classroom partitions and other core learning space partitions to meet the Sound Transmission Class (STC) requirements of ANSI Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools, except windows, which must meet an STC rating of at least 35.

AND
Background Noise
Reduce background noise level to 40 dBA or less from heating, ventilating and air conditioning (HVAC) systems in classrooms and other core learning spaces.
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.

Sound Isolation Table

Adjacent Space Type	Minimum STC Rating
Other Classrooms	50
Outdoors	50
Bathrooms	53
Corridor	45
Offices, Conference Rooms	45
Music/Dance Rooms	60
Mechanical Equipment Room	60
Cafeteria, Gym, Natatorium	60

* Excluding main entry doors.

Impact Sound Isolation Table

Adjacent Overhead Space	Impact Sound Isolation, IIC**
Overhead Space	40
Music/Dance	60
Mechanical	60
Gym (if overhead)	60

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

BEST PRACTICES AND IMPLEMENTATION

The project team shall employ the services of an Acoustical Consultant in order to assume compliance with credits' intent and documentation.

An STC rating must be determined for every wall, floor, and ceiling assembly that may affect interior noise levels in a core learning space. The STC ratings for several wall assemblies are published in SCA Design Requirements

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

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.

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.

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.
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.

To meet both sound transmission prevention and sound absorption requirements in the ceiling assembly between a cafeteria and classrooms/ offices above, a ceiling tile with a high NRC and Ceiling Attenuation Class (CAC) is required.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR 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

A/EoR 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

A/EoR Responsibility

- Submit 100% documents to a qualified acoustical consultant and obtain confirmation that project design meets the relevant requirements.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 IEQ Credit 9 Enhanced Acoustical Performance

ANSI/ASHRAE Standard S12.60-2002
ASHRAE Handbook, Chapter 47, Sound and Vibration Control, 2003 HVAC Applications
NY-CHPS Version 1.1 2007 Credit 5.5.2 Sound Isolation

SCA DESIGN REQUIREMENTS

1.3.1.9 Architectural Acoustic Standards
4.1.1 – Building Façade-New Buildings & Additions
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
5.5.1 Interior Doors and Frames
6.2.25 HVAC Acoustical Standards

SCA STANDARD SPECIFICATIONS

08522 Aluminum D.H. Windows
08524 Aluminum Projected Windows
09260 Gypsum Board Assemblies

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)

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

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

Q8.3 ACOUSTIC WINDOWS

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 applicable, for all projects.	Typical requirement for credit Q8.1 is to design and select exterior façade construction to achieve STC-35 and Outdoor Indoor Transmission Class (OITC) 28 (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 and OITC 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

- Incorporate requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibilities

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

Architect'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

08522 Aluminum Double Hung Windows

08524 Aluminum Projected Windows

SCA STANDARD DETAILS

None

OTHER REFERENCES

American National Standard: "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools" (ANSI S12.60-2010)

National Clearinghouse for Educational Facilities: http://www.ncef.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

Because some environmental issues are unique to a locale, USGBC regional councils have identified distinct environmental zones within their areas and allocated six credits to encourage design teams to focus on regional priorities. A project that earns a Regional Priority credit automatically earns one point in addition to any points awarded for that credit. Up to four extra points can be earned in this way.
A Regional Priority credits are based on its zip code.

REGIONAL PRIORITY

R1.1, R1.2, R1.3 & R1.4 REGIONAL PRIORITY

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
To provide an incentive for the achievement of credits that address geographically specific environmental priorities. This credit is required, if feasible, for all projects.	Each Regional Priority Credit is worth an additional single point and a total of four additional points may be earned by achieving Regional Priority credits, with one point earned per credit. Earn 1-4 of the 6 Regional Priority credits identified by the USGBC regional councils and chapters as having environmental importance for a project's region. A table of Regional Priority credits for the five boroughs of New York City are provided below. Refer to the Implementation and calculation section under each particular Regional Priority credit's listing.	The Design Team, in conjunction with the project's LEED AP (if applicable) determines a project's Regional Priority credits based on its zip code as listed in the table below. If the project achieves more than four Regional Priority credits, the team can choose the credits for which these points will apply. No more than four credits identified as Regional Priority credits may be earned. Since these are not new credits, GSG project teams do not need to attempt them in addition to the other GSG credits they are attempting. If the project earns an RPC, it will also earn the associated bonus point. The concept of Regional Priority Credits was introduced incentives in the rating system to encourage achievement of credits that address geographically specific environmental priorities. The incentive to achieve the credits is in the form of a bonus point. If an RPC is earned, then a bonus point is awarded to the project's total points.

Regional Priority Credits for Schools in New York City							
Manhattan	10001 - 10282	S3.1	A2.2	WEc2	A3.1(40%/36%)	A3.3(1%)	M1.2(75%)
Staten Island	10301 - 10314	S1.4	S2.1	S3.1	WEc2	A3.3(1%)	M1.2(75%)
Bronx	10451 - 10499	S3.1	A2.2	WEc2	A3.1(40%/36%)	A3.3(1%)	M1.2(75%)
Queens	11001 - 11109	S3.1	A2.2	WEc2	A3.1(40%/36%)	A3.3(1%)	M1.2(75%)
	11030, 11050	S2.1	S3.1	S4.1	WEc2	A3.1(40%/36%)	A3.3(1%)
	11354 - 11697	S3.1	A2.2	WEc2	A3.1(40%/36%)	A3.31%)	M1.2(75%)
Kings	11201 - 11256	S3.1	A2.2	WEc2	A3.1(40%/36%)	A3.3(1%)	M1.2(75%)

	CREDIT SUBMITTALS	REFERENCES
The Design Team, in conjunction with the project's LEED AP (if applicable) determines which of the appropriate RPC's to claim and indicates those selected in the checklist in the cells provided.	**DESIGN DEVELOPMENT** Architect's Responsibility • Provide a list indicating which credits, based on the project's zip code, are eligible to obtain the additional point as a Regional Priority and whether each related based credit is feasible. **60% CONSTRUCTION DOCUMENTS** No credit submittal. **100% CONSTRUCTION DOCUMENTS** Architect's Responsibility • Verify GSG base credit has been obtained. **DESIGN PHASE CERTIFICATION** No credit submittal. **CONSTRUCTION** No credit submittal.	Refer to the standards for a particular Regional Priority credit as listed within the Green Schools Guide.

AD

DITIONAL CREDITS

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:
- non-roof heat island effect
- optimizing energy performance
- renewable energy systems
- additional sustainable materials, using the building to teach students about sustainable design features
- storm water quantity control

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.

A1.1R 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) with BD+C specialty. This LEED AP must be actively involved in both the design process and GSG review process.	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

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 proof of the LEED AP's accreditation.

60% CONSTRUCTION DOCUMENTS

No credit submittal.

100% CONSTRUCTION DOCUMENTS

No credit submittal.

DESIGN PHASE CERTIFICATION

Architect's Responsibility

- Submit the complete and initialed Design Team Certification Form, Design Phase.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 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
To provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by the SCA Green Schools Guide and/or innovative performance in Green Building categories not specifically addressed by this system. Projects may only pursue innovation strategies with permission from SCA.	Option 1 - Innovation There are 3 basic criteria for achieving an innovation credit for a category not specifically addressed by the GSG: a. The project must demonstrate quantitative performance improvements for environmental benefit (establishing a baseline of standard performance for comparison with the final design). b. The process or specification must be comprehensive. Measures that address a limited portion of a project, or are not comprehensive in other ways, will not qualify. c. The innovation concept must be applicable to other projects and must be significantly better than standard sustainable design practices. Option 2 - Exemplary Performance Achieve exemplary performance in an existing GSG credit by doubling the credit requirements and/or achieving the next incremental percentage threshold of an existing credit.	Consider innovation credits based on standards and requirements established by current versions of other Rating Systems including LEED, Collaborative for High Performance Schools (CHPS), and the WELL Building Standard. Potential examples include: • Local Food Production (LEED BD+C v4 Pilot Credit) • PBT source reduction - lead, cadmium and copper (LEED BD+C v4: Healthcare) • Organic Recycling/Composting (Sustainable Sites Initiative)

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

Architects' Responsibility
• Provide a narrative stating the intent of the proposed innovation credit, the proposed requirement for compliance, proposed submittals to demonstrate compliance, and the design approach (strategies) used to meet the requirements.

60% CONSTRUCTION DOCUMENTS

Architects' Responsibility
• Provide supporting documentation, including drawings and calculations, as necessary

100% CONSTRUCTION DOCUMENTS

Architect's Responsibilities
• Incorporate requirements in construction documents.
• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibility
• Submit the complete and initialed Design Team Certification Form, Design Phase.

CONSTRUCTION

Architect's Responsibility
• For any construction-related innovation strategies, provide a narrative and supporting calculations as necessary to demonstrate compliance.

REFERENCES

SCA DESIGN REQUIREMENTS
None

SCA STANDARD SPECIFICATIONS
None

SCA STANDARD DETAILS
None

OTHER REFERENCES
USGBC LEED Credit Library
http://www.usgbc.org/credits

CHPS Criteria
https://chps.net/criteria/chps-new-york

International WELL Building Institute's WELL Building Standard
http://www.wellcertified.com/

A2.1 HEAT ISLAND EFFECT, NON-ROOF

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. This credit is only to be pursued with the approval of the Authority.	Provide any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards): • Provide shade from existing tree canopy or within five years of landscape installation; landscaping (trees) must be in place at the time of occupancy. • Provide shade from structures covered by solar panels that produce energy used to offset some non-renewable resource use. • Provide shade from architectural devices or structures that have a solar reflectance index (SRI) of at least 29. • Use hardscape materials with SRI of at least 29. • Use an open grid pavement system (at least 50% pervious).	Solar reflectance is the fraction of the incident solar energy, which is reflected by the surface in question. The solar reflectance index (SRI) is a measure of the constructed surface's ability to reflect solar heat, which accounts for both the reflectivity and emissivity of materials. It is defined so that a standard black surface (reflectance 0.05, emittance 0.90) is 0 and a standard white surface (reflectance 0.80, emittance 0.90) is 100. Employ strategies, materials and landscaping techniques that reduce heat absorption of exterior materials. Use shade (calculated on June 21, noon solar time) from native or adapted trees and large shrubs, vegetated trellises or other exterior structures supporting vegetation. Consider the use of new coatings and integral colorants for asphalt to achieve light-colored surfaces instead of blacktop. Position photovoltaic cells to shade impervious surfaces. Consider replacing constructed surfaces (i.e. roads, sidewalks, etc.) with vegetated surfaces such as vegetated roofs and open grid paving or specify high-albedo materials, such as concrete, to reduce the heat absorption.

CREDIT SUBMITTALS

REFERENCES

DESIGN DEVELOPMENT

Architect's Responsibility

• Summarize what systems are proposed to achieve compliance in a narrative.

60% CONSTRUCTION DOCUMENTS

Architect's Responsibility

• Submit a diagram showing project areas to highlight the location of specific materials required to achieve the requirement of this credit.
• Submit calculation of total area of installed SRI compliant non-roof materials expressed as a percentage of total site hardscape areas.
• Submit a listing of installed materials and their SRI values.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibilities

• Incorporate requirements in construction documents.
• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibilities

• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

LEED for Schools 2009 SS Credit 7.1
Heat Island Effect, Non-Roof

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

02511 Asphaltic Concrete Paving
02513 Sidewalk and Street Paving
02533 Colored Athletic Wearing Surface
03300 Cast-In-Place Concrete

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.	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. OR OPTION 3 - URBAN ZERO LOT LINE For zero lot line projects located in urban areas with a minimum density of 1.5 floor area ratio (FAR), manage onsite the runoff from the developed site for the 85th percentile of regional or local rainfall events using Low Impact Development (LID) strategies and green infrastructure in a manner best replicating natural site hydrology processes.	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 Asphalt 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 contribution of green roofs must be aquired if the green roof (s) are to be part of the calculations.

Porous Asphalt Construction Sequence

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 Design, Quality Control
S5.1 Heat Island Effect, Roof
A5.1 The School Building as a Teaching 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 quantity 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.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR's Responsibility
• For projects where the SCA has agreed that this credit may be pursued, narrative shall indicate specific conditions that make this credit achievable. Summarize what systems are proposed to achieve compliance.

60% CONSTRUCTION DOCUMENTS

A/EoR'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 for Schools 2009 Reference Guide Credit SS6.1 for reference on calculations)

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibilities
• Incorporate requirements in construction documents.
• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibilities
• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 SS Credit 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

Low Impact Development (LID) Guidance:
http://water.epa.gov/polwaste/green/

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

A2.3 ACTIVE DESIGN IN A SCHOOL ENVIRONMENT

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
To incorporate regular physical activity into daily life and school routines through design features that provides activities both outdoors and inside school buildings. These design features promote the health of students, teachers and staff through physical activity while synergistically achieving environmental benefits This credit is optional and may only be pursued with SCA direction/permission.	Satisfy the prerequisite element to provide occupants floor-to-floor access between the stairs and their own floor as well as other common-use floors. Provide design elements for the school incorporating at least the minimum number of credits indicated on the active design worksheet and credit reporting form.	The method of achieving this credit is to incorporate at least the minimum number of active design features into the school building design and by documenting these features using the credit reporting form. The reporting form details the list of multiple design options and provides to the designer spaces to confirm which features are being attempted. Also provided are feature-by-feature input block in which the designer must provide the specific location of the documentation for each respective feature being attempted. Upon successfully documenting the requirements this credit will be achieved. Helpful Terms: • Active Vertical Circulation: Vertical circulation modes which allow for physical activity through movement of the user's body to move themselves through space; examples include stairs, ramps, and ladders. • Vertical Modes of Motorized Circulation: Includes all types of motorized transportation including but not limited to elevators, escalators, and moving platforms; excluding handicap lifts needed for ADA compliance. In facilities where stairs are not the main active mode of vertical circulation, other active modes of vertical circulation that promote physical activity, such as ramps and ladders can be used in place of stairs. Point of decision for stair-prompts are locations where occupant will see the sign before making their decision for which mode of vertical circulation to take; i.e. a prompt should be placed just outside the stair door on the corridor side.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

Architect's Responsibilities

- Submit a narrative stating which features are being incorporated to meet this credit.

60% CONSTRUCTION DOCUMENTS

Architect's Responsibilities

- Provide a completed GSG credit reporting form attempting at least the minimum number of features required for this credit. The features claimed will be verified against the actual contract documents (plans and specifications).

100% CONSTRUCTION DOCUMENTS

Architect's Responsibilities

- Incorporate requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

Architect's Responsibilities

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 ID Credit
Design for Health through Increased Physical Activity

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

Active Design Guidelines, 2010, City of New York

A3.1 ENHANCED COMMISSIONING

INTENT	REQUIREMENTS
To begin the commissioning process early in the design process and execute additional activities after systems performance verification is completed. This credit is optional and may only be pursued with SCA direction/permission.	Implement the following additional Commissioning process activities in addition to the requirements of E1.1R - Fundamental Commissioning of Building Energy Systems: 1. Prior to the start of the construction documents phase, designate an independent commissioning authority (CxA) to lead, review, and oversee the completion of all commissioning process activities. 2. The CxA must have documented commissioning authority experience in at least two building projects. 3. The individual serving as the CxA: • Must be independent of the work of design and construction. • Must not be an employee of the design firm, though he or she may be contracted through them. • Must not be an employee of, or contracted through, a contractor or construction manager holding construction contracts. • May be a qualified employee or consultant of the owner. • The CxA must report results, findings and recommendations directly to the SCA. • The CxA must conduct, at a minimum, one commissioning design review of the SCA's project requirements basis of design, and design documents prior to the mid-construction documents phase and back-check the review comments in the subsequent design submission. • The CxA must review contractor submittals applicable to systems being commissioned for compliance with the SCA's project requirements and basis of design. This review must be concurrent with the review of the architect or engineer of record and submitted to the design team and the owner. • The CxA or other project team members must develop a systems manual that provides future operating staff the information needed to understand and optimally operate the commissioned systems. • The CxA or other project team members must verify that the requirements for training operating personnel and building occupants have been completed. • The CxA must be involved in reviewing the operation of the building with operations and maintenance (O&M) staff and occupants within ten-months after substantial completion. A plan for resolving outstanding commissioning-related issues must be included.

BEST PRACTICES AND IMPLEMENTATION

The commissioning effort can affect many performance-based features encouraged in the
Green Schools Guide. Consider including in commissioning the energy-using systems
addressed by the following credits:

- S6.1: Light Pollution Reduction
- E3.1R Measurement and Verification
- Q1.1P Minimum Indoor Air Quality Performance
- Q1.2R Outdoor Air Delivery Monitoring
- Q4.1R Indoor Chemical and Pollutant Source Control
- Q5.1R & Q5.2R: Controllability of Systems
- Q6.1R: Thermal Comfort

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR's Rresponsibility

- Submit narrative stating project will be subject to enhanced commissioning and what will be performed.

60% CONSTRUCTION DOCUMENTS

Commissioning Authority's Responsibility

- Conduct commissioning design review of BOD and contract documents

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Commissioning Authority'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 of these systems.
- Verify that operating personnel training has occurred.
- Complete the Summary Commissioning Report

OCCUPANCY

Commissioning Authority's Responsibility

- Review building operations within 10 months after substantial completion.

REFERENCES

LEED for Schools 2009 Credit EA 3
Enhanced Commissioning

NY CHPS Version 1.1 2007 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

A3.2 OPTIMIZE ENERGY PERFORMANCE

INTENT	REQUIREMENTS

Achieve energy cost reduction levels above the required minimum standard in credit E4.1P to reduce environmental impacts associated with excessive energy use.

This credit is required.

New	Renovation	Points
6%	4%	4
8%	6%	5
10%	8%	6
12%	10%	7
14%	12%	8
16%	14%	9
18%	16%	10
20%	18%	11
22%	20%	12
24%	22%	13
26%	24%	14
28%	26%	15
30%	28%	16

1. Points for these credits are based on project specific energy cost reduction modeling per ASHRAE 90.1-2010, Appendix G.

2. To demonstrate energy cost reduction as required by this credit, conduct a whole building energy simulation per ASHRAE/IESNA standard 90.1-2010 (without amendments) using the building performance rating method in Appendix G.

3. Projects pursuing this credit must also demonstrate energy cost reduction by conducting a whole building energy simulation per the Energy Cost Budget Method of ASHRAE 90.1-2013 o confirm compliance with Local Law 86/05 energy cost reduction requirements.

4. 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.

For projects that are a combination of renovated and new construction, use the equation below to determine minimum energy cost savings percentage for each point threshold for each line of the table.

$$\left[\text{Existing Percent} \times \frac{\text{Existing SF}}{\text{Total SF}}\right] + \left[\text{New Percent} \times \frac{\text{New SF}}{\text{Total SF}}\right] = \text{Target Percent}$$

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR's Responsibility

- Indicate specific conditions that make this credit achievable. Summarize what systems are proposed to achieve compliance.

60% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Submit completed project specific energy model demonstrating compliance with this credit and LL86/05, and submit drawings and specifications. Submit payback analysis per LL86/05 requirements.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

- Incorporate credit requirements in construction documents.
- Provide updated documentation to address incomplete and outstanding issues.
- Provide energy efficiency measures report.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

- Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 EA Credit 1
Optimize Energy Performance

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

ASHRAE/IESNA Standard 90.1-2010
ASHRAE/IESNA Standard 90.1-2013
Energy Conservation Construction Code of New York State
DOE: www.energycodes.gov
Local Law 86/05

A3.3 ON-SITE RENEWABLE ENERGY

INTENT	REQUIREMENTS

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%.

To qualify as an eligible on-site system, the fuel source must meet one of the following conditions:

- Wholly contained/produced on-site
- if the fuel source is not fully owned, and in cases where use of a substitute non-renewable fuel is possible, projects must enter into a 2-year contract for purchase of the renewable fuel source, with an ongoing commitment to renew for a period of 10 years total.

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 4.1P 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.)

The table below describes the minimum % renewable energy for each point threshold

% Renewable Energy	Points
1%	1
3%	2
5%	3
7%	4
9%	5
11%	6
13%	7

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

Solar Hot Water Collectors at Bronx High School of Science

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.

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.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR'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.

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

• Incorporate credit requirements in construction documents.

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

LEED for Schools 2009 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

A3.4 ENHANCED ENERGY MANAGEMENT SYSTEM CONTROLS, HVAC AND HOT WATER SYSTEMS

INTENT	REQUIREMENTS	BEST PRACTICES AND IMPLEMENTATION
Provide control, accountability, and optimization of building energy performance. Energy Management Systems (EMS), lighting controls and metering are important systems for controlling, monitoring and understanding patterns of energy use in schools. This credit is optional and may only be pursued with SCA direction/permission.	The building management system (BMS) shall provide the following energy saving features: • Schedule unoccupied setback temperature control so that units can heat during unoccupied modes should the space temperature fall below the setback temperature. Setback temperature settings shall be no higher than 60 degrees F. • Scheduled control of all ventilation outdoor air fans, exhaust fans and outdoor air dampers so that fans are turned off and dampers are closed during unoccupied periods. • Zoning of systems so that major building areas (i.e. gymnasium, cafeteria, library, classrooms, and administrative offices) can be independently scheduled during non-school hours. • An override system to temporarily change a unit or zone from unoccupied to occupied mode locally is permitted provided that it is timed and will automatically revert back to the normal operating schedule after no more than four hours. A local override switch that is not on a timer is not permitted. Ventilation outdoor air shall be set to occupied mode if the local override is used. A centrally located scheduling interface shall be provided so that the operator can schedule the EMS operating mode for weekdays, weekends, and holidays. The scheduler shall be capable of independently scheduling each major building area or zone. If the facility management staff that sets the operating schedule is located at another site, the EMS shall have a web-based interface so that the schedule can be set remotely.	The BMS system should be fully commissioned (see credit E1.1P regarding commissioning.) Energy management systems have the potential to save significant energy. With EMS installation, proper training of district staff is critical.

CREDIT SUBMITTALS

DESIGN DEVELOPMENT

A/EoR'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

A/EoR's Responsibility

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

100% CONSTRUCTION DOCUMENTS

A/EoR's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

A/EoR's Responsibility

• Submit the complete and initialed Design Phase Design Team Certification Form.

CONSTRUCTION

No credit submittal.

REFERENCES

NY CHPS Version 1.1 2007 Credit 3.3.5 Energy Management System Controls HVAC and Hot Water

CHPS 2014 EE5.2 Advanced Energy Management System and 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

15985 HVAC Standard Detail Series

OTHER REFERENCES

CHPS Best Practices Manual, Volume II: Guideline TC23: Adjustable Thermostats; Guideline TC24: EMS/DDC; Guideline EL4: Lighting Controls for Classrooms: www.chps.net/dev/Drupal/node/288

Advanced Buildings Benchmark Version 1.1, by the New Buildings Institute, Inc. pp. 38-39

A4.1 LOW-EMITTING MATERIALS, CEILING & WALL SYSTEMS

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.	All gypsum board, insulation, acoustical ceiling systems and wall covering installed in the building interior must meet the testing and product requirement of the California Department of Health Services Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1. If product cut sheets states that the product meets CA section 01350 criteria, then it is compliant.	The SCA Standard Specifications specify low-emitting ceiling and wall systems complying with this credits requirements. New York State DEC does not currently include VOC limits for low-emitting materials for ceiling and wall systems. Design teams must review Contractor's construction submittals and include VOC information on the Low-Emitting Material - Summary Form. Design team must specify compliant products in project specifications and educate contractors about the credit requirements. Documentation of compliance with the credit requirements should be made a contractual obligation in contract language for contractors and sub-contractors. The general contractor needs to understand the standards and credit requirements in order to know how to verify that products are complaint. This information can usually be found on the product data sheet. Scientific Certification System - Indoor Advantage Gold, GreenGuide Environmental Institute and websites provide list of materials and associated products for compliance with criteria adopted in California for Indoor Air Emissions of Volatile Organic Compounds (VOCs) with potential health effects. The program uses a small-scale chamber test protocol and incorporates VOC emissions criteria developed by California Department of Health Services, which are widely known as CA Section 01350.

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

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

• Submit Low-Emitting Materials - Summary Form based on documentation submitted by Contractor.

• Submit complete and initialed Construction Phase Design Team Certification Form.

REFERENCES

LEED for Schools 2009 IEQ Credit 4.6 Low-Emitting Materials, Ceiling and Wall Systems

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

G01600 Material and Equipment
09260 Gypsum Board Assemblies
09510 Acoustical Ceilings

SCA STANDARD DETAILS

None

OTHER REFERENCES

California Department of Public Health Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1
https://www.cdph.ca.gov/programs/IAQ/Pages/VolatileOrganicCompounds.aspx

A5.1 THE SCHOOL BUILDING AS A TEACHING TOOL

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 programmatic 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

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 approach and a description of the sustainable design measures to be used to support educational curriculum on the environment.

60% CONSTRUCTION DOCUMENTS

Architect's Responsibility

• Incorporate requirements in construction documents.

100% CONSTRUCTION DOCUMENTS

Architect's Responsibility

• Provide updated documentation to address incomplete and outstanding issues.

DESIGN PHASE CERTIFICATION

No credit submittal.

CONSTRUCTION

Architect's Responsibility

• Submit complete and initialed Construction Phase Design Team Certification Form.

• Submit updated documentation as necessary.

• Submit letter from Principal that design features are incorporated in the curriculum.

REFERENCES

LEED for Schools 2009 ID Credit 3
School as a Teaching Tool

WA-CHPS Extra Credit 2.1 Environmental Education

SCA DESIGN REQUIREMENTS

None

SCA STANDARD SPECIFICATIONS

None

SCA STANDARD DETAILS

None

OTHER REFERENCES

None

forms for design team
(all forms downloadable from SCA web site)

Project Checklist

Credit Compliance Narrative

S1.4: Development Density & Community Connectivity Form

S6.1 Light Pollution Reduction Form A - Site Lumen Calculation Form

S6.1 Light Pollution Reduction Form B - Lighting Power Density (LPD)

W2.1P, W2.2R, W2.3 and W2.4: Water Use Reduction Form

E2.2: Refrigerant Impact Form

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

M2.1R and M2.2: Recycled Content - Summary Form

M2.3 and M2.4: 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, Flooring Systems, Composite Wood and Agrifiber Products

Q7.1, Q7.2 and Q7.3: Daylight Calculation Form

Q7.4: Views Calculation Form

A2.3: Active Design in a School Environment Form

Design Team Certification - Design Phase

Design Team Certification - Construction Phase

reference forms
(all forms downloadable from SCA web site)

M1.5R, M1.6R and M1.7: Construction Waste Management Form

M2.1R, M2.2, M2.3R and M2.4: Contractors Sustainable Materials Form

M2.1R, M2.2, M2.3R and M2.4: Contractors Sustainable Materials - Tracking Form

Commissioning Certification Form

Contractor Certification Form

FORMS

Project Checklist - page 1 of 2

SCA School Construction Authority

NYC Green Schools Rating System 2016

	SD	DD	60%	100%	D. Cert.	Const
Submission (Check one):						

Project:
Address | Zip Code:
LLW #:
Design #:
Architect:

Reviewer :
Reviewer Sign Off:
Submission Date:

Credit Names	BD&C Reference LEED for Schools 2009	CHPS Reference	NYC GSG 2016	Credit Description and Relevant Information and Drop-Down Menus	RPC (check project zipcode in GSG) [5]	Required For all Projects	Required if Feasible [1]	Optional Credits [2]	If Anticipated, or if Documented: [3] Enter point value, or leave blank if Not Feasible or if Not Pursued: Design Phase	If Anticipated, or if Documented: [3] Enter point value, or leave blank if Not Feasible or if Not Pursued: Construction Phase	Auto Filled: Blank if Pursued, No. of Points if Not Pursued or if Not Feasible or Additional Credit Not Pursued
Site				**0 of Total Points**					**Points:**	**0 out of 19**	
	SS Pr 1		S 1.1P	**Construction Activity Pollution Prevention**		NP	☐ YES		Credit Req'd - Confirm Pursuit		
	SS 1		S 1.2R	**Site Selection**		1					1
		1.1.7	S 1.3R	**Sustainable Site & Building Layout**		NP	☐ YES		Indicate Pursuit		☐ NO
Site Selection	SS 2		S 1.4	**Development Density & Community Connectivity**	RPC		4				4
	SS 10	1.1.2	S 1.5R	**Joint Use of Facilities, Community Access**		1					1
	SS Pr 2		S 1.6P	**Environmental Site Assessment**		NP	☐ YES		Credit Req'd - Confirm Pursuit		
	SS 3		S 1.7	**Brownfield Redevelopment**			1				1
Transportation	SS 4.1		S 2.1	**Alternative Transportation,** Public Transportation Access	RPC		4				4
	SS 4.2		S 2.2	**Alternative Transportation,** Bicycle Storage & Changing Rooms			1				1
	SS 4.3/4.4		S 2.3R	**Alternative Transportation,** Fuel-Efficient Vehicles/Parking Cap.		2					2
Minimize Impact on Site	SS 5.1		S 3.1	**Site Development,** Protect or Restore Habitat	RPC		1				1
	SS 5.2		S 3.2	**Site Development,** Maximize Open Space			1				1
Stormwater Design	SS 6.2		S 4.1	**Stormwater Design,** Quality Control	RPC		1				1
Heat Island Effect	SS 7.2		S 5.1R	**Heat Island Effect,** Roof		1					1
Outdoor Lighting	SS 8		S 6.1	**Light Pollution Reduction**			1				1
				Site Category Sub-Total:		5	14		0	0	19
Water				**0 of Total Points**					**Points:**	**0 out of 8**	
Outdoor Systems	WE 1.1		W 1.1	**Water Efficient Landscaping**, Reduce by 50%			2				2
	WE 1.1		W 1.2	**Water Efficient Landscaping**, Reduce by 100%			2				2
Indoor Systems	WE Pr 1		W 2.1P	**Minimum Water Use Reduction**, 20% Reduction		NP	☐ YES		Credit Req'd - Confirm Pursuit		
	WE 3		W 2.2R	**Enhanced Water Use Reduction**, 30% Reduction		2					2
	WE 3		W 2.3	**Enhanced Water Use Reduction**, 35% Reduction			1				1
	WE 3		W 2.4	**Enhanced Water Use Reduction**, 40% Reduction			1				1
				Water Category Sub-Total:		2	6		0		8
Energy				**0 of Total Points**					**Points:**	**0**	**5**
Commissioning	EA Pr 1		E 1.1P	**Fundamental Commissioning**		NP	☐ YES		Credit Req'd - Confirm Pursuit		
Refrigerant Management	EA Pr 3		E 2.1P	**Fundamental Refrigerant Management**		NP	☐ YES		Credit Req'd - Confirm Pursuit		
	EA 4		E 2.2	**Enhanced Refrigerant Management**			2				2
Verification	EA 5		E 3.1R	**Measurement & Verification**		1					1
		3.3.5	E 3.2R	**Energy Management System Controls,** HVAC & H. W. Systems		NP	☐ YES		Indicate Pursuit		☐ NO
Energy Efficiency	EA Pr 2		E 4.1P	**Minimum Energy Performance**		NP	☐ YES		Credit Req'd - Confirm Pursuit		
		3.1.2	E 4.2R	**HVAC System Sizing,** Avoid Oversizing		NP	☐ YES		Indicate Pursuit		☐ NO
Power	EA 6		E 5.1R	**Green Power**		2					2
				Energy Category Sub-Total:		3	2		0	0	5
Materials				**0 of Total Points**					**Points:**	**0 out of 10**	
	MR Pr 1		M 1.1P	**Storage & Collection of Recyclables**		NP	☐ YES		Credit Req'd-Confirm Pursuit		
	MR 1.1		M 1.2	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	RPC		1				1
	MR 1.1		M 1.3	**Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof			1				1
Efficient Material Use	MR 1.2		M 1.4	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements			1				1
	MR 2		M 1.5R	**Construction Waste Management**, Divert 50% from Disposal		1					1
	MR 2		M 1.6R	**Construction Waste Management**, Divert 75% from Disposal		1					1
	MR 2		M 1.7	**Construction Waste Management**, Divert 95% from Disposal			1				1
	MR 4		M 2.1R	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)		1					1
	MR 4		M 2.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)			1				1
Sustainable Materials	MR 5		M 2.3	**Regional Materials**, 10% Extracted, Processed & Manufactured			1				1
	MR 5		M 2.4	**Regional Materials**, 20% Extracted, Processed & Manufactured			1				1
		4.1.1	M 2.5R	**Wallboard & Roof Deck Products,** Mold Resistance		NP	☐ YES		Indicate Pursuit		☐ NO
				Materials Category Sub-Total:		3	7			0	10

See Notes on Page 2 of 2

Project Checklist - page 2 of 2

SCA School Construction Authority

NYC Green Schools Rating System 2016

	SD	DD	60%	100%	D. Cert.	Const
Submission (Check one):						

Project:
Address | Zip Code:
LLW #:
Design #:
Architect:

Submission Date:
Reviewer :
Reviewer Sign Off:

Credit Names	BD&C Reference LEED for Schools 2009	CHPS Reference	NYC GSG 2009	Credit Description and Relevant Information and Drop-Down Menus	RPC (check project zipcode in GSG) [5]	Required For all Projects	Required if Feasible [1]	Optional Credits [2]	If Anticipated, or if Documented: 3 Enter point value, or leave blank if Not Feasible or if Not Pursued: Design Phase	If Anticipated, or if Documented: 3 Enter point value, or leave blank if Not Feasible or if Not Pursued: Construction Phase	Auto Filled: Blank if Pursued, No. of Points if Not Pursued or if Not Feasible or Additional Credit Not Pursued
Indoor Environmental Quality			**0 of Total Points**						**Points:**	**0 out of 16**	
IAQ Post-occupancy	IEQ Pr 1		Q 1.1P	**Minimum IAQ Performance**		NP	☐ YES		Credit Req'd - Confirm Pursuit		
	IEQ 1		Q 1.2R	**Outside Air Delivery Monitoring**		1					1
IAQ Pre-occupancy	IEQ 3.1		Q 2.1R	**Construction IAQ Management Plan**, During Construction		1					1
	IEQ 3.2		Q 2.2R	**Construction IAQ Management Plan,** Before Occupancy		1					1
Low-Emitting Materials	IEQ 4.1		Q 3.1R	**Low-Emitting Materials**, Adhesives & Sealants [4]		1					1
	IEQ 4.2		Q 3.2R	**Low-Emitting Materials**, Paints & Coatings [4]		1					1
	IEQ 4.3		Q 3.3R	**Low-Emitting Materials**, Flooring Systems [4]		1					1
	IEQ 4.4		Q 3.4R	**Low-Emitting Materials**, Comp Wood & Agrifiber Products [4]		1					1
Pollution Source Control	IEQ 5		Q 4.1R	**Indoor Chemical & Pollutant Source Control**		1					1
		5.3.5	Q 4.2R	**Electric Ignition Stoves**		NP	☐ YES		Indicate Pursuit	☐ NO	
		6.2.4	Q 4.3R	**Post Construction Indoor Air Quality**		NP	☐ YES		Indicate Pursuit	☐ NO	
Controllability of Systems	IEQ 6.1		Q 5.1R	**Controllability of Systems**, Lighting		1					1
	IEQ 6.2		Q 5.2R	**Controllability of Systems**, Thermal Comfort		1					1
Thermal Comfort	IEQ 7.1		Q 6.1R	**Thermal Comfort**, Design		1					1
Lighting and Views	IEQ 8.1		Q 7.1	**Daylight & Views**, Daylight 75% of Classrooms			1				1
	IEQ 8.1		Q 7.2	**Daylight & Views**, Daylight for 90% of Classrooms			1				1
	IEQ 8.1		Q 7.3	**Daylight & Views**, Daylight for 75% of Other Spaces			1				1
	IEQ 8.2		Q 7.4	**Daylight & Views**, Views			1				1
		5.2.1	Q 7.5R	**Visual Performance,** Artificial Direct-Indirect Lighting		NP	☐ YES		Indicate Pursuit	☐ NO	
Acoustics	IEQ Pr 3	5.5.1	Q 8.1P	**Minimum Acoustical Performance**		NP	☐ YES		Credit Req'd - Confirm Pursuit		
	IEQ 9		Q 8.2	**Enhanced Acoustical Performance** & Sound for Special Spaces			1				1
		SCA	Q 8.3R	**Acoustic Windows**		NP	☐ YES		Indicate Pursuit	☐ NO	
					IEQ Category Sub-Total:	11	5		0	0	16
Regional			**0 of Total Points**	Use pull-down menus ↘	**RPC Claimed**				**Points:**	**0 out of 4**	
Regionally Appropriate [5]	RP 1.1		R 1.1	**Regionally Defined Credit Achieved**	Blank		1				1
	RP 1.2		R 1.2	**Regionally Defined Credit Achieved**	Blank		1				1
	RP 1.3		R 1.3	**Regionally Defined Credit Achieved**	Blank		1				1
	RP 1.4		R 1.4	**Regionally Defined Credit Achieved**	Blank		1				1
					Regional Category Sub-Total:	0	4	0	0		4
Additional Credits			**0 of Total Points**	For A 3.1 Use pull-down menu ↓					**Points:**	**0 out of 33**	
Innovation in Design	ID 2		A 1.1R	**LEED® Accredited Professional**		1					1
	ID 1		A 1.2	**Innovation or Exemplary Performance**				1			1
	ID 1		A 1.3	**Innovation or Exemplary Performance**				1			1
Optional - Site Impact	SS 7.1		A 2.1	**Heat Island Effect,** Non-Roof				1			1
	SS 6.1		A 2.2	**Stormwater Design**, Quantity Control	RPC			1			1
	ID 1		A.2.3	**Active Design in a School Environment**				1			1
Optional - Energy	EA 3		A 3.1	**Enhanced Commissioning**				2			2
	EA 1		A 3.2	**Optimize Energy Performance** [6]	If NOT Approved, 0 pts RPC			16			16
	EA 2		A 3.3	**On-Site Renewable Energy**	If NOT Approved, 0 pts RPC			7			7
		3.3.5	A 3.4	**Enhanced Energy Management System Controls,** HVAC & H.W.		NP	☐ YES		Indicate Pursuit	☐ NO	
Optional - IEQ	IEQ 4.6		A 4.1	**Low-Emitting Materials,** Ceiling and Wall Systems [4]				1			1
Optional - Education	ID 3		A 5.1	**The School Building as a Teaching Tool**				1			1
					Additional Credit Category Sub-Total:	1		32	0	0	33
					Column Totals:	25	38	32	0	0	95
					LEED® Equivalent Point Total [7]:				0	out of	95

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

1 Projects required to achieve all "feasible" credits that are possible for a particular project.
2 Projects may only pursue optional "Additional" section credits with permission from SCA unless otherwise noted.
3 During GSG submission phases, enter anticipated design and construction credits, keeping the Checklist current.
4 A maximum total value of four (4) points is allowed between these six low-emitting material credits (Q3.1, 3.2, 3.3, 3.4; A4.1)
5 RPC incentive regional credits as indicated. If the referenced credit is achieved, then the associated RPC can be claimed.
6 This credit requires project-specific energy modeling and can not be achieved by use of proto-typical modeling.
7 LL86/05 requires Certified LEED® 2009 for Schools or equivalent of a no-less stringent rating system - Minimum 40 Points
NP: To be consistent with LEED®, the NYC GSG assigns no point value to prerequisites or non-LEED® credits.
NYC GSG: Requires that all credits be attempted and proof through calcuation for those which are not-feasible.

School Construction Authority

NYC Green Schools Rating System 2016

Credit Compliance Narratives

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

Directions:

- Eleven 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. For those credits subject to Regional Priority Credit, indicate whether based on the zip code that the credit is eligible to obtain the additional point.

- Narratives should summarize the design approach to credit compliance and identify the specific SCA standards (standard specifications and design requirements) 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 and calculations where appropriate for credits that are determined to be "not feasible" for this project.

Site Credits

Site Selection

S 1.1P Construction Activity Pollution Prevention

S 1.2R Site Selection NARRATIVE AT SCHEMATIC SUBM.

S 1.3R 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 1.6P Environmental Site Assessment NARRATIVE AT SCHEMATIC SUBM.

S 1.7 Brownfield Redevelopment NARRATIVE AT SCHEMATIC SUBM.

Transportation

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

S 2.2 Alternative Transportation, Bicycle Storage & Changing Rooms NARRATIVE AT SCHEMATIC SUB.

S 2.3R Alternative Transportation, Fuel-Efficient Vehicles/Parking Capacity 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

Heat Island Effect

S 5.1R Heat Island Effect, Roof

Outdoor Lighting

S 6.1 Light Pollution Reduction

Water Credits

Outdoor Systems

W 1.1 Water Efficient Landscaping, Reduce by 50%

W 1.2 Water Efficient Landscaping, Reduce by 100%

Indoor Systems

W 2.1P Minimum Water Use Reduction

W 2.2R Water Use Reduction, 30% Reduction

W 2.3 Water Use Reduction, 35% Reduction

W 2.4 Water Use Reduction, 40% Reduction

Commissioning

E 1.1P Fundamental Commissioning of the Building Energy Systems

Refrigerant Management

E 2.1P Fundamental Refrigerant Management

E 2.2 Enhanced Refrigerant Management

Verification

E 3.1R Measurement & Verification

E 3.2R Energy Management System Controls, HVAC and Hot Water

Energy Efficiency

E 4.1P Minimum Energy Performance

HVAC Optimization

E 4.2R HVAC System Sizing, Avoid Oversizing

Power

E 5.1R Green Power

Materials Credits

Efficient Material Use

M 1.1P 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 1.6R Construction Waste Management, Divert 75% from Disposal

M 1.7 Construction Waste Management, Divert 95% from Disposal

Sustainable Materials

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

M 2.2 Recycled Content, 20% (post-consumer + ½ pre-consumer)

M 2.3 Regional Materials, 10% Extracted, Processed & Manufactured Regionally

M 2.4 Regional Materials, 20% Extracted, Processed & Manufactured Regionally

M 2.5R Wallboard & Roof Deck Products, Mold Resistance

Indoor Environmental Quality Credits

IAQ Post-occupancy

Q 1.1P Minimum IAQ Performance

Q 1.2R Outdoor Air Delivery Monitoring

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, Flooring Systems

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

Pollution Source Control

Q 4.1R Indoor Chemical & Pollutant Source Control

Q 4.2P Electric Ignition Stoves

Q 4.3P Post Construction Indoor Air Quality

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, Design

Lighting and Views

Q 7.1 Daylight & Views, Daylight 75% of Classrooms

Q 7.2 Daylight & Views, Daylight 90% of Classrooms

Q 7.3 Daylight & Views, Daylight for 75% of Other Spaces

Q 7.4 Daylight & Views, Views

Q 7.5 Visual Performance, Artificial Direct-Indirect Lighting

Acoustics

Q 8.1P Minimum Acoustical Performance

Q 8.2 Enhanced Acoustical Performance & Sound Isolation for Special Spaces

Q 8.3R Acoustic Windows

Additional Credits

Required Support

A 1.1R LEED® Accredited Professional

A 3.2 Optimize Energy Performance

Optional - Innovation

A 1.2 Innovation or Exemplary Performance

A 1.3 Innovation or Exemplary Performance

Optional - Site Impact

A 2.1 Heat Island Effect, Non-Roof

A 2.2 Stormwater Design, Quantity Control

A 2.3 Active Design in a School Environment

Optional - Energy

A 3.1 Enhanced Commissioning

A 3.3 On-Site Renewable Energy

A 3.4 Enhanced Energy Management System Controls, HVAC and Hot Water Systems

Optional - IEQ

A 4.1 Low-Emitting Materials, Ceiling and Wall Systems

Optional - Education

A 5.1 The School Building as a Teaching Tool

DEVELOPMENT DENSITY &
COMMUNITY CONNECTIVITY FORM
Credit S1.4

School Construction Authority

NYC Green Schools Rating System-2016

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).

Light Pollution Reduction - Form A
Exterior Light Tresspass - Site Lumen Calculation
Credit S6.1

School Construction Authority
NYC Green Schools Rating System - 2016

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					
lt-1b	4	5,000	20,000	50	200
lt-1c	2	5,000	10,000	50	100
lt-1d	1	5,000	5,000	50	50
	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 - Exterior Lighting Only
Credit S6.1 *Applicable for ASHRAE 90.1-2010*

School Construction Authority
NYC Green Schools Rating System - 2016

Project:	Test Project		
Address:	30-30 Thomson Ave., LIC, NY 11101	Consulting Firm:	Consult ing Engineers
LLW:	65432	Preparer:	Electrical Engineer
Date:	August 11, 2011	Telephone:	718 472 8561

1. Exterior Building Lighting Power Allowance (Tradable Lighting Applications) - BASELINE BUDGET

Designer Note: Building Entrance, Canopy & Overhang and Other Exterior Lighting ONLY (No Façade Lighting to be included)

Use this table to calculate the lighting power allowance for exterior lighting in tradable applications. Identify each of the tradable lighting applications listed in Table 9.4.5 that occur in the project, select the application type using the drop down menu (e.g. building entrance with canopy), the allowance is entered automatically, enter the linear feet **or** square feet as appropriate, the allowance times the area or length is automatically calculated, and entered in the Tradable Power Allowance column and summed in the cell shaded blue.

Exterior Lighting Applications (Identify each project-specific location)	Table 9.4.5 - Select Your Application (Apply 90.1-2010 Standard Description)	Allowance (W/ft or W/sf)	Area or Length (ft or sf)	Tradable Power (Watts)
Main school entrance	Bldg Entrances: Main entrances (W/ft of door width)	30.00	30	900
Means of egress (N and S towers)	Bldg Entrances: Other doors (W/ft of door width)	20.00	20	400
Side Yard	Bldg Grounds: Special feature areas (W/sf)	0.20	5000	1000
Front sidewalk	Bldg Grounds: Walkways = or > than 10 feet wide (W/sf)	0.20	200	40
(N and S) walkways	Bldg Grounds: Walkways < than 10 feet wide (W/lin-ft)	1.00	400	400
	Tradable BASELINE Allowance =			2740
	Tradable BASELINE Allowance (less 20% per SCA req'ts) =			**2192**

2. Exterior Building Lighting Power Allowance (NON-Tradable Lighting Applications) - BASELINE BUDGET

Designer Note: Other Exterior Lighting ONLY (e.g. Façade Lighting to be included)

This table is identical to the previous table except that the non-tradable lighting applications, as listed in Table 9.4.5, are to be entered here.

Fixture ID	Applied Area Desc.	Table 9.4.5 - Select Your Application (Apply 90.1-2010 Standard Description)	Allowance (W/ft or W/sf)	Area or Length (ft or sf)	Non-Tradable Power (Watts)
Z33	Parking Lot	Uncovered areas (W/sf)	0.15	5000	750
Z34	School Façade	Bldg Facade 0.2 W/ft2 for ea. illuminated wall/surface -OR-	0.90	2500	2250
		Bldg Facade 0.2 W/ft2 for ea. illuminated wall/surface -OR-	0.90		
		<blank - unused>			
		<blank - unused>			
		NON-Tradable BASELINE Allowance =			3000
		NON-Tradable BASELINE Allowance (less 20% per SCA req'ts) =			**2400**

Exterior Lighting Applications

(Identify each project-specific location)

3. Additional Unrestricted Exterior Lighting Power Allowance

Designer Note: This automatically adds 5% to the BASELINE

The total power allowances from the preceding two tables are automatically manipulated to calculate the additional unrestricted exterior lighting power allowance. This value may be applied in the Exterior Lighting Compliance Test below.

[Tradable BASELINE Budget] (Watts)	+	[Non-Tradable BASELINE Budget] (Watts)	x	0.05	Additional Unrestricted Power
2192	+	2400	x	0.05	**229.6**

Light Power Density Calculations - Exterior Lighting Only

Project: **Test Project**

LLW: **65432**

4. Exterior Building Lighting Power (Tradable Lighting Applications) - DESIGN CASE

Designer Note: Building Entrance, Canopy & Overhang and Other Exterior Lighting ONLY (No Façade Lighting to be included)
Use this table to list the lighting equipment used for exterior lighting used for tradable applications as identified in Table 9.4.5.

Fixture ID	Luminaire Description (including number of lamp/fixture, Watt/lamp, type of ballast, type of fixture.	# of Luminaire	W/Luminaire	Total Watts
Z02	High Pressure Sodium	6	250	1500
	Tradable DESIGN CASE =			**1500**

5. Exterior Building Lighting Power (NON-Tradable Lighting Applications) - DESIGN CASE

Designer Note: Other Exterior Lighting ONLY (e.g. Façade Lighting to be included)
This table is similar to the preceding table except that the lighting application needs to be identified along with its corresponding luminaires because each of the non-tradable applications must comply individually.

Fixture ID	Luminaire Description (including number of lamp/fixture, Watt/lamp, type of ballast, type of fixture.	# of Luminaire	W/Luminaire	Total Watts
Z33		4	500	2000
Z34		2	400	800
	NON-Tradable DESIGN CASE =			**2800**

6. Exterior Lighting Compliance Test

Designer Note: The compliance form is filled in automatically based on your inputs above. If any portion of this compliance test fails you must adjust the design accordingly to pass this test.

1) Each of the conditions in this table must be met for exterior lighting systems to comply. The tradable exterior lighting applications comply if the connected lighting power is no greater than the total allowance. All or a portion (or none) of the five percent additional allowance can be used to achieve compliance.

2) Connected lighting power for each of the non-tradable applications must be no greater than their corresponding allowances. Here additional allowance from the five percent pool can be applied to achieve compliance. The total of additional allowances used for both the tradable and non-tradable applications must be no greater than the total Additional Unrestricted Exterior Lighting Power Allowance.

Compliance test 1

Tradable Power Allowance (Watts) +	Additional Unrestricted Lighting Power (Watts)	**Must be ≥ than**	Tradable Connected Lighting Power (Watts)
2192	**229.6**	**Pass**	**1500**

Compliance test 2

NON-tradable Application Fixture ID	NON-Tradable Power Allowance (Watts) +	Additional Unrestricted Lighting Power (Watts)	**Must be ≥ than**	NON-Tradable Connected Lighting Power (Watts)
Z33	***750***	***37.5***	**FAIL**	***2000***
Z34	***2250***	***112.5***	**Pass**	***800***
			Pass	
			Pass	
			Pass	

Compliance test 3

Total Additional Allowance Applied (Sum) (Watts)	**Must be ≤ than**	Additional Unrestricted Lighting Power Allowance (Watts)
150	**Pass**	***229.6***

WATER USE REDUCTION FORM
Credits W 2.1P, W 2.2R, W2.3 & W2.4

School Construction Authority
NYC Green Schools Rating System-2016

Project:
Address: Zip Code:
LLW:
Date:

Engineer:
Preparer:
Telephone:

School in Full Operation	
Total Student Population	700
Student Population using CR toilets	90
Adult Population	85

BASE CASE

Fill In Only the Un-Shaded Box

Base Case Flush Fixture Type	**Daily Uses**	**Flow Rate [gpf]**	**Duration [Flush]**	**Student Population**	**Occupant Users**	**Sewage Generated [Gal]**
Conventional Water Closet within Multi-stall toilets male	1	1.6	1	N/A	305	488.0
Conventional Urinal-Multi-stall toilets male	2	1.0	1	N/A	305	610.0
Conventional Water Closet-Multi-stall toilets female	3	1.6	1	N/A	305	1464.0
Conventional Water Closet dedicated CR toilets	3.00	1.6	1	N/A	90	432.0
Conventional Water Closet Adult	3.00	1.6	1	N/A	85	408.0

Base Case Flow Fixture Type	**Daily Uses**	**Flow Rate**	**Duration**	**Student Population**	**Occupant Users**	**Sewage Generated [Gal]**
Conventional Lavatory (Student)	3	0.25 g/cycle	1 cycle	N/A	700	525.0
Conventional Lavatory (Adult)	3	0.25 g/cycle	1 cycle	N/A	85	63.8
Shower	0.1	2.5 gpm	300 sec	N/A	5	6.3
Food Service Hand Sink	4	0.25 g/cycle	1 cycle	700	11	10.5

***Base Case* "School In Full Operation" Daily Volume [Gal]**	4007.5
Annual Days School In Full Operation	**180**
***Base Case* Annual "School in Full Operation" Total Volume [Gal]**	***721,350***

DESIGN CASE

Design Case Flush Fixture Type	**Daily Uses**	**Flow Rate [gpf]**	**Duration [Flush]**	**POR Student Population**	**Occupant Users**	**Sewage Generated [Gal]**
Conventional Water Closet within Multi-stall toilets male	1.00	1.28	1	N/A	305	390.4
Conventional Urinal-Multi-stall toilets male	2.00	0.125	1	N/A	305	76.3
Conventional Water Closet-Multi-stall toilets female	3	1.28	1	N/A	305	1171.2
Conventional Water Closet dedicated CR toilets	3.00	1.28	1	N/A	90	345.6
Conventional Water Closet Adult	3.00	1.28	1	N/A	85	326.4

Design Case Flow Fixture Type	**Daily Uses**	**Flow Rate**	**Duration**	**Student Population**	**Occupant Users**	**Sewage Generated [Gal]**
Aerated Lavatory with metering device (Student)	3	0.125 g/cycle	1 cycle	N/A	700	262.5
Aerated Lavatory with metering device (Adult)	3	0.125 g/cycle	1 cycle	N/A	85	31.9
Low Flow Shower	0.1	1.8 gpm	300 sec	N/A	5	4.5
Food Service Hand Sink	4	0.125 g/cycle	1 cycle	700	11	5.3

***Design Case* "School In Full Operation" Daily Volume [Gal]**	2,614.0
Annual Days School In Full Operation	**180**
***Design Case* "School in Full Operation" Total Volume [Gal]**	***470,515.5***

Sub-Total: Water Use Reduction for "School in Full Operation"	***35%***

Notes:

1. Figures in shaded boxes are based on EPA 1992 as amended in 2005 with revisions as per LEED 2009 (base case), SCA standards (design case) or are calculated by this spreadsheet. No design team revision required.

2. Spreadsheet will calculate occupant users for water closets and urinals for design and base cases based on figures entered by Design Team for Total Student Population, Student Population using CR toilets and Adult Population. Distribution of male and female "Occupant Users" are based on assumption of 50-50 ratio of male and female.

3. Methodology to determine student population: Use unadjusted capacity from POR
Methodology to determine adult population: Follow DR 2.3.3.-Bicycle Racks

4. Figure entered by Design Team for occupant users for showers should include all physical education staff, potential adult bike users (GSG credit S 2.2) and for high schools with showers in the student locker rooms, all students.

5. Figure entered by Design Team to determine occupant users for "Food Service Hand Sinks" is based on 3 staff for each 200 students. Student poplulation based on unadjusted capacity from POR is to be entered. (Minimum of 6 kitchen staff is required).

6. For "Summer Operation", occupant users is anticipated to be 30% of "Full Operation Population". If program is known to be different, actual summer population should be entered.

7. For "Annual Days of Summer Operation", revise anticipated number of days for regular summer operation, excluding weekends and days when school is closed, if program is known to be different than the default value of 30.

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.

9.Student Population using classroom (CR) toilets should be based on number of students in classrooms with toilets located within the classrooms. Dedicated classroom toilets would be indicated in the POR.

10. Single user toilets are typically provided for staff use.

WATER USE REDUCTION FORM
Credits W 2.1P, W 2.2R, W2.3 & W2.4

School Construction Authority
NYC Green Schools Rating System-2016

Project:
Address: Zip Code:
LLW:
Date:

Engineer:
Preparer:
Telephone:

Summer Operation

BASE CASE

Base Case Flush Fixture Type	Daily Uses	Flow Rate [gpf]	Duration [Flush]	POR Student Population	Occupant Users	Sewage Generated [Gal]
				Fill In Only the three Un-Shaded Boxes		Fill In Only the one Un-Shaded Box
Conventional Water Closet within Multi-stall toilets male	1	1.6	1	N/A	92	146.4
Conventional Urinal-Multi-stall toilets male	2	1.0	1	N/A	92	146.4
Conventional Water Closet-Multi-stall toilets female	3	1.6	1	N/A	92	439.2
Conventional Water Closet dedicated CR toilets	3.00	1.6	1	N/A	27	129.6
Conventional Water Closet Adult	3.00	1.6	1	N/A	26	122.4
Base Case Flow Fixture Type	**Daily Uses**	**Flow Rate**	**Duration**	**POR Student Population**	**Occupant Users**	**Sewage Generated [Gal]**
Conventional Lavatory (Student)	3	0.25 g/cycle	1 cycle	N/A	210	157.5
Conventional Lavatory (Adult)	3	0.25 g/cycle	1 cycle	N/A	26	19.1
Shower	0.1	2.5/gpm	300 sec	N/A	2	1.9
Food Service Hand Sink	4	0.25 g/cycle	1 cycle	210	2	2.1

Base Case "Summer Operation" Daily Volume [Gal]	1,164.6
Annual Days Summer Operation	**30**
Base Case Annual "Summer Operation" Total Volume [Gal]	***34,938***

DESIGN CASE

Design Case Flush Fixture Type	Daily Uses	Flow Rate [gpf]	Duration [Flush]	POR Student Population	Occupant Users	Sewage Generated [Gal]
Conventional Water Closet within Multi-stall toilets male	1.00	1.28	1	N/A	92	117.1
Conventional Urinal-Multi-stall toilets male	2.00	0.125	1	N/A	92	22.9
Conventional Water Closet-Multi-stall toilets female	3	1.28	1	N/A	92	351.4
Conventional Water Closet dedicated CR toilets	3.00	1.28	1	N/A	27	103.7
Conventional Water Closet Adult	3.00	1.28	1	N/A	26	97.9
Design Case Flow Fixture Type	**Daily Uses**	**Flow Rate**	**Duration**	**POR Student Population**	**Occupant Users**	**Sewage Generated [Gal]**
Aerated Lavatory with metering device (Student)	3	0.125 g/cycle	1 cycle	N/A	210	78.8
Aerated Lavatory with metering device (Adult)	3	0.125 g/cycle	1 cycle	N/A	26	9.6
Low Flow Shower	0.1	1.8 gpm	300 sec	N/A	2	1.4
Food Service Hand Sink	4	0.125 g/cycle	1 cycle	210	2	1.1

Design Case "Summer Operation" Daily Volume [Gal]	783.7
Annual Days Summer Operation	**30**
Design Case "Summer Operation" Total Volume [Gal]	***23,510.0***

Sub-Total: Water Use Reduction for "Summer Operation"	***33%***

Total Base Case "School In Full Operation & Summer Operation" [Gal]	***756,288.0***
Total Design Case "School In Full Operation & Summer Operation" [Gal]	***494,025.5***
Total Water Use Reduction	***35%***

REFRIGERANT IMPACT FORM
Credit E2.2

School Construction Authority
NYC Green Schools Rating System - 2016

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 - 2016

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

Engineer:
Preparer:
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

4/30/2016
Revised 10/31/18

RECYCLED CONTENT - SUMMARY FORM
Credit M2.1R, M2.2

School Construction Authority
NYC Green Schools Rating System - 2016

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

Contractors Total Construction Cost for CSI Divisions 2-10:	$1,000
Assumed Materials Cost based on 40% of cost above:	$400
Recycled Materials Content Target (10% of the cost of Materials):	**$40**

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	
		$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

Use the whole numbers only between 0-100

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

04/30/16
Revised 10/31/18

REGIONAL MATERIALS - SUMMARY FORM
Credit M2.3, M 2.4

School Construction Authority
NYC Green Schools Rating System - 2016

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

Contractors Total Construction Cost for CSI Divisions 2-10:	$1,000
Assumed Materials Cost based on 40% of cost above:	$400
Regional Materials Content Target (10% of the cost of Materials):	**$40**

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			
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		$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).

** List actual distance

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

SCA School Construction Authority
NYC Green Schools Rating System - 2016

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				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 Operatic				850
Top & Trim Adhesive				250

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

SCA School Construction Authority
NYC Green Schools Rating System - 2016

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
Roadway				250
Other				420
Architectural Non Porous				250
Architectural Porous				775

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

SCA School Construction Authority
NYC Green Schools Rating System - 2016

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
Floor coatings				100 g / L
Sealer				
waterproofing sealers				250 g / L
sanding sealers				350 g / L
all other sealers				200 g / L
Stains				250 g / L

Flooring

Product Use	Manufacturer's Name	Product Name	Type of CRI Green Label Plus Documentation Attached
Carpet			
Carpet Tile			
VCT Flooring			
Wood Flooring			
Resinious Flooring			
Resilient Athletic Flooring			
Equip. Room Fluid Applied Flooring			
Ceramic Tile			

Composite Wood & Agrifiber Products

Product Use	Manufacturer's Name	Product Name	Documentation of Lack of added Urea Formaldehyde
Plywood			
Wood Doors			
Furniture			

DAYLIGHT & VIEWS
Daylight Calculation Form for Classrooms
Credit Q7.1, Q7.2

School Construction Authority
NYC Green School Rating Systems - 2016

Project: _____ Architect: _____

Address: _____ Preparer: _____

LLW: _____ Design #: _____ Date: _____

RM #	Room Name	Room Data			Window Data						Glazing Data		Transmittance-VLT		Daylight Zone		WFR Factor	Daylight Zone Factor		Daylight Area		Compliant Daylight Area	Compliant area %
		Room Area		Room Length	Effective Head Hgt	Sill Hgt	Daylight Hgt	Window Width/ Room	Window Area - WA		Glazing factor	Glass Area	Actual	Min	Daylight Zone Depth	Daylight Area	Actual	Actual/ Greatest	Required		Actual Daylight Zone Factor	Greatest Room Area Allowed	
Do not copy row 15																							
110	PK Classroom	736	SF	27.42	9.83	2.75	7.08	19.50	138	SF	0.87	120	0.67	0.67	19.66	539.08	0.22	0.15	0.15 - 0.18	555	0.145	**555**	0.75
119	PK Classroom	796	SF	29.75	9.83	2.75	7.08	19.50	138	SF	0.87	120	0.67	0.67	19.66	584.89	0.22	0.15	0.15 - 0.18	555	0.145	**555**	0.70
215	Grade 1 Classr	690	SF	23.75	10.00	4.42	5.58	20.00	112	SF	0.85	95	0.67	0.67	20.00	475.00	0.22	0.15	0.15 - 0.18	438	0.145	**438**	0.63
201	Grade 1 Classr	720	SF	21.50	10.00	2.75	7.25	21.50	156	SF	0.85	132	0.67	0.67	20.00	430.00	0.22	0.15	0.15 - 0.18	612	0.145	**612**	0.85
210	Kindergarten	887	SF	23.25	10.00	2.75	7.25	17.75	129	SF	0.85	109	0.67	0.67	20.00	465.00	0.22	0.15	0.15 - 0.18	505	0.145	**505**	0.57
219	Kindergarten	921	SF	24.17	10.00	2.75	7.25	21.50	156	SF	0.85	132	0.67	0.67	20.00	483.40	0.22	0.15	0.15 - 0.18	612	0.145	**612**	0.66
313	Special Educati	674	SF	23.67	10.00	4.83	5.17	23.66	122	SF	0.86	105	0.67	0.67	20.00	473.40	0.22	0.15	0.15 - 0.18	486	0.145	**486**	0.72
315	Grade 3 Classr	674	SF	23.75	10.00	2.75	7.25	20.00	145	SF	0.85	123	0.67	0.67	20.00	475.00	0.22	0.15	0.15 - 0.18	569	0.145	**569**	0.84
310	Grade 2 classrc	696	SF	23.25	10.00	2.75	7.25	17.75	129	SF	0.85	109	0.67	0.67	20.00	465.00	0.22	0.15	0.15 - 0.18	505	0.145	**505**	0.73
319	Grade 2 classrc	735	SF	24.17	10.00	2.75	7.25	21.50	156	SF	0.85	132	0.67	0.67	20.00	483.40	0.22	0.15	0.15 - 0.18	612	0.145	**612**	0.83
301	Grade 3 Classr	682	SF	21.50	10.00	2.75	7.25	21.50	156	SF	0.85	132	0.67	0.67	20.00	430.00	0.22	0.15	0.15 - 0.18	612	0.145	**612**	0.90
415	Grade 5 classrc	674	SF	23.75	10.00	2.75	7.25	20.00	145	SF	0.85	123	0.67	0.67	20.00	475.00	0.22	0.15	0.15 - 0.18	569	0.145	**569**	0.84
413	Special Educati	496	SF	23.58	10.00	2.75	7.25	17.75	129	SF	0.85	109	0.67	0.67	20.00	471.60	0.22	0.15	0.15 - 0.18	496	0.148	**496**	1.00
401	Grade 5 classrc	691	SF	21.50	10.00	2.75	7.25	21.50	156	SF	0.85	132	0.67	0.67	20.00	430.00	0.22	0.15	0.15 - 0.18	612	0.145	**612**	0.89
410	Grade 4 classrc	626	SF	23.25	10.00	2.75	7.25	17.75	129	SF	0.85	109	0.67	0.67	20.00	465.00	0.22	0.15	0.15 - 0.18	505	0.145	**505**	0.81
419	Grade 4 classrc	732	SF	24.17	10.00	2.75	7.25	21.50	156	SF	0.85	132	0.67	0.67	20.00	483.40	0.22	0.15	0.15 - 0.18	612	0.145	**612**	0.84
115	Music Room	561	SF	29.67			0.00		0	SF		0		0.67	0.00	0.00	0.00	0.00	0.15 - 0.18	0	0.000	**0**	0.00
302	Reading Room	411	SF	24.33	10.00	2.75	7.25	20.17	146	SF	0.85	124	0.67	0.67	20.00	486.60	0.22	0.15	0.15 - 0.18	411	0.203	**0**	1.00
304	Speech Room	387	SF	25.92	9.33	2.75	6.58	9.00	59	SF	0.85	50	0.67	0.67	18.66	483.67	0.22	0.15	0.15 - 0.18	232	0.145	**232**	0.60
402	Project Room	1233	SF	41.67	10.00	2.75	7.25	102.25	741	SF	0.85	630	0.67	0.67	20.00	833.40	0.22	0.15	0.15 - 0.18	1,233	0.342	**0**	1.00

SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR: **14,022**

SF OF AREA THAT ACHIEVES DAYLIGHT FACTOR: **9,087**

Overall Percentage Achieved: ***64.81%***

Requirement to achieve credit Q7.1 is Daylight in 75% of classroom areas ***Complies? (Y/ N):*** ***NO***

Requirement to achieve credit Q7.2 is Daylight in 90% of classroom areas ***Complies? (Y/ N):*** ***NO***

Directions

1. *It is permissible to exclude areas where tasks would be hindered by the use of daylight. Exceptions on this basis might include computer rooms.*
2. *Copy additional rows including the formulas as required for each additional room to be included on this form.*
3. *Enter room number, room name, area of room (excluding built-in closets), Length (L - length of room parallel and adjacent to window), effective window head height, sill height, total width of windows per room/bay, glazing factor, and actual transmittance factor of glazing. Window Area (WA), glass area, daylight zone depth (window head height x 2), area of daylight zone , WFR factor, Daylight Zone Factor, and Daylight Area are calculated by formula.*
4. *Enter glazing factor multiplier based on window width, window height and number of windows per Masonry opening from table 1*
5. *Enter Minimum Visible Transmittance Factor. The default value used is to be 0.67, which is the minimum required per the SCA standard specification. Where specified glazing is not per SCA standard, Verify/enter actual transmittance for specified glazing.*
6. *Where a soffit/ceiling is lower than the window head height, the head height need to be modified accordingly as per diagram in GSG Credit Q7.1. Area of any obstruction that falls within the daylit zone must beexcluded from the qualifying daylight area*
7. *Check that all figures are included in worksheet cells, summing SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR and SF OF AREA THAT ACHIEVES DAYLIGHT FACTOR.*

Table 1

nominal window width	*Number of Window/MO* 1	2-3	4-6	7 and more	*window height*
	0.88	*0.87*	*0.86*	*0.85*	*84*
	0.88	***0.87***	***0.87***	***0.87***	***88"***
48	***0.89***	***0.88***	***0.87***	***0.86***	***≥ 92"***
	0.88	*0.86*	*0.86*	*0.85*	*84"*
	0.88	***0.87***	***0.86***	***0.85***	***88"***
40	*0.89*	*0.87*	*0.87*	*0.86*	***≥ 92"***
	0.88	*0.86*	*0.85*	*0.84*	*84"*
	0.88	***0.86***	***0.86***	***0.85***	***88"***
32	**0.89**	**0.87**	**0.86**	**0.85**	***≥ 92"***
	0.88	*0.85*	*0.85*	*0.84*	*84*
	0.88	***0.86***	***0.85***	***0.84***	***88"***
24	**0.89**	**0.86**	**0.86**	**0.85**	***≥ 92"***

4/25/2017
Revised 10/22/18

DAYLIGHT & VIEWS
Daylight Calculation Form for Other Spaces
Credit Q7.3

SCA School Construction Authority
NYC Green School Rating Systems - 2016

Project: ______________________ Architect: ______________________
Address: ______________________ Preparer: ______________________
LLW: ______________ Design #: ______________ Date: ______________________

RM #	Room Name	Room Data			Window Data						Glazing Data		Transmittance-VLT		Daylight Zone		WFR Factor	Daylight Zone Factor		Daylight Area		Compliant Daylight Area	Compliant area %
		Room Area		Room Length	Effective Head Hgt	Sill Hgt	Daylight Hgt	Window Width/ Room	Window Area - WA		Glazing factor	Glass Area	Actual	Min	Daylight Zone Depth	Daylight Area	Actual	Actual/ Greatest	Required		Actual Daylight Zone Factor	Greatest Room Area Allowed	
100	Office	736	SF	27.42	9.83	2.75	7.08	19.50	138	SF	0.87	120	0.67	0.67	19.66	539.08	0.22	0.15	0.15 - 0.18	*555*	*0.145*	***555***	0.75
102	Gymnasium	690	SF	23.75	10.00	4.42	5.58	20.00	112	SF	0.85	95	0.67	0.67	20.00	475.00	0.22	0.15	0.15 - 0.18	*438*	*0.145*	***438***	0.63
105	Office	500	SF	18.00	9.33	2.66	6.67	8.00	53	SF	0.85	45	0.67	0.67	18.66	335.88	0.22	0.15	0.15 - 0.18	*209*	*0.145*	***209***	0.42
107	Cafeteria	3000	SF	104.00	9.33	2.66	6.67	80.00	534	SF	0.85	454	0.67	0.67	18.66	1940.64	0.22	0.15	0.15 - 0.18	*2,095*	*0.145*	***2,095***	0.70
108	Kitchen	1500	SF	54.00	9.33	7.00	2.33	40.00	93	SF	0.85	79	0.67	0.67	18.66	1007.64	0.22	0.15	0.15 - 0.18	*366*	*0.145*	***366***	0.24
102	Gymnasium	690	SF	23.75	10.00	4.42	5.58	20.00	112	SF	0.85	95	0.67	0.67	20.00	475.00	0.22	0.15	0.15 - 0.18	*438*	*0.145*	***438***	0.63
105	Office	500	SF	18.00	9.33	2.66	6.67	8.00	53	SF	0.85	45	0.67	0.67	18.66	335.88	0.22	0.15	0.15 - 0.18	*209*	*0.145*	***209***	0.42
107	Cafeteria	3000	SF	104.00	9.33	2.66	6.67	80.00	534	SF	0.85	454	0.67	0.67	18.66	1940.64	0.22	0.15	0.15 - 0.18	*2,095*	*0.145*	***2,095***	0.70
108	Kitchen	1500	SF	54.00	9.33	7.00	2.33	40.00	93	SF	0.85	79	0.67	0.67	18.66	1007.64	0.22	0.15	0.15 - 0.18	*366*	*0.145*	***366***	0.24
102	Gymnasium	690	SF	23.75	10.00	4.42	5.58	20.00	112	SF	0.85	95	0.67	0.67	20.00	475.00	0.22	0.15	0.15 - 0.18	*438*	*0.145*	***438***	0.63
105	Office	500	SF	18.00	9.33	2.66	6.67	8.00	53	SF	0.85	45	0.67	0.67	18.66	335.88	0.22	0.15	0.15 - 0.18	*209*	*0.145*	***209***	0.42
107	Cafeteria	3000	SF	104.00	9.33	2.66	6.67	80.00	534	SF	0.85	454	0.67	0.67	18.66	1940.64	0.22	0.15	0.15 - 0.18	*2,095*	*0.145*	***2,095***	0.70
108	Kitchen	1500	SF	54.00	9.33	7.00	2.33	40.00	93	SF	0.85	79	0.67	0.67	18.66	1007.64	0.22	0.15	0.15 - 0.18	*366*	*0.145*	***366***	0.24
102	Gymnasium	690	SF	23.75	10.00	4.42	5.58	20.00	112	SF	0.85	95	0.67	0.67	20.00	475.00	0.22	0.15	0.15 - 0.18	*438*	*0.145*	***438***	0.63
105	Office	500	SF	18.00	9.33	2.66	6.67	8.00	53	SF	0.85	45	0.67	0.67	18.66	335.88	0.22	0.15	0.15 - 0.18	*209*	*0.145*	***209***	0.42
107	Cafeteria	3000	SF	104.00	9.33	2.66	6.67	80.00	534	SF	0.85	454	0.67	0.67	18.66	1940.64	0.22	0.15	0.15 - 0.18	*2,095*	*0.145*	***2,095***	0.70
108	Kitchen	1500	SF	54.00	9.33	7.00	2.33	40.00	93	SF	0.85	79	0.67	0.67	18.66	1007.64	0.22	0.15	0.15 - 0.18	*366*	*0.145*	***366***	0.24

SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR: 23,496

SF OF AREA THAT ACHIEVES DAYLIGHT FACTOR: 12,987
Overall Percentage Achieved: ***55.27%***

Requirement to achieve credit Q7.3 is Daylight in 75% of Other Spaces

Complies? (Y/ N): ***NO***

Directions

1. *Gymatoriums and Multipurpose rooms are considered regularly occupied spaces.*
2. *Copy additional rows including the formulas as required for each additional room to be included on this form.*
3. *Enter room number, room name, area of room (excluding built-in closets), Length (L - length of room parallel and adjacent to window), effective window head height, sill height, total width of windows per room/bay, glazing factor, and actual transmittance factor of glazing. Window Area (WA), glass area, daylight zone depth (window head height x 2), area of daylight zone , WFR factor, Daylight Zone Factor, and Daylight Area are calculated by formula*
4. *Enter glazing factor multiplier based on window width, window height and number of windows per Masonry opening from table 1*
5. *Enter Minimum Visible Transmittance Factor. The default value used is to be 0.67, which is the minimum required per the SCA standard specification. Where specified glazing is not per SCA standard, Verify/enter actual transmittance for specified glazing.*
6. *Where a soffit/ceiling is lower than the window head height, the head height need to be modified accordingly as per diagram in GSG Credit Q7.1. Area of any obstruction that falls within the daylit zone must beexcluded from the qualifying daylight area*
7. *It is permissible to exclude areas where tasks would be hindered by the use of daylight. Exceptions on this basis might include auditoriums with fixed seating.*
8. *Check that all figures are included in worksheet cells, summing SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR and SF OF AREA THAT ACHIEVES DAYLIGHT FACTOR.*

Table 1

Nominal window width	Number of Window/MO: 1	2-3	4-6	7 and more	window height
	0.88	0.87	0.86	0.85	84
	0.88	**0.87**	**0.87**	**0.87**	**88"**
48	**0.89**	**0.88**	**0.87**	**0.86**	**≥ 92"**
	0.88	0.86	0.86	0.85	84"
	0.88	**0.87**	**0.86**	**0.85**	**88"**
40	0.89	0.87	0.87	0.86	**≥ 92"**
	0.88	0.86	0.85	0.84	84"
	0.88	**0.86**	**0.86**	**0.85**	**88"**
32	**0.89**	**0.87**	**0.86**	**0.85**	**≥ 92"**
	0.88	0.85	0.85	0.84	84
	0.88	**0.86**	**0.85**	**0.84**	**88"**
24	**0.89**	**0.86**	**0.86**	**0.85**	**≥ 92"**

DAYLIGHT & VIEWS

Views Calculation Form

Credit Q7.4

SCA School Construction Authority

NYC Green Schools Rating System - 2016

Project: _____ Architect: _____

Address: _____ Preparer: _____

LLW #: _____ Date: _____

Design #: _____

RM #	RM NAME	Total Occupiable Area in SF	Step 1: Horizontal View at: 36" for rooms used by for PK-thru 5 grades	Step 1: Horizontal View at: 42" for rooms used by for 6-thru 12 grades and offices	Step 2: Calculated Area of Room that Does Not have Direct Line of Sight to Perimeter Vision Glazing	Compliant Area (sf)
			Y/N/NA	Y/N/NA		
BASEMENT						
B01	Pre-Kindergarten room	875	Y	NA	0	875
B02	General office	700	NA	Y	0	700
		1,575				**1575**
1ST FLOOR						
101	ROOM NAME	200	Y	NA	0	200
102	ROOM NAME	200	NA	Y	0	200
		400				**400**
2ND FLOOR						
201	ROOM NAME	400	NA	Y	50	350
202	ROOM NAME	200	NA	Y	0	200
		600				**550**
3RD FLOOR						
300	ROOM NAME	200	NA	Y	0	200
301	ROOM NAME	200	NA	Y	92	108
		400				**308**
4TH FLOOR						
400	ROOM NAME	200	NA	N	0	200
401	ROOM NAME	200	NA	Y	4	196
		400				**396**
SF OF AREA BEING EVALUATED FOR VIEWS:		**3,375**			**SF OF AREA WITH VIEWS:**	**3,229**
					Percent Access to Views	**95.7%**

Requirement to achieve credit Q 7.4 is Views for 90% of regularly occupied spaces ***Complies? (Y / N):*** **Y**

Directions:

1. *Determine which spaces are regularly occupied and where tasks would not be hindered by views. Include only those spaces on this form. The types of spaces that would not be regularly occupied include: circulation areas, MEP spaces, duplicating rooms, storage rooms. The types of spaces where vision glazing could negatively impact space use include computer rooms, auditoriums, gymnasiums and gymatoriums. 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 36"or 42" as applicable. 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 36" or 42" and non compliant floor area in room (for those spaces with glazing at applicable height).*
6. *Check that all sub-total figures are included in worksheet cells summing SF OF AREA BEING EVALUATED FOR VIEWS and SF OF AREA WITH VIEWS.*

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.*

Active Design in a School Environment
Active Design Worksheet and Credit Reporting Form
Credit A 2.3

SCA School Construction Authority
NYC Green Schools Rating System - 2016

Project:
Address:
LLW:
Date:

Architect:
Preparer:
Phone:

#	ITEM	INTENT	DESIGN CASE	DOCUMENTATION METHOD	PROJECT COMPLIES? (use tabs)
	PREREQUISITE				
R	Minimum Accessible Floors	Make active modes of vertical circulation accessible to all users	Building must have at least 1 main stair that enables occupants to travel between the building entrance floors and common use floors.	Floor Plans indicating main entrance and stairs.	**YES**
	Include seven (7) or more of the following features within the project.				
1	Floor re-entry	Make active modes of vertical circulation accessible at all floors	Classify regularly occupied floors for re-entry, allowing all building users to have access to and from these floors. Service floors do not need access for all users.	Floor plans indicating stairs.	**Click for Menu**
2	Stair visibility at all floors	Visual connection to active modes of vertical circulation	Make accessible stair visible from corridor by providing: •vision panels of 10 SF at each door •side light of 10 SF. •providing open stair.	Floor plan, door schedule and door elevation	**Click for Menu**
3	Stair connectivity to building occupants	Stair accessibility for building occupants	Provide access to at least one (1) open or interconnecting stair to 50% of occupied floors	Floor Plans indicating stairs.	**Click for Menu**
4	Stair visibility from main lobby	Visual connection to main lobby	Position at least one active mode of vertical circulation to be visible from main building lobby with 25 feet maximum travel from edge of lobby to entry of active vertical circulation. No turns should be required to reach stairs from the lobby.	Floor plans indicating travel distance from main lobby to stair.	**Click for Menu**
5	Location - visibility	Visual connection to active mode of vertical circulation	Position at least one active mode of vertical circulation within the field of vision for users when standing in front of motorized modes of vertical circulation.	Plan drawing showing stair immediately adjacent to elevator	**Click for Menu**
6	Lighting	Make active vertical circulation areas a desirable space through enhanced lighting	Provide level of lighting in staircase consistent with or better than that provided for the building corridor.	Photometrics for stair and adjacent corridor.	**Click for Menu**
7	Daylighting	Make active vertical circulation areas a desirable space through natural lighting	Provide windows/skylight of at least 8 SF at each floor level of the active circulation space.	Building elevation indicating window area at each floor @ stair.	**Click for Menu**
8	Signage prompt at active vertical circulation	Encourage active modes of vertical circulation over motorized modes of vertical circulation	Include permanent signage promoting stair use at elevator call area and at outside of stair door at each floor of the active vertical circulation.	Floor plans indicating sign locations and signage detail.	**Click for Menu**
9	Artwork	Make active vertical circulation areas a desirable space through the addition of artwork	Provide artwork in the active circulation area.	Artwork location	**Click for Menu**
10	Recreational space	Provide opportunities for on-site recreation	For projects with 10 classrooms or more, provide an on-site recreational space with exercise opportunities for both staff and children. Exercise space must be at least 400 SF and include exercise equipment for use by at least 5% of FTE occupants. Gardening activity can count as staff active recreation space and equipment.	Floor plan showing exercise room with equipment layout, FTE calculation, and narrative. Site plan indicating garden area (if applicable).	**Click for Menu**

Design Team Certification Form
DESIGN PHASE

School Construction Authority
NYC Green Schools Rating System - 2016

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	and or	Engineers Initials

Site

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.

☐ Consider prevailing winds when determining the site and building layout.

☐ 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 viable 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.

S1.6P - Environmental Site Assessment

A Phase I Environmental Site Assessment as described in ASTM E1527-05 was conducted.

☐ Remediation is not required.

☐ Remediation is required but is not part of the scope of this project as it will be completed under another project.

☐ Remediation is required and will be part of this project but does not meet the requirements to achieve Credit S1.7, Brownfield Redevelopment.

☐ Remediation is required and will be documented during Construction under Credit S1.7, Brownfield Redevelopment.

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

S2.2 - Alternative Transportation, Bicycle Storage & Changing Rooms

This project includes secure bicycle racks and/or storage for 5% or more of all building staff and students above grade 3 level and provides shower and changing facilities in the building for 0.5% of full-time staff.

S2.3R - Alternative Transportation, Low Emitting & Fuel-Efficient Vehicles/Parking Capacity

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- 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 78 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.

OR

☐ 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.

S6.1 - 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 candela 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

W1.1 - Water Efficient Landscaping Reduce by 50%

This project reduces the use of potable water for landscape irrigation by doing 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. The minimum vegetative site area of 5% has been met.

W1.2 - Water Efficient Landscaping, No Potable Water Use or Irrigation

This project reduces the use of potable water for landscape irrigation by doing the following:

☐ 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 for Schools, credit WEc1 and updated based on final construction documents.

W2.1P - Minimum Water Use Reduction 20%

☐ This project uses 20% less water by the percentage indicated 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.

W2.2R - Enhanced Water Use Reduction 30%

☐ This project uses 30% less water by the percentage indicated 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.

W2.3 - Enhanced Water Use Reduction 35%

☐ This project uses 35% less water by the percentage indicated 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.

W2.4 - Enhanced Water Use Reduction 40%

☐ This project uses 40% less water by the percentage indicated 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

E2.1P - 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 specified for any replacement equipment.

E3.2R - Energy Management System Controls, HVAC and Hot Water Systems

This project utilizes an open protocol Facility Management System (FMS) that controls the HVAC and Hot water systems.

E4.1P - 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 90.1-2010 (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 90.1-2010 (without amendments).

E4.2R - 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

M1.1P - 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 2.5R - Wallboard & Roof-deck Products, Mold Resistance

The wallboard and roof-deck products specified in this project comply with the referenced mold resistance standards.

Indoor Environmental Quality

Q1.1P - Minimum IAQ Performance

This project implements the following strategies for improved Indoor Air Quality:

☐ The project meets the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2007 Ventilation for Acceptable Indoor Air Quality. Construction documents submitted reflect this compliance.

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.

Q1.2R - Outdoor Air Delivery Monitoring

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 ten 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 sealed according to the credit requirement and have been provided with an exhaust system 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.

Q4.2R - Electric Ignition Stoves

This project employs only electric ignitions for gas-fired cooking appliances that have that capability. Specifications for gas-fired cooking appliances have been provided as documentation.

Q4.3R - Post Construction Indoor Air Quality

Maintenance and Equipment list for this project developed by the DOE/DSF Unit includes only HEPA vacuums. The SCA has provided written documentation to the design team confirming HEPA vacuums are on the Maintenance and Equipment 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 90% 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, Design

This project's HVAC system and building envelope have been designed to meet the requirements of ASHRAE Standard 55-2004 Thermal Comfort Conditions for Human Occupancy.

☐ 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:

Non-D75 spaces

Season	Maximum Indoor Space Design Temperature Deg (F)	Minimum Indoor Space Design Temperature Deg (F)	Maximum Indoor Space Design Relative Humidity
Summer	78°F	N/A	50%
Winter	N/A	72°F	N/A

D75 spaces

Season	Maximum Indoor Space Design Temperature Deg (F)	Minimum Indoor Space Design Temperature Deg (F)	Maximum Indoor Space Design Relative Humidity
Summer	78°F	75°F	50%
Winter	N/A	72°F	N/A

Q7.1 - Daylight & Views, Daylight in 75% Classrooms

This project is designed to provide classroom 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, Daylight in 90% Classrooms

This project is designed to provide classroom 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.

Q7.3 - Daylight & Views, Daylight in 75% of Other 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.

Q7.4 - Daylight & Views, Views

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.

Q7.5R - Visual Performance, Artificial Direct-Indirect Lighting

This project uses only pendant mounted high-efficiency LED fixtures in all classrooms. I have provided a lighting schedule and reflected ceiling plans as documentation.

Q8.1P - Minimum Acoustical Performance

This project employs the following strategies for good acoustic performance:

☐ Classrooms have a maximum background noise level of 45 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 - Enhanced Acoustical Performance & 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 of higher than 40 for classroom and other educational spaces, 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, Non-Roof

Project site has 50% of site hardscape complying with at least one of the following:

☐ Hardscape materials have a Solar Reflectance Index (SRI) equal to or greater then 29.

OR

☐ Shade from architectural devices or structures have an SRI of at least 29

OR

☐ Open grid pavement system at least 50% pervious

OR

☐ Shade from structures covered with solar panels

OR

☐ Shade from existing canopy or within five years of landscape installation

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 BMP

A2.3 Active Design in a School Environment

This project has satisfied the prerequisite element to provide occupants floor-to-floor acess between the stairs and their own floor as well as other common-use floors.

A3.2 - Optimized 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: Drop-down menu _____

The percentage of energy cost reduction per ECB method using 90.1- _____

The percentage of energy cost reduction per Appendix G using 90.1- _____

A3.4 - Enhanced Energy Management System Controls, HVAC and Hot Water Systems

The project has a building management system that provides the following eneryg saving features:

- ☐ Scheduled unoccupied setback temperature controls
- ☐ Scheduled control of all ventilation outdoor air fans, exhaust fans and outdoor air dampers
- ☐ Zoning of systems for major building areas
- ☐ An override system to temporarily change a unit or zone from unoccupied to occupied
- ☐ A centrally located scheduling interface

Design Team Certification Form
CONSTRUCTION PHASE

School Construction Authority
NYC Green Schools Rating System - 2016

Architect:	Firm Name:		Date:	
	Address:		Project Name:	
			Project Address:	
	Telephone:			
	email:			
			LLW #:	
			Design #:	
Engineer:	Firm Name:		BCC #:	
	Address:		Design Manager:	
			Constr Specialist:	
	Telephone:		BCC Reviewer:	
	email:		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

Architects Initials	Engineers Initials	

Site

S1.6P - Environmental Site Assessment

A Phase I Environmental Site Assessment as described in ASTM E1527-05 was conducted. If the Phase I indicated contamination, then a Phase II ESA was conducted and the site was remediated as required.

S1.7 - Brownfield Redevelopment

This project site was determined to be contaminated by the method indicated below. A narrative summary of

- ☐ 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).

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

E2.2 - Enhanced Refrigerant Management

- ☐ The Refrigerant Impact Form submitted during design matches the refrigerant capacity selected during construction

  OR
- ☐ The Refrigerant Impact Form was changed and re-submitted as part of the GSG Construction Submission due to different refrigerant capacity selected during construction

E3.1R - Measurement & Verification

This project implements a Measurement & Verification (M&V) Plan consistent with IPMVP Option C - Whole Building Comparison.

E5.1R - 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, Maintain Existing Walls, Floor & Roof

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, Maintain Interior Non-Structural Elements

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

The materials for this project include 10% or more recycled content. A Recycled Content Summary Form has been submitted as documentation.

☐ 20%

M2.3 - Regional Materials

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.

☐ 20%

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, Flooring 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 - Low Emitting Materials, Ceiling and Wall Systems

All ceiling and wall systems meet the requirements. A Low Emitting Materials-Summary Form has been submitted as documentation.

A5.1 - The School Building as a Teaching 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, M1.6R and M1.7

SCA School Construction Authority
NYC Green Schools Rating System - 2016

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	
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, M 2.2, M2.3 and M2.4

SCA School Construction Authority
NYC Green Schools Rating System - 2016

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, M 2.2, M2.3 and M2.4

SCA School Construction Authority
NYC Green Schools Rating System - 2016

Project: _____ Contractor: _____

Address: _____ Contractor Contact: _____

LLW: _____ Date: _____ Date: _____ Telephone: _____

Spec. Section (in CSI order)	Spec Section Name	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)
S01352	Sustainability Requirements								
02200	Earthwork								
02511/3	Asphaltic Concrete Paving/Sidewalk & Street Paving								
02516	Exposed Porous Asphalt Paving & Aggregate Base								
02900	Landscaping								
03200	Concrete Reienforcement								
03200a	Concrete Reinforcement - (Epoxy)								
03300	Cast-In-Place Concrete								
04200	Unit Masonry								
04435	Cast Stone								
04437	Precast Concrete U-Lintels								
05120	Structural Steel								
05210/20/30	Steel Joists (K-Series/LH Series/Girders)								
05300	Metal Deck								
05710	Steel Stairs								
07120	Fluid-Applied Waterproofing For Plaza Decks								
07211	Perimeter Foundation Insulation								
07212	Miscellaneous Building Insulation								
07250	Sprayed Fire Resistive Materials								
07560	Fluid-Applied Protected Membrane Roofing								
07561	Fluid-Applied Protected Membrane Roofing (Planted Type I)								
08110	Steel Doors and Frames								
08220	Fiberglass Reinforced Polyester Doors								
08330	Coiling Doors, Grilles And Shutters								
08510	Steel Windows - Projected, Casement, Pivoted, Hung								
08522/4	Aluminum Double-Hung Windows/Aluminum Projected Windows								
08621	Fiberglass Sandwich Panel Skylights								
08662	Security Screens/Barriers								
08920	Aluminum Curtain Walls								
08921	Aluminum Storefront								
09260	Gypsum Board Assemblies								
09310	Ceramic Tile								
09410	Terrazzo - Portland Cement								
09510	Acoustic Ceilings								
9590	Wood Flooring								
9626	Resilient Athletic Flooring								
09650	Resilient Flooring								
9670	Vinyl Sheet Athletic Flooring								
09680	Carpet								
09685	Tile Carpeting								
10151	Toilet Compartments								
10185	Plastic Shower & Dressing Compartments								
10350	Flagpole								
10505	Metal 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 - 2016

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

E1.1P - Fundamental Commissioning of the Building Energy Systems

☐ The CxA has reviewed the Owners Project Requirements (OPR) and Basis of Design (BOD)

☐ Commissioning requirements have been incorporated into the construction documents.

☐ A commissioning plan has been developed and utilized.

☐ The installation and performance of the following systems have been verified: HVAC, lighting controls, domestic hot water , fire alarm and emergency generator.

☐ A commissioning report has been completed.

A3.1 - 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.

☐ 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.

☐ 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.

Contractor's Certification Form
CONSTRUCTION PHASE

School Construction Authority
NYC Green Schools Rating System - 2

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

☐ An erosion and sedimentation control plan 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, 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 S01524.

M 1.6R - 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 S01524.

M 1.7 - Construction Waste Management 95%

The project implements a waste management plan that diverts 95% 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 S01524.

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.