

SCA Green Schools Guide Review

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Prepared for the City of New York Office of the Mayor

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Introduction

At the request of the City of New York Office of the Mayor, Davis Langdon performed a review of the New York City Green Schools Guide (NYC GSG) developed by the New York City School Construction Authority (SCA). The purpose of this review is to verify that the NYC GSG meets requirements as stated in Local Law 86/05 (LL86/05). LL 86/05 requires all New York City funded new schools, additions and substantial reconstruction projects with construction costs greater than two million dollars to be designed and constructed to comply with green building standards not less stringent than standards to achieve a LEED Certified rating. LEED is an acronym for Leadership in Energy and Environmental Design and is the name given to the Green Building Rating System developed by the United States Green Building Council (USGBC). The mayoral rules governing green building standards define the selected green building rating system that applies to LL86/05 projects, including applicable versions of the LEED rating system. The scope of the following review is limited to addressing whether or not compliance with NYC GSG requirements for New York City schools is no less stringent than compliance with LEED requirements.

Overall, the NYC GSG includes most of the requirements for building design and construction currently in the LEED Green Building Rating System with some additional requirements from the Collaborative for High Performance Schools included. The most significant difference between the NYC GSG and LEED is in how the two guidelines address energy efficiency. Where LEED is a performance based system, the NYC GSG is a prescriptive system that sets out specific Energy Efficiency Measures (EEMs) that must be included in NYC School designs to ensure the achievement of energy savings. LEED for New Construction version 2.2 (LEED NC 2.2) awards points based on a building's energy cost savings when compared to the ASHRAE 90.1-2004 (Appendix G) standard. The GSG-required prescriptive strategies were analyzed in comparison to the LEED NC 2.2 point system to ensure that NYC School designs will meet the LEED prerequisites for Energy and Atmosphere. The GSG-required prescriptive strategies were also analyzed in comparison to the LEED NC 2.1 point system to ensure that NYC School designs will meet the minimum 20% energy cost reduction when compared to the ASHRAE 90.1-1999 standard, as required by LL86/05.

Summary

The NYC GSG will be no less stringent than the current version of LEED NC 2.2 in terms of processes and procedures required to limit the environmental impacts of NYC school construction projects. The GSG includes 28 credits required for all projects ("required for all" credits), 26 of which are equivalent to LEED credits, and therefore are sufficient to earn the 26 of the 69 available points required to achieve a LEED Certified rating. The GSG also includes additional credits required if feasible ("required if feasible" credits) for a given project, and optional alternate credits. In the unlikely event a given project is unable to comply with one or more of the 26 "required for all" LEED equivalent credits, LEED-equivalent credits from the latter two groups may be used as substitutes for any of the initial 26 that are not possible. It should also be noted that if future regulatory changes to the NYC building code, NYSECC, ASHRAE, Local Law 86 and/or the rules governing green building standards or future changes of utility rates render the GSG non-compliant

with any LL86 requirements, the SCA has established procedures to address such changes and update the GSG accordingly.

LEED Credit Comparison.

The following table lists each of the NYC GSG requirements for NYC School design projects. Those items with an "R" suffix are required for all projects, while those without are required if feasible (given project-specific program and site constraints). The three columns to the right of "Item" indicate whether the requirement is more stringent (+), equally as stringent (=) or less stringent (-) than respective requirements in the LEED NC V2.2 Green Building Rating System. There are 40 items in the chart below that are equivalent to (or more stringent as compared to) LEED. Requirements that were adopted from other High Performance building programs are designated as Not Applicable (N/A). In addition to the requirements listed below, the NYC GSG includes eleven optional alternative credits. At least seven of the LEED-based optional credits are equally as stringent as respective LEED credits, and therefore could also be used to reach the LEED certified equivalency target of 26. Overall, the NYC GSG requirements are equivalent to LEED requirements as noted below.

Item	+	=	-	N/A	Comments
S1.1R		*			Construction Activity Pollution Prevention GSG requirements are equivalent to LEED SSP1 requirements.
S1.2R		*			Site Selection This requirement leaves out the LEED 2.2 requirement to avoid Prime farmland as defined by the Dept. of Agriculture in the US Code of Federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5 (citation 7CFR657.5). However, it is very unlikely there are lands within NYC defined as farmland.
S1.3				*	Sustainable Site and Building Layout. While LEED does not have a specific credit related to these measures, many of the benefits of these measures are addressed and captured in other LEED Credits.
S1.4		*			Development Density and Community Connectivity GSG requirements are equivalent to LEED SC2 requirements.
S1.5R				*	Joint Use of Facilities, Community Access This item is not addressed by LEED.
S1.6		*			Brownfield Redevelopment GSG requirements are equivalent to LEED SC3 requirements.
S2.1		*			Alt. Transportation, Public Transportation Access GSG requirements are equivalent to LEED SC4.2 requirements.
S2.2R		*			Alt. Transportation, Fuel Efficient Vehicles/Parking GSG requirements are less comprehensive than LEED Alt. Transportation Requirements due to the following: <ol style="list-style-type: none"> 1. GSG does not include the respective LEED Credit for providing bicycle storage and changing facilities for occupants that bike to and from the project. 2. GSG does not include the respective credit for alternative fueling stations, which could be provided for future plug-in hybrid vehicles. However, it should be noted that the SCA GSG includes sufficient options that would allow a given project to earn the respective LEED Alt. Transportation credit, but just provides fewer options to achieve that credit.

S3.1		*		Site Development, Protect or Restore Habitat GSG requirements are equivalent to LEED SC5.1 requirements.
S3.2		*		Site Development, Maximize Open Space GSG requirements are equivalent to LEED SC5.2 requirements.
S4.1		*		Stormwater Design, Quality Control GSG requirements are equivalent to LEED SC6.2 requirements.
S5.1R		*		Light Pollution Reduction GSG requirements are equivalent to LEED SC8 requirements.
W1.1R		*		Water Efficient Landscaping GSG requirements are equivalent to LEED WE1.1 and as stated as the "preferred" requirement, is also equivalent to LEED WE 1.2.
W1.2R		*		Water Efficient Landscaping GSG Requirements are not the same as LEED, but if followed, would earn the LEED WE1.2 credit.
W2.1-2.3R	*			Water Use Reduction GSG requirements are sufficient to earn and likely exceed the LEED WE 3.1 and 3.2 Credits.
E1.1R		*		Enhanced Commissioning (Cx) GSG requirements are equivalent to LEED EAP1 and LEED EAC3.
E1.2R		*		Refrigeration Management GSG requirements are equivalent to LEED EAP1 and EAC4 requirements.
E2.1R		*		Measurement and Verification GSG uses Option C of the IPMVP, while LEED requires Options B or D. The SCA has stated that they will use Option C and compare measured new building energy use to measured existing school energy use (for recently constructed schools). Option C then is likely more applicable for the SCA and therefore may be considered LEED equivalent.
E2.2R			*	Energy Management Systems Controls (HVAC and Hot Water) This item is not addressed by LEED.
E3.1R			*	Minimum Energy Performance As noted above, the SCA GSG requires a prescriptive approach which differs from the respective LEED performance-based approach. The combination of GSG required prescriptive strategies was analyzed in comparison to the LEED 2.2 points system and resulted in a building that at minimum meets the LEED prerequisite.
E4.1R			*	HVAC System Sizing, Avoid Oversizing LEED/LL86 does not specifically address this credit.
M1.1R		*		Storage and Collection of Recyclables GSG requirements are equivalent to LEED MRP1 requirements.
M1.2-1.3		*		Building Reuse, Existing Walls Floors & Roof GSG requirements are equivalent to LEED MRC1.1&1.2 requirements.
M1.4		*		Building Reuse, 50% of Interior Non-Structural Elements GSG requirements are equivalent to LEED MRC1.1&1.2 requirements.
M1.5R		*		Construction Waste Management GSG requirements are equivalent to LEED MRC2.1&2.2 requirements.
M1.6		*		Construction Waste Management GSG requirements are equivalent to LEED MRC2.1&2.2 requirements.
M2.1R		*		Recycled Content 10% GSG requirements are equivalent to LEED MRC4.1 requirements.
M2.2R		*		Regional Materials 10% Extracted, Processed and Manufactured GSG requirements are equivalent to LEED MRC1.1&1.2 requirements.
M2.3R			*	Wallboard and Roofdeck Materials, Mold Resistance LEED does not have a credit related to mold resistant materials as they are considered to be common practice for projects and regions where mold

				growth is likely.
M2.4R			*	Purchase Low-Mercury Lighting, Reduce Mercury Waste Not addressed by LEED.
Q1.1R		*		Minimum IAQ Performance/Increased Ventilation GSG requirements are equivalent to LEED IEQP1, but does not apply to the cafeterias and multi-purpose rooms, due to the demand control ventilation strategies in these areas.
Q1.2R			*	AirFlow Stations, Outside Air Intakes Not addressed as a discreet credit requirement in LEED, but contributes toward EAC5.
Q2.1R	*			Construction IAQ Management, During Construction GSG requirement is more stringent than LEED in that it requires a 72 hour mechanical exhaust of materials that emit VOCs.
Q2.2R		*		Construction IAQ Management, Before Occupancy GSG is equivalent to IEQ 3.2.
Q3.1 R		*		Low Emitting Material, Adhesives and Sealants GSG requirements are equivalent to LEED IEQ4.1 requirements.
Q3.2 R		*		Low Emitting Materials, Paints and Coatings GSG requirements are equivalent to LEED IEQ4.2 requirements.
Q3.3R		*		Low Emitting Materials, Carpet Systems GSG requirements are equivalent to LEED IEQ4.3 requirements.
Q3.4R		*		Low Emitting Materials, Composite Wood & Agrifiber GSG requirements are equivalent to LEED IEQ4.4 requirements.
Q4.1R		*		Indoor Chemical and Pollutant Source Control GSG requirements are equivalent to LEED IEQ5 requirements.
Q4.2R			*	Electric Ignition Stoves Not addressed by LEED.
Q4.3R			*	Provide HEPA Vacuums Not addressed as a discreet credit requirement in LEED, but contribute towards Green O&M Innovation Credit.
Q5.1R		*		Controllability of Systems, Lighting GSG requirements are equivalent to LEED IEQ6.1 requirements.
Q5.2R		*		Controllability of Systems, Comfort Controls Based on the space program of a school building being primarily multi-occupancy spaces, the GSG requirements are assumed to be equivalent to LEED by addressing multi-occupancy spaces (and presumably 50% of the occupants). This would have to be addressed on a case-by-case basis for buildings with a larger density of individual offices.
Q6.1R		*		Thermal Comfort, Comply with ASHRAE 55-2004 GSG requirements are equivalent to LEED IEQ7.1 requirements.
Q7.1		*		Daylight and Views, Daylight 75% of Spaces GSG is equivalent to LEED IEQC8.1
Q7.2		*		Daylight and Views, Views for 90% of Spaces Equivalent to LEED IEQC8.1
Q7.3			*	Visual Performance, Artificial Indirect Lighting This GSG requirement is not directly addressed by LEED, but the requirement for T-8's would contribute towards LEED EAC1.
Q8.1			*	Minimum Acoustic Performance There is a Credit Interpretation Request ruling dated 1/24/05 that states "to earn an acoustical performance innovation point for a school, documentation should demonstrate compliance with ANSI S12.60-2002, Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools".
Q8.2			*	Sound Isolation for Special Spaces Not addressed by LEED

Q8.3			*	Acoustic Windows Not addressed by LEED
A1.1R		*		LEED Accredited Professional GSG requirements are equivalent to the LEED Innovation credit available for having a LEED AP working on the job