Compliance with Local Law 86/05 and Green Schools Guide
The New York City School Construction Authority
SCA LLW #60353
November 17, 2010 (Revised December 13, 2010)
Sustainable Design Report

PS 287Q QUEENS, NEW YORK

Murphy Burnham & Buttrick Architects
48 West 37th Street
14th Floor
New York, NY 10018
www.mbbarch.com

Introduction

PS 287Q is a new public primary school in Queens, New York. The school will be located on the south side of Northern Boulevard between 110th and 111th Streets. The surrounding neighborhood comprises a diverse combination of residential and commercial properties. The properties immediately adjacent and to the south of the site are residential. Most of the properties along 110th and 111th streets are 2 or 3 story residential buildings except for the corner lots which are occupied by a beer distributor and a mini market, respectively. The site fronts on Northern Boulevard, a six-lane, high-traffic commercial road. In addition to the beer distributor and the mini market (adjacent to the Northeast corner of the site), there are commercial properties on the north side of Northern Boulevard, including a tire repair shop.

The site is irregular in shape and fairly small with an area of approximately 20,477 square feet. The area is served by subway and bus transportation. The #7 subway runs along Roosevelt Avenue about a half mile south of the site and bus Q66 runs along Northern Blvd and stops in front of the site.

The following sustainable design report follows the requirements of the NYC Green Schools Guide and Rating System (2009 revision). The submittal package includes a Project Checklist and Compliance Narratives for all credits.

SCA School Construction Authority

Project Checklist - page 1 of 2

NYC Green Schools Rating System 2009

Project: **PS 287 Q**
Address | Zip Code: **11368**
LLW #: **603353**
Design #: **D13090**
Architect: **Murphy Burnham & Buttrick Architects**

Reviewer :
Reviewer Sign Off:

Submission (Check one):	SD	DD	60%	100%	Const
	x	x			

Submission Date: **December 8, 2010**

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 Select NF if Not Feasible, or if Not Pursued: Design Phase	Construction Phase	Auto Filled: Blank if Pursued, Enter No. of Points if Not Pursued or if Not Feasible or Additional Credit Not Pursued
Site				**29% of Total Points**					**Points:**	**16**	**out of 19**
	SS Pr 1		S 1.1R	**Construction Activity Pollution Prevention**		NP	☑ YES		Credit Req'd - Confirm Pursuit		
	SS 1		S 1.2R	**Site Selection**		1			1		
		1.1.7	S 1.3	**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 1.6R	**Site Assessment**		NP	☑ YES		Credit Req'd - Confirm Pursuit		
	SS 3		S 1.7	**Brownfield Redevelopment**			1			1	
	SS 4.1		S 2.1	**Alternative Transportation,** Public Transportation Access	RPC		4		4		
Transportation	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			NF	1
	SS 5.2		S 3.2	**Site Development,** Maximize Open Space			1		NF		1
Stormwater Design	SS 6.2		S 4.1	**Stormwater Design,** Quality Control			1		NF		1
Heat Island Effect	SS 7.2		S 5.1	**Heat Island Effect,** Roof			1		1		
Outdoor Lighting	SS 8		S 6.1R	**Light Pollution Reduction**		1			1		
				Site Category Sub-Total:		5	14		15	1	3
Water				**14% of Total Points**					**Points:**	**8**	**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**, No Potable Use or No Irrigation			2		2		
	WE Pr 1		W 2.1R	**Water Use Reduction**, 20% Reduction		NP	☑ YES		Credit Req'd - Confirm Pursuit		
Indoor Systems	WE 3		W 2.2R	**Water Use Reduction**, 30% Reduction		2			2		
	WE 3		W 2.3R	**Water Use Reduction**, 35% Reduction		1			1		
	WE 3		W 2.4	**Water Use Reduction**, 40% Reduction			1		1		
				Water Category Sub-Total:		3	5		8		0
Energy				**13% of Total Points**					**Points:**	**7**	**out of 7**
Commissioning	EA Pr 1		E 1.1R	**Fundamental Commissioning**		NP	☑ YES		Credit Req'd - Confirm Pursuit		
	EA 3		E 1.2R	**Enhanced Commissioning**		2				2	
Refrigerant Management	EA Pr 3		E 2.1R	**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 4.1R	**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:		5	2		2	5	0
Materials				**13% of Total Points**					**Points:**	**7**	**out of 10**
	MR Pr 1		M 1.1R	**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			NF	1
	MR 1.1		M 1.3	**Building Reuse**, Maintain 95% of Existing Walls, Floors & Roof			1			NF	1
Efficient Material Use	MR 1.2		M 1.4	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements			1			NF	1
	MR 2		M 1.5R	**Construction Waste Management**, Divert 50% from Disposal		1				1	
	MR 2		M 1.6	**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
		7.2.3	M 2.6R	**Low-Mercury Lighting,** Reduce Mercury Waste		NP	☑ YES		Indicate Pursuit		☐ NO
				Materials Category Sub-Total:		2	8			7	3

See Notes on Page 2 of 2

Project Checklist - page 2 of 2

School Construction Authority
NYC Green Schools Rating System 2009

			SD	DD	60%	100%	Const
Project:	PS 287 Q	Submission (Check one):	x	x			
Address | Zip Code:		11368	Submission Date:	December 8, 2010			
LLW #:	603353						
Design #:	D13090	Reviewer :					
Architect:	Murphy Burnham & Buttrick Architects	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	Construction Phase	Auto Filled: Blank if Pursued, Enter No. of Points if Not Pursued or if Not Feasible or Additional Credit Not Pursued
Indoor Environmental Quality	**25% of Total Points**							**Points:**	**14**	**out of**	**17**
IAQ Post-occupancy	IEQ Pr 1		Q 1.1R	**Minimum IAQ Performance**		NP	☑ YES		Credit Req'd - Confirm Pursuit		
	IEQ 2		Q 1.1R	**Increased Ventilation** (included in Q 1.1R credit language)		1			1		
	IEQ 1		Q 1.2R	**Air Flow Stations,** Outside Air Intakes		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	**Provide HEPA Vacuums**		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**, Comply with ASHRAE 55-2004		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		NF		1
	IEQ 8.1		Q 7.3	**Daylight & Views**, Daylight for 75% of Other Spaces			1		NF		1
	IEQ 8.2		Q 7.4	**Daylight & Views**, Views			1		1		
		5.2.1	Q 7.5	**Visual Performance,** Artificial Direct-Indirect Lighting		NP	☑ YES		Indicate Pursuit		☐ NO
Acoustics	IEQ Pr 3	5.5.1	Q 8.1R	**Minimum Acoustical Performance**		NP	☑ YES		Credit Req'd - Confirm Pursuit		
	IEQ 9		Q 8.2	**Enhanced Acoustical Performance** & Sound for Special Spaces		1			NF		1
		SCA	Q 8.3	**Acoustic Windows**		NP	☐ YES		Indicate Pursuit		☑ NO
					IEQ Category Sub-Total:	13	4		8	6	3
Regional	**2% of Total Points**			Use pull-down menus ↘	**RPC Claimed**			**Points:**	**1**	**out of**	**4**
Regionally Appropriate [5]	RP 1.1		R 1.1	**Regionally Defined Credit Achieved**	A 2.2-stormwtr quan		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	1		3
Additional Credits	**5% of Total Points**			For A 3.1 Use pull-down menu ↓				**Points:**	**3**	**out of**	**25**
Innovation in Design	ID 2		A 1.1R	**LEED® Accredited Professional**		1			1		
	ID 1		A 1.2	**Innovation or Exemplory Performance**				1			#N/A
	ID 1		A 1.3	**Innovation or Exemplory 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
Optional - Energy	EA 1		A 3.1	**Optimize Energy Performance** [6]	If NOT Approved, 0 pts			10			10
	EA 2		A 3.2	**Renewable Energy**	If NOT Approved, 0 pts			7			7
Optional - IEQ	IEQ 4.5		A 4.1	**Low-Emitting Materials,** Furniture and Furnishings [4]				1			1
	IEQ 4.6		A 4.2	**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		24	2	1	#N/A
					Column Totals:	29	37	24	36	20	#N/A
					LEED® Equivalent Point Total [7]:				56	out of	90

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 "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; A5.1, 5.2)
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 Requires LEED® for Schools 2009: Certified Level - Minimum 40-49 Points (or equivalent of a no-less strigent rating system)
NP: To be consistent with LEED®, the NYC GSG assigns no point value to credits based on prerequisites or non-LEED® credits.
NYC GSG: Requires that all credits be attempted and proof through calcuation for those which are not-feasible.

Credit Compliance Narratives

Project:	PS287Q	Submission:	Design Development
Address:	110-20 Northern Blvd	Submission Date:	September 9, 2010
LLW #:	60353		
Design #:	D13090	Reviewer :	
Architect:	Murphy Burnham & Buttrick Architects	Reviewer Sign Off:	

Site Credits

Site Selection

S 1.1R Construction Activity Pollution Prevention

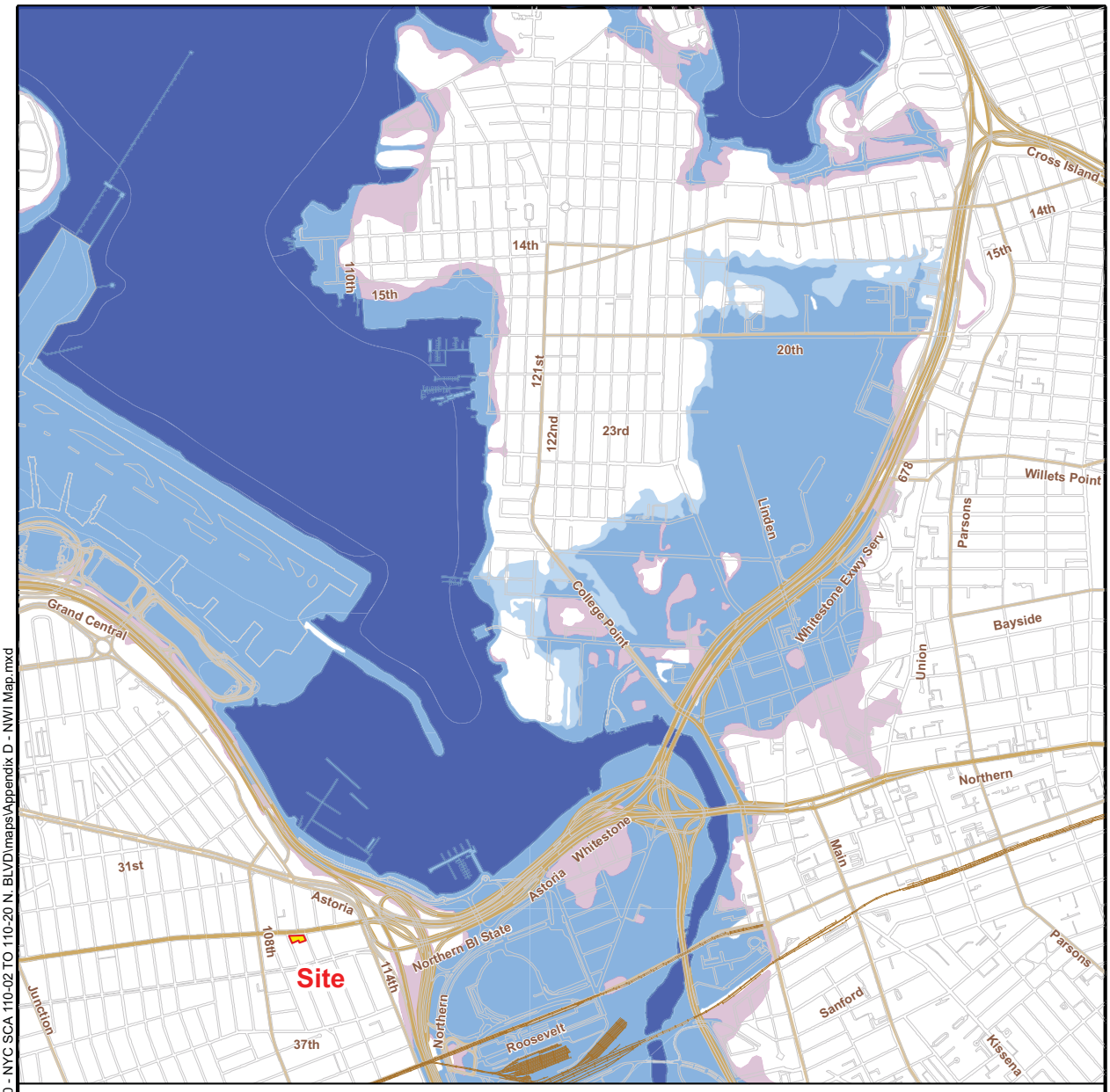
This credit is feasible. An Erosion and Sediment Control Plan shall be created to satisfy the requirements of the SCA's NYC Green School Guide. The plan typically involves notes, descriptions, and details of the necessary controls. We will develop a plan for the specific scheme chosen as we move forward in the design process. We anticipate that dust control measures, silt fencing, catch basin filtering systems, and a gravel temporary construction fence will be needed for this project. It is unlikely that it will be necessary to obtain the DEC SPDES General Permit (GP-02-01), because the site is under one acre in size, and discharges to a combined city sewer.

S 1.2R Site Selection

This credit is feasible by not developing buildings, hardscape, roads or parking areas on portions of the site that meet any of the following criteria:

1. The project site has previously been developed. The project site is currently an asphalt-paved parking lot used for ambulance parking and a dispatch office. Per the FEMA flood insurance rate map the site is located outside of the 500-year flood zone (Zone X). Refer to FEMA flood map on page 5.

S1.2R FEMA Flood Map



110-02 NORTHERN BOULEVARD QUEENS, NEW YORK, 11368	AKRF	DATE **07.10.09**
FEMA FLOOD MAP	Environmental Consultants 440 Park Avenue South, New York, N.Y. 10016	PROJECT No. **82100**
		APPENDIX **E**

2. The project site is not identified as a habitat for any species based on the following documents:
   a. U.S. Department of the Interior, Fish and Wildlife Service (USFWS). Federally Listed Endangered and Threatened Species and Candidate Species for Queens County.
   b. New York State Department of Environmental Conservation (NYS DEC) indicates the land is not a habitat for threatened and endangered species. Refer to NYSDEC letter on page 7.

Queens County

Federally Listed Endangered and Threatened Species and Candidate Species

This list represents the best available information regarding known or likely County occurrences of Federally-listed and candidate species and is subject to change as new information becomes available.

Common Name	Scientific Name	Status
Piping plover	*Charadrius melodus*	T
Roseate tern	*Sterna dougallii dougallii*	E
Seabeach amaranth	*Amaranthus pumilus*	T
Shortnose sturgeon[1]	*Acipenser brevirostrum*	E

Status Codes: E=Endangered, T=Threatened, P=Proposed, C=Candidate, D=Delisted.

[1] Primarily occurs in Hudson River. Principal responsibility for this species is vested with the National Oceanic and Atmospheric Administration/Fisheries.

Please visit the following website for more information http://www.nmfs.noaa.gov/pr/species/esa.htm.

Information current as of: 6/10/110

3. The NYS DEC Environmental Resource Map and the UFWS National Wetlands Inventory (NWI) indicate no wetlands within 100 feet of project site. Refer to NWI wetlands map on page 8.

08/05/10 THU 12:17 FAX 518 402 8925 NYSDEC FWMR ADMINON ☑001

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

August 5, 2010

Kahng Young
Murphy Burnham & Buttrick
48 West 37th Street
New York City, NY 10018

Dear Ms. Young:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed New Public School – Green School Guidelines, site as indicated on the map you provided, located at 110-20 Northern Blvd, Borough of Queens.

We have no records of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,
Tara Salerno jp
Tara Salerno, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 2

870

40 years of stewardship 1970-2010

S1.2R NWI Wetlands Map

110-02 NORTHERN BOULEVARD
QUEENS, NEW YORK, 11368

NWI WETLANDS MAP

AKRF
Environmental Consultants
440 Park Avenue South, New York, N.Y. 10016

DATE **07.10.09**
PROJECT No. **82100**
APPENDIX **D**

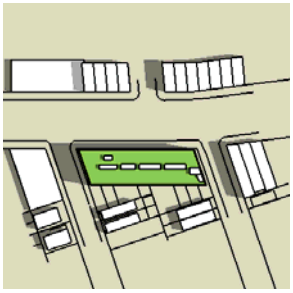
4. The NYS DEC Environmental Resource Map indicates no bodies of water within 50 feet of project site.
5. The project site is not public parkland; it is developed as a parking lot for an ambulance service.

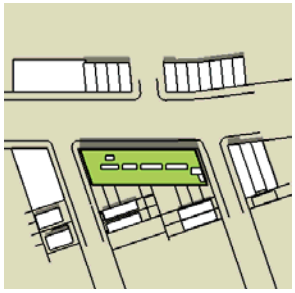
No additional credit submittal required for this phase.

S 1.3 Sustainable Site & Building Layout

This credit is feasible by implementing four sustainable site analyses:

1. Orient and compose the building to take advantage of natural daylighting. Our design orients the entire building along the East-West axis. The majority of classrooms will face South and the remaining occupied spaces will face North. Daylighting will be maximized in the classrooms during the entire year.
2. Plot shadow patterns from surrounding buildings onto project site to optimize access to daylight.
3. Plot shadow patterns from the proposed building onto adjacent properties and buildings and consider design options to address impact as necessary.


June 21 at 9:00am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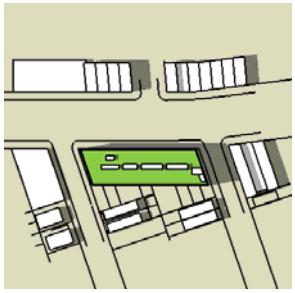
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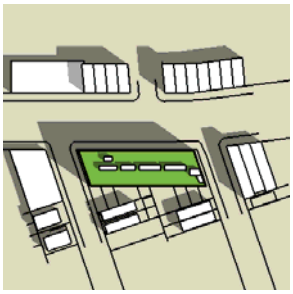
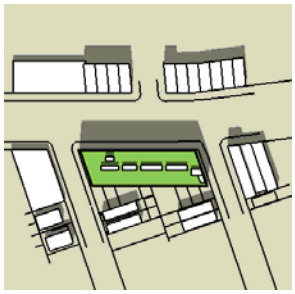

September 21 at 9:00am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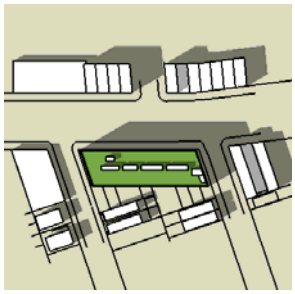
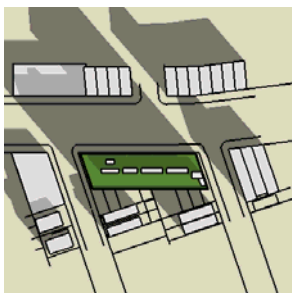
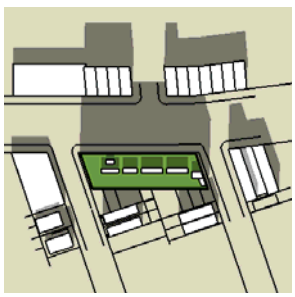
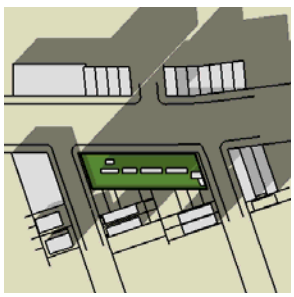
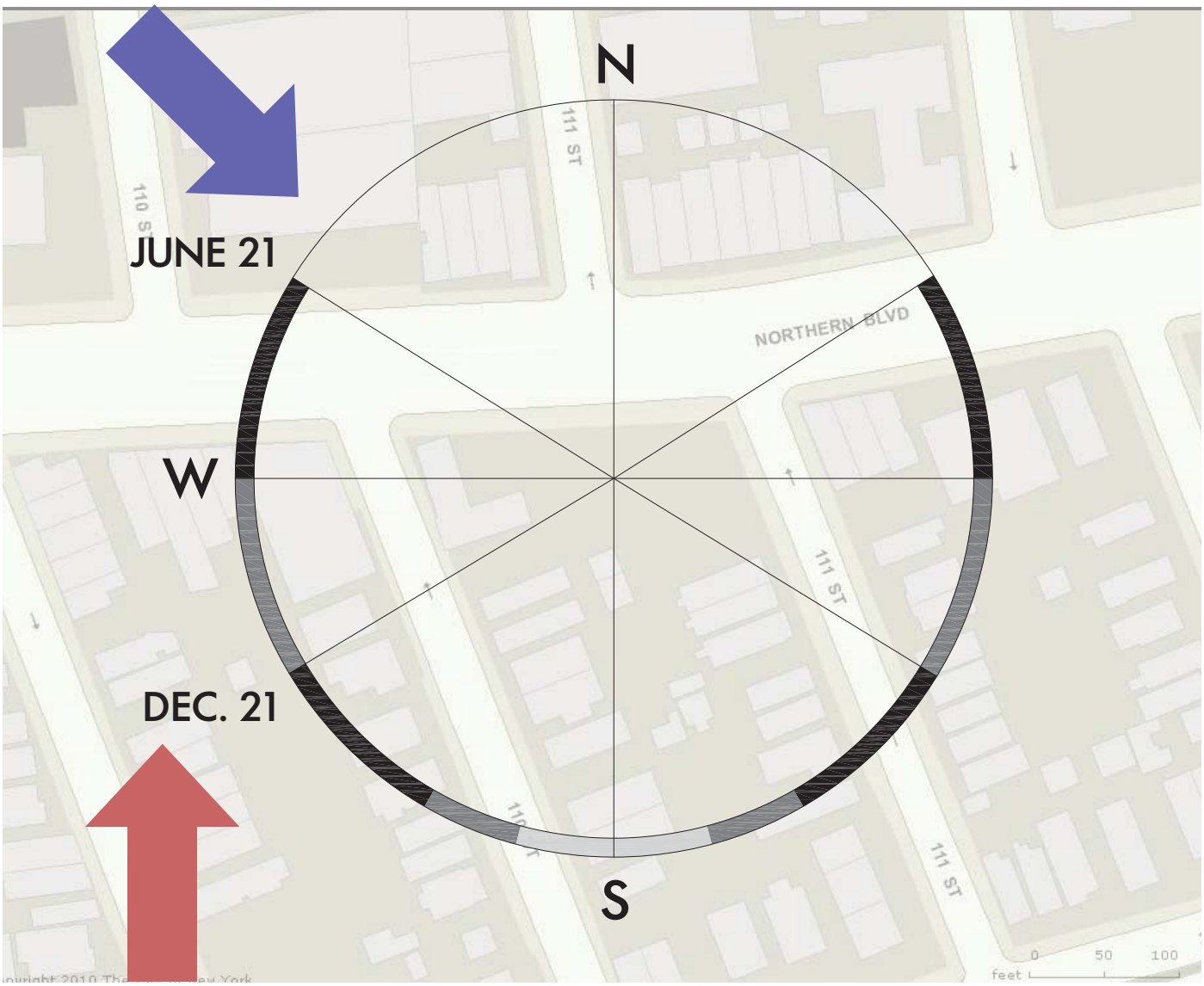

September 21 at 3:00pm


December 21 at 9:00am


December 21 at 12:00pm


December 21 at 3:00pm

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



Prevailing Summer Winds

Prevailing Winter Winds

No additional credit submittal required for this phase.

S 1.4 Development Density & Community Connectivity

This credit is feasible by implementing Option 1 – Construct or renovate building on a previously developed site that is within a half mile of a residential zone neighborhood with an average dwelling density of 10 dwelling units per acre and within a half mile radius of at least 10 Basic Services and pedestrian access between the building and the services.

Map Density Data: Neighborhood Adjacent to 110-20 Northern Boulevard, Queens, NY

#	Address	Lot Area (SF)	Res. Units	Zoning
1	33-12 111 Street, 11368	2,000	2	R5
2	33-14 111 Street, 11368	2,000	2	R5
3	33-16 111 Street, 11368	3,000	3	R5
4	33-20 111 Street, 11368	3,000	3	R5
5	33-22 111 Street, 11368	2,000	1	R5
6	33-24 111 Street, 11368	4,000	3	R5
7	33-28 111 Street, 11368	2,000	1	R5
8	33-32 111 Street, 11368	1,980	3	R5
9	33-36 111 Street, 11368	1,906	3	R5
10	33-40 111 Street, 11368	2,836	3	R5
11	110-15 34 Avenue, 11368	4,356	2	R5
12	110-09 34 Avenue, 11368	4,320	2	R5
13	110-03 34 Avenue, 11368	2,017	2	R5
14	110-01 34 Avenue, 11368	1,826	2	R5
15	33-33 110 Street, 11368	2,000	2	R5
16	33-29 110 Street, 11368	3,000	3	R5
17	33-27 110 Street, 11368	3,000	3	R5
18	33-25 110 Street, 11368	4,000	2	R5
19	33-21 110 Street, 11368	3,000	2	R5
20	33-19 110 Street, 11368	3,000	2	R5
21	33-17 110 Street, 11368	2,000	2	R5
22	33-15 110 Street, 11368	2,000	3	R5
	Totals (1 Acre = 43,560 SF)	59,241	51	37.5 units/acre

S1.4 Development Density and Community Connectivity

PS 287 Queens

Basic Services within one half-mile radius of 110 Northern Boulevard, Queens, NY 11369

1	Day Care	Malcolm X Day Care Center	111-12 Northern Boulevard, Corona, NY 11368
2	Library	Langston Hughes Library	100-01 Northern Boulevard, Corona, NY 11368
3	Laundromat	Urban Laundromat, Inc.	3705 108th Street, Flushing, NY
4	Dentist	Sheikh Rahman	103-09 Northern Boulevard, Flushing, NY
5	Pharmacy	Julie Pharmacy	104-01 Northern Boulevard, Flushing, NY
6	Place of Worship	Antioch Baptist Church	103-02 Northern Boulevard, Flushing, NY 11368-1137
7	Supermarket	34th Avenue Grocery	105-02 34th Avenue, Flushing, NY
8	Community Cntr.	Louis Armostrong Community Center	33-16 108 Street, Corona, NY 11368
9	Park	Hinton Park	Queens, New York 11368
10	Restaurant	Pine Restaurant of Queens	3710 114th Street, Flushing, NY 11368-1443

No additional credit submittal required for this phase.

S 1.5R Joint Use of Facilities, Community Access

Our design anticipates three ways for students and visitors to approach the school: bus drop-off on 110th st., car & MTA bus drop-off on Northern Boulevard and walk-in students on 111th st. All persons visiting the school will be led to one of two entrances supervised by one security guard. One entry is from the North edge and the other is along the South edge. The first floor on grade proposes a large lobby, kitchen, cafeteria, parent/community room and a large play yard. The gymatorium will be located one level down and easily accessed by two elevators and two stairs. The cellar/ground floor/play yard proximity configuration is designed to facilitate large school and/or community events.

No additional credit submittal required for this phase.

S 1.6R Environmental Site Assessment

This credit is feasible. A Phase I Environmental Site Assessment (ESA) was performed by AKRF Engineering. The site is not listed in the New York State Voluntary and Brownfields Cleanup Program Database. Phase I ESA identified several Recognized Environmental Conditions (REC) and environmental concerns. A Phase II Environmental Site Investigation (ESI) was also conducted. Refer to Phase I ESA and Phase II ESI summaries and recomendations, pages 14-15. The SCA/IEH consultant, AKRF, must be granted full access to the site by the SCA to complete their report and reccomendations. This credit will be re-evaluated once the architect receives the complete report.

No additional credit submittal required for this phase.

S 1.7 Brownfield Redevelopment

This credit is feasible. The Phase II ESA Report by AKRF Engineering indicates that the site is contaminated and in need of remediation. The Site was found to contain PCE levels exceeding the NYSDOH Soil Gas Criterion. PCE concentrations exceed the New York State Class GA Ambient Water Quality Standard. Freon, selected SVOCs, copper, lead, mercury, zinc and pesticides were also detected at levels exceeding their respective hazardous waste limits. Refer to Phase II ESI Summary of Findings, Conclusions and Recomendations, pages 16-17.

No additional credit submittal required for this phase.

1.0 EXECUTIVE SUMMARY

At the request of Ms. Lee Guterman, Manager of the Industrial and Environmental Hygiene (IEH) Division at New York City School Construction Authority (NYCSCA), AKRF Engineering, P.C. (AKRF) conducted a Phase I Environmental Site Assessment (ESA) of 110-02 to 110-20 Northern Boulevard in Corona, Queens County, New York (hereafter referred to as the "Site"). The Site is legally defined as New York City Tax Block 1725, Lots 1, 3, 4, 7, 8, 11, 12 and 13. The Site is approximately 20,480 square feet (SF) and it consists of an asphalt-paved lot currently used by the North Shore Ambulance and Ambulette Service, Inc (North Shore) as an ambulance parking lot improved with three temporary modular trailers used as a dispatching office. Sanitary waste is managed in an underground sewage holding tank on-site that is periodically removed by a sewage waste hauler. Historically, the parking lot area was developed with stores and residences that were demolished prior to 1991. From approximately 1991 to approximately 2004 the Site was utilized as a used car and school bus parking lot until being occupied by North Shore Ambulance. The NYCSCA is considering acquisition of the Site for use as a public school facility. The Site is located in a residential and commercial area with some industrial and automotive uses in the immediate area.

The main objective of the Phase I ESA is to identify recognized environmental conditions and environmental concerns that may affect the suitability of the site for use as a school. Recognized environmental conditions are defined in American Society of Testing and Materials (ASTM) Standard Practice E 1527-05 as the presence or likely presence, use, or release on the Site of hazardous substances or petroleum products. In addition, other environmental issues and conditions that, in the opinion of the *environmental professional* conducting the assessment, would not be considered *recognized environmental conditions* are identified in this assessment. These may include *historical recognized environmental conditions and/*or *de minimis* conditions. The Phase I ESA also includes a preliminary evaluation of specific potential environmental issues or conditions that are, according to ASTM E 1527-05, considered non-scope considerations. These issues include potential soil vapor intrusion as per ASTM E2600-08, radon, asbestos-containing materials (ACM), polychlorinated biphenyls (PCBs) light ballasts and caulking materials, exterior lead-based paint (LBP), chemical storage, wetlands, regulatory compliance issues, dry cleaner and other industrial emissions, mold, biological agents, and methane. The Phase I ESA included a review of federal, state, and local records, previous reports (if available) and historical documents; visual observation of the Site and adjoining properties; and interviews with selected Site representatives.

The assessment requested by the NYCSCA is intended to identify conditions that would have the potential to impact the value of the Site or the development and use of the Site as a public school facility. The assessment was also conducted for purposes of environmental due diligence in order to qualify for the innocent landowner, a bona fide prospective purchaser, or a contiguous property owner defense under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The Phase I ESA included, but was not limited to an assessment of the following potential environmental issues: current and historical site usage; current and historical usage of adjoining properties; regulatory agency records review; on-site solid waste management and disposal practices; on-site hazardous materials and petroleum products management; chemical storage, ACM, PCBs, and exterior LBP management; wetlands; regulatory compliance issues; dry cleaner and other industrial emissions; radon; mold and moisture intrusion; biological agents and potential for methane generating materials.

New York State Voluntary and Brownfields Cleanup Program (VCP/BCP):

The NYSDEC Voluntary and Brownfields Cleanup Programs database was researched to identify listings for the site and within a one-mile radius of the Site. Neither the Site nor any other facilities within a one-mile radius of the Site are listed in the Voluntary and Brownfields Cleanup Program database.

labeled with the date, sampling location(s), contents, and an AKRF point of contact, and store at a secure location on the Site to await waste characterization results and off-site disposal. As described in Section 4.7.1, all waste characterization parameters were below their respective characteristic hazardous waste limits; therefore, the IDW was classified as non-hazardous waste. On September 25, 2009, the drums were removed from the Site and transported to CycleChem Inc. in Elizabeth, New Jersey for disposal as non-hazardous solid waste. A copy of the drum disposal manifest is provided in Appendix F.

4.8 Summary of Findings

AKRF performed a Phase II ESI consisting of a soil, groundwater, soil vapor and ambient air sampling within the proposed Site. The results of the Phase II ESI indicate the following:

- Groundwater was encountered at approximately 48 to 54 feet bgs in temporary wells installed during the Phase II ESI. The anticipated groundwater flow direction in the Site vicinity is to the northeast toward Flushing Bay.
- The Site is underlain by a shallow layer of fill material, consisting of fine sand, with gravel, ash, brick, and glass fragments, which is present to depths of approximately one to 14 feet bgs. Apparent native material, consisting of fine sand and silt, was observed beneath the fill layer extending to the groundwater table. A silt and clay layer was observed near the water table in some locations.
- The geophysical survey confirmed the presence of the on-site sewage holding tank adjacent to the modular trailers in the northwestern portion of the Site. No other anomalies indicative of USTs within the investigated portions of the Site were detected during the geophysical survey; however, a metallic anomaly that may be associated with buried construction debris was detected within the footprint of a demolished structure formerly present on Lot 13.
- PCE was detected in soil vapor sample SV-3 at a concentration of 420 µg/m^3 which exceeds the NYSDOH AGV of 100 µg/m^3. The detected concentration also exceeds the NYSDOH Decision Matrix 2 soil gas criterion that requires monitoring or mitigation.
- PCE concentrations exceeded the New York State Class GA Ambient Water Quality Standard of 5 µg/L in groundwater samples from temporary monitoring wells TW-1, TW-2, TW-5, and TW-7, at concentrations of 29 µg/L, 17 µg/L, 29 µg/L, and 11 µg/L, respectively.
- Freon 12 was detected in soil vapor sample SV-7 at a concentration of 1,400 µg/m^3 to 2,000 µg/m^3, which is two orders of magnitude greater than the anticipated background ranges. The presence of Freon 12 in soil vapor could be associated with demolition of the former on-site structures, which likely contained air conditioning units or refrigerators, or air conditioning services performed at nearby auto repair facilities. The detected concentrations of Freon 12 in soil vapor were well below the corresponding OSHA PEL.
- Selected SVOCs copper, lead, mercury and zinc were detected at concentrations exceeding the Unrestricted Use SCOs in soil samples collected from the shallow historic fill layer at the Site. The detected compounds and concentrations are typical of urban fill and are not indicative of a spill or other source area.
- The pesticides 4,4-DDD, 4,4-DDE, and dieldrin were detected at concentrations exceeding the Unrestricted Use SCOs in three of the eight soil samples collected from the fill material and one soil sample from the underlying native material. The detected concentrations are not indicative of a spill or other source area.
- All concentrations were below their respective characteristic hazardous waste limits in the composite characterization samples collected during the Phase II ESI.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the Phase II Environmental Site Investigation (ESI), AKRF concludes the following:

- Groundwater was encountered at approximately 48 to 54 feet bgs in the temporary wells installed during the Phase II ESI.
- Fill material, consisting of fine sand, with gravel, ash, brick, and glass fragments, is present in the Site subsurface to depths of approximately one to 14 feet bgs.
- A few SVOCs, metals, and pesticides were detected in select soil samples at concentrations exceeding the NYSDEC SCOs for Unrestricted Use. The detected concentrations of these parameters were generally limited to the encountered urban fill material and at levels which are not indicative of an on-site release.
- The solvent PCE was detected in groundwater at concentrations above the corresponding State standard. The detected concentrations were similar to levels reported during a 2002 environmental site investigation of the properties by a prospective purchaser of the Site. PCE was also detected in soil vapor in one of eight sampled locations at a concentration above the corresponding NYSDOH AGV warranting mitigation.
- The potential UST listed in the Phase I ESA was not identified in the areas targeted by the geophysical survey.

AKRF recommends the following measures to make the Site suitable for use as a public school facility.

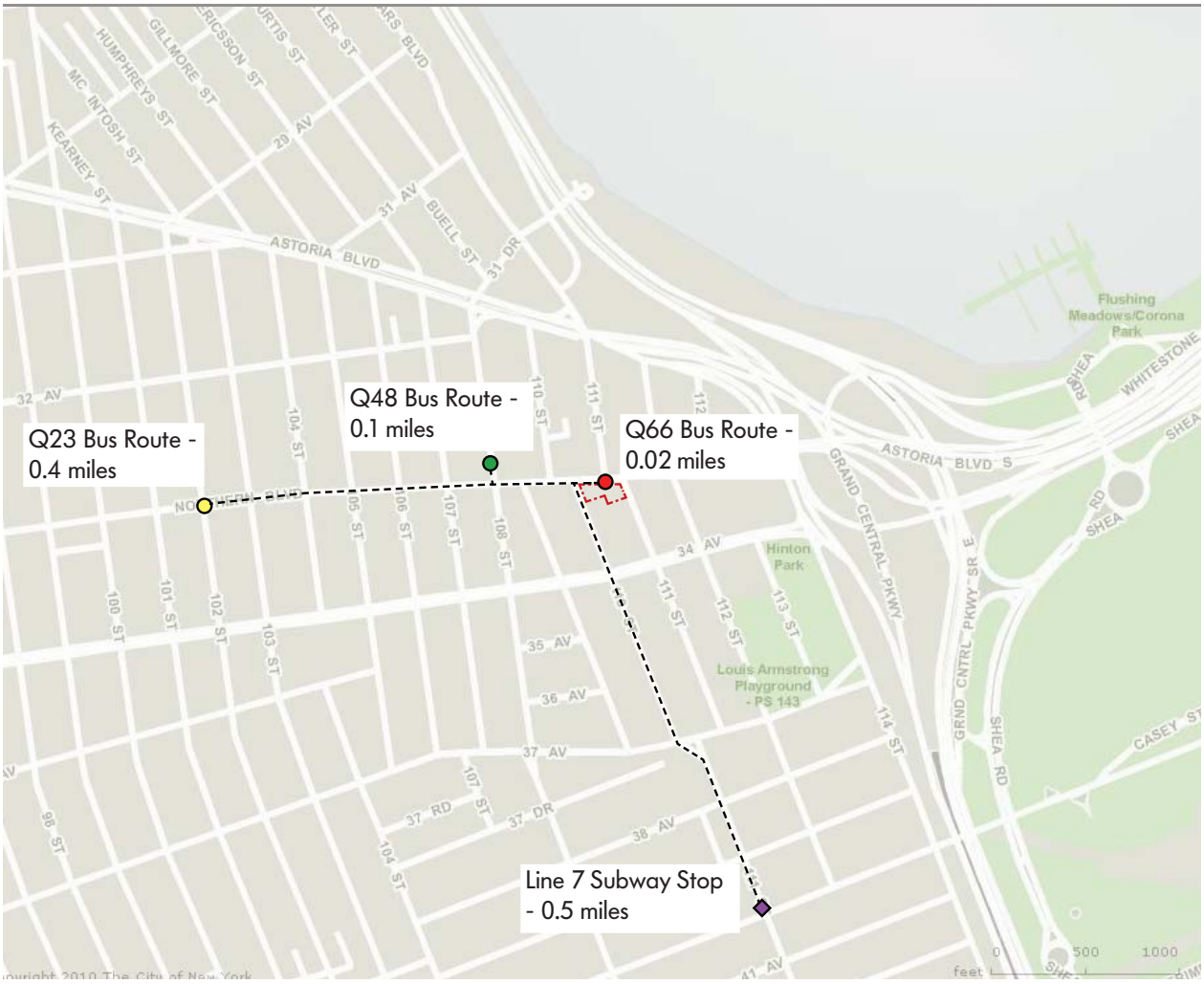
- A Pre-Design Investigation should be conducted when the modular trailers are removed from the Site to investigate potential contamination in areas not accessible during this Phase II ESI. The proposed school should be constructed with a vapor barrier and active SSDS to prevent potential soil vapor intrusion into the proposed site building.
- All material excavated during construction activities should be properly characterized prior to transportation to an off-site disposal facility. Results from the limited waste characterization sampling conducted during this investigation should not be used in lieu of data from a full Site characterization.
- Fill material and suspect buried structures identified during this investigation should be evaluated for the potential presence of ACM. In addition, any suspect ACM, LBP and PCB-containing materials affected by the proposed demolition or construction work should be identified prior to and properly managed during construction activities.
- After the proposed new building and grounds are constructed, if exposed soils (landscaped areas) are incorporated into the development of the Site, a minimum of two feet of environmentally clean fill should be placed over existing soil in these areas.

A description of the recommended engineering controls including a remediation cost estimate is included in Appendix G. Additional measures may be required to make the Site suitable for use as a public school facility based on results of the above recommended Pre-Design Investigation.

Transportation

S 2.1 Alternative Transportation, Public Transportation Access

This credit is feasible by demonstrating that one or two more stops of two or more public bus lines usable by building occupants are within 1/4 mile of the main building entry with distance calculated along pedestrian routes. Additional bus and subway stops are available o building occupants within 1/2 mile of the main building entry.



- Bus Stop on Q66 Bus Route
- Bus Stop on Q19 Bus Route
- Bus Stop on Q48 Bus Route
- Bus Stop on Q23 Bus Route
- Subway Stop on 7 Line
- Building Lot Line
- Pedestrian Travel

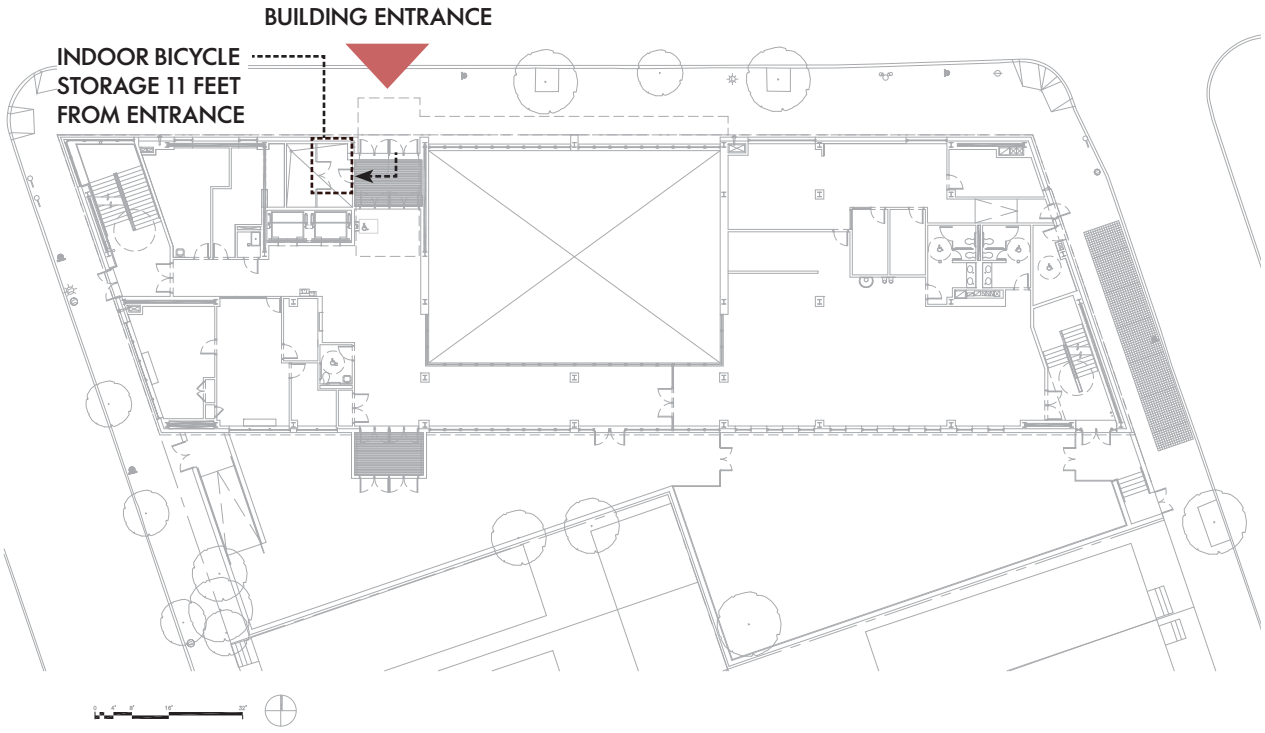
No additional credit submittal required for this phase.

Transportation

S 2.2 Alternative Transportation, Bicycle Storage & Changing Rooms

This credit is feasible. See calculations showing the requisite number of bicycle storage/racks and shower/changing facilities.

Number of students above 3rd grade level:	136
Number of full time staff :	70
Total number of users:	206
Number of bicycle racks (5%):	10
Number of lockers & showers in changing facility (0.5%):	1



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

This credit is feasible by pursuing Option 1: Providing no new parking on site. The entire site will be used by the school building and play yard.

Minimize Impact on Site

S 3.1 Site Development, Protect or Restore Habitat

This credit is not feasible because the site area not covered by the building footprint will be used for programmatic recreational space.

Site Area	20,469 SF
Building Footprint	12,710 SF (62% of the site area)
Remaining Area	7,759 SF (38% of the site area)

50% of Site Area excluding building footprint = 3,880 SF
20% of Site Area including building footprint = 4,094 SF

(These remaining site areas will be used for programmatic recreational space; therefore credit is not feasible.)

S 3.2 Site Development, Maximize Open Space

This credit is not feasible due to site limitations and the programmatic need for recreational space. There are no proposed vegetated open spaces or vegetated roof areas. The building will have one main roof that will be utilized only to house mechanical rooftop units, condensers and a generator.

Lot Area	20,469 S.F.
Building Footprint (Approx.)	12,710 S.F.
Open Space (for recreational use)	7,759 S.F.

Note that the SCA is negotiating final acquisition of a 2,000 SF lot south of the project site (Lot 56). The credit will be revisited and revised upon final acquisition and landscape design submission at 60% CD.

Stormwater Design

S 4.1 Stormwater Design, Quality Control

This credit is not feasible. A filtering system is required to be installed and maintained on site to achieve this credit, and such a system is not currently proposed. A filtering system is not required for code compliance because the site is tributary to a NYC DEP combined sewer. The combined sewers are filtered at one of the city's sewage treatment plants prior to entering Waters of the Commonwealth.

Heat Island Effect

S 5.1R Heat Island Effect, Roof

This credit is feasible. We intend to pursue Option 1: using a roof paver system with an SRI > 79 and compliant products for a coated metal roofing.

Applicable SCA Design Requirements:
6.1.11 Stormwater Management

Applicable SCA Specification Sections:
07560 Fluid Applied Protected Membrane Roofing
07610 Sheet Metal Roofing

Outdoor Lighting

S 6.1R Light Pollution Reduction

The interior lighting requirement for this credit will be met by turning off, automatically, all non-emergency lighting systems during non-school hours. The lighting design will include the systems required to achieve this operation automatically (Programmable Lighting Control Panels). The zone for this site is LZ3.

The exterior lighting requirement for this credit will be met by designing building mounted fixtures in the building that do not exceed a maximum initial luminance of 0.20 horizontal and vertical at the site boundary. Footcandles will not exceed 0.01 horizontal foot candles 15 ft beyond the site.

Applicable SCA Design Requirements:
7.2.1 Interior Lighting
7.2.5 Exterior/ Site/ Security Lighting

Applicable SCA Specification Sections:
16145 Lighting Control
16500 Interior Building Lighting
16501 Lamps, Ballasts and Accessories
16520 Illuminated Exit Sign and Emergency Lighting Fixtures
16530 Site/Security Lighting

Water Credits

Outdoor Systems

W1.1 Water Efficient Landscaping, Reduce by 50%

This credit is feasible. Our design will achieve this credit by incorporating only native or adapted tree and plant species requiring minimal amount or no potable water for irrigation in the building's peripheral sidewalks and recreation space. There will be hose bibs for irrigation around the building; this project is not atypical and will not require an irrigation system, therefore the site will have 100% reduction in the use of potable water for irrigation. A landscape design will be submitted at 60% CD.

Approximately 6.27% of the site area will be landscaped, including areas along the southern perimeter of the playground and an area adjacent to the building's southwest corner. See calculation below.

Site Area (per revised survey; includes lot 56) = 22,481SF
Proposed landscaped area = 1,509SF, or 6.71% of Site Area

Applicable SCA Design Requirements:
2.5.1 Trees, Shrubs, Ground Cover and Lawns

Applicable SCA Specification Section:
02900 Landscaping

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

This credit is feasible. Our design will achieve this credit by meeting the requirements for Credit W1.1; and pursuing path 2: installing landscaping that does not require permanent irrigation systems. The proposed landscaped areawill not require irrigation. See calculation below.

Site Area (per revised survey; includes lot 56) = 22,481SF
Proposed landscaped area = 1,509SF, or 6.71% of Site Area

Applicable SCA Design Requirements:
2.5.1 Trees, Shrubs, Ground Cover and Lawns

Applicable SCA Specification Section:
02900 Landscaping

Indoor Systems

W2.1R Minimum Water Use Reduction

Compliance with this credit will be achieved with the implementation of all NYCSCA standard specifications and Plumbing Design Requirements for dual flush-o-meter toilets, high water efficiency urinals, low water flow shower heads and metered faucets. Domestic water use calculations provided to the NYCSCA during the development of the NYCSCA Green School Guide demon-

strated that, for new buildings, the domestic water use reduction will be 40% above base design criteria when utilizing the above referenced plumbing fixtures. Consultant will review changes to baseline for flow rate of the lavatory and confirm feasibility at 60% CD.

Applicable SCA Design Requirements:
6.1.16 Potable Water Reduction – Compliance with LL86/05

Applicable SCA Specification Section:
15440 Plumbing Fixtures

W2.2R Enhanced Water Use Reduction

Compliance with this credit will be achieved by implementing the same practices as those described for credit W2.1R. Consultant will review changes to baseline for flow rate of the lavatory and confirm feasibility that 40% reduction will be met at 60% CD.

W2.3R Enhanced Water Use Reduction

Compliance with this credit will be achieved by implementing the same practices as those described for credit W2.1R. Consultant will review changes to baseline for flow rate of the lavatory and confirm feasibility that 40% reduction will be met at 60% CD.

W2.4R Enhanced Water Use Reduction

Compliance with this credit will be achieved by implementing the same practices as those described for credit W2.1R. Consultant will review changes to baseline for flow rate of the lavatory and confirm feasibility that 40% reduction will be met at 60% CD.

Energy & Atmosphere Credits

Commissioning

E1.1R Fundamental Commissioning of the Building Energy Systems

The project design complies with the requirements of this credit through compliance with SCA/DOE building commissioning policies.

School Commissioning Matrix has been provided and will be revised for the 60% submission. The Matrix notes and highlights those sections not used for this project, and indicates any additional sections that may be added to those included in the master Matrix. Note that Sections 02521, 04520, 04700, 07321 07561, 08510, 08521 are not applicable and will be marked 'NOT USED.'

Applicable SCA Specification Sections:
S01650 – Facility Start-up, Demonstration, and Training
S01660 – Commissioning

E1.2R Enhanced Commissioning

The project design complies with the requirements of this credit through compliance with SCA/DOE building commissioning policies.

School Commissioning Matrix has been provided and will be revised for the 60% submission. The Matrix notes and highlights those sections not used for this project, and indicates any additional sections that may be added to those included in the master Matrix. Note that Sections 02521, 04520, 04700, 07321 07561, 08510, 08521 are not applicable and will be marked 'NOT USED.'

Applicable SCA specification sections include:
S01650 Facility Start-up, Demonstration, and Training
S01660 Commissioning

Refrigerant Management

E2.1R Fundamental Refrigerant Management

The central air conditioning system for the building will comprise packaged DX rooftop units and a modular split air cooled water chiller that utilize refrigerant R407C or R-410A, and split heat pump units that utilize refrigerant R410A. No CFC-based refrigerants will be used on the project.

Applicable SCA Specification Sections:
11400 Food Service Equipment
11450 Domestic Type Equipment
13031 Walk-in Trash Refrigerator
15650 Split Air Cooled Chillers
15783 Split Heat Pump System
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)

E2.2R Enhanced Refrigerant Management

The central air conditioning system for the building will comprise packaged DX rooftop units and a modular split air cooled water chiller that utilize refrigerant R407C or R-410A, and split heat pump units that utilize refrigerant R410A. No CFC-based refrigerants will be used on the project.

This credit may not be attainable due to the volume of refrigerant utilized in the DX rooftop units and the split air-cooled chiller.

Applicable SCA Specification Sections:
11400 Food Service Equipment
11450 Domestic Type Equipment
13031 Walk-in Trash Refrigerator
15650 Split Air Cooled Chillers
15783 Split Heat Pump System
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)

Verification

E3.1R Measurement and Verification

The BMS System for the building will measure/monitor gas consumption by the hot water boilers, rooftop HVAC units and individual electrical power consumption by rooftop HVAC rooftop units, the air cooled chiller, and lighting panels.

Applicable SCA Design Requirements:
6.2.20 - Building Management Control System

Applicable SCA Specification Sections:
15970 Temperature Control Systems
15973 Facility Management Systems
15985 Sequences of Operations

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

The new building will be provided with Building Management System (BMS) that will be connected to the NYC DOE Wide Area Intranet Network (WAN). This connection allows complete monitoring and control of the school's MEP systems from both the local BMS station in the Custodian's Office as well as the DOE central monitoring and control station located at 44-46 Vernon Blvd., Long Island City NY.

Applicable SCA Design Requirements:
6.2.20 - Building Management Control System

Applicable SCA Specification Sections:
15970 Temperature Control Systems
15973 Facility Management Systems
15985 Sequences of Operations

Energy Efficiency

E4.1R Minimum Energy Performance

The HVAC design for the building will utilize gas-fired custom rooftop-mounted air handling units (RTU's), hot water/chilled water Unit Ventilators/Fan Coil Units, gas fired hot water condensing type boilers and split air cooled chiller(s) as required by the (proposed) NYC Schools Green Guidelines and SCA Design Requirements.

For lighting, occupancy motion sensors (ceiling mounted in Classrooms and wall mounted in Offices) will be provided for control of lights. Power densities for lighting layouts will be designed to comply with the New York City SCA Design Requirement 7.2.1 "Interior Lighting."

The energy model that was simulated for new school buildings during the development of the NYC Green School Guide is not applicable to this project due to the change to the system described above. Loring is currently working with the SCA under a separate project to develop prototypical energy models for the HVAC system being implemented.

The ability of the prototype Building to meet the energy savings goals will be determined by the SCA as the result of protypical modeling that is currently underway, but not complete. Should it be shown that additional EEM's are necessary to meet the energy savings targets, the SCA will determine how to modify the prototype system to provide the required savings.

Applicable SCA Design Requirements:
1.1.5.2 – Building Areas – Energy Saving and Non-Energy Saving Spaces – Fenestration
1.3.1.10 – Prototypical Energy Modeling (Capacity and CIP)/Green Building Multi-Discipline Design Parameters
4.2.1 - Exterior Masonry Wall
6.2.0 - General Overview of Heating, Ventilation and Air Conditioning Systems
6.2.3 - Non-Assembly Spaces
6.2.4 - Public Assembly Spaces
6.2.9 - Convectors and Enclosures
6.2.20 - Building Management Control System
7.2.1 – Interior Lighting
7.2.5 – Exterior/Site/Security Lighting

Applicable SCA Specification Sections:
08524 Aluminum Windows Projected
15517 Water Treatment for Hydronic Systems
15540 HVAC Pumps
15565 Condensing Boilers
15783 Split Heat Pump System
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)
15970 Temperature Control Systems
15973 Facility Management Systems
15985 Sequences of Operations
16145 Lighting Control Devices
16500 Interior Building Lighting

E4.2R HVAC System Sizing, Avoid Oversizing

The HVAC Systems for the building will be sized per SCA DR 6.2.13 Arrangement and Sizing of Equipment and 6.2.9 Heating and Cooling Design (Load Calculations) and not be oversized except when required to optimize energy efficiency operation of system.

Applicable SCA Design Requirements:
6.2.9 - Heating and Cooling Load Design Parameters (Load Calculations)
6.2.13 - Arrangement and Sizing of Equipment
6.2.34 – Verification of Air System Design

Applicable SCA Specification Sections:
15540 HVAC Pumps
15565 Condensing Boilers
15650 Split Air Cooled Chillers
15783 Split Heat Pump System
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)

Power

E5.1R Green Power

This credit is feasible by pursing the SCA's required approach for achieving this credit: engaging in a renewable energy contract for a minimum of two years to provide least 35% of the building's electricity from renewable sources. The application will be submitted once construction has begun per the SCA's standard application process.

Materials Credits

Efficient Material Use

M1.1R Storage and Collection of Recyclables

This credit is feasible. Our design incorporates an area dedicated to the collection and storage of non-hazardous materials for recycling and the requisite equipment in the Cellar. The layout for the food service area will have sufficient space for recycling bins. We will ensure that appropriate quantities of utility carts and recycling containers are on the purchase list.

Applicable SCA Design Requirements:
1.3.1.2 Building Organization – Space Relationships
1.3.1.8 Refuse and Recycling Storage
1.3.5.01 Cafeterias PK-8

Applicable SCA Specification Section:
11172 Waste Handling Equipment

M1.2 Building Reuse, Maintain 75% of Existing Walls, Floor & Roof

This credit is not feasible as the building is a new construction.

M1.3 Building Reuse, Maintain 95% of Existing Walls, Floor & Roof

This credit is not feasible as the building is a new construction.

M1.4 Building Reuse, Maintain 50% of Existing Interior Non-structural Elements

This credit is not feasible as the building is a new construction.

M1.5 Construction Waste Management, Divert 50% from Disposal

This credit is feasible: the project will follow SCA specifications to achieve waste management requirements. As this building is a new construction, no building structure or non-structural items can be re-used.

Applicable SCA Specification Sections:
S01524 Construction Waste Management
02060 Building Demolition

M1.6 Construction Waste Management, Divert 75% from Disposal

This credit is feasible: the project will follow SCA specifications to achieve waste management requirements. As this building is a new construction, no building structure or non-structural items can be re-used.

Applicable SCA Specification Sections:
S01524 Construction Waste Management

02060 Building Demolition

M1.7 Construction Waste Management, Divert 90% from Disposal

This credit is feasible: the project will follow SCA specifications to achieve waste management requirements. As this building is a new construction, no building structure or non-structural items can be re-used.

Applicable SCA Specification Sections:
S01524 Construction Waste Management
02060 Building Demolition

Sustainable Materials

M2.1R Recycled Content, 10% (post-consumer + 1/2 pre-consumer)

This credit is feasible. We will specify materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer recycled content constitutes 10% (based on cost) of the total value of materials in the project.

The Design Team will monitor compliance during construction through review of contractor's submittals.

Applicable SCA Specification Sections:
02200 Earthwork
02511 Asphaltic Concrete Paving
02513 Sidewalk and Street Paving
03300 Cast-in Place Concrete
03450 Pre-Cast Architectural Concrete
04200 Unit Masonry
05120 Structural Steel
05230 Steel Joist Girders
05710 Steel Stairs
07211 Perimeter Foundation Insulation
07212 Miscellaneous Building Insulation
07250 Sprayed Fire-Resistive Materials
07560 Fluid-applied Protected Membrane Roofing
08524 Aluminum Projected Windows
09260 Gypsum Board Assemblies
09310 Ceramic Tile
09510 Acoustic Ceilings
09650 Resilient Flooring

09680 Carpet
10151 Toilet Compartments

M2.2R Recycled Content, 20% (post-consumer + 1/2 pre-consumer)

This credit is feasible. We will specify materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer recycled content constitutes 20% (based on cost) of the total value of materials in the project.

The Design Team will monitor compliance during construction through review of contractor's submittals.

Applicable SCA Specification Standards – see response to M2.1

M2.3R Regional Materials, 10% Extracted, Processed & Manufactured

This credit is feasible by using building materials and 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 value of materials in the project. We will include the sustainability requirements in the respective specifications.

Applicable SCA Specification Sections:
02200 Earthwork
02511 Asphaltic Concrete Paving
02513 Sidewalk and Street Paving
02900 Landscaping
03300 Cast-in-Place Concrete
03450 Pre-Cast Architectural Concrete
04200 Unit Masonry
05120 Structural Steel
05230 Steel Joist Girders
05300 Metal Deck
09260 Gypsum Board Assemblies
09310 Ceramic Tile

M2.4R Recycled Content, 20% Extracted, Processed & Manufactured

This credit is feasible by using building materials and products that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 20% (based on cost) of the total value of materials in the project. We will include the sustainability requirements in the respective specifications.

Applicable SCA Specification Sections:
02200 Earthwork
02511 Asphaltic Concrete Paving
02513 Sidewalk and Street Paving
02900 Landscaping
03300 Cast-in-Place Concrete

03450 Pre-Cast Architectural Concrete
04200 Unit Masonry
05120 Structural Steel
05230 Steel Joist Girders
05300 Metal Deck
09260 Gypsum Board Assemblies
09310 Ceramic Tile

M2.5R Wallboard & Roof Deck Products, Mold Resistance

This credit is feasible. The building envelope's design incorporates mold-resistant materials. The roof will be the standard concrete on metal deck.

Applicable SCA Specification Sections:
06100 Rough Carpentry
07212 Miscellaneous Building Insulation
07250 Sprayed Fire-Resistive Materials
09260 Gypsum Board Assemblies
09900 Painting

M2.6R Low-Mercury Lighting, Reduce Mercury Waste

The lighting fixtures for the school will be specified with low mercury content in compliance with New York City SCA specification 16501 for interior building lighting.

The Design Team will monitor compliance during construction through review of contractor's submittals.

Applicable SCA Specification Section:
16501 - Lamps, Ballasts and Accessories

Indoor Environmental Quality Credits

IAQ Post-Occupancy

Q1.1R Minimum IAQ Performance

The ventilation system for the building will be designed to provide 30% more outdoor air ventilation than the ASHRAE Standard 62.1-2007 requirements, with the exception of the Cafeteria area. For the Cafeteria, the ventilation system will comply with the minimum ASHRAE 62.1-2007 requirements, which exceed DOB ventilation rates. Each occupied space will be ventilated in accordance with the 2008 NYC Building Code, or ASHRAE 62.1-2004, whichever requirement is greater. Public Assembly spaces will be ventilated by introducing outdoor air into the space through its associated rooftop unit. Classroom and other individual spaces will be ventilated by a dedicated 100% outdoor air unit that utilizes an enthalpy wheel to recover energy from the building ventilation exhaust to pre-warm or pre-cool the incoming ventilation air.

Each Public Assembly rooftop unit and the 100% outdoor air ventilation unit, will include Merv 7 pre-filters and Merv 13 final filters.

Six VOC's were found in the ambient air, but the last sentence of par 4.4 of ESA Report - Phase II states that all were within the "anticipated background ranges." Consultant interprets this to mean that the levels detected were not in excess of any environmental standards. There appears to be no recommendations for dealing with potential contamination. See attached relevant page from the ESA Report - Phase II, with par. 4.4 framed in red.

The project Environmental/Hazmat Engineers will provide guidance as to what measures may be necessary to limit the contamination that may enter the building through the mechanical systems. Consultant will review these with its SCA project manager.

Compliance with ASHRAE 62.1 will be demonstrated by providing a conforming ventilation schedule as a part of the 60% document submission.

Applicable SCA Design Requirements:
6.2.0 - General Overview of HVAC 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)

Applicable SCA Specification Sections:
S01550 - Indoor Air Quality Requirements
15854 - Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)
15985 - Sequences of Operations
15992 - Cleaning and Testing
15993 - Balancing of Systems

The soil vapor sampling results for PCE in SV-3 were compared to Matrix 2 of the NYSDOH Vapor Intrusion Guidance Document. The detected concentrations of PCE ranged from 6.8 to 420 µg/m^3. Based on Matrix 2, the recommended action for soil vapor concentrations of PCE from 100 to 1,000 µg/m^3 ranges from monitoring or mitigation depending on the indoor air concentrations. Indoor air samples were not collected as a part of this investigation, as there are currently no permanent structures on the Site.

PCE was detected in groundwater at the Site during Delta's 2002 Baseline Acquisition Assessment; therefore, the presence of this compound in soil vapor is not unanticipated. Evidence of an on-site source area for PCE contamination was not identified during the Phase II ESI field program, and neither PCE nor its degradation products were detected in any of the soil samples collected during the investigation. Sampling could not be conducted under the footprint of the former N & B Cleaners on Lot 1 due to the presence of modular trailers in this location; therefore, a potential on-site source area cannot be ruled out. PCE concentrations detected in soil vapor are shown on Figure 4.

Freon 12, was commonly used as a refrigerant and aerosol propellant before 1995, when its production was banned in the United States due its harmful effects on the ozone layer. The Freon 12 detected in soil gas at the Site could be associated with the demolition of the former structure on Lot 13, which may have included an air conditioning unit or refrigerator. The detected Freon-12 could also be associated with servicing of car air conditioning systems at the current or historic off-site auto repair facilities located north and west of the Site. Freon 12 was detected at a concentration of 2.54 micrograms per liter (µg/L) in a groundwater sample during the 2002 Baseline Assessment at the Site, but was not present in any of the soil or groundwater samples collected during this investigation. The Freon 12 concentrations detected in soil vapor during this study were well below the Occupational Safety and Health Administration (OSHA) Personal Exposure Limit (PEL) of 4,950,000 µg/m^3.

4.4 Ambient Air Sampling Findings

Analytical results indicates that 6 of the 27 VOCs analyzed utilizing USEPA Method TO-15 for the parameters listed in Section 2.1 were detected in the ambient air sample collected at the Site. The detected compounds included benzene, chlorobenzene, Freon 12, toluene, *o*-xylene, and *m,p*-xylenes. Results for VOCs in ambient air are included in Table 2. The complete analytical data report is presented in Appendix E. All VOCs were detected within the anticipated background ranges.

4.5 Soil Sampling Findings

4.5.1 Volatile Organic Compounds (VOCs) in Soil

A review of the subsurface soil sampling analytical results indicates that only one (1) of the 57 VOCs analyzed for was detected in one of the 11 collected soil samples. Specifically, naphthalene was detected in GB-6(2-3) at an estimated concentration of 0.0037 mg/kg, which is well below the Unrestricted Use SCO and TAGM RSCO of 12 mg/kg and 13 mg/kg, respectively. No other targeted VOCs were detected in the soil samples. Analytical results for VOCs in soil are summarized in Table 3.

4.5.2 Semivolatile Organic Compounds (SVOCs) in Soil

Analytical results for SVOCs in soil are summarized in Table 4. A review of the subsurface soil sampling analytical results indicates that 17 of the 41 SVOCs analyzed for were detected in one or more of the samples. Tentatively identified compounds (TICs) were identified in all of the soil samples collected except GB-1(1-2), at total concentrations ranging from 0.7 to 4.47 mg/kg. Soil collected from the fill material in four of the eight soil borings (GB-2, GB-3, GB-6, and GB-8) contained one or more SVOC at concentrations that exceed the TAGM RSCOs for gasoline and fuel oil contaminated soil. Three of the SVOCs detected in the fill material sample from boring GB-6 also exhibited concentrations exceeding their Unrestricted Use SCOs. These exceedances are summarized in the table below:

Q1.1R Increased Ventilation

The ventilation system for the building will be designed to provide 30% more outdoor air ventilation than the ASHRAE Standard 62.1-2007 requirements, with the exception of the Cafeteria area. For the Cafeteria, the ventilation system will comply with the minimum ASHRAE 62.1-2007 requirements, which exceed DOB ventilation rates. Each occupied space will be ventilated in accordance with the 2008 NYC Building Code, or ASHRAE 62.1-2004, whichever requirement is greater. Public Assembly spaces will be ventilated by introducing outdoor air into the space through its associated rooftop unit. Classroom and other individual spaces will be ventilated by a dedicated 100% outdoor air unit that utilizes an enthalpy wheel to recover energy from the building ventilation exhaust to pre-warm or pre-cool the incoming ventilation air.

Each Public Assembly rooftop unit and the 100% outdoor air ventilation unit, will include Merv 7 pre-filters and Merv 13 final filters.

Six VOC's were found in the ambient air, but the last sentence of par 4.4 states that all were within the "anticipated background ranges." Consultant interprets this to mean that the levels detected were not in excess of any environmental standards. There appears to be no recommendations for dealing with potential contamination. See relevant page from the Phase II ESA Report with par. 4.4 framed in red on the preceding section.

The project Environmental/Hazmat Engineers will provide guidance as to what measures may be necessary to limit the contamination that may enter the building through the mechanical systems.

Compliance with ASHRAE 62.1 will be demonstrated by providing a conforming ventilation schedule as a part of the 60% document submission.

Applicable SCA Design Requirements:
6.2.0 - General Overview of HVAC 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)

Applicable SCA Specification Sections:
S01550 Indoor Air Quality Requirements
15854 Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)
15985 Sequences of Operations
15992 Cleaning and Testing
15993 Balancing of Systems

Refer to the environmental assessment form (EAF) and supplemental studies by AKRF for outdoor air analysis. Per this report, one ambient air sample was collected and analyzed. All VOC concentrations were below the anticipated background levels and AGVs.

Q1.2R Outdoor Air Delivery Monitoring

The central ventilation system (rooftop HVAC units) for the building will be provided with air flow measuring stations at the outside air intakes in order to measure/monitor the outside air supplied to the school. Data for outside air measurement will be available for verification at the school level through the BMS system schools operating console in the Custodian's Office or through the DOE centralized host control station for Automatic Temperature Control of Schools in NYC.

Applicable SCA Design Requirements:
6.2.0 General Overview of HVAC 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)

Applicable SCA Specification Sections:
15970 Temperature Control System (Lonworks BMS/DDC with School Operating Console)
15985 Sequence of Operations

IAQ Pre-Occupancy

Q2.1R Construction IAQ Management Plan, During Construction

The specifications will require that the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction, 2007 version, Chapter 3, shall be incorporated in the General Contractor's IAQ plan.

Applicable SCA Specification Sections:
S01550 Indoor Air Quality Requirements
S01560 Installation Sequence of Finish Materials

Q2.2R Construction IAQ Management Plan, Before Occupancy

The contractor will be required to operate the central ventilation system for the building prior to occupancy of school until all areas of the school receive 3500 cubic feet of outside air per square feet maintaining an internal temperature higher than 60°F DB and relative humidity no higher than 60%. The volume of outside and indoor temperature and humidity conditions will be measured/monitored by the BMS system. The central ventilation units will continue operating at the maximum of .30 cubic feet per minute outside air intake after the school is occupied or that required by code, until all spaces of the school receive a total 14,000 cubic feet of outside air per square feet. After complying with this requirement, all ventilation systems will operate in normal mode.

Applicable Specification Section:
S01550 Indoor Air Quality Requirements

Low-Emitting Materials

Q3.1R Low Emitting Materials, Adhesives & Sealants

This credit is feasible by using only low-emitting adhesives and sealants that comply with the VOC limits listed in SCA standard specification G01600 Material and Equipment on the interior of the building.

The Design Team will monitor compliance during construction through review of contractor's submittals and include VOC information on the Low-Emitting Material-Summary Form.

Applicable SCA Specifications Sections:
G01600 Material and Equipment
07900 Joint Sealers
09680 Carpet
15401 Supplemental General Requirements
15440 Plumbing Fixtures

Q3.2R Low Emitting Materials, Paints & Coatings

This credit is feasible by using only low-emitting paints and coatings that comply with the VOC limits listed in SCA Specification G01600 Material and Equipment on the interior of the building. SCA Specification 09900 Painting is also applicable.

The Design Team will monitor compliance during construction through review of contractor's submittals and include VOC information on the Low-Emitting Material-Summary Form.

Q3.3R Low Emitting Materials, Flooring Systems

This credit is feasible. All carpets shall meet the testing and product requirements of the Carpet and Rug Institute's (CRI) Green Label Plus program; all carpet cushion will meet the CRI's Green Label Program. All carpet adhesive shall meet the requirements of Q.3.1 VOC limit of 50g/L. All resilient, wood, and ceramic flooring and wall base products will be FloorScore certified. All floor finishes will meet SCAQMD Rule #1113. Tile adhesives and grout will meet SCAQMD Rule #1168. Alternately, all flooring products will meet the requirements of the California Department of Public Health Standard Practice for the Testing of Volatile Organic Emissions From Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda.

The Design Team will monitor compliance during construction through review of contractor's submittals and include VOC information on the Low-Emitting Material-Summary Form.

Applicable SCA Specification sections:
G01600 Material and Equipment
09310 Ceramic Tile
09650 Resilient Flooring
09680 Carpet

Q3.4R Low Emitting Materials, Comp Wood & Agrifiber Products

This credit is feasible. All composite wood and agrifiber products and related adhesives used on the interior of the building, including casework, millwork, plywood subflooring, wood doors and mounting boards for MEP panels, shall contain no added urea-formaldehyde resins.

The Design Team will monitor compliance during construction through review of contractor's submittals and include the appropriate information on the Low-Emitting Material-Summary Form.

Applicable SCA Specification Sections:
06100 Rough Carpentry
06200 Finish Carpentry
06410 Custom Casework
08210 Wood Doors
09590 Wood Flooring
10100 Visual Display Boards
10415 Bulletin Boards
12302 Manufactured Wood Casework

Applicable SCA Details:
06200 Finish Carpentry
06410 Custom Casework.

Pollution Source Control

Q4.1R Indoor Chemical & Pollution Source Control

This project will comply with the requirements of this credit by designing according to Design Requirements and Specifications listed below. Specifically an entryway foot grille will be provided as per specification section 12485 at the all entrances into the building. The central rooftop HVAC units for the building will be provided with pre-filters having a Minimum Efficiency Reporting Value (MERV) of 7 and final filters having a MERV of 13. In addition, Janitors' Closets, Grounds Storage Room, Receiving Areas and copy rooms will be provided with exhaust systems that will maintain those areas under negative air balance and, therefore, prevent the outflow of room contaminants into other areas of the school.

Applicable 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

Applicable SCA Specification Sections:
12485 Foot Grilles
15854 Custom Packaged Rooftop Heating and Cooling Units (CV)
15857 Unit Ventilators

Q4.2R Electric Ignition Stoves

Compliance with this credit will be achieved with the implementation of NYCSCA design requirements.

Applicable SCA Design Requirements:
7.3.13 – Carbon Monoxide Detection and Alarm Systems

Compliance with this credit will be achieved with the incorporation of NYCSCA standard specifications.

Applicable SCA Specification Sections:
11400 Food Service Equipment
11450 Domestic Type Equipment
16722 Stand-Alone Carbon Monoxide Alarms

Q4.3R Provide HEPA Vacuums

This credit is feasible by obtaining a written statement from the SCA/F&E Unit to confirm that HEPA vacuums are included in this project's equipment list.

Controllability of Systems

Q5.1R Controllability of Systems, Lighting

Compliance with this credit is achieved by providing ceiling mounted occupancy sensors for each classroom, key operated switches for assembly spaces (i.e. student cafeteria area and gym) and wall mounted occupancy sensors for lighting control in individual office.

Applicable SCA Design Requirements:
7.2.1 Interior Lighting

Applicable SCA Specification Sections:
16140 – Wiring Devices
16145 – Lighting Control Devices

Q5.2R Controllability of Systems, Thermal Comfort

All individual classrooms, offices, and assembly areas in the building will be provided with individual thermostats for temperature control.

Applicable SCA Design Requirements:

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

Applicable SCA Specification Sections:
15970 - Temperature Control System (Lonworks BMS/DDC with School Operating Console)
15985 - Sequence of Operations

Thermal Comfort

Q6.1R Thermal Comfort, Comply with ASHRAE 55-2004

HVAC systems for the building will be designed to comply with the applicable New York City SCA HVAC Design Requirements in order to provide the thermal comfort requirements of ASHRAE 55-2004.

Applicable SCA Design Requirements:
6.2.0 General Overview of HVAC 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 Requirements for Special Spaces

Applicable SCA Specification Sections:
15970 Temperature Control System (Lonworks BMS/DDC with School Operating Console)
15985 Sequence of Operations

Lighting and Views

Q7.1 Daylight & Views, Daylight 75% of Classrooms

This credit is feasible by pursuing Option 2 – Prescriptive. Side-lighting will be used to achieve at a total Daylighting Zone that is at least 75% in all regularly occupied classrooms. Enhanced glazing and manual shades for glare control will be used per SCA specifications. The building has a shallow floor plate from north to south, with a majority of the regularly occupied classrooms benefiting from a southern orientation. Refer to table Q7-A for preliminary calculations. The committee should note that rooms 210, 305, 314, and 416 comply when the mullion widths are subtracted from the window width. The VLT for windows will meet NYCECC or ASHRAE requirements.

Applicable SCA Design Requirements:
1.3.1.1 Building Location and Orientation

Applicable SCA Specification sections:
08524 Aluminum Projected Windows
08800 Miscellaneous Glazing
08920 Aluminum Curtain Walls
12501 Chain and Clutch Operated Window Shades.

Q7.2 Daylight & Views, Daylight 90% of Classrooms

This credit is not feasible by implementing the same strategy as described in the narrative for Credit Q7.1. Preliminary calculations show non-compliance. Refer to table Q7-A.

Q7.3 Daylight & Views, Daylight 75% of Other Spaces

This credit is not feasible by implementing the same strategy as described in the narrative for Credit Q7.1. Preliminary calculations show non-compliance. Refer to table Q7-B and see notes on specific non-compliant rooms below.

Gymatorium: this space does not have sufficient glazing area per the daylight calculation form. However, one of its four walls consists entirely of exterior glazing; the other three walls have substantial interior glazing that will admit indirect daylight from adjacent spaces.

Cafeteria: this space does not have sufficient glazing area per the daylight calculation form. However, two of its four walls consist entirely of exterior glazing; a third wall permits natural light to enter via the Gymatorium.

Q7.4 Daylight & Views, Views

Table Q7-A

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

SCA School Construction Authority
NYC Green School Rating Systems

Project: P.S. 287 Queens
Address: 110-08 Northern Blvd., Queens, NY 11368
LLW: 60353 Design #:

Architect: **Y. Kahng**
Preparer: **E. Curtis**
Date:

RM #	RM Name	Window Data							Transmittance-VLT		Daylight Zone		WFR Factor	Daylight Zone Factor		Qualifying Daylight Area	Glare Control (Y / N)
		L	Floor Area - FA	Effective Head Hgt	Sill Hgt	Daylight Hgt	Window Width/ Room	Window Area - WA	Actual	Min.	Daylight Zone Depth	Daylight Area	Actual	Actual	Required		
2ND FLOOR																	
202	KINDERGARDEN	37	790 SF	10.00	2.50	7.50	30.88	232 SF	0.60	0.60	20.00	740.00	0.29	0.18	0.15 - 0.18	*740*	Y
203	MUSIC	37	936 SF	10.00	2.50	7.50	35.38	265 SF	0.60	0.60	20.00	740.00	0.28	0.17	0.15 - 0.18	*740*	Y
204	KINDERGARDEN	38	878 SF	10.00	2.50	7.50	35.38	265 SF	0.60	0.60	20.00	754.16	0.30	0.18	0.15 - 0.18	*754*	Y
205	SCIENCE/ART	32	733 SF	10.00	2.50	7.50	27.49	206 SF	0.60	0.60	20.00	644.16	0.28	0.17	0.15 - 0.18	*644*	Y
206	KINDERGARDEN	38	886 SF	10.00	2.50	7.50	35.38	265 SF	0.60	0.60	20.00	754.16	0.30	0.18	0.15 - 0.18	*754*	Y
208	PRE-K	37	926 SF	10.00	2.50	7.50	35.25	264 SF	0.60	0.60	20.00	731.66	0.29	0.17	0.15 - 0.18	*732*	Y
210	PRE-K	38	1031 SF	10.00	2.50	7.50	35.34	265 SF	0.60	0.60	20.00	760.00	0.26	0.15	0.15 - 0.18	*760*	Y
	Sub-Total This Floor		**6,180 SF**													**5124 SF**	
3RD FLOOR																	
302	SP. ED. BAY A	14	363 SF	10.00	2.50	7.50	13.25	99 SF	0.60	0.60	20.00	280.00	0.27	0.164	0.15 - 0.18	*280*	Y
302	SP. ED. BAY B	14	55 SF	10.00	2.50	7.50	13.25	99 SF	0.60	0.60	20.00	55.00	1.81	1.084	0.15 - 0.18	*0*	Y
304	2ND GRADE	28	676 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.29	0.18	0.15 - 0.18	*557*	Y
305	2ND GRADE	33	713 SF	10.00	2.50	7.50	27.49	206 SF	0.60	0.60	20.00	653.74	0.29	0.17	0.15 - 0.18	*654*	Y
306	2ND GRADE	28	700 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.28	0.17	0.15 - 0.18	*557*	Y
308	2ND GRADE	28	726 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.27	0.16	0.15 - 0.18	*557*	Y
310	1ST GRADE	28	683 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.29	0.17	0.15 - 0.18	*557*	Y
312	1ST GRADE	28	694 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.29	0.17	0.15 - 0.18	*557*	Y
314	1ST GRADE	25	780 SF	10.00	2.50	7.50	31.41	236 SF	0.60	0.60	20.00	500.00	0.30	0.18	0.15 - 0.18	*500*	Y
	Sub-Total This Floor		**5390 SF**													**4,217 SF**	
4TH FLOOR																	
401	5TH GR. BAY A	18	429 SF	10.00	2.50	7.50	17.63	132 SF	0.60	0.60	20.00	360.00	0.31	0.18	0.15 - 0.18	*360*	Y
401	5TH GR. BAY B	11	301 SF	10.00	0.00	0.00	0.00	0 SF	0.60	0.60	20.00	220.00	0.00	0.00	0.15 - 0.18	*0*	Y
402	SP. ED. BAY A	14	354 SF	10.00	2.50	7.50	13.25	99 SF	0.60	0.60	20.00	280.00	0.28	0.17	0.15 - 0.18	*280*	Y
402	SP. ED. BAY B	5	125 SF	10.00	2.50	7.50	0.00	0 SF	0.60	0.60	20.00	100.00	0.00	0.00	0.15 - 0.18	*0*	Y
404	4TH GRADE	28	663 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	555.60	0.30	0.18	0.15 - 0.18	*556*	Y
405	5TH GR. BAY A	17	431 SF	10.00	2.50	7.50	17.63	132 SF	0.60	0.60	20.00	340.00	0.31	0.18	0.15 - 0.18	*340*	Y
405	5TH GR. BAY B	13	311 SF	10.00	2.50	7.50	11.78	88 SF	0.60	0.60	20.00	260.00	0.28	0.17	0.15 - 0.18	*260*	Y
406	4TH GRADE	28	693 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.29	0.17	0.15 - 0.18	*557*	Y
407	READ/SPEECH	19	379 SF	10.00	2.50	7.50	18.25	137 SF	0.60	0.60	20.00	379.00	0.36	0.22	0.15 - 0.18	*0*	Y
408	3RD GRADE	28	698 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.28	0.17	0.15 - 0.18	*557*	Y
410	3RD GRADE	28	660 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.30	0.18	0.15 - 0.18	*557*	Y
412	3RD GRADE	28	668 SF	10.00	2.50	7.50	26.50	199 SF	0.60	0.60	20.00	556.66	0.30	0.18	0.15 - 0.18	*557*	Y
416	3RD GRADE	25	838 SF	10.00	2.50	7.50	31.41	236 SF	0.60	0.60	20.00	500.00	0.28	0.17	0.15 - 0.18	*500*	Y
	Sub-Total This Floor		**6550 SF**													**4,522 SF**	

SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR: **18,120 SF**

SF OF AREA THAT ACHIEVES DAYLIGHT FACTOR: **13,863 SF**

Percentage achieved: 76.5%

Requirement to achieve credit Q7.1 is Daylight in 75% of classroom areas ***Complies? (Y/ N):*** **Yes**
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, and actual transmittance factor of glazing. Window Area (WA), 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 Minimum Visible Transmittance Factor. The default value used is to be 0.60, which is the minimum required per the SCA standard specification.*
5. *Verify/enter actual transmittance for specified glazing. For projects in design, use lowest figure for specified glass.*
6. *Check that all sub-total figures are included in worksheet cells, summing SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR and SF OF AREA THAT ACHIEVES DAYLIGHT FACTOR.*
7.
8. *The entire room may be considered as a bay if the windows are evenly distributed across the room and meets the daylight zone factor. However, if the room does not meet the daylight zone factor requirement, the room should be broken up to the individual bays to determine if part of the room meets the criteria and contributes to the daylight area in keeping with LEED Credit IEQ 8.1 methodology.*
9. *Where a soffit/ceiling is lower than the window head height, the head height and daylight zone need to be modified accordingly as per diagram in GSG Credit Q7.1.*

Table Q7-B

DAYLIGHT & VIEWS
Daylight Calculation Form for other spaces (excluding classrooms)
Credit Q7.3

SCA School Construction Authority
NYC Green School Rating Systems

Project: P.S. 287 Queens
Address: 110-08 Northern Blvd., Queens, NY 11368
LLW: 60353 Design #:

Architect: **Y. Kahng**
Preparer: **E. Curtis**
Date:

RM #	RM Name	Window Data							Transmittance-VLT		Daylight Zone		WFR Factor	Daylight Zone Factor			Qualifying Daylight Area	Glare Control (Y / N)
		L	Floor Area - FA	Effective Head Hgt	Sill Hgt	Daylight Hgt	Window Width/ Bay	Window Area - WA	Actual	Min.	Daylight Zone Depth	Daylight Area	Actual	Actual		Required		
CELLAR																		
C13	GYM. - BAY A	63	1985 SF	10	2.50	8.50	58.50	497 SF	0.60	0.60	20.00	1263.32	0.25	0.150	0.15 - 0.18		*1,263*	Y
C13	GYM. - BAY B	63	1164 SF	10	2.50	8.50	0.00	0 SF	0.60	0.60	20.00	1164.00	0.00	0.000	0.15 - 0.18		*0*	Y
	Sub-Total This Floor		**3,149 SF**														**1263 SF**	
1ST FLOOR																		
102	DIN. AREA BAY A	31	1069 SF	10	2.50	8.50	28.17	239 SF	0.60	0.60	20.00	620.00	0.22	0.134	0.15 - 0.18		*0*	Y
102	DIN. BAY B	35	1069 SF	10	2.50	8.50	28.17	239 SF	0.60	0.60	20.00	700.00	0.22	0.134	0.15 - 0.18		*0*	Y
107	CUST. OFFICE	11	297 SF	10	6.81	3.19	5.00	16 SF	0.60	0.60	20.00	220.00	0.05	0.032	0.15 - 0.18		*0*	Y
109	COMMUNITY RM.	11	236 SF	10	6.81	3.19	5.00	16 SF	0.60	0.60	20.00	220.00	0.07	0.041	0.15 - 0.18		*0*	Y
110A	PRINCIPAL	24	348 SF	10	6.42	3.58	22.00	79 SF	0.60	0.60	20.00	348.00	0.23	0.136	0.15 - 0.18		*0*	Y
110	ADMIN. BAY A	17	349 SF	10	2.50	7.50	13.25	99 SF	0.60	0.60	20.00	340.00	0.28	0.171	0.15 - 0.18		*340*	Y
110	ADMIN BAY B	16	33 SF	10	2.50	7.50	13.25	99 SF	0.60	0.60	20.00	33.00	3.01	1.807	0.15 - 0.18		*0*	Y
	Sub-Total This Floor		**3,401 SF**														**340 SF**	
2ND FLOOR																		
201	STAFF LUNCH	25	476 SF	10.00	2.50	7.50	17.63	132 SF	0.60	0.60	20.00	476.00	0.28	0.17	0.15 - 0.18		*476*	Y
	Sub-Total This Floor		**476 SF**														**476 SF**	
3RD FLOOR																		
301	LIBRARY BAY A	55	1300 SF	10	2.50	7.50	47.12	353 SF	0.60	0.60	20.00	1100.00	0.27	0.16	0.15 - 0.18		*1,100*	Y
301	LIBRARY BAY B	22	478 SF	10	2.50	7.50	15.71	118 SF	0.60	0.60	20.00	440.00	0.25	0.15	0.15 - 0.18		*440*	Y
315A	GUIDE. BAY A	10	118 SF	10	2.50	7.50	4.25	32 SF	0.60	0.60	20.00	118.00	0.27	0.162	0.15 - 0.18		*118*	Y
315A	GUIDE. BAY B	3	12 SF	10	2.50	7.50	0.00	0 SF	0.60	0.60	20.00	12.00	0.00	0.000	0.15 - 0.18		*0*	Y
	Sub-Total This Floor		**1,908 SF**														**1,658 SF**	
4TH FLOOR																		
403	TEACHER WKRM	22	478 SF	10.00	2.50	7.50	13.25	99 SF	0.60	0.60	20.00	440.00	0.21	0.12	0.15 - 0.18		*0*	Y
419	SUPER. OFFICE	15	229 SF	10.00	2.50	7.50	13.75	103 SF	0.60	0.60	20.00	229.00	0.45	0.27	0.15 - 0.18		*0*	Y
	Sub-Total This Floor		**707 SF**														**0 SF**	
	SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR:		**9,641 SF**									SF OF AREA THAT ACHIEVES DAYLIGHT FACTOR:					**3,737 SF**	
																Percentage achieved:	**38.8%**	

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, room area (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, and actual transmittance factor of glazing. Window Area (WA), 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 Minimum Visible Transmittance Factor. The default value used is to be 0.60, which is the minimum required per the SCA standard specification.*
5. *Verify/enter actual transmittance for specified glazing. For projects in design, use lowest figure for specified glass.*
6. *Check that all sub-total figures are included in worksheet cells, summing SF OF AREA BEING EVALUATED FOR DAYLIGHT FACTOR and SF OF AREA THAT ACHIEVES DAYLIGHT*
7. *FACTOR.*

This credit is feasible. All classrooms and 90% of regularly occupied spaces offer occupants a direct line of sight to the outdoor environment via vision glazing between 2'-6" and 7'-6" above the finished floor.
The Gymatorium Platform would be excluded from this credit as its function as a stage would be hindered by daylight. The following ground-floor spaces have glazing between 6'-5" and 9'-9" above the finished floor for security and privacy purposes: principal's office, community room, and custodian's office.

Applicable SCA Design Requirements:
1.3.1.1 Building Location and Orientation
1.3.1.2 Planning Guidelines for New Schools and Additions

Q7.5 Visual Performance, Artificial Direct-Indirect Lighting

All classrooms will be provided with pendant mounted direct-indirect lighting fixtures with high efficiency T-8 fluorescent lamps. The use of this type of lighting fixtures will reduce lighting power density (LPD) and, therefore, use less energy while delivering a better quality of light to the space. The typical ceiling height will be 10 ft with the bottom of pendant fixtures set no lower than 8'-6" ft.
Applicable SCA Design Requirements:
7.2.1 – Interior Lighting

Applicable SCA Specification Sections:
16500 Interior Building Lighting
16501 Lamps, Ballasts and Accessories

Acoustics

Q8.1R Minimum Acoustical Performance

The Design team includes an Acoustical Consultant who will review HVAC design for compliance with New York City SCA HVAC Acoustical Design Standard No. 6.2.25 so that background noise levels do not exceed 45 dBA in classrooms and other core learning spaces. Noise transfer will be limited to prescribed partitions and assemblies. For Case 1 spaces, we will pursue Option 1 per the GSG.

Applicable SCA Design Requirements:
1.3.1.9 – Architectural Acoustics
4.2.1 – Exterior Masonry Walls
4.3.1 – Window Types
5.1.1 – Typical Room Finishes

5.2.2 – Interior Partitions
5.3.1 – Floor Types
5.4.1 – Suspended Ceilings
5.5.1 – Interior Doors and Frames
6.2.25 – HVAC Acoustical Standards

Applicable SCA Specification Sections:
08524 Aluminum Projected Windows
09260 Gypsum Board Assemblies
09510 Acoustical Ceilings
15854 Custom Rooftop Units (CV)
15891 Metal Ductwork
15910 Duct Accessories
15993 Balancing of Systems

Q8.2 Enhanced Acoustical Performance

This credit is not feasible: the use of unit ventilators will preclude obtaining this credit as background noise will exceed 40dBA. All STC ratings and impact isolation requirements shall be followed. Cerami & Associates, the project's acoustical consultant, has proposed the following design approaches at each condition:
Outdoors: the SCA approved its standard glazing units for fenestration along Northern Boulevard, with ¼" laminated glass + ½" air space + ¼" laminated glass with STC 40.

Music Room: the standard building slab thickness will be 6-1/4", but the slab separating the Music Room from the Library above will be 9" thick. The wall thickness will be 9-3/4" thick. Its door will be an acoustic door.

Cafeteria: the slab above the entire cafeteria will be 9" thick lightweight concrete.
Mechanical Equipment Room: there will be a single acoustic door of appropriate width with a gasket seal in lieu of the typical double doors.

Dance Rooms: N/A – see Gymatorium

Gymatorium:

Floor – Resilient wood flooring
Walls – Padded surface at lower elevation, acoustic block with minimum NRC of 0.80 above padding, glass at windows (drapery extended when used as auditorium)
Ceiling – Although not essential to the acoustics of the room, selective use of metal and wood panels with acoustic backing will be acoustically acceptable with no adverse impact.

Applicable SCADesign Requirement:
1.3.1.9 - Architectural Acoustic Standards

Q8.3 Acoustic Windows

This credit is not feasible. Noise mitigation for adjoining objectionable exterior transportation noise sources is not applicable to this project.

Regional Credits

A2.2 Stormwater Design, Quantity Control

Additional Credits

Innovation in Design

A1.1R LEED Accredited Professional

Youngjoo Kahng, AIA, LEED AP is the Design Team's LEED professional. She is a manager on the project. See copy of her LEED AP certificate attached below.

Optional - Site Impact

A2.1 Heat Island Effect, Non-Roof

This credit is feasible. Our design incorporates a Green Screen trellis on the southern elevation. We will attempt to use hardscape materials with SRI of at least 29. Native and/or adapted trees and plantings will be strategically sited to provide shade.

Optional - IEQ

A4.1 Low-Emitting Materials, Furniture & Furnishings

This credit is feasible. The Design Team will coordinate with the SCA/F&E Unit to research furniture and furnishings that meet low VOC/Greenguard requirements. We are in the process of determining the project's furniture needs. In order to adhere to footnote #4 of the checklist this credit will not be pursued.

A4.2 Low-Emitting Materials, Ceiling and Wall Systems

This credit is feasible. In order to adhere to footnote #4 of the checklist, this credit will not be pursued.

SCA Total Building Commissioning Construction Document Verification Matrix

PS 287Q Queens

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
Division 1 - General and Supplementary Requirements												
G01000	Specifications Format											
G01015	Miscellaneous Provisions											
G01060	Permits, Fees, and Certificates of Occupancy											
G01200	Project Meetings											
G01600	Material and Equipment											
G01630	Product Substitutions											
G01700	Project Closeout											
G01720	Record Documents											
G01740	Guarantees, Warranties, & Bonds											
S01010	Summary of Work											
S01300	Submittals											
S01311	Progress Schedule (Capacity Requirements)											
S01352	Sustainability Requirements											
S01400	Quality Control											
S01426	Sample Classroom											
S01500	Temporary Facilities and Controls											
S01370	Environmental Protection Procedure											NOT USED.
S01524	Construction Waste Management											
S01550	Indoor Air Quality (IAQ) Requirements											

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S01560	Installation Sequence of Finished Materials											
S01650	Facility Start-Up, Demonstration & Training											
S01660	Supplementary Commissioning Requirements											
S01730	System Operation and Maintenance Manual											
S01900	Existing Premises Work											
Division 2 - Sitework												
02060	Building Demolition											
02070	Selective Removals & Demolition											NOT USED.
02081	Asbestos Abatement											
02082	PCB-Containing Caulk Removal Work											
02085	Exterior Paint Removal											NOT USED.
02091	Storage, Handling, Transportation and Disposal of Petroleum-contaminated material &/or Hazardous waste											
02100	Site Preparation											
02200	Earthwork											
02200A	Earthwork (Flow-through Turf AF)											NOT USED.
02200B	Earthwork (Float Drain Turf / Natural Grass AF)											NOT USED.
02215	Controlled Low Strength Material											NOT USED.
02250	Foundation and Other Change Adjustments											NOT USED.
02360	Driven Pipe-Pile Foundations											NOT USED.
02511	Asphaltic Concrete Paving											
02512	Porous Asphalt Paving											NOT USED.
02513	Sidewalk and Street Paving											
02514	Porous Asphalt Pavement Test Strip											NOT USED.

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
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02515	Unit Pavers											
02516	Exposed Porous Asphalt Paving											NOT USED.
02521	Concrete Curbs and Pavements											NOT USED.
02531	Resilient Surfacing											
02532	Resilient Surface - Porous Base											
02533	Colored Athletic Wearing Surface											
02541	Synthetic Turf - TPE Infill											NOT USED.
02580	Track / Court/ Playground Markings											
02711	Wall Subdrainage Systems											NOT USED.
02721	Trench Drains											
02722	Precast Concrete CB/Detention Basins/Man Holes											
02723	Storm Drainage Systems											
02724	Underdrain System - Asphalt Paving											NOT USED.
02725	Underdrain System for Skinned Areas											NOT USED.
02831	Chain Link Fences and Gates											
02860	Early Childhood Playground Equipment											
02862	Outdoor Game Equipment											NOT USED.
02870	Site and Street Furnishings											
02900	Landscaping											
Division 3 - Concrete												
03005	Concrete Work											
03100	Concrete Formwork											
03200	Concrete Reinforcement											
03200A	Concrete Reinforcement –(Epoxy)											NOT USED.
03300	Cast-In-Place Concrete											
03450	Precast Architectural Concrete											
03610	Grouting											
03733	Concrete Repair Work											

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
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03740	Migrating Corrosion Inhibitor											
Division 4 - Masonry												
04200	Unit Masonry											
04250	Terra Cotta											NOT USED.
04270	Glass Unit Masonry											NOT USED.
04420	Exterior Cut Stone											NOT USED.
04435	Cast Stone											
04510	Masonry Cleaning											NOT USED.
04510A	Masonry Cleaning (SHPO)											NOT USED.
04520	Masonry Restoration											NOT USED.
04520A	Masonry Restoration (SHPO)											NOT USED.
04700	Simulated Masonry											NOT USED.
Division 5 - Metals												
05120	Structural Steel											
05170	Support System For Suspended Ceilings											
05210	Open Web Steel Joist, K-Series											NOT USED.
05220	Longspan Steel Joists, LH-Series											NOT USED.
05230	Steel Joist Girders											
05300	Metal Deck											
05500	Metal Fabrications											
05580	Sheet Metal Fabrications											
05700	Ornamental Metal											
05710	Steel Stairs											
05810	Prefabricated Expansion Joint Covers											
Division 6 - Wood & Plastics												
06100	Rough Carpentry											
06200	Finish Carpentry											
06410	Custom Casework											
Division 7 - Thermal & Moisture Protection												
07110	Sheet Membrane Waterproofing											
07115	Sheet Membrane Waterproofing FDNS											

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
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07120	Fluid-Applied Waterproofing Plazas Decks											
07147	Crystalline Waterproofing											
07150	Chemical Resin Injection Grouting											
07160	Bituminous Damproofing											
07211	Perimeter Foundation Insulation											
07212	Miscellaneous Building Insulation											
07250	Sprayed Fire Resistive Materials											
07260	Intumescent Fireproofing											
07270	Firestopping/Smoke Seals											
07272	Fluid-Applied Membrane Air Barrier, Vapor Retarding											
07314	Slate Shingles											NOT USED.
07321	Clay Tile Roofing											NOT USED.
07553	Hybrid Built-Up/SBS Modified Bituminous Roofing											
07560	Fluid-applied Protected Membrane Roofing											
07561	Fluid-applied Protected Membrane Roofing (Planted Type I)											NOT USED.
07600	Flashing and Sheet Metal											
07610	Sheet Metal Roofing											
07720	Roof Accessories											
07820	Metal Framed Skylights											NOT USED.
07900	Joint Sealers											
Division 8 - Doors & Windows												
08110	Steel Doors and Frames											
08210	Wood Doors											
08220	Fiberglass Reinforced Polyester Doors											
08305	Access Doors											
08330	Coiling Doors, Grilles and Shutters											NOT USED.

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
08510	Stl. Windows - Projected/Casement/Pivot/DH											NOT USED.
08521	AL. Dbl-Hung Windows - New											NOT USED.
08522	AL. Dbl-Hung Windows - Repl											NOT USED.
08524	Aluminum Projected Windows											
08610	Replacement Wood Windows											NOT USED.
08662	Security Screens/Barriers											NOT USED.
08710	Finish Hardware											
08730	Thresholds, Weatherstripping and Seals											
08800	Miscellaneous Glazing											
08920	Aluminum Curtain Walls											
Division 9 - Finishes												
09205	Furring and Lathing											
09210	Plaster											
09260	Gypsum Board Assemblies											
09310	Ceramic Tile											
09410	Terrazzo - Portland Cement											
09510	Acoustical Ceilings											
09590	Wood Flooring											
09626	Resilient Athletic Flooring											NOT USED.
09650	Resilient Flooring											
09680	Carpet											
09705	Resinous Flooring											
09800	Special Coatings											
09860	Graffiti Resistant Coatings											
09900	Painting											
Division 10 - Specialties												
10100	Visual Display Boards											
10151	Toilet Compartments											

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	**NOTES**
10160	Factory-Painted Steel Toilet Compartments											
10185	Plastic Shower and Dressing Compartments											
10214	Stationary Metal Wall Louvers											
10270	Access Flooring											
10350	Flagpole											
10400	Identifying Devices											
10415	Bulletin Boards, Display Boards, Display Cabinets and Cases											
10505	Metal Lockers											
10522	Fire Extinguishers and Cabinets											
10605	Wire Mesh Work											
10652	Folding Panel Partitions											NOT USED.
10655	Accordion Folding Partitions											NOT USED.
10675	Metal Storage Shelving											
10720	Window Guards											NOT USED.
10810	Toilet and Bath Accessories											
10830	Mirrors											
10840	Grab Bars											
Division 11 – Equipment												
11050	Library Equipment											
11061	Platform Curtains, Auditorium Window Curtains, Projection Screen											
11172	Waste Handling Equipment											
11400	Food Service Equipment											
11450	Domestic Type Equipment											
11452	Culinary Arts Lab Equipment											
11460	Unit Kitchen											
11480	Gymnasium Equipment											
11500	Shop Equipment											
11600	Laboratory Equipment											
Division 12 – Furnishings												

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
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12302	Manufactured Wood Casework											
12345	Soapstone											
12485	Foot Grilles											
12500	Window Shades											
12501	Chain and Clutch Operated Window Shades											
12545	Draperies											
12710	Fixed Audience Seating											NOT USED.
12761	Wood Bleachers											NOT USED.
Division 13 - Special Construction												
13120	Steel Bleachers											NOT USED.
13031	Walk-In Trash Refrigerator											
Division 14 - Conveying Systems												
14120	Electric Dumbwaiter											NOT USED.
14211	Geared Traction Passenger Elevators											NOT USED.
14240	Hydraulic Passenger Elevators											NOT USED.
14250	Dual-Jack Roped Hydraulic Passenger Elevators											
14260	Counterweighted Roped Hydraulic Passenger Elevators											NOT USED.
14315	Hydraulic Sidewalk Elevators											NOT USED.
14316	Geared Traction Sidewalk Elevators											NOT USED.
14420	Hydraulic Vertical Wheelchair Lift											NOT USED.
14510	Escalators											NOT USED.
Division 15 - Mechanical (Fire Protection)												
15301	General Provisions For Fire Protection Systems Work											
15303	Seismic Controls, Fire Protection Systems											
15330	Sprinkler System											
15331	Dry Standpipe System											NOT USED.

TECHNICAL SPECIFICATION SECTIONS		CONTRACT REQUIREMENTS										R:1-2010
		Shop Dwgs & Submittals Approved	Substitutions Approved	FID QA/QC Inspection Sign-Offs	Controlled Inspection & NCN Issues Completed	Test Verifications Completed 120 Hr. Ops; TCC/FMSI & other Funct. Perf. Tests	Warranties & Guarantees Provided	Indexed O/M Manuals Rec'd.	Custodian / Staff Training Completed	Code Inspection Sign-offs Plumbing; F/A; DOB; DOT; etc.	Cx. Package Prepared for DSF	NOTES
15332	Combination Wet Standpipe/Sprinkler System											
15333	Fire Pumps/Sprinkler Booster Pumps											
Division 15 - Mechanical (Plumbing & Drainage)												
15401	Supplemental General Requirements											
15403	Vibration Isolation and Seismic Controls											
15410	Plumbing Piping											
15411	Hangers and Supports											
15412	Valves											
15413	Insulation (P & D)											
15414	Tests											
15415	Drainage											
15416	Gas Piping System											
15417	Cold Water Supply											
15418	Hot Water Supply											
15431	Tags, Charts and Identification											
15432	Miscellaneous											
15440	Plumbing Fixtures											
15451	Water Heaters											
15453	Pumping Apparatus and Tanks											
Division 15 - Mechanical (HVAC)												
15501	Basic Heating, Ventilating and Air Cond. Req.											
15502	HVAC Identification											
15503	Vibration Isolation and Seismic Controls, HVAC Systems											
15504	Vibration Isolation											NOT USED.
15510	HVAC Piping											
15511	Valves (HVAC)											
15512	Piping Insulation (HVAC)											
15513	Equipment Insulation (HVAC)											
15514	Ductwork Insulation											

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15515	Hydronic Specialties											NOT USED.
15516	Water Treatment for Steam Boilers											NOT USED.
15517	Water Treatment for Hydronic Systems											
15525	Steam and Condensate Specialties											NOT USED.
15540	HVAC Pumps											
15555	Fire-Tube Boilers (Steam)											NOT USED.
15556	Cast-Iron Boilers											NOT USED.
15557	Fire-Tube Boilers (Hot Water)											NOT USED.
15559	Flexible-Water Tube Boilers (Steam)											NOT USED.
15560	Flexible-Water Tube Boilers (Hot Water)											NOT USED.
15565	Hot Water Condensing Boilers											
15570	Boiler Accessories											NOT USED.
15575	Breeching, Chimney and Stacks											
15580	Feedwater Equipment											NOT USED.
15590	Emergency Generator System - Accessories											
15592	Fuel Burning/Pumping Equipment (For Steam Boilers)											NOT USED.
15593	Fuel Burning/Pumping Equipment (For Hot Water Boilers)											NOT USED.
15594	Fuel Storage Equipment											
15595	Gas Leak/Carbon Monoxide Detection Equipment											
15596	Natural Gas Leak Detection Equipment											NOT USED.
15610	Gas-Fired Duct Furnaces											NOT USED.
15650	Split Air Cooled Chillers											
15660	Packaged Modular Outdoor Chiller											NOT USED.
15670	Plate Heat Exchangers											NOT USED.
15756	Converters											NOT USED.

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15781	Packaged Heating and Cooling Units											NOT USED.
15783	Split Heat Pump System											
15792	Coils											NOT USED.
15835	Convectors											
15836	Unit Heaters / Cabinet Heaters											
15838	Fan Coil Units											
15852	Air Handling Units											NOT USED.
15853	Custom Packaged Rooftop Heating and Cooling Units (Variable Air Volume System)											NOT USED.
15854	Custom Packaged Rooftop Heating and Cooling Units (Constant Volume System)											
15855	Commercial Packaged Rooftop Heating and Cooling Units											NOT USED.
15857	Unit Ventilators											
15858	Windows Air Conditioners											NOT USED.
15860	Centrifugal Fans											
15864	Propeller Fans											NOT USED.
15865	Axial Flow Fans											
15872	Gravity Roof Ventilator											
15885	Air Filters											
15891	Metal Ductwork											
15910	Duct Accessories											
15915	Dampers											
15930	Variable Air Terminals											NOT USED.
15931	Fan-Powered Variable Air Volume (VAV) Terminal Units											NOT USED.
15940	Air Outlets and Inlets											
15970	TC System (LonWorks BMS/DDC W/School Console)											
15971	TC System (LonWorks DDC Only)											
15972	Temperature Control System (Pneumatic)											NOT USED.

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15973	Facility Management Systems Integration											
15980	Thermometers and Gauges											
15985	Sequence of Operations											
15990	Sprinkler Booster Pump											
15992	Cleaning and Testing											
15993	Balancing of Systems											
Division 16 – Electrical												
16010	General Provisions for Electrical Work											
16120	Wiring Systems											
16130	Raceways, Fittings, Supporting Devices, Boxes and Accessories											
16140	Wiring Devices											
16145	Lighting Control Devices											
16231	Emergency Generator System											
16289	Transient Voltage Surge Suppression											
16420	Service Entrance Equipment											
16425	Switchboards											
16441	Enclosed Switches											
16450	Grounding and Bonding											
16460	Transformers											
16470	Panelboards											
16471	Auditorium and Media Studio Dimming System											
16472	Science Laboratory Power Units											NOT USED.
16475	Overcurrent Protective Devices, Circuit Breakers and Fuses											
16480	Motors, Motor Control Centers, Starters, and Control Equipment											
16500	Interior Building Lighting											
16501	Lamps, Ballasts and Accessories											

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16503	Vibration Isolation And Seismic Controls, Electrical Systems											
16520	Illuminated Exit Sign and Emergency Lighting Fixtures											
16530	Site/Security Lighting											
16670	Lightning Protection											
16701	Auxiliary Signal Systems											
16720	Fire Detection and Alarm System											
16721	City Fire Alarm System											
16722	Stand-Alone Carbon Monoxide Alarms											
16724	Intrusion Alarm System											
16725	Telephone and Intercom Cabling System											
16726	Intercom System for Holding Areas and Elevators											
16727	Data Cabling System											
16728	Fiber Optic Cabling System											
16770	Sound, Intercom and Teacher Activated Security System											
16771	Projection System											
16780	TV Distribution System											NOT USED.
16783	Internet Protocol Digital Video Surveillance (IPDVS) Cabling System (Capacity Projects - New Construction)											
16791	Self-Corrective Clock System											
16792	Wireless Clock System											NOT USED.
16855	Heat Trace Cable System											NOT USED.