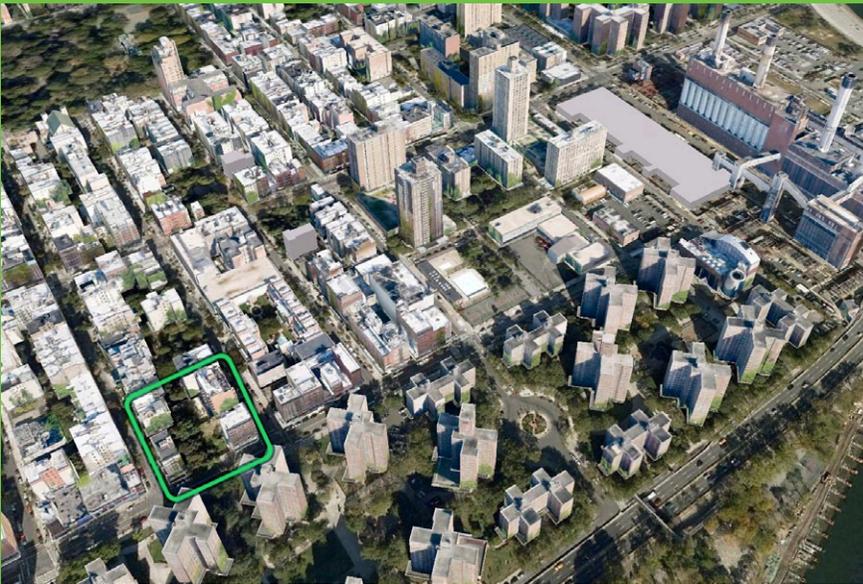


Greening Our Future



**A proposal and funding request to Community Board #3
Environment Committee /Con Ed Sub-Committee**

From: The Lower Eastside Girls Club

Contact: Lyn Pentecost, Ph.D.

212-982-1633 X 104

gogirl@girlsclub.org

www.girlsclub.org

Greening Our Future:

The Lower Eastside Girls Club Green Roof Project

Revised Submission November 10, 2011.

Contact: Lyn Pentecost, PhD

212-982-1633

gogirl@girlsclub.org

The Lower Eastside Girls Club of NY requests \$279,809 of Con Edison Settlement Funds to design and install a series of green roofs and growing walls on our new home currently under construction at 101 Avenue D between 7th and 8th Streets. Our green roofs and walls will cover approximately 7500 square feet- consisting of an ornamental flower and native grass garden, a sedum meadow, a demonstration vegetable and herb garden, and a vine wall.

The Lower Eastside Girls Club, a non-profit 501c3 Corporation, believes that this project fits the guidelines established by the Con Ed Sub Committee of CB#3:

- Green roofs are an established and scientifically proven method of air quality remediation, and storm water management *(see data below)
- The Lower Eastside Girls Club's new Center for Community is physically one of the closest CBO's to the Con Edison plant and will be serving hundreds of girls and their families each day and thousands of visiting students per year. The Girls Club currently provides environmental and STEM focused programs to students from PS 34 and PS 188 on Avenue D and Eastside Community High School, in the Settlement Zone. The majority of our members live in NYCHA Housing along Avenue D.
- The Lower Eastside Girls Club Center for Community is being built as a public facility. A broad range of environmental education programs and activities are being designed for all ages and genders. Public spaces within the center include a 30' planetarium seating 74 people, a 50 seat screening room, a public café, and a rooftop community farm. Additionally, health and wellness, informal science, yoga, and culinary classes will be held regularly for community residents.
- We have three well known community partners: CHEJ (The Center for Health and Environmental Justice), The Cell Motion Bio Bus, and Ryan NENA Health Center; and two academic partners: The McSilver Institute at NYU, CCNY School of Architecture, Urban design and Landscape Architecture, and a grower partner- The Angel Family Farms. These partners are committed to working with us to develop ongoing programs which amplify the educational and health components of the green roof once it is installed.
- This project aligns with our organizational mission: to raise the next generation of 'ethical, entrepreneurial and environmental leaders' and is consistent with our fifteen year history as a center for social and environmental justice. The Lower Eastside Girls Club has been the past recipient of grants from the NYS Department of Environmental Conservation and is currently completing a three year grant from the USDA Community Food Program. These grants have allowed us to create educational campaigns addressing indoor air quality and toxins in the home, and to run farmers markets and nutrition programs for the Lower East Side Community.
- The LESGC is a member of ASTC - The Association of Science and Technology Centers. In our 2010-11 fiscal year we have had funding for science programs through the PBS NOVA materials science series, the PBS Twin Cities Public television Sci-Girls en Familia Program, and an NEA Digital Humanities grant to develop a workflow and teaching model for affordable dome show productions.

Choice of Green Roof Contractor: Goode Green

The Girls Club received three bids on the Greening our Future Roof Project. Two bids were from local companies, both with significant experience in green roof design and installation. The third company that bid was from Connecticut. The out-of-State company has a long history of garden installations, but none on roofs. All three bids were in a comparable price range.

We have decided to work with Goode Green (www.goodegreennyc.com). This is a local woman run firm based on Grand Street. Their portfolio includes a number of education centers and rooftop farms including Eagle Street Farm and Rooftop Farm <http://rooftopfarms.org/> / <http://growingchefs.org> which have a very similar visions and missions as the Lower Eastside Girls Club. Lisa Goode has met on site with our architects, Christa Waring and Jessica Coxson of CTA Architects (<http://www.cta-architects-nyc.com/>).

Timeline:

February / March 2012 FINALIZE DESIGN of GREEN ROOF SYSTEM

Finalize design layout and choice of plants. Develop complete green roof system plans- from concept drawings to specification of protection fabric, drain conduits, drainage layers, filter fabric, growing mediums, plant materials, leakage detection system, drainage stone and pavers. Work with building architects to confirm that all work is in compliance with building codes and capacity, that work meets all pre-existing warranties, and building design requirements as put forth in the architect's document titled Section 02900 Green roof (see attached)

April 2012 GREEN ROOF PROCUREMENT

Place orders for all material products, create coordination schedule with our architects, building developer (Dermot Co.) and construction management firm (CMA).

May/ June / July 2012 GREEN ROOF MOBILIZATION/ INSTALLATION

Goode Green will provide all labor, materials, logistics, services, and equipment as necessary to supply and execute the project. Temporary traffic barriers, unloading areas at street level, a crane, or other machine to lift materials too large for the elevator, and dumpsters will be arranged through our construction partners, CMA

August September 2012 Water Collection System and Solar Panels installed and tested.
Garden Furniture Installed

September – December 2012 Community Training and Design/Build classes

Girls Club youth members and Girls Club Green Institute faculty trained by Goode Green to maintain gardens and green roof spaces. Girls Club students work with CCNY School of Architecture, Urban Design and Landscape Architecture students to build an air and water quality monitoring systems which will also include solar and wind power displays. Edmund Snodgrass, author of The Green Roof Manual and owner of Emory Knoll farms Inc. and Green Roof Plants is our project advisor. (<http://www.greenroofs.com>)

Notes on the budget:

The quote we have from Goode Green is \$327,590. This does not include an additional \$4000 for leakage detection system. The Girls Club believes that we can convince our construction partner to allow us to bill the leak detection system to our basic roof budget. We also plan to use our NYSERDA credits to pay for the solar and rainwater collection systems listed at \$18,000, and for the Design and Project Management fee of \$29, 781.

Our request to the Con Edison committee is for: \$279,809.

Signed partnership agreements (BioBus, CHEJ, Ryan NENA Health Center) available on request. They were not included due to space limitations and because they are part of stage two- the Green Institute, our research, education and jobs training program, at The Lower Eastside Girls Club.

Making the Case

*Green Roofs as an Environmental Tool for Air Quality Remediation

The positive effects of vegetation for the urban ecology are well known: mitigation of the urban heat island effect, management of storm water runoff, and the reintroduction of biological diversity into urban life. Within the past few years a new application has attracted a great deal of attention: the use of plants as biological filters to remove health damaging air pollutants from urban atmospheres. Phytoremediation, the use of plants to degrade and/or stabilize air contaminants, is an emerging technology. Recent research has proven that plants can remove a large number of different pollutants (e.g. nitrogen oxides, sulphur oxides, particulate matter, ozone) from the air. This applies in particular for green areas in highly polluted urban settings. The installation of extensive or intensive green roofs (in place of traditional dark roofing materials or graveled beds) is a sensible cost effective way to bring nature back into the city. Phytoremediation is a clean solar driven technology with minimal environmental disruption. Once installed, plants are able to decontaminate a broad range of hazardous substances. Numerous studies have examined the cost benefits and concluded that the installation of 'biological air filters' is inexpensive compared to convention air filtration methods and the general life of the roof has been shown to be extended by 50%, lasting 40-45 years before requiring replacement. Green roofs and walls are a wise infrastructure investment offering air-cooling by transpiration, natural thermal insulation, storm water retention and significant noise reduction.

Green Roofs for Healthy Cities and Healthy Children

Despite much success in reducing overall air pollution levels, air pollution continues to be an important public health problem. Often the acute respiratory effects of air pollution present as asthma in children. Ambient VOCs (benzene, ethylbenzene, tetrachloroethylene, and m.p-xylene) show association with asthma symptoms. Ambient ozone, nitrogen dioxide, sulfur dioxide, and particulate organic and inorganic carbon matter show significant associations with asthma. Studies conducted in California by the California EPA have concluded that air pollution harms children's lungs for life. Children exposed to higher levels of particulate matter, nitrogen dioxide, and vapor and elemental carbon had significantly lower lung function at age 18, an age when lungs are nearly mature and lung function deficits are unlikely to be reversed. (USC- New England J of Med 2004) Additionally, there is a growing body of literature that links outdoor air pollution to asthma exacerbations in children who live in high traffic density areas and who may be more susceptible to adverse health impacts from air pollution due to economic disadvantage and attendance at schools in proximity to major roads. Results of numerous studies helped support the passage of a School Siting Bill in California. Our schools and community centers have occupied their sites on Avenue D for over half a century. As it is not possible to relocate the youth population, remediation through green roofs and planted walls is one pathway to better personal health.

Quantifying the effects of Green Roof Installation on air quality and community health:

As cities scale up their green roof capacity, the potential health benefits of the 'urban forest effect' translate into economic benefits in reduced health care costs. Increasing hard evidence suggests that green roofs play a significant role in urban air quality improvement. For example, public health benefits per metric ton of NOx reduction are estimated to range from \$1683 to \$6383. These benefits were included in a University of Michigan (2002) study whose results indicate that this translates to an annual benefit of \$895 to \$3392 for a 2,000 square meter vegetated roof. Improved air quality leads to a mean net present value for the green roof that is 25% to 29% less than the mean conventional roof. Numerous recently posted studies found on our NY State website www.nyserda.org/programs/Environment/EMEP/project/ detail how green roofs exhibit the capacity to reduce pollution in urban environments. Large-scale green roofing also indirectly benefits public health by reducing energy consumption, which reduces power plant emissions. The reduction of heat

flow into buildings in hot weather reduces the need for air conditioning and lowers annual energy costs.

Storm water runoff carries pollutants that are deposited into rivers, streams and other local bodies of water. Storm water run off also adds to our water pollution problems in that sanitary systems can become overloaded during heavy storms and discharge sewage; The EPA estimates that this happened about 40,000 times a year. Calculations show that the average storm water mitigation benefit is \$4.26 per square foot (<http://dirt.asla.org>). Green roofs remediate by slowing and minimizing run offs from roofs. Water used by plants and evaporated back into the atmosphere never runs off at all. (Snodgrass 2010).

Green Roofs can achieve many quantifiable ecological objectives: storm water management, mitigation of the urban heat island effect, and the provision of habitat for urban wildlife. I have attached links to the studies cited. In addition to the extensive environmental remediation provided by creating a green roof and 'rooftop farm', this project will provide the base for programs that address a host of pressing health and cultural issues by:

Opening Avenues to Green Careers through STEM Programs

Programs are in development with our partners at NYU Interactive Telecommunications Program (ITP)- a graduate level department that trains students at the intersection of art, entrepreneurship and engineering. The Girls Club has designed program labs and tool shops in our new building that will introduce students to materials and skills that will be necessary in the new green economy and open up pathways to higher education and careers in engineering, architecture and sustainable design. The NYS Department of Labor forecasts a 42% growth in the Green Workforce in the coming year, 39% of it in professional service and building service firms.

Developing a Community Based Health Strategy

In partnership with the Ryan NENA Community Health Center on East 3rd Street, CHEJ (The Center for Health, Environment and Justice), The McSilver Institute at NYU, and building on the work the Girls Club has done under previous Con Ed and NY State DEC grants- the Girls Club will run classes for children and adults and train Community Health Promoters. Community Health Promoters will be drawn from a pool of neighborhood moms and trained to educate and advocate on the following issues: Indoor Air Quality, Non-Toxic Cleaning Initiatives, Understanding some of the more common pollutants and various sources of exposure to pesticides and PVC and PCB threats within home and school environments. By working with our trained Community Health Promoters, students and community participants will gain first hand knowledge of the relationship between environmental factors and asthma, diabetes, heart disease and obesity and learn methods to change their environment and personal behaviors for healthier outcomes. Community Health Promoters will receive education stipends and become certified in professional areas including nutritional counseling, in-door air quality management, and community based research. McSilver Institute (at the NYU Wagner School) will develop the health outcomes evaluation model in partnership with Ryan-NENA. The current director of the Institute is also affiliated with the Mt. Sinai Medical Center Adolescent Health Department.

Creating a model for Community Based Environmental and Biological Education

In collaboration with BioBus and the Angel Family Farms, the Green Roof and mini-farm will provide the stepping off point for courses in nutrition, sustainable agriculture, air and water quality management. The Cell Motion BioBus is a mobile science laboratory where students explore the world around them with research-grade microscopes, and make their own discoveries under the guidance of professional scientists. The scientists who run the BioBus will be partnering with us to manage the Girls Club Environmental Education Center, making Avenue D their home base. The BioBus currently reaches over 10,000 students a year, visiting public schools across New York City and the country. BioBus students explore the immediate, microscopic world around them in an inquiry-based, hands-on setting aided by state-of-the-art science equipment and supervised by Ph.D. level scientists.

Cell Motion BioBus scientists will maintain the Girls Club demonstration solar, rainwater collection, wind power displays and air quality monitors and provide a gardener/farm educator to maintain the production portions of the green roof and walls. Angel Family Farms currently supplies the Girls Club Farm Stand and CSA and will partner with us on our Food Justice campaigns, facilitating experiential learning opportunities about sustainable agriculture, improving access to healthy food, the environmental footprint of meat consumption, and the value of Community Supported Agriculture.

History of Project:

The Lower Eastside Girls Club (LESGC) is currently constructing the Center for Community, a community science and environmental education center in Lower Manhattan. Designed to LEED gold requirements, it will include two buildings on East 7th and East 8th Streets with multiple green roofs, solar and wind installations, storm water retention systems, a 30 ft. dome planetarium, and a ground level courtyard with a growing wall. It will also include an environmental education center at the base of a 78 unit mixed-income housing tower on Avenue D. The Center is slated to open in Fall 2012.

The Lower Eastside Girls Club Center for Community sits at the intersection of multiple negative environmental health impacts in The Lower East Side. Pollution from heavy commuter traffic from the East River Drive one block East combines with emissions from a Con Edison plant three blocks North to blanket the neighborhood with gaseous and particle pollutants. Additionally, it has come to our attention that there are soil-based contaminants in the region, primarily in youth recreation areas, that could easily become airborne.

The Lower Eastside Girls Club proposes a unique sustainability and education project on Avenue D commencing with the opening of our environmental education and science demonstration center and the development and launch of The Green Institute at the LESGC Center for Community. The Green Institute will open our facility for hands-on science and environmental education classes, create curriculum and teacher materials for neighborhood schools, host informal science education events, train social justice environmental organizers, train community gardeners and green workers for the renewable energy economy, and study the effects of environmental education and remediation on the health of area residents in collaboration with a local health center.

All buildings on the large lot had been previously demolished before the Girls Club and the Dermot Corporation entered a partnership with HPD to build the complex. The Girls Club Green Roofs and Growing Wall will replace much of the greenery and trees which were removed to make way for this project. Our site is directly across from the Jacob Riis NYCHA Projects, a short distance from the heavily trafficked East River Drive and four blocks south of the Con Ed Plant.



9 November 2011

Client Lower East Side Girls Club
56 East First Street
New York, NY 10004

Site 101 Avenue D
New York, NY 10009

BUDGETING PROPOSAL

The following is a pricing breakdown for the different areas and applications:

I. GREEN ROOFS:

- a. 3rd floor Meditation Garden Green Roof, approx 3353 sq ft
Soil depth range 4" to 18"
This garden will be built with seating areas. Two trees will be installed over the two available columns to create a canopy of green over the space. Plantings will be mainly native, some sown from seeds with a mix of grasses, flowering plants and sedum.
- b. 4th floor Sedum Green Roof, approx 1230 sq ft
Soil depth 4"
A more typical, low maintenance, drought tolerant sedum green roof will be installed above the planetarium. No potable water will be required beyond the establishment period.
- c. 4th floor Vegetable Garden Green Roof, approx 1844 sq ft
Soil depth 8" to 12"
Adjacent to the sedum roof will be an area for growing vegetables.

Fee: \$ 159,499

II. PLANTERS & VINES:

- a. Courtyard Vine Wall, approx 50 linear feet
Boston Ivy will be planted and will cling to but not do damage to the adjacent block wall. Underplantings will be native lysimachia and huechera.
- b. 3rd floor Roof, Parapet Planters, approx 100 linear feet
To green the new parapet walls, these planters will straddle the coping and will be planted with native Dutchmen's Pipe.
- c. 3rd floor Roof, Magnolia planter, approx 25 linear feet
Magnolia Virginiana is native and has fragrant blooms.

Fee: \$ 120,310

III. PHOTOVOLTAIC SOLAR SYSTEM & RAINWATER COLLECTION SYSTEM:

3rd floor Roof, PV System and Catchment tank, to irrigate 4th floor green roof

Fee: \$ 18,000

IV. DESIGN AND PROJECT MANAGEMENT:

- a. Full design work, determined through meetings, emails and phone calls. Images and schematic drawings will be produced to fulfill design of all elements.
- b. Complete installation of all aspects of the green roofs and other elements of the design. Shop drawings will be provided to integrate with on-site contractors.
- c. Coordination with on-site contractors to ensure acceptable scheduling for all parties.

Fee: 10% of \$ 297,809 = \$ 29,781

TOTAL FEE: \$ 327,590





CUTS GEORGE TOOMAN & ALLEN ARCHITECTS, P.C.
 115 West 20th Street - 8th Floor - New York, New York 10011-3611
 phone 212 363 3824 fax 212 363 7480 info@cta-architects.com

OWNER: Lower Eastside Girls Club
 101 East 7th Street
 New York, NY 10009

OWNER/DEVELOPER: The Central Company
 101 West 17th Street
 3rd Floor
 New York, NY 10011

STRUCTURAL: DeStefano Engineering
 18 West 13th Street
 2nd Floor
 New York, NY 10011

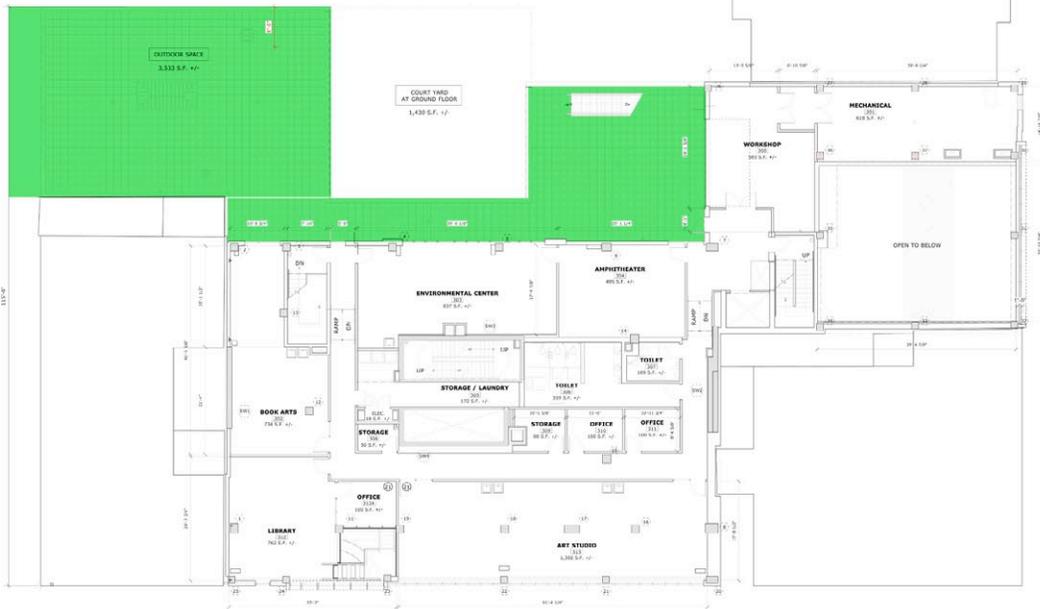
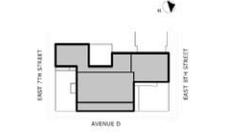
MEP: Storage Engineering Associates
 315 8th Avenue
 24th Floor
 New York, NY 10018

EXERCISE: C&A Consultants LLC
 45 North Street
 Suite 1221
 New York, NY 10011

DATE	REVISION	NO.
12/15/08	BID SET	A
02/23/09	DOB OBJECTIONS RESPONSE	B
03/09/09	25% / BID SET	C
10/30/09	100% ISSUE FOR CONSTRUCTION	D
04/21/10	DOB SUBMISSION	E
05/10/10	CONSTRUCTION SET COORDINATION	F
06/15/10	100% CONSTRUCTION SET	G

06/02/11 BULLETIN #8
 03/09/11 BULLETIN #4
 01/29/10 RFI #37
 01/29/09 RFI #6

KEY PLAN



1 3RD FLOOR PLAN - ALTERNATE

SCALE: 1/8" = 1'-0"

PROJECT:
 LOWER EASTSIDE GIRLS CLUB
 101 AVENUE D
 NEW YORK, NY 10009

**THIRD FLOOR PLAN
 ALTERNATE**

SEAL & SIGNATURE:	DATE:	11 FEBRUARY 2008
	PROJECT NO.:	21006-01
	DRAWING BY:	SM
	CHECKED BY:	CT
	DATE:	
	NO.	
	A-103A.00	
	DATE:	02/05/11 09:43:03
		SM/SM



CUTS GEORGE TOOMAN & ALLEN ARCHITECTS, P.C.
 115 West 20th Street - 8th Floor - New York, New York 10011-3611
 phone 212 363 3824 fax 212 363 7480 info@cta-architects.com

OWNER: Lower Eastside Girls Club
 101 East 7th Street
 New York, NY 10009

OWNER/DEVELOPER: The Central Company
 101 West 17th Street
 3rd Floor
 New York, NY 10011

STRUCTURAL: DeStefano Engineering
 18 West 13th Street
 2nd Floor
 New York, NY 10011

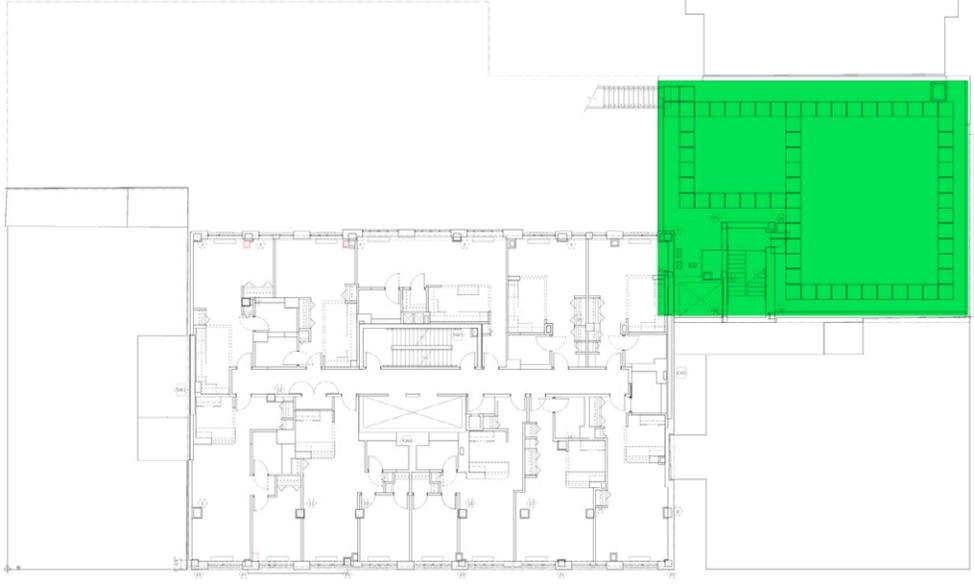
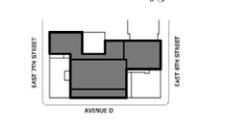
MEP: Storage Engineering Associates
 315 8th Avenue
 24th Floor
 New York, NY 10018

EXERCISE: C&A Consultants LLC
 45 North Street
 Suite 1221
 New York, NY 10011

DATE	REVISION	NO.
12/15/08	BID SET	A
02/23/09	DOB OBJECTIONS RESPONSE	B
03/09/09	95% / BID SET	C
10/30/09	100% ISSUE FOR CONSTRUCTION	D
04/21/10	DOB SUBMISSION	E
04/10/10	CONSTRUCTION SET COORDINATION	F
06/15/10	100% CONSTRUCTION SET	G

03/08/11 BULLETIN #8

KEY PLAN



1 ALTERNATE PLAN: PLANTED ROOF - 4TH FLOOR

SCALE: 1/8" = 1'-0"

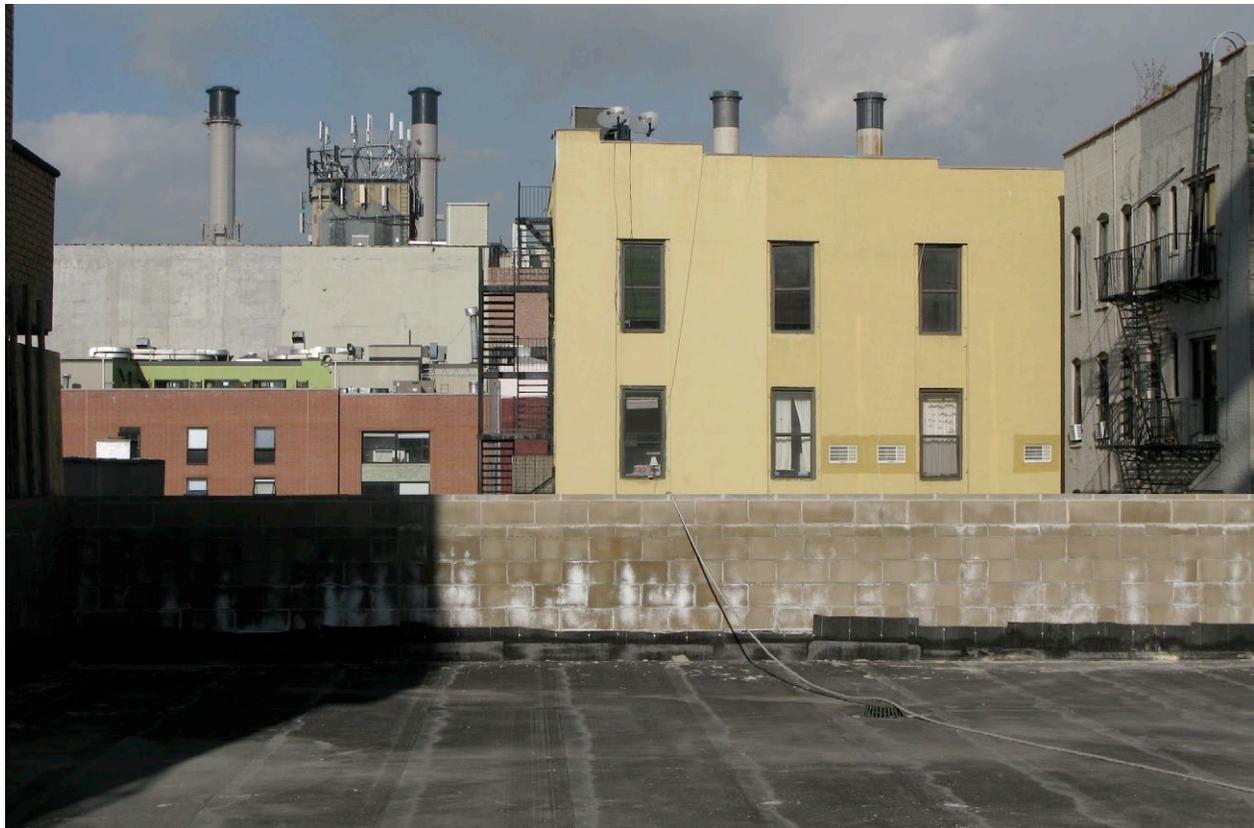
PROJECT:
 LOWER EASTSIDE GIRLS CLUB
 101 AVENUE D
 NEW YORK, NY 10009

**FOURTH FLOOR PLAN
 ALTERNATE**

SEAL & SIGNATURE:	DATE:	11 FEBRUARY 2008
	PROJECT NO.:	21006-01
	DRAWING BY:	SM
	CHECKED BY:	CT
	DATE:	
	NO.	
	A-104A.00	
	DATE:	02/05/11 09:43:03
		SM/SM



View of the 3rd Floor Girls Club Green Rooftops



View of ConEd Plant from future Girls Club Rooftop Farm on the 4th Floor.