Integrating Environmental Sustainability Into a Capital Program

2014 Illinois Healthy and High Performing Schools Symposium

Panelists

- Deeta Bernstein, LEED AP BD+C
  Sustainability Manager,
  Public Building Commission of Chicago

- Chey Hsiao, AIA, LEED AP
  Associate,
  SMNG-A Architects, Ltd.

Learning Objectives

1. Learn how an organizational approach which facilitates sustainability in multiple projects can be structured, and what factors to consider when determining which sustainability elements to integrate in a given project, and across the program.
2. Explore how evolving prototypes can support sustainable design and continuous improvement throughout a multi-year program.
3. Understand how to align municipal needs for resilience and efficiency with project opportunities.
4. Understand what a large program can accomplish in terms of resource savings and ongoing environmental impact.

Agenda

Section 1 – Program Objectives and Accomplishments

1. Program Background
2. Accomplishments

Section 2 – Setting Up For Success

3. Program Structure
4. Approach of the Program

Section 3 – Development and Evolution

5. Evolving Prototypes
6. Case Study

Section 4 – Making a Great Program Even Better

Q&A

Section 1:
Program Drivers and Accomplishments

The Program

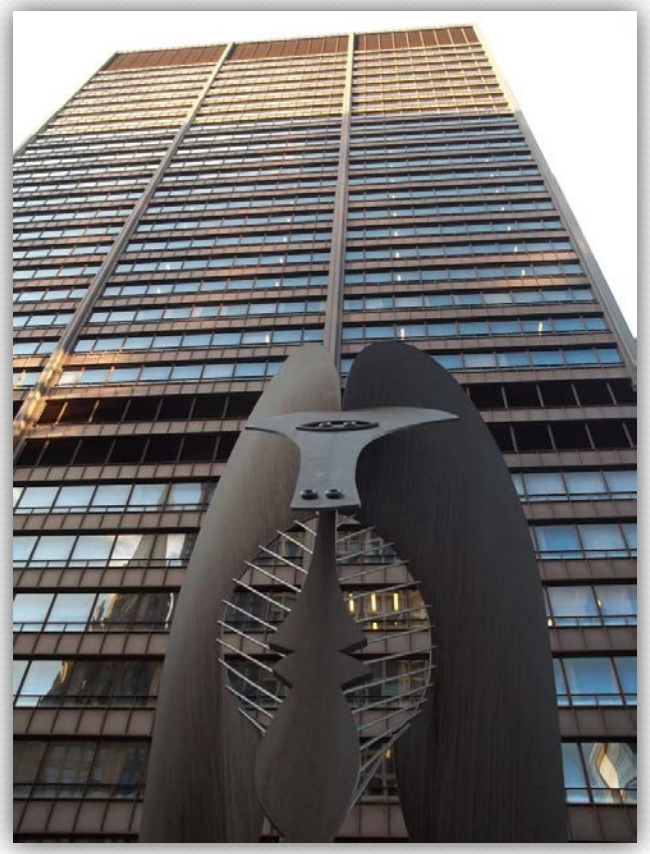
The Public Building Commission of Chicago

- **Mission**

  The Public Building Commission of Chicago (PBC) is committed to client service and strong stewardship of public resources. The PBC plans, designs and builds facilities that reflect the highest standards of environmental and economic sustainability.

- **Vision**

  A built environment in which function, beauty and sustainability are inherent to every community; where physical surroundings inspire and support achievement of the individual goals of those who live, work and visit Chicago and Cook County; and, where people gather to share the common values that truly build our communities.

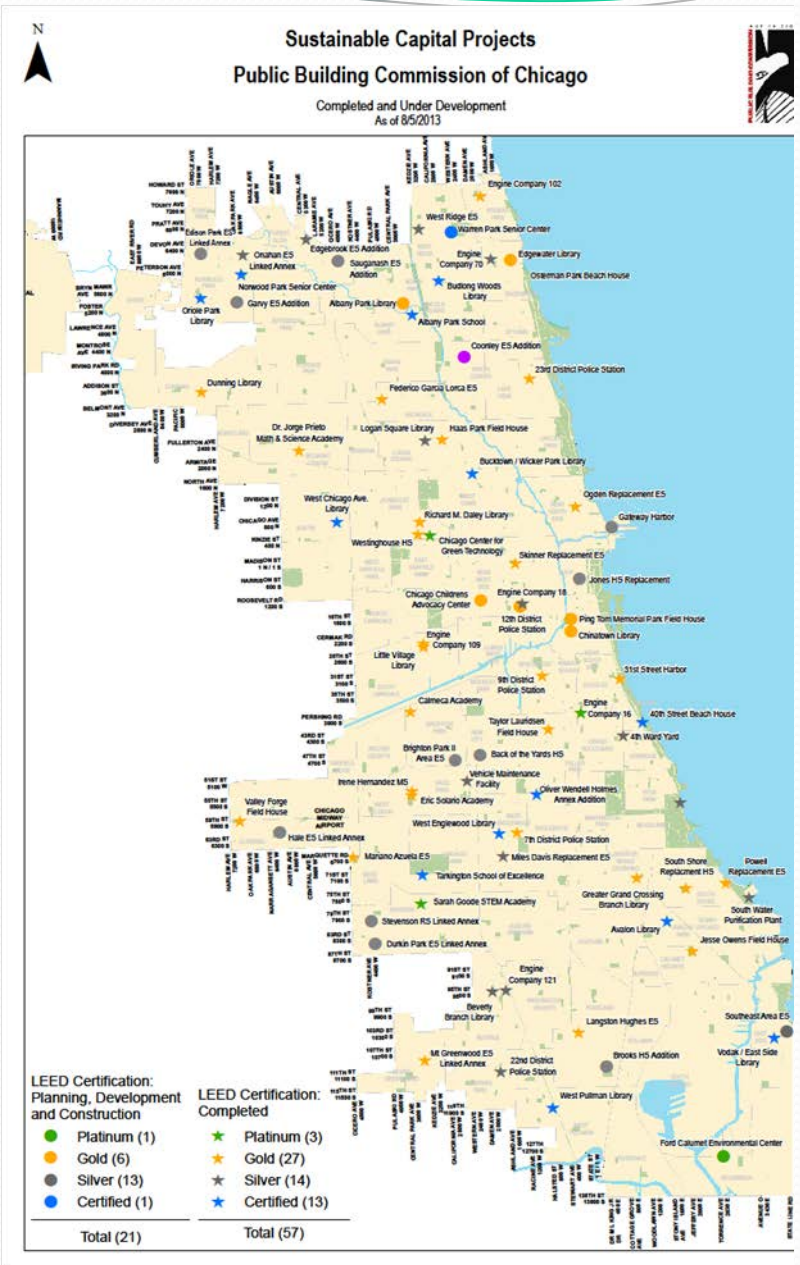


Daley Center, PBC Offices

The Program

- PBC manages a multi-year capital program - Over $2.6B in development authority
- >4 Million SF of development
- Over 100 total projects
- 83 LEED-eligible:
  - Public Schools
  - Municipal – Firehouses/Police Stations/ Libraries
  - Parks/Field Houses/Harbors
  - Other Projects

The Program


N
Sustainable Capital Projects
Public Building Commission of Chicago
Completed and Under Development
As of 8/5/2013
LEED Certification: Planning, Development and Construction
Platinum (1)
Gold (6)
Silver (13)
Certified (1)
Total (21)
LEED Certification: Completed
Platinum (3)
Gold (27)
Silver (14)
Certified (13)
Total (57)

Economic Sustainability

- For projects completed in 2013, currently trending $32.9M, 6.02% under original budget.
- Construction projects completed in 2013 created 1,744 full-time equivalent (FTE) jobs
- Inclusion:
  - MBE participation, work awarded in 2013: 32.21% or $116.7 M
  - WBE participation, work awarded in 2013: 7.73% or $28 M
  - Combined total: 39.93% M/WBE
  - Professional consulting services, 2013, Combined M/WBE participation 70.25% or $11.34 M

Sustainable Accomplishments

- **$1,418,707** = Energy savings annually
- **565,231 Gal** = Stormwater diverted from sewers
- **22,251,437 Gal** = Potable water saved annually

- **635,686 SF** = Green roof area
- **2,406** = New shade trees

- **$56,082,280** = Recycled materials
- **$89,726,861** = Regional materials
- **181,536 Tons** = Waste diverted from landfills

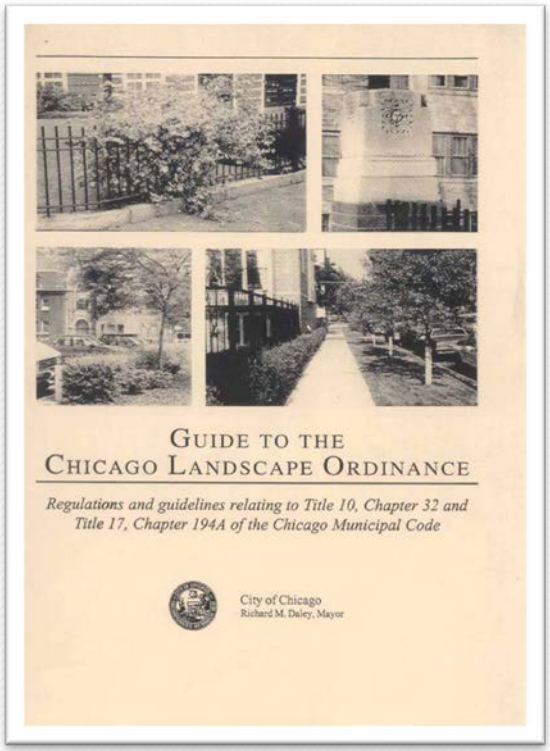
Paradigm Shift

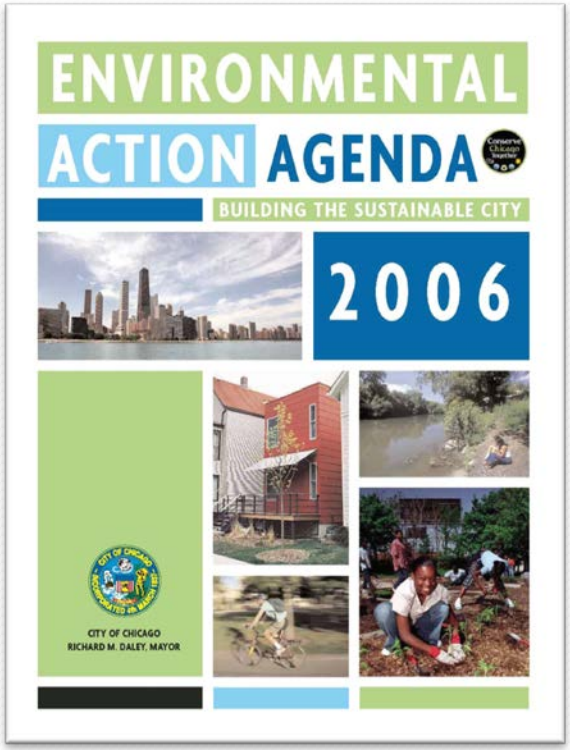
Conserve Chicago Together

CHICAGO CLIMATE ACTION PLAN

OUR CITY. OUR FUTURE.

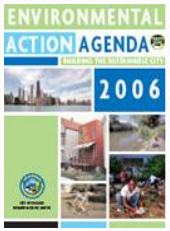
GREENCORPS CHICAGO





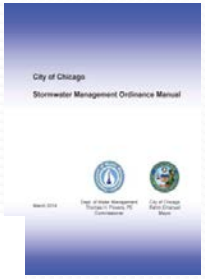
Paradigm Shift

From Green Medians to Sustainable Chicago 2015



Green Alley Program

Stormwater Ordinance



2000 2002 2004 2006 2008 2010 2012 2014

Chicago Standard

Green Urban Design (2008)

Retrofit Chicago

2013

Paradigm Shift

Codes / Requirements

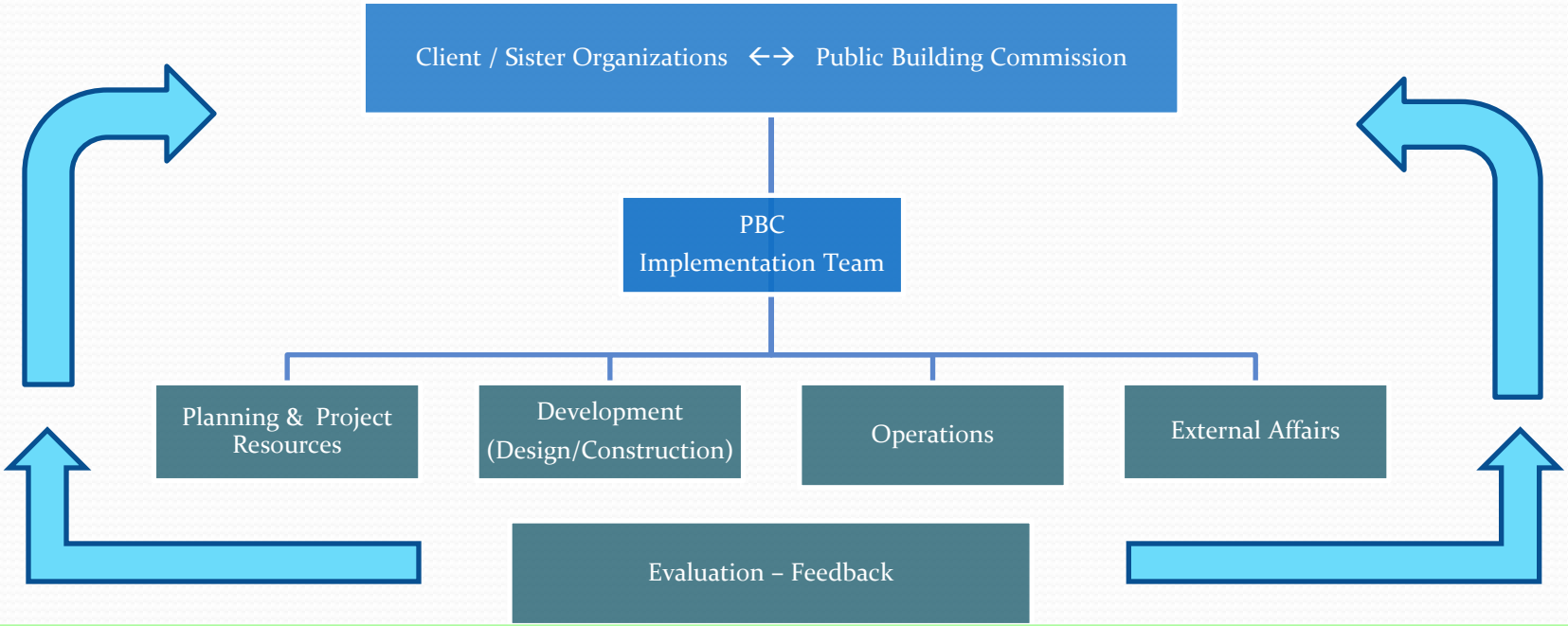
- Stormwater Management Ordinance
- Waste Management Ordinance
- Green Permit
- Updated IL Energy Code

Plan / Initiatives

Section 2:
Setting up for Success

The Shared Commitment

Integrating Shared Agenda



Sustainable Program

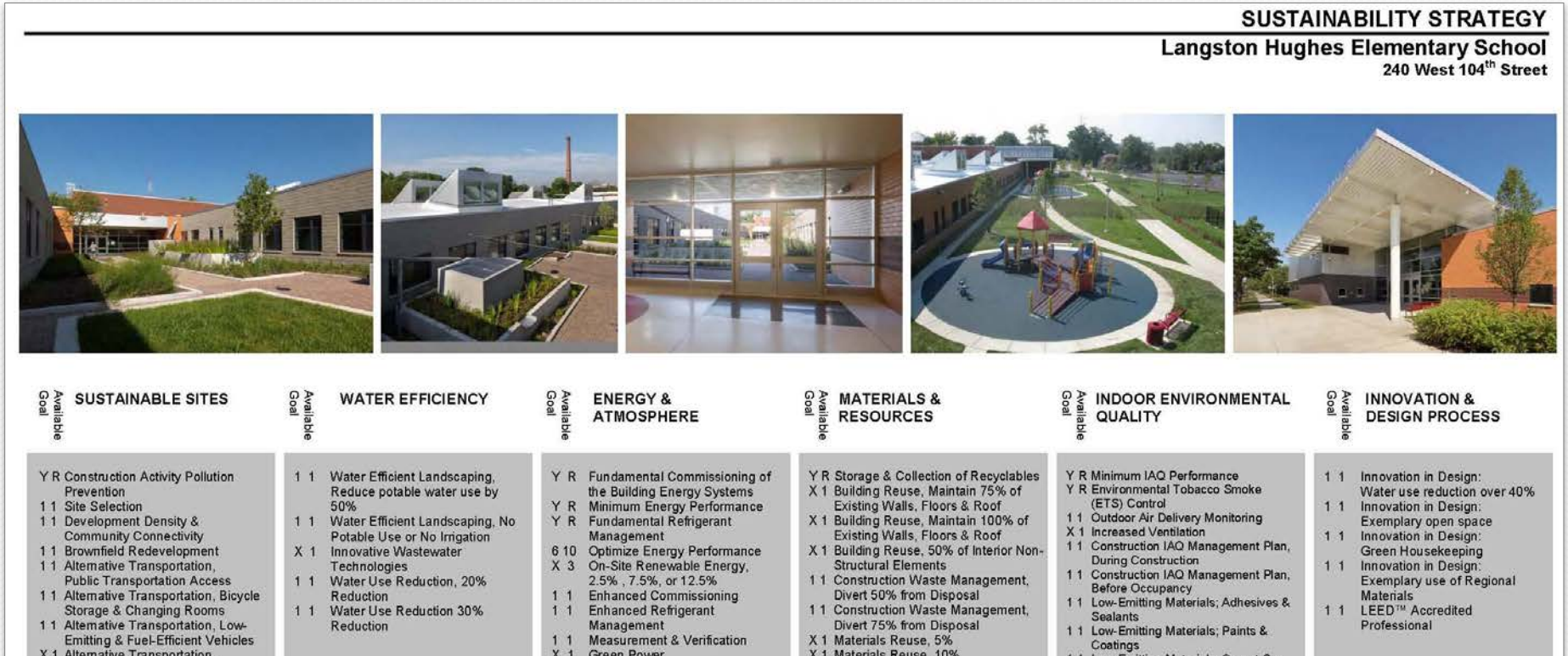
The Team and the Approach

Program Approach

- Build sustainable expectations into traditional project/program management strategies/tools/approach

What was Standardized

- Procurement
- Process/Approach
- Program



SUSTAINABILITY STRATEGY

Langston Hughes Elementary School

240 West 104th Street

Available	Goal	SUSTAINABLE SITES
Y	R	Construction Activity Pollution Prevention
1	1	Site Selection
1	1	Development Density & Community Connectivity
1	1	Brownfield Redevelopment
1	1	Alternative Transportation, Public Transportation Access
1	1	Alternative Transportation, Bicycle Storage & Changing Rooms
1	1	Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles
X	1	Alternative Transportation

Available	Goal	WATER EFFICIENCY
1	1	Water Efficient Landscaping, Reduce potable water use by 50%
1	1	Water Efficient Landscaping, No Potable Use or No Irrigation
X	1	Innovative Wastewater Technologies
1	1	Water Use Reduction, 20% Reduction
1	1	Water Use Reduction 30% Reduction

Available	Goal	ENERGY & ATMOSPHERE
Y	R	Fundamental Commissioning of the Building Energy Systems
Y	R	Minimum Energy Performance
Y	R	Fundamental Refrigerant Management
6	10	Optimize Energy Performance
X	3	On-Site Renewable Energy, 2.5% , 7.5%, or 12.5%
1	1	Enhanced Commissioning
1	1	Enhanced Refrigerant Management
1	1	Measurement & Verification
X	1	Green Power

Available	Goal	MATERIALS & RESOURCES
Y	R	Storage & Collection of Recyclables
X	1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof
X	1	Building Reuse, Maintain 100% of Existing Walls, Floors & Roof
X	1	Building Reuse, 50% of Interior Non-Structural Elements
1	1	Construction Waste Management, Divert 50% from Disposal
1	1	Construction Waste Management, Divert 75% from Disposal
X	1	Materials Reuse, 5%
X	1	Materials Reuse, 10%

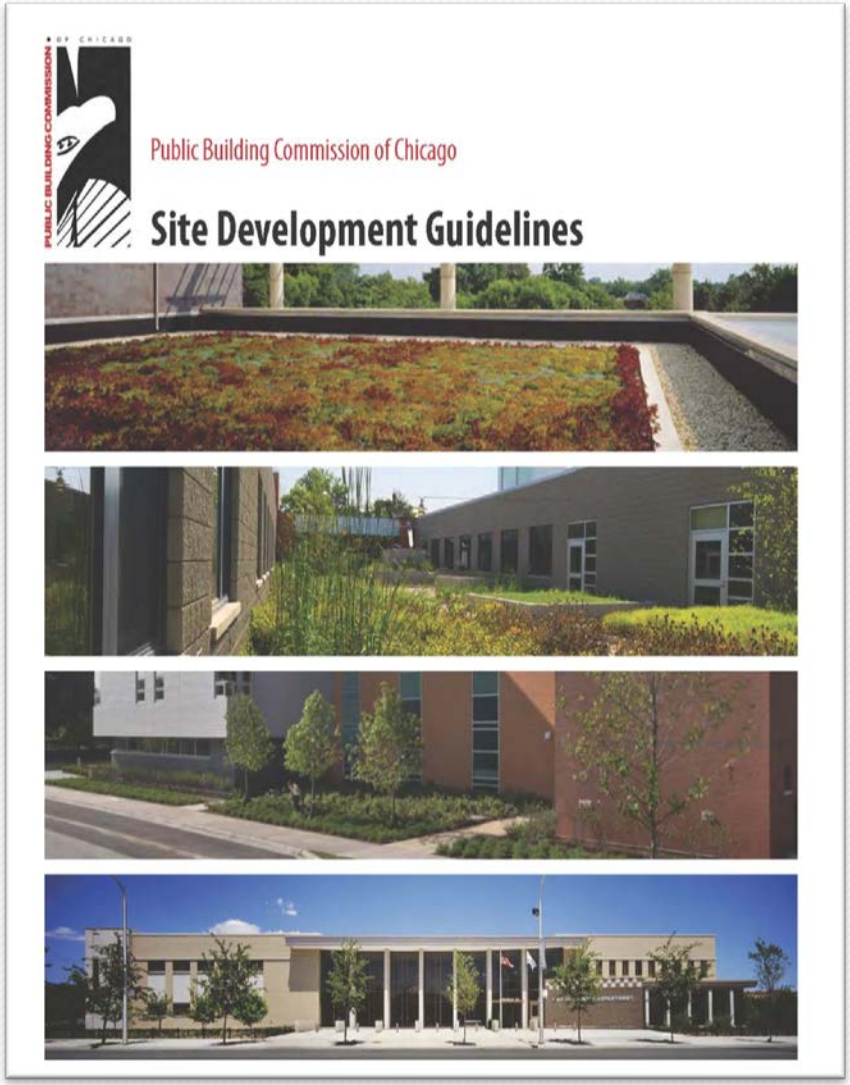
Available	Goal	INDOOR ENVIRONMENTAL QUALITY
Y	R	Minimum IAQ Performance
Y	R	Environmental Tobacco Smoke (ETS) Control
1	1	Outdoor Air Delivery Monitoring
X	1	Increased Ventilation
1	1	Construction IAQ Management Plan, During Construction
1	1	Construction IAQ Management Plan, Before Occupancy
1	1	Low-Emitting Materials; Adhesives & Sealants
1	1	Low-Emitting Materials; Paints & Coatings

Available	Goal	INNOVATION & DESIGN PROCESS
1	1	Innovation in Design: Water use reduction over 40%
1	1	Innovation in Design: Exemplary open space
1	1	Innovation in Design: Green Housekeeping
1	1	Innovation in Design: Exemplary use of Regional Materials
1	1	LEED™ Accredited Professional

What was Standardized

- Design Standards:
  - Systems
  - Materials

- Sustainable prototype evolution process



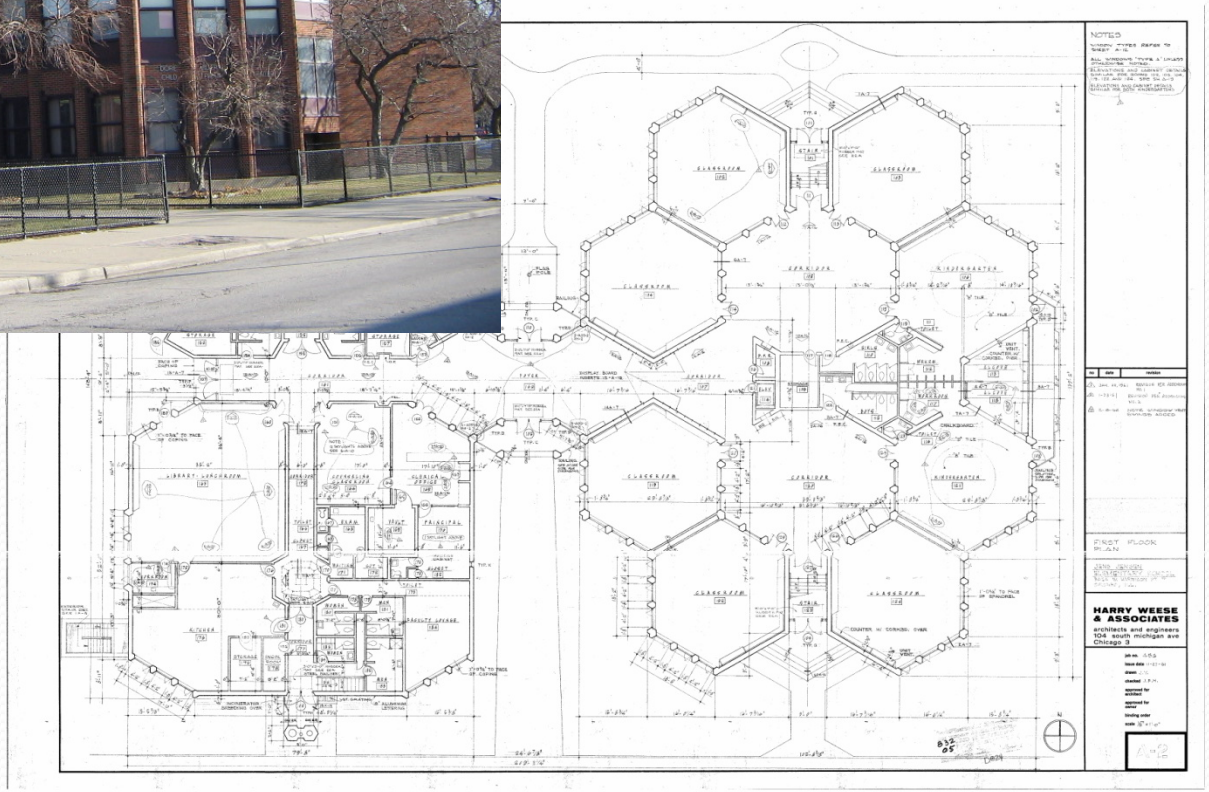
Section 3:
Development and Evolution

How Prototypes Evolve

- Where did we start?
- How did we get where we are today?
- What do we see happening in the future?

Schurz High School


JENS JENSEN
PUBLIC SCHOOL


NOTES
FIRST FLOOR PLAN
HARRY WEESE & ASSOCIATES
architects and engineers
104 south michigan ave
Chicago 3

Elementary & High Schools

Federico Garcia Lorca Elementary School

Calmeca Academy of Fine Arts & Dual Language

South Shore International College Preparatory High School

Field/Beach Houses/Harbors

Haas Park Fieldhouse

Kathy Osterman Beach House

Taylor –Lauridsen Park Fieldhouse

Ping Tom Memorial Park Field House

Municipal Buildings

Engine Company 109

Engine Company 16

Greater Grand Crossing Branch Library

22nd District Police Station

Modern Schools Across Chicago


LANGSTON HUGHES ELEMENTARY SCHOOL


BRIGHTON PARK I ELEMENTARY SCHOOL


IRENE C. HERNANDEZ MIDDLE SCHOOL


MARK T. SKINNER WEST ELEMENTARY SCHOOL


LEE PASTEUR HURLEY ELEMENTARY SCHOOL

POWELL ELEMENTARY SCHOOL


AVONDALE/IRVING PARK AREA ELEMENTARY SCHOOL

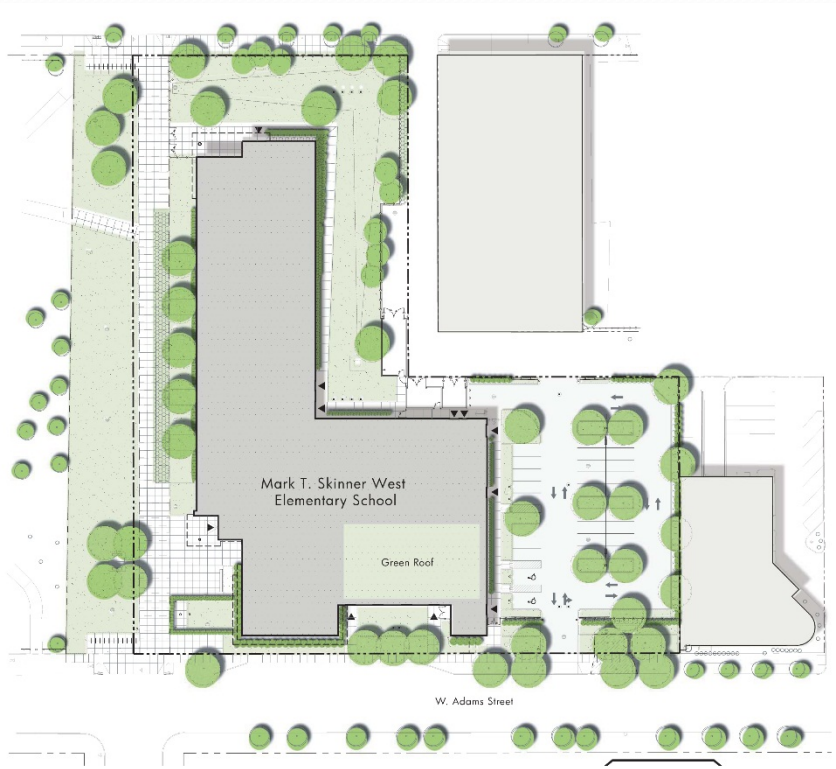

BRIGHTON PARK II ELEMENTARY SCHOOL


BOONE CLINTON ELEMENTARY SCHOOL

Case Study

Mark T. Skinner West Elementary School

Mark T. Skinner West Elementary School



Mark T. Skinner West Elementary School

Case Study

Federico Garcia Lorca Elementary School

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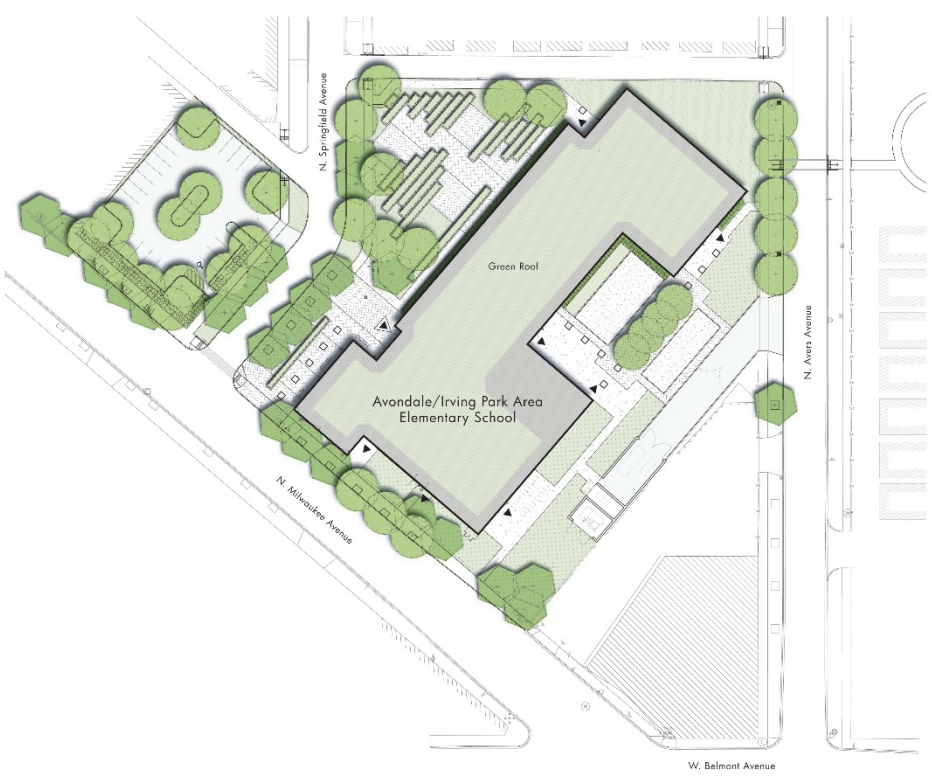
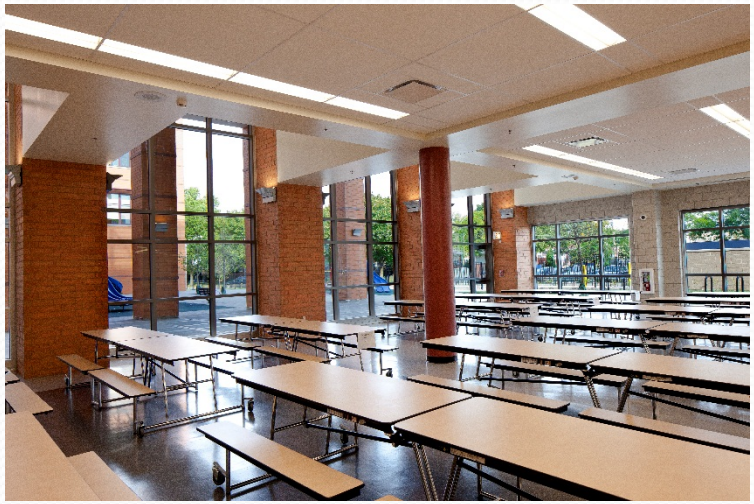


Federico Garcia Lorca Elementary School

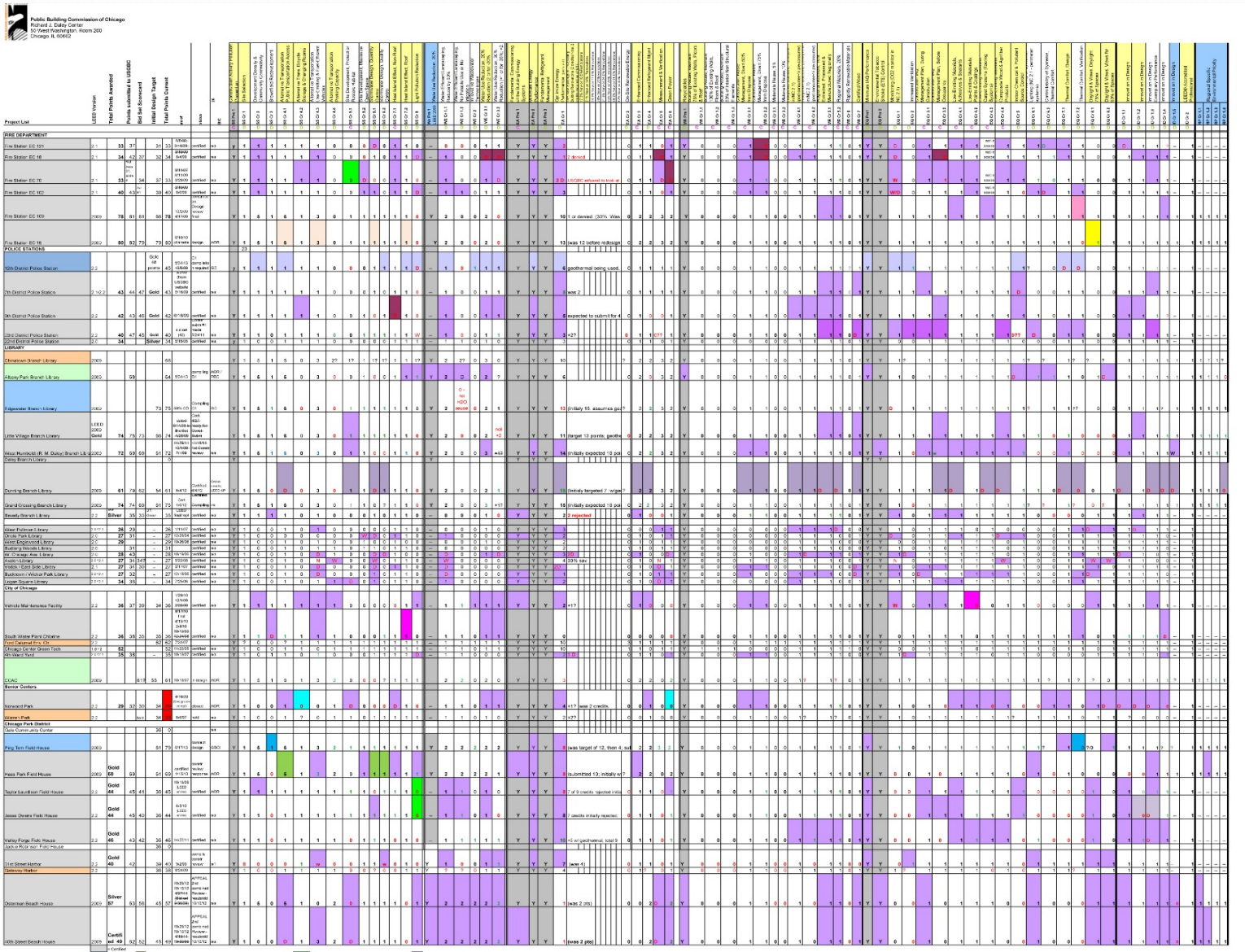


Case Study

Mt. Greenwood Elementary School Annex

Durkin Park Elementary School Annex

LEED


Public Building Commission of Chicago
Richard J. Daley Center
50 West Washington, Room 200
Chicago, IL 60602
Project List
FIRE DEPARTMENT
Fire Station: EC 121
Fire Station: EC 18
Fire Station: EC 76
Fire Station: EC 102
Fire Station: EC 109
Fire Station: EC 16
POLICE STATIONS
12th District Police Station
7th District Police Station
9th District Police Station
22nd District Police Station
LIBRARY
Chinatown Branch Library
Albany Park Branch Library
Edgewater Branch Library
Little Village Branch Library
West Humboldt (R. M. Daley) Branch Library
Daley Branch Library
Dunning Branch Library
Grand Crossing Branch Library
Beverly Branch Library
West Pullman Library
Orville Park Library
West Englewood Library
Budlong Woods Library
W. Chicago Ave. Library
Austin Library
Vodak / East Side Library
Budlong / Walter Park Library
Logan Square Library
City of Chicago
Vehicle Maintenance Facility
South Water Plant Chlorine
Food Donated Env. Ch
Chicago Center Green Tech
4th Ward Yard
CCAC
Senior Centers
Norwood Park
Warren Park
Chicago Park District
Dale Community Center
Ping Tom Field House
Hess Park Field House
Taylor Lauridsen Field House
Jesse Owens Field House
Valley Forge Field House
Jackie Robinson Field House
31st Street Harbor
Gateway Harbor
Osterman Beach House
40th Street Beach House
Certified: 26-32 points Silver: 33-38 points Gold: 39-51 points Platinum: 52-80 points
LEED NC v 2.1 and 2.2: Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points
LEED 2009:

Section 4:
How to make a great program even better

Making a Great Program Even Better

Feedback from O&M and Users

- Metrics
  - Energy
  - Water
- Post Occupancy Evaluation
  - Engineers and trades
  - Staff

So Now We Know

- Additional upfront work
- What to track, measure and prioritize
- Improvements we incorporated along the way
- Integrating feedback

Wrap Up

- Role of Municipal leadership in Innovation and Adaptation
- Certifications and Awards
  - More municipally owned LEED Certified public buildings than any other U.S. City
  - Environmental Awards, Program Management Awards
- Benefits to stakeholders and citizens
- Long-term contribution to construction industry

Questions

THANK YOU!!

Contact Information:

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