PS 62: NYC's NET ZERO ENERGY PUBLIC SCHOOL

Staten Island, NY
Elementary School (Pre-K through 5th Grade)
68,000 SF
2 Stories

SOM
In-posse
NYCSCA

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PROJECT BACKGROUND

SCA NYC School Construction Authority

PS62 – Pilot Project

NYC School Design Standards

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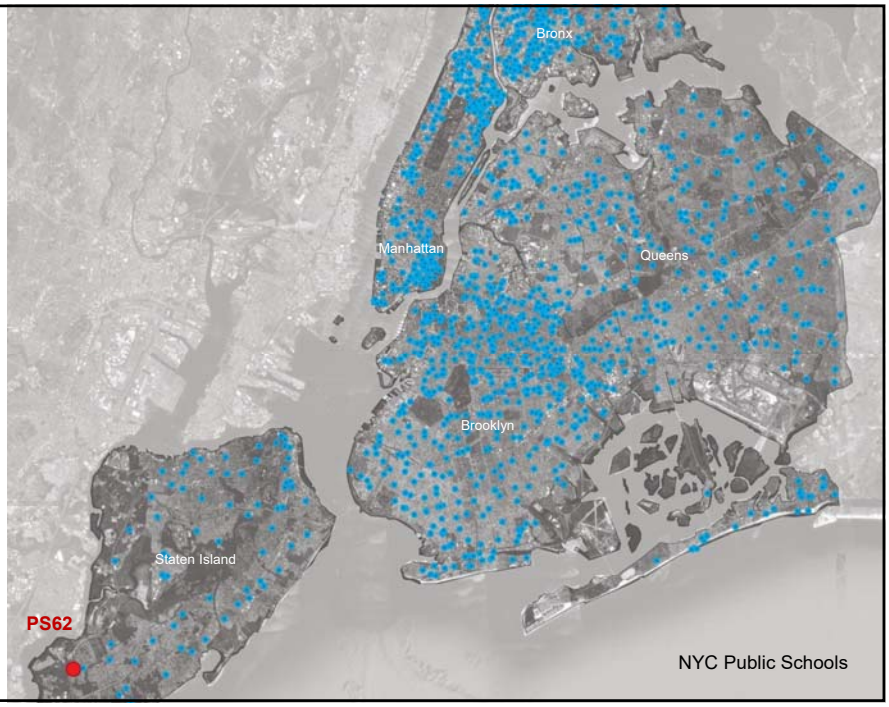
PROJECT IMPACT

NYC School Construction Authority

- **1,600 Schools**
- **130 Million SF**
- **1.1 Million Students**
- **37% of NYC municipal greenhouse gas emissions**



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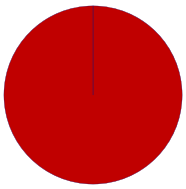
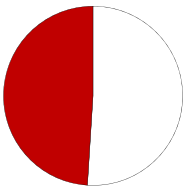
COMPARATIVE ENERGY USE



TYPICAL SCA SCHOOL
(Complies w/ NYC Local Law 86; +/-30% beyond ASHRAE 90.1)



PS 62
(50.4% beyond typical SCA School)

NYC Local Law 31

ENERGY USE

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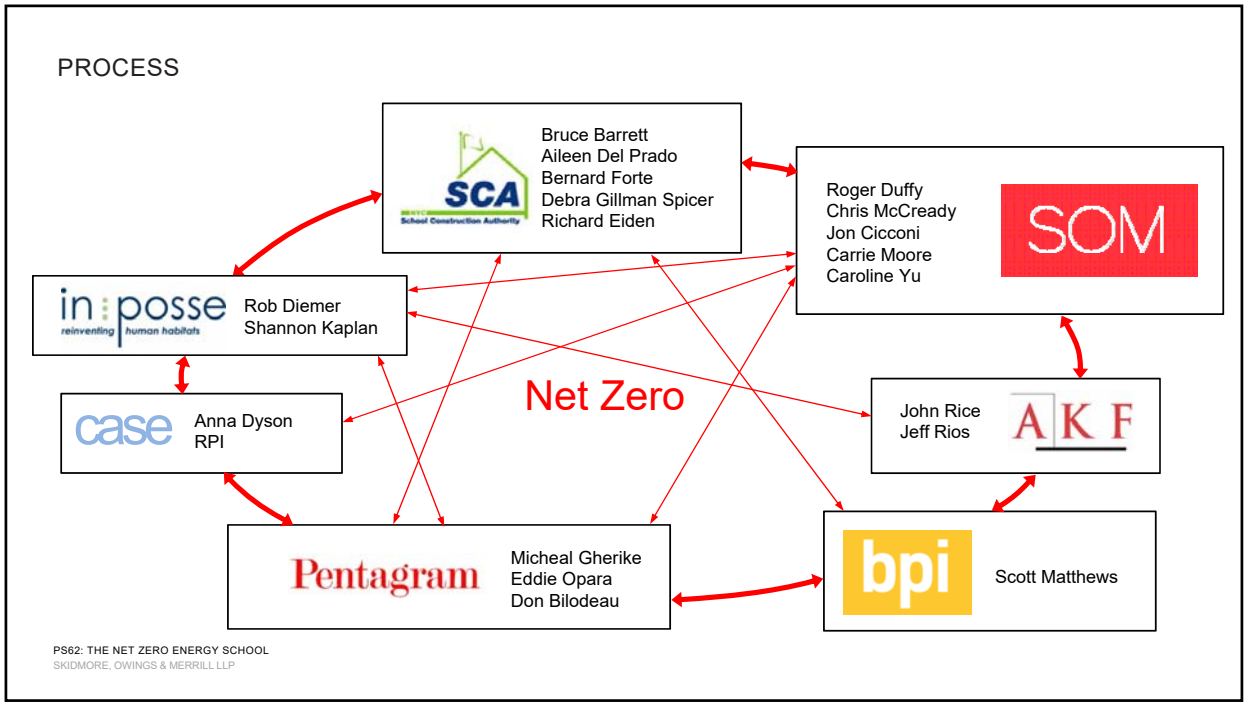
PROCESS
SCA
Bruce Barrett
Aileen Del Prado
Bernard Forte
Debra Gillman Spicer
Richard Eiden
Roger Duffy
Chris McCready
Jon Cicconi
Carrie Moore
Caroline Yu
SOM
in:posse
Rob Diemer
Shannon Kaplan
Net Zero
case
Anna Dyson
RPI
John Rice
Jeff Rios
AKF
Pentagram
Micheal Gherike
Eddie Opara
Don Bilodeau
bpi
Scott Matthews
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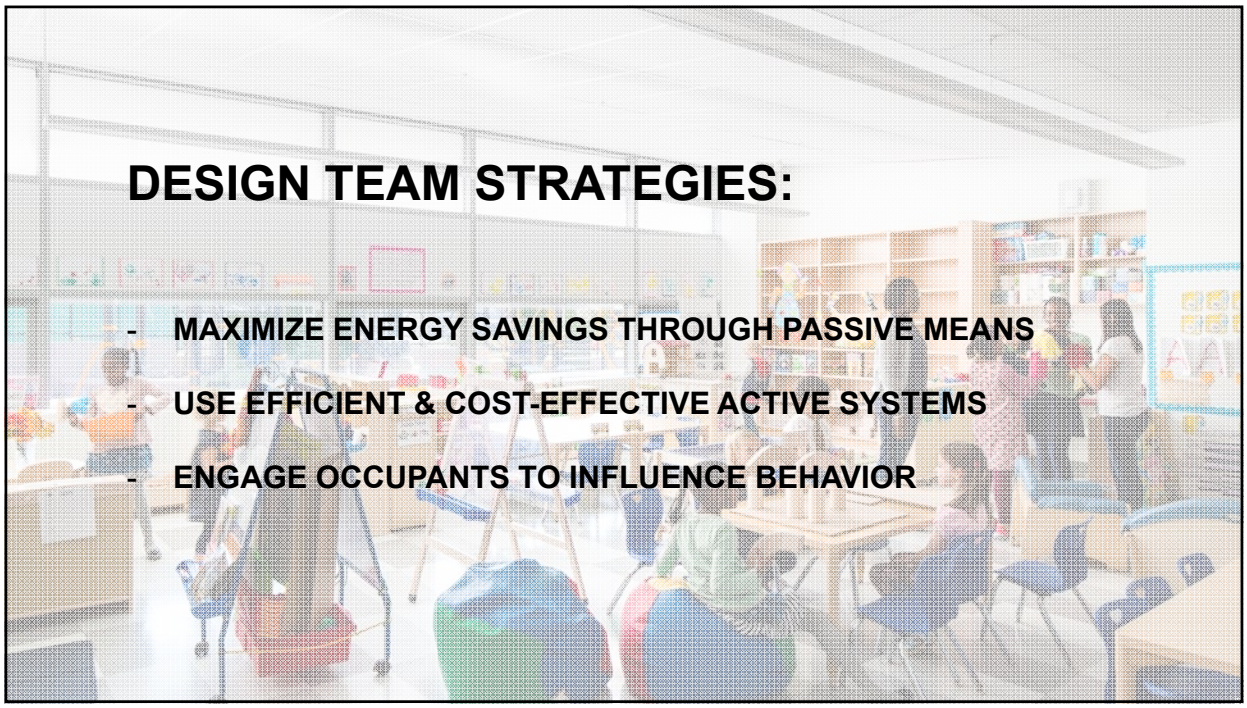
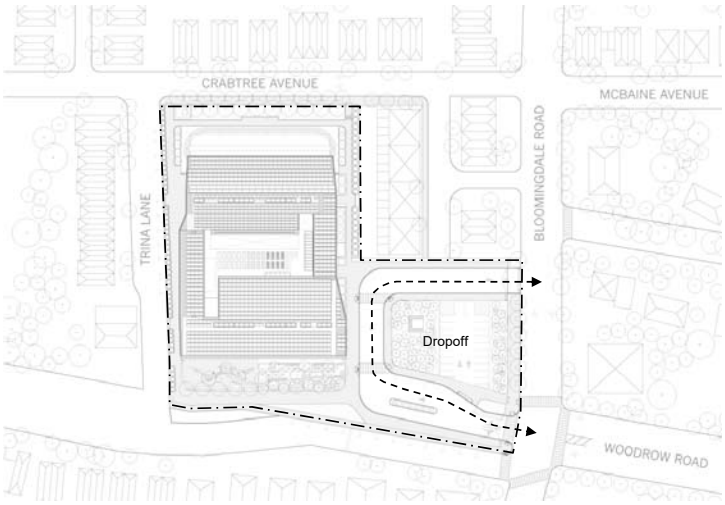

DESIGN TEAM STRATEGIES:
- MAXIMIZE ENERGY SAVINGS THROUGH PASSIVE MEANS
- USE EFFICIENT & COST-EFFECTIVE ACTIVE SYSTEMS
- ENGAGE OCCUPANTS TO INFLUENCE BEHAVIOR

ORIENTATION / PASSIVE OPTIMIZATION



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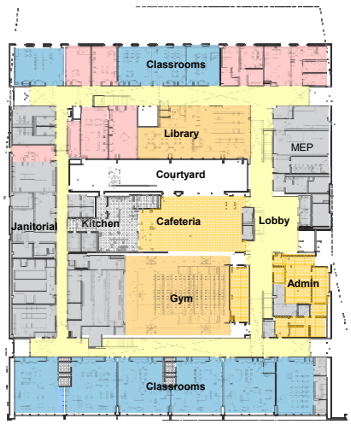
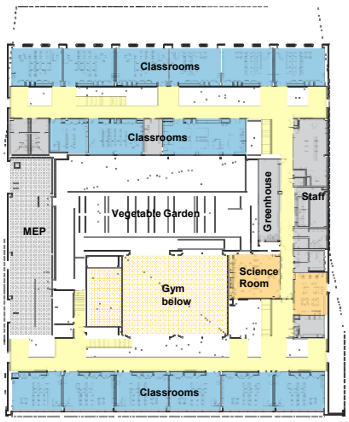
FLOOR PLANS – Program Layout



Ground Floor



Second Floor

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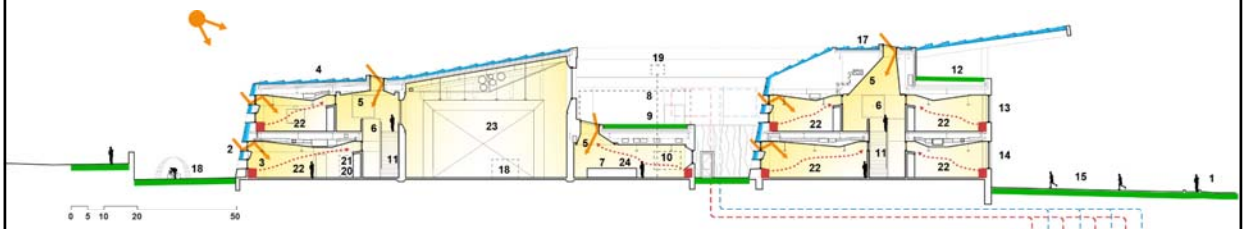
CROSS SECTION



1 Walking Track & Sustainability Tour
2 Clerestory Windows at South Facade
3 Displacement Induction Units
4 Photovoltaic Panels (1,900 KBTU Generated Per Year)
5 Sloped Ceilings Reflect Natural Light
6 Double Height Corridors (98% Daylight Autonomy)
7 Low Energy Kitchen Equipment
8 Greenhouse
9 Vegetable Garden
10 Building Dashboard System
11 Open Stairs
12 Green Roof
13 Large Windows At North Facade
14 High Efficiency Envelope (.01% Infiltration Rate)
15 Running Track
16 Geothermal Wells (81)
17 Solar Thermal (For Domestic Hot Water)
18 Energy Bicycles
19 Wind Turbine
20 Occupancy Sensors
21 Aircuity System
22 Classrooms (90% Daylight Autonomy - South Classrooms)
Classrooms (60% Daylight Autonomy - North Classrooms)
23 Gymatorium (50 % Daylight Autonomy)
24 Cafeteria (50% Daylight Autonomy)

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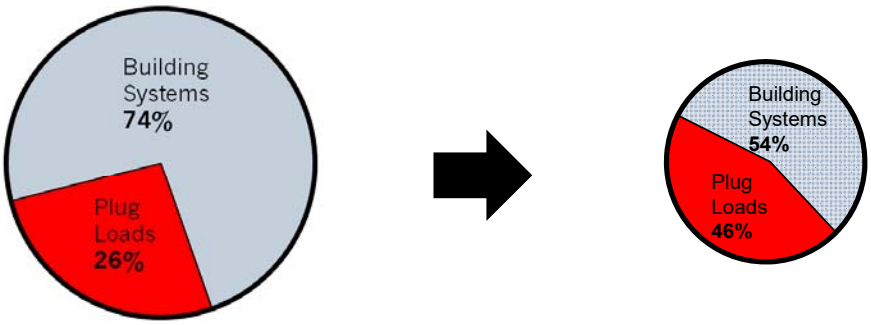
ENERGY USE COMPARISON



Typical SCA School
(Total Energy Use)

PS-62
(Total Energy Use)

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Plug Load: Any energy load that is plugged into a receptacle
(i.e. not hardwired into the building)

USER WORKSHOPS

Collaborative bi-weekly workshops focused on ideas for minimizing the building's energy consumption.

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BUILDING DASHBOARDS

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BIKE ENERGY ROOM
678 102
567 890
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CORRIDOR – Upper Level
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CORRIDOR

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AERIAL VIEW
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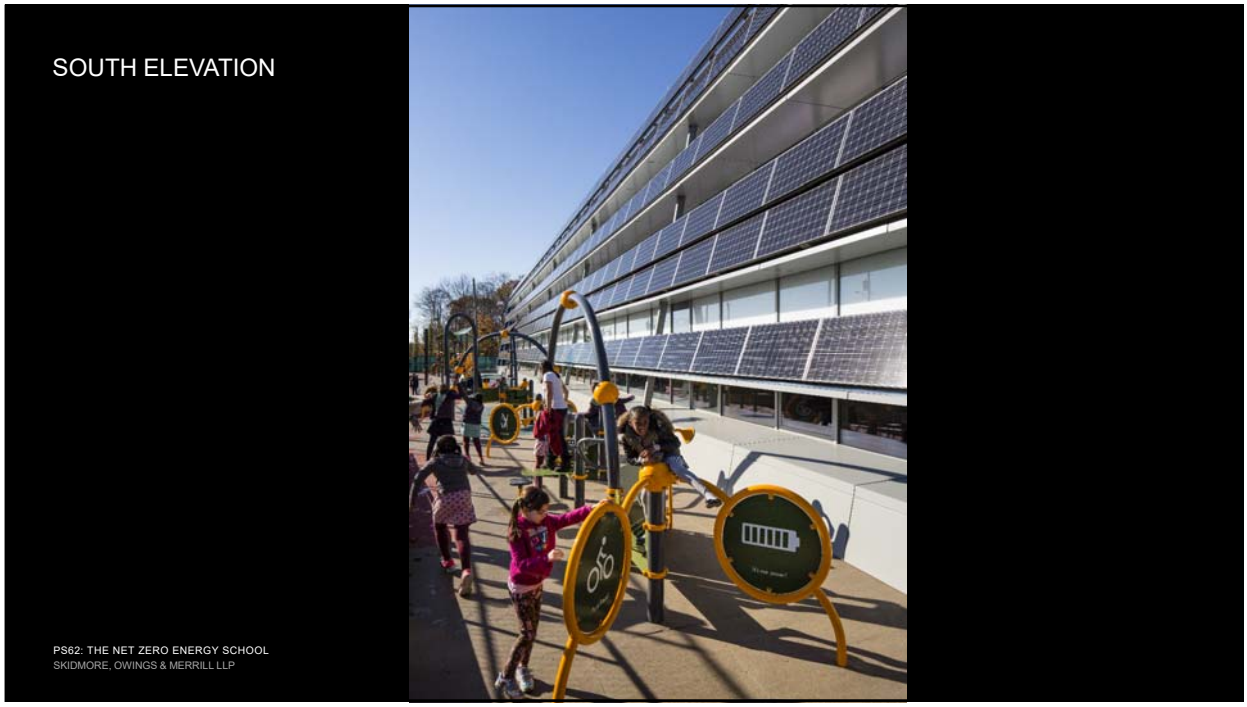
SOUTH ELEVATION
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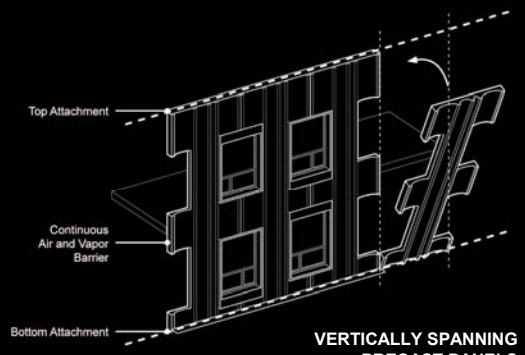
NORTH ELEVATION



VERTICALLY SPANNING PRECAST PANELS

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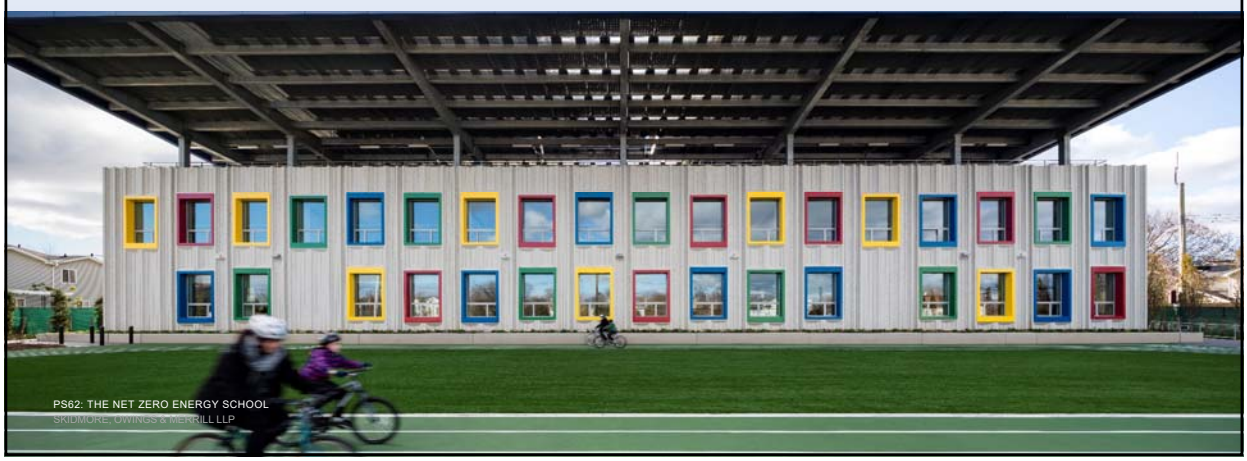
NORTH ELEVATION



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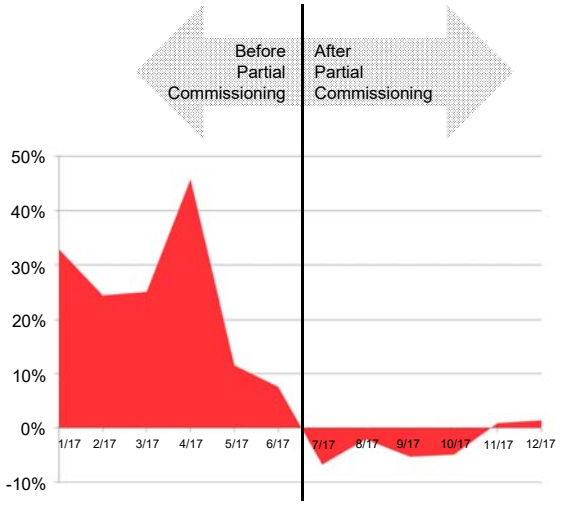
ENERGY MODELING
OPERATIONAL PERFORMANCE



% Delta (Modeled vs. Actual) Electric Consumption

Outcome…

- NYC Municipal Preparation for Local law 31
- Adoption of standard LED lighting across all SCA Schools
- Adoption of Upgraded Kitchen equipment
  (estimated 25% of energy use across all public schools)
- Enhanced Kitchen Exhaust and Ventilation
- Enhanced Daylighting Requirements

…A more sustainable city