



# Perkins Eastman

The City of Cambridge

Martin Luther King, Jr. School Construction Project

April 5, 2012

# Perkins Eastman: A Tradition of Leadership in High Performance School Design



## Architectural System

*A Needs, Resources, and Design Approach*



Ezra D. Ehrenkrantz

**INNOVATIVE EDUCATION**

### An Elementary School with a Global Perspective: The Building as a Teaching Tool

By Sean O'Donnell, Marjorie Culbert, Abbie Cronin and Melissa Nolasco

*As a microcosm of the world, Stoddert's approach helps the students see the world where energy issues must be approached in a cooperative, interactive outcomes. Considering that many may return abroad with this knowledge, global ambassadors of sustainable design and development.*

Just 29 months after the start of design, Stoddert Elementary School's modernized and expanded campus in northwest Washington, DC reopened, welcoming back the school and its community. Featuring spaces that had been missing since the school was founded in 1902, such as a gym, cafeteria, and library/media center and up-to-date building systems and technology, the campus serves 300 students as a school by day and the diverse urban neighborhood as a community center operated by the Department of Parks & Recreation, after hours.

Designed with the District's first ground source heat pump system, the campus achieved LEED for Schools Gold with its pervasive daylight, enhanced classroom acoustics, PVC casework, recycled content in the water fixtures. However, the most powerful argument for developing the sustainable design features of the campus was to allow the students to really engage sustainability hands-on, learning from their new environment and interacting with the people who helped to design and build it. The school has embraced this challenge, inspiring the students to become lifelong stewards of their environment.

**Ambassadors of Sustainable Design**  
As Stoddert sits just off Washington's Embassy Row, students and families from more than 25 nations and a major military base attend school, contributing an important international diversity to an already diverse local population. An education itself, this diversity creates opportunity to examine the issues of the day from a global perspective.

Taking a signature education program around this international diversity, Stoddert IS has focused on environmental and social issues. As a microcosm of the world...

Students & community

www.pea.com

Educational Facility Planning / Perkins Eastman

THE THOUGHT LEADERSHIP OF PERKINS EASTMAN

## COLLECTIVE INTELLIGENCE

**3.1** Facility's Response to the International Baccalaureate Curriculum

Perkins Eastman

BUILDING TYPE BASICS FOR

# elementary and secondary schools

second edition

BRADFORD PERKINS with RAYMOND BORDWELL  
Perkins Eastman

# Perkins Eastman: Designing for the Global, Urban Student



US - 89  
NY: 34  
DC/VA: 20  
CT: 12  
NJ: 8  
NC: 6  
PA: 4  
MA: 2  
CA: 2  
RI: 1

Ecuador - 2

Tanzania - 1  
Ghana - 1  
Senegal - 1

India - 2  
KSA - 3  
UAE - 3  
Cairo - 1

China - 5  
Korea - 1  
Vietnam - 3  
Cambodia - 1



Total K-12 Projects: 113  
Total K-12 Projects outside of U.S.: 24

# Perkins Eastman: An Integrated, Collaborative Team

## Perkins Eastman

- Design Approach
- Strategic Programming/Planning
- A Unique History
- Horsepower to Implement
- Thought Leadership in K-12
- Local Experience
- Local Commitment & Experience in Cambridge



Mark Boyes-Watson, AIA  
Community Outreach

- Collaborator – Integrator
- Resident of Cambridge for 25 Years
- Hundreds of Projects Designed in Cambridge, including Riverside neighborhood
- Community Engagement
- Zoning Analysis



Sean O'Donnell, AIA, LEED AP  
Principal-In -Charge

- Program Visionary / Pushing the Envelope
- Innovator / Image maker
- Balance Expectations with Realities
- Project Team Performance



John Pears, RIBA  
Design Principal / Renovation Expert

- Design Visionary
- Scoping
- Urban Designer
- Collaborator



Alicia Caritano, AIA, LEED AP  
Project Manager

- Facilitator
- Develops work plan and schedule
- Day to day design team contact
- Contact to City



Jana G. Silsby, AIA, LEED AP  
Project Architect

- Collaborator – Integrator
- Design Realization
- Systems Coordination
- Construction Administration
- MCPPO

# Martin Luther King, Jr. Construction Project Feasibility Study

- **Iterative Process February to June 2012**
- **Meet with School Groups, Community Groups and City Groups**
  - Two more neighborhood meeting during Feasibility Study
- **Analyze and Document Existing Conditions**
- **Create Education Specification**
  - How will Teachers teach
  - What spaces are needed, how big & how many (Program)
  - What features & character are desired
  - What sustainable goals are desired
  - How should three schools relate to each other and the outside community
- **Create Options & Evaluate**
  - Criteria of Educational Specifications
  - Fit within Community
  - Cost
- **Develop Preferred Option**
  - Concept Plans
  - Concept Images
  - Concept Scope & Budget
- **Just the Beginning...**
  - After Feasibility Study, 1 Year of Design and 2 Years of Construction



## ▪ Informational Meetings

- Current phase includes information gathering from city agencies, the school administration, parents, abutters and the neighborhood.

## ▪ Approvals Process

- The formal approval process will occur at next the design phase as the building design takes shape (Schematic Design). The City is currently reviewing zoning for existing school sites.
- The design team anticipates a series information sharing meetings, and has the goal of a submission to the planning board in Summer 2012. The design review process is anticipated to take 6-8 weeks.

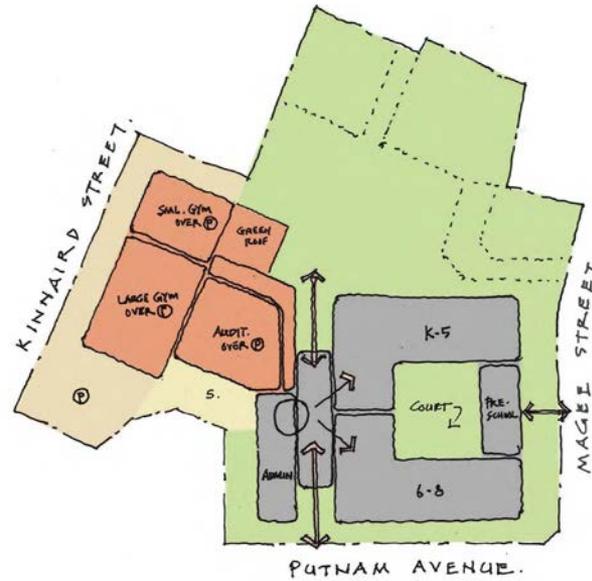
## ▪ Technical Review

- The Design will be vetted by the following city agencies:
  - Planning Department or Planning Board: Overall design and compatibility with the neighborhood
  - Department of Public Works: Storm water, sewer, streets and sidewalks, other utilities
  - Traffic Department: Traffic and pedestrian flows, safety and management. Bus pick-up and drop-off
  - Fire Department: Life safety, fire fighting access

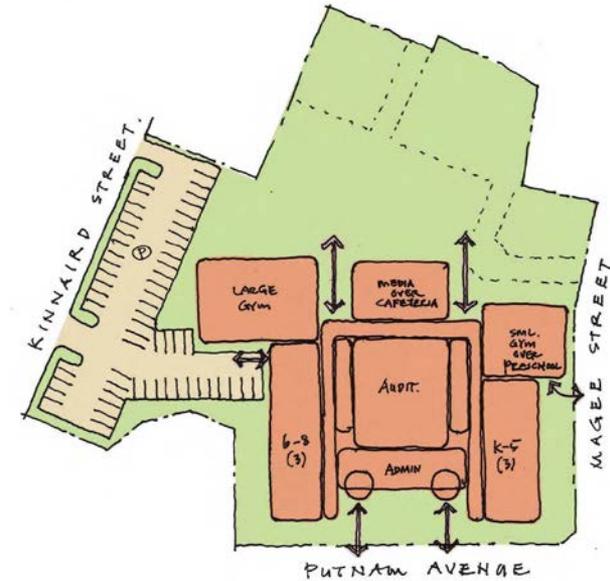




**Renovation**



**Hybrid:  
Modernization/  
Addition**



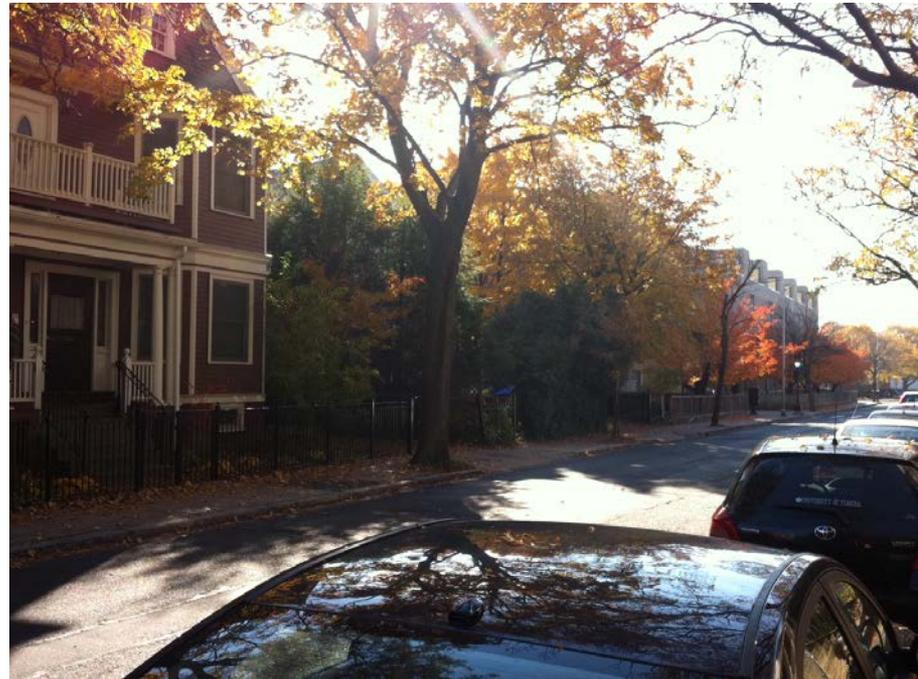
**New**

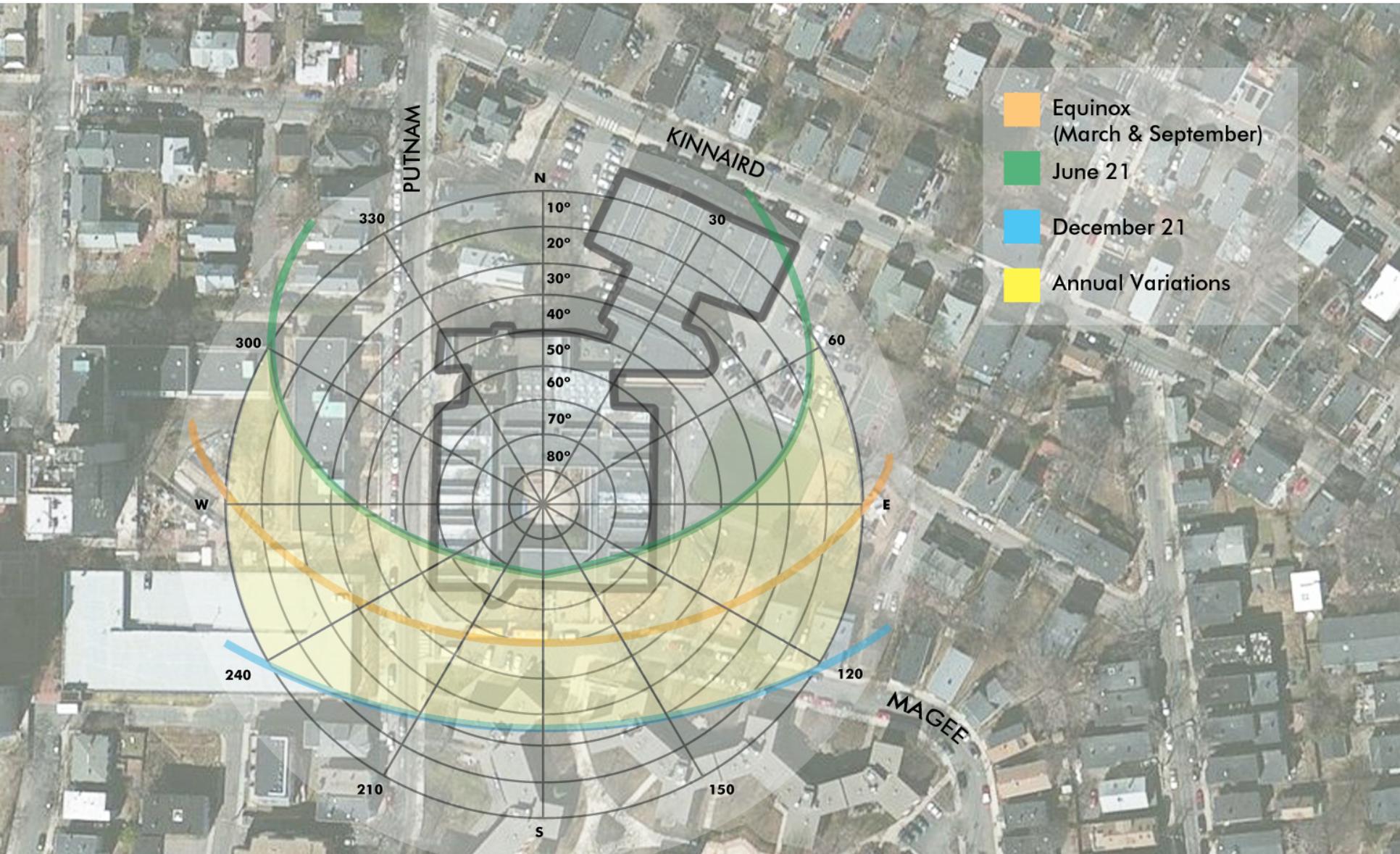


# Perkins Eastman

Analysis: Site

# Neighborhood Context

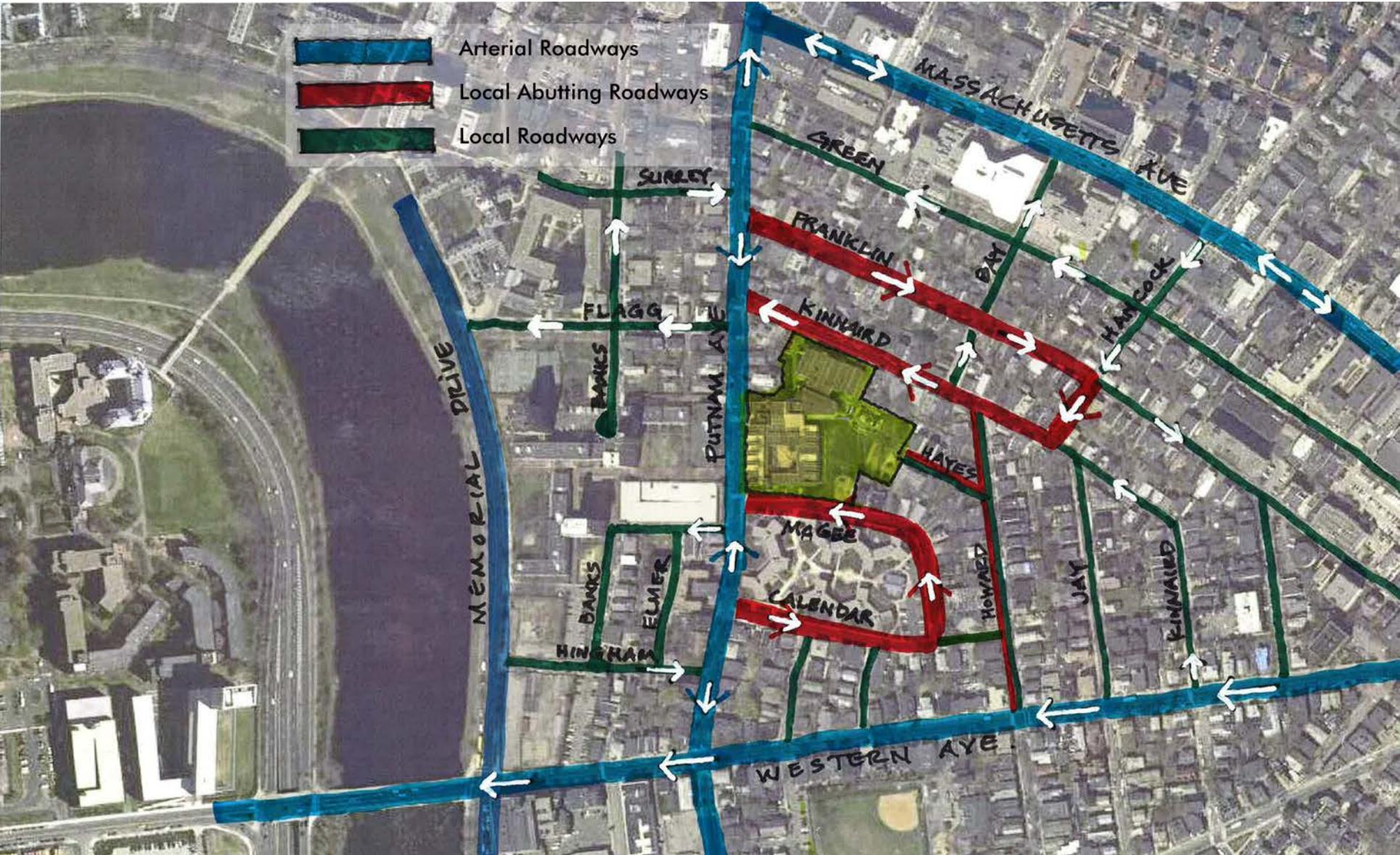




- Equinox (March & September)
- June 21
- December 21
- Annual Variations

# Use & Scale Diagram





# Morning Drop Off



# Afternoon Pick Up



# Existing Parking On-Site





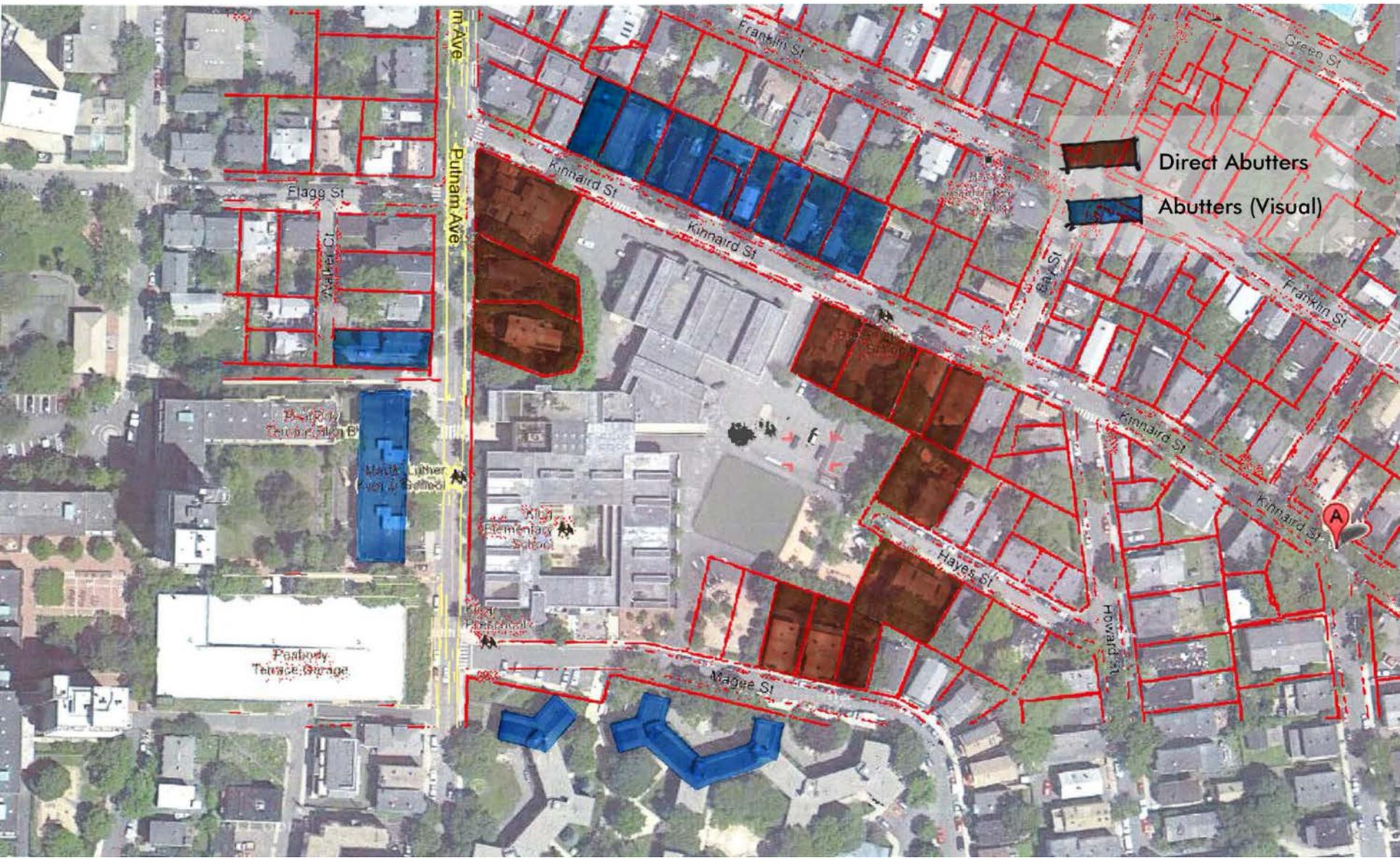
Street Frontage

PUTNAM

KINNAID

HAYES

MAGEE





# Useable Outdoor Spaces



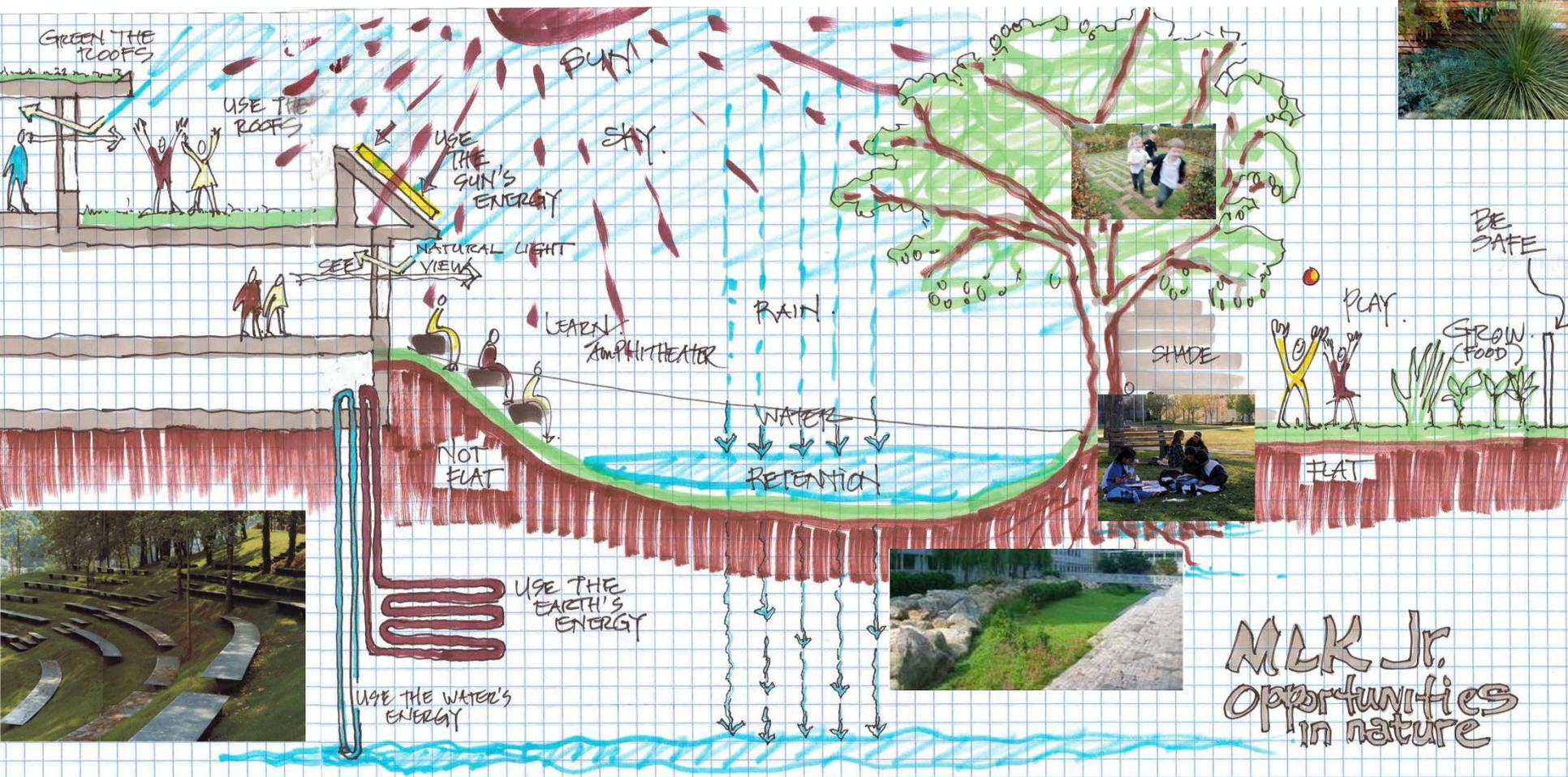




# Perkins Eastman

Sustainable Opportunities

# Sustainability Comes Naturally



MLK Jr.  
Opportunities  
in nature

Growing and eating healthy food



Chronicle / Craig Lee



## Play, Relax and Learn



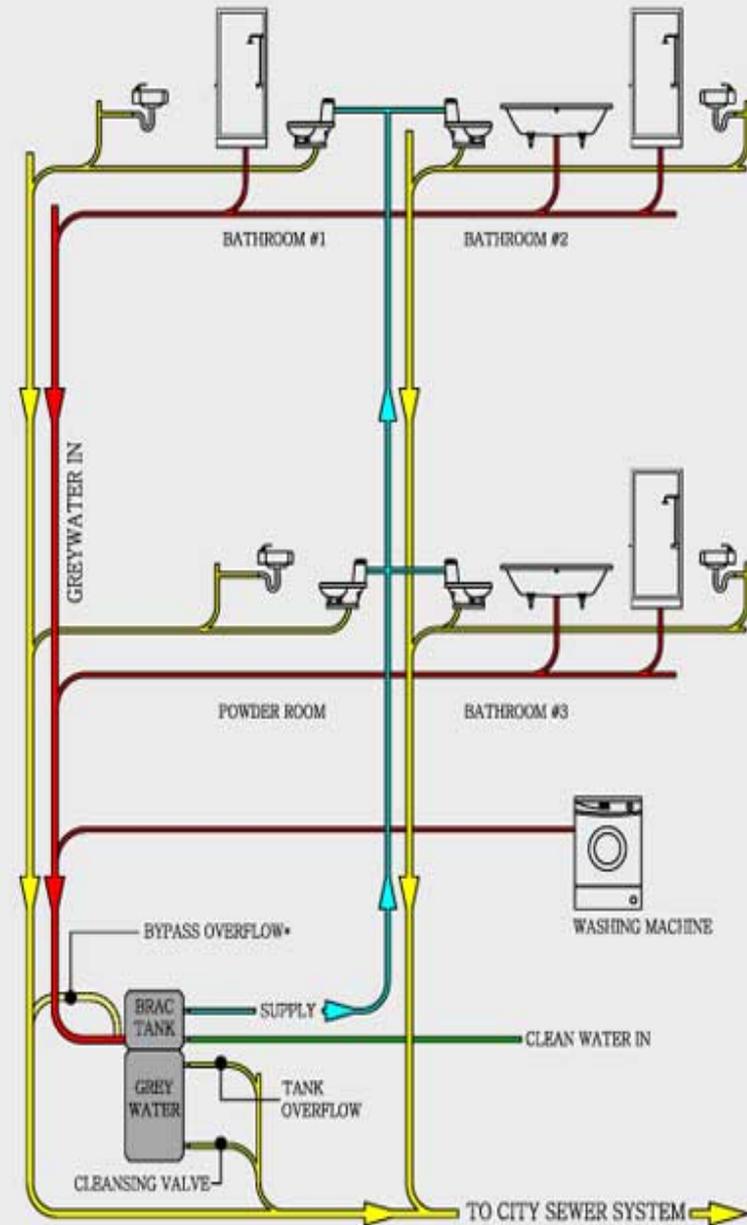
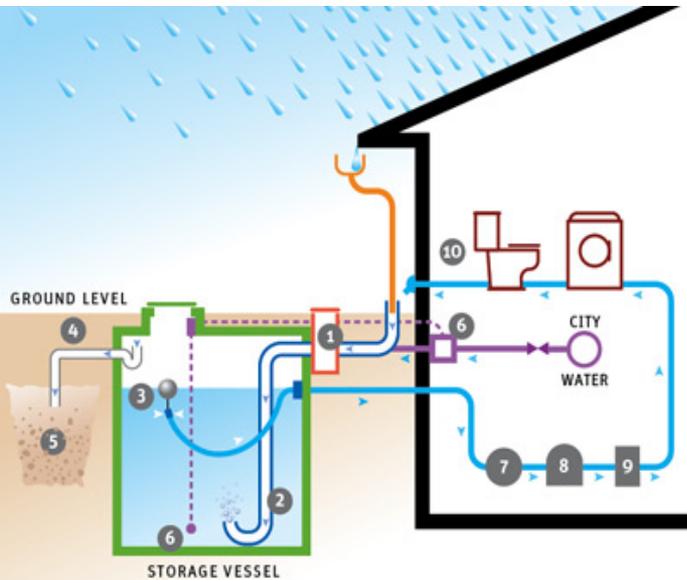
## 1. Sustainable Sites

- a) Community and Density – building where there are services & a real neighborhood, joint use of building
- b) Open Space &/or Preservation of Habitat
- c) Transportation –alternatives to driving & promoting fuel efficient vehicles and carpools
- d) Storm water – quantity/quality control, erosion control
- e) Light Pollution



## 2. Water Efficiency

- a) Water use reduction
- b) Waste water reduction (rainwater or greywater use)
- c) Landscape – non potable water use reduction or elimination



### **3. Energy & Atmosphere**

- a) Energy Performance
- b) Renewable Energy
- c) Commissioning
- d) Refrigerants
- e) Measurement & Verification



## 4. Materials & Resources

- a) Building reuse
- b) Regional materials
- c) Recycled/Recyclable materials



## 5. Indoor Environmental Quality

- a) Non-toxic materials
- b) Proper ventilation
- c) Daylight & Views
- d) Controllability of System by Users
- e) Chemical & Pollutant Control & Green cleaning
- f) Thermal Comfort
- g) Acoustics





**Stoddert**  
Elementary

25° F  
LIGHT SNOW



FRANÇAIS

РУССКО

ESPAÑOL

ENGLISH

CURRENT USE



EQUIVALENCIES



Last month we saved enough water to flush 40048.4 standard toilets.

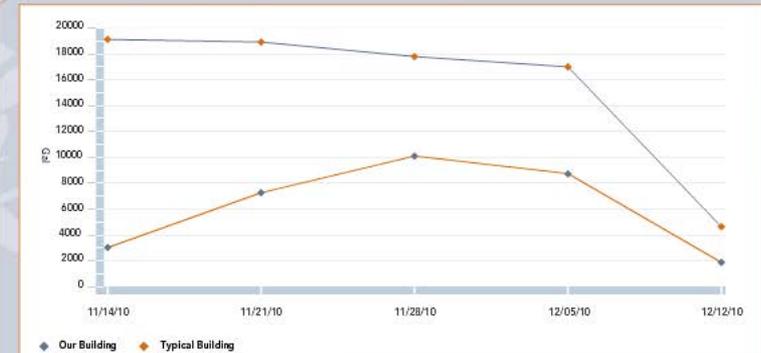
HISTORICAL USAGE: WATER

Electricity

Water

CO2

Buildings consume more than 2/3rds of all electricity produced in the United States annually. Improving the energy performance of buildings lowers operational costs, reduces pollution generated by power plants, and enhances comfort.



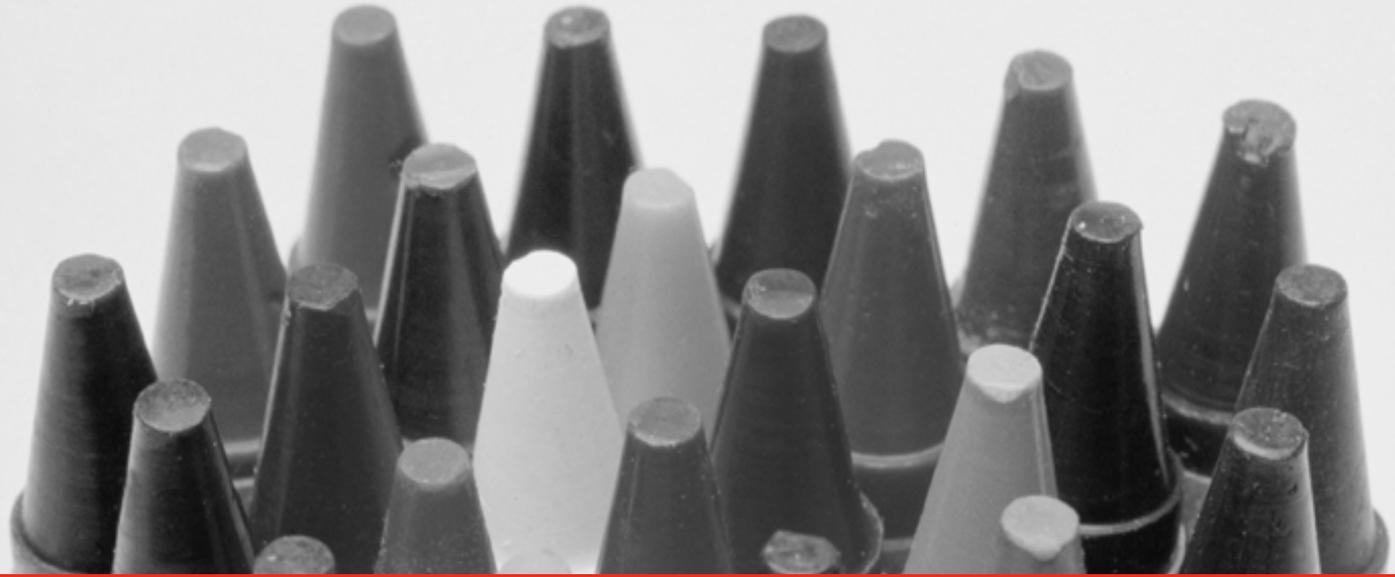
Explore



## 6. Innovation

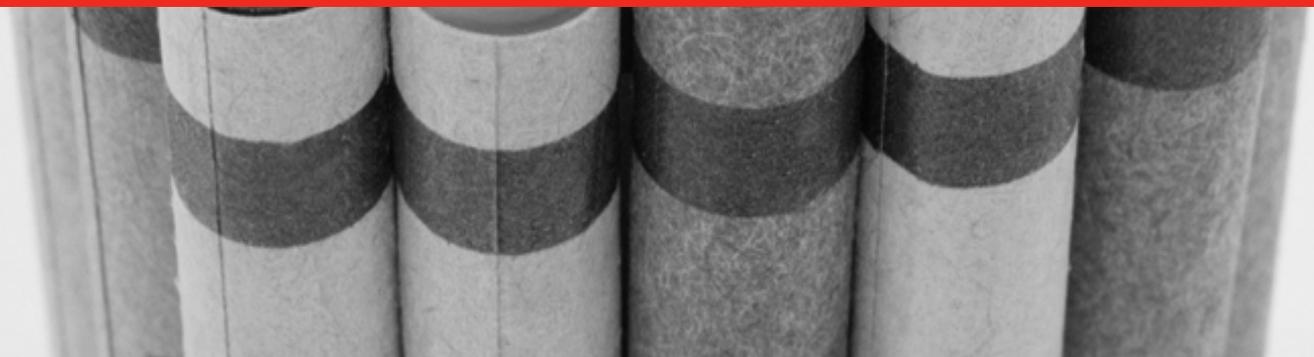
- a) Building as a teaching tool
- b) ?
- c) ?



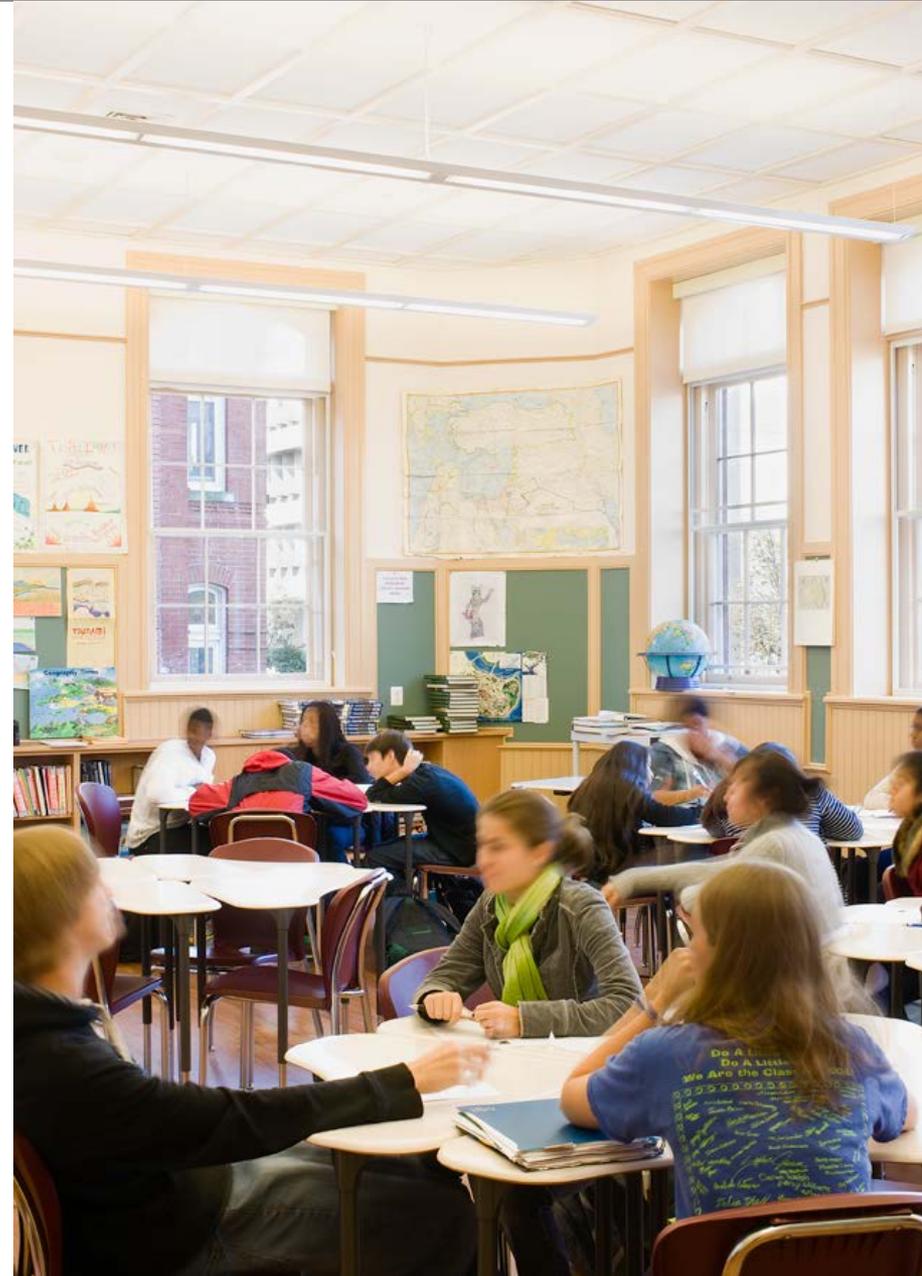


# Perkins Eastman

In Summary...



- **Enhanced Community**
  - Integrated into Context
  - Community Engaged
- **Smarter Schools**
  - Efficiently Organized
  - Flexible and Adaptable
  - Integrated Technology
- **Healthier, More Sustainable Spaces**
  - Uncluttered Design
  - Low-impact Materials
  - Access to Daylight
  - Efficient & Effective HVAC
- **Safer Places**
  - Maximize Supervision
  - Positive Adjacencies
  - Sense of Community
  - Pride of Ownership



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