



Perkins Eastman

Martin Luther King, Jr. School

School Committee Briefing

04.June.2013

Program & Organizational Principals

Integrated Process & Net Zero Energy

Design Concepts

Interior Design

Exterior Design

Schedule

1. Innovation Agenda

The Innovation Agenda is an ambitious plan that will propel Cambridge Public Schools into the 21st century, and **prepare all our students for life in a world we cannot fully imagine** today. The Innovation Agenda is a design for excellent education rather than adequate education.

Superintendent Young

2. Net Zero Energy

“For Cambridge the process of **planning and designing a net-zero school has changed the way we think about energy in all our buildings**. It has made us think about what energy we really need to use in our existing city buildings and will surely change some of what we do even in buildings not slated for full scale renovation or rebuilding.”

Mayor Davis

Program

- **Lower School:**
400 JK-5th Graders
- **Upper School:**
300 6th – 8th Graders
- **Human Services:**
40 PreSchool Students,
Community School, After
School
- **Hours of Operation:**
6:00 am to 11:00 pm

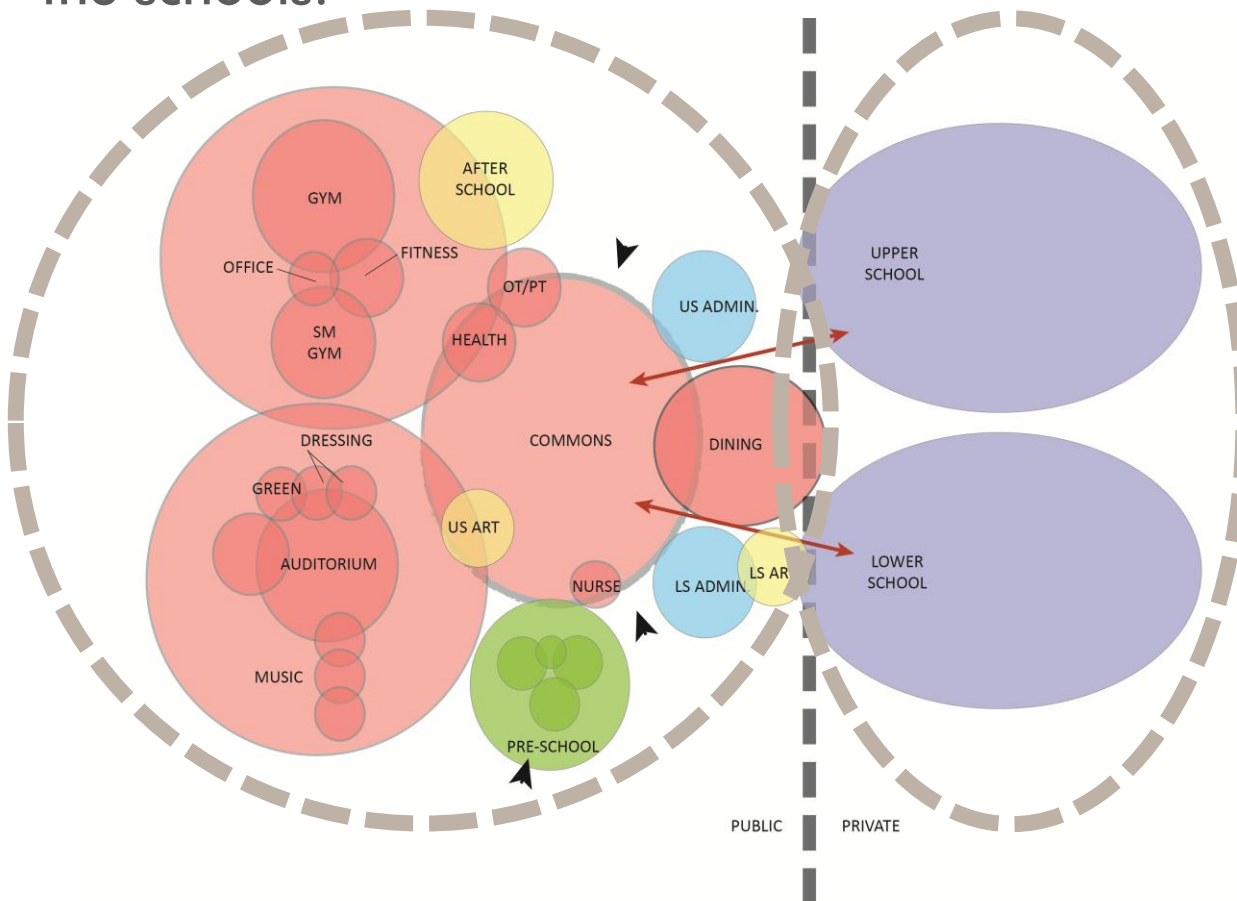


Statistics

- 169,000 gsf for schools + 18,200 gsf for parking garage
- 75 parking spaces (6 on site + 69 in garage)
- 64 short term bike spaces on site + 12 long term bike spaces in garage
- 4 stories high
- 30 kBtu/sf/yr energy use target budget

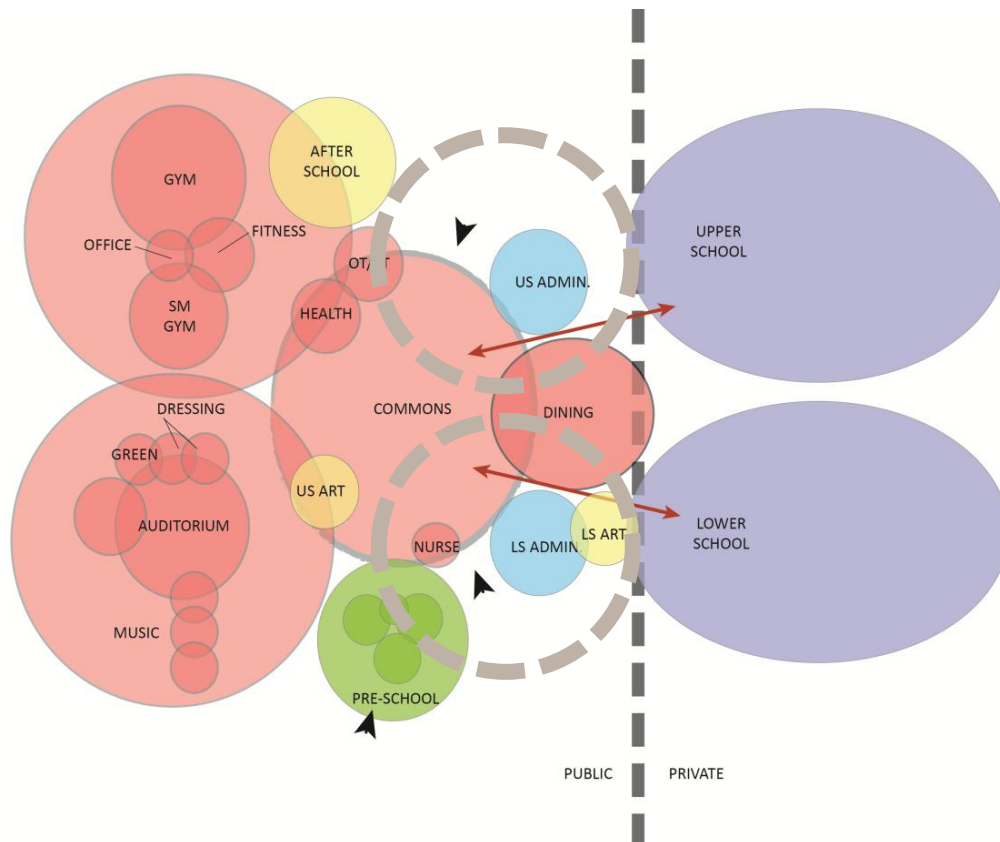
Principle:

- The campus is zoned into community/school and school-dedicated areas organized around a campus commons. This enables active community use without disruption to the schools.



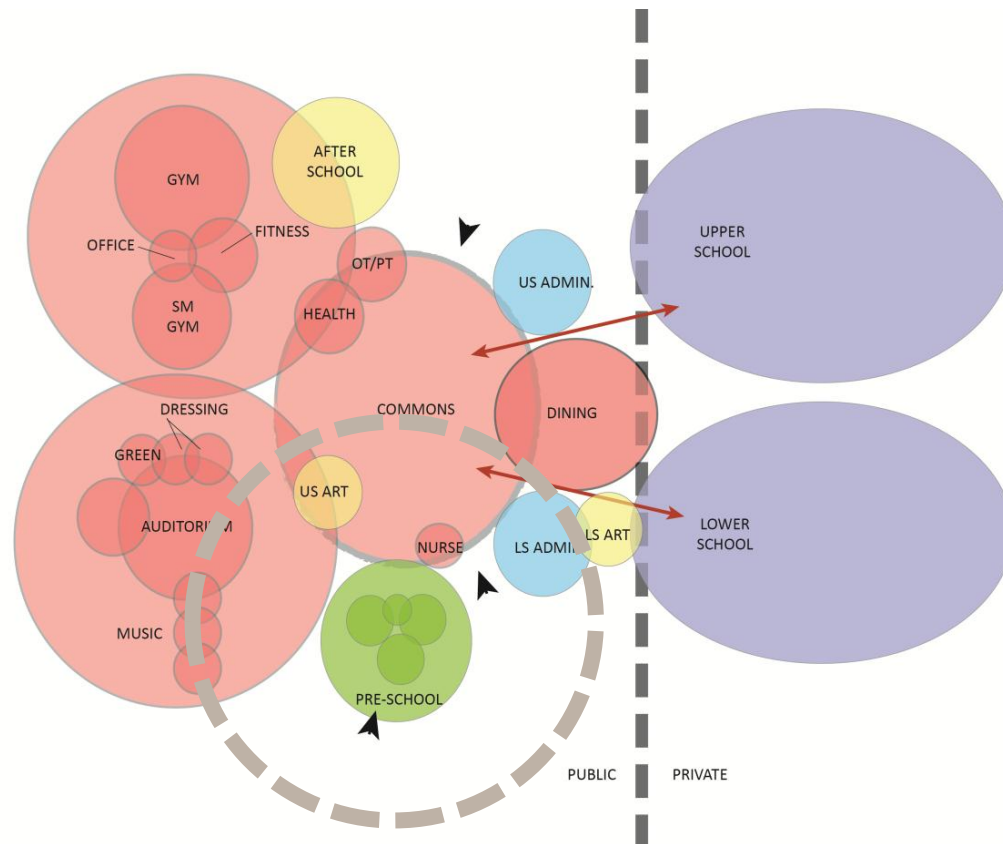
Principle:

- Each school administration controls the front door(s) and the campus commons.



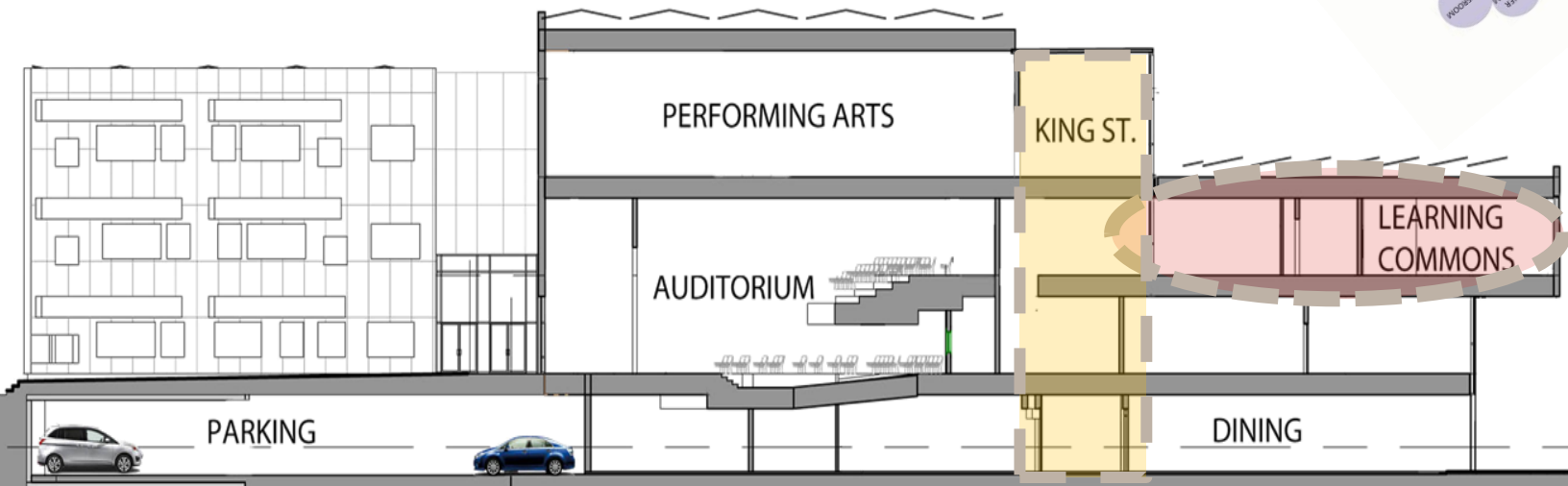
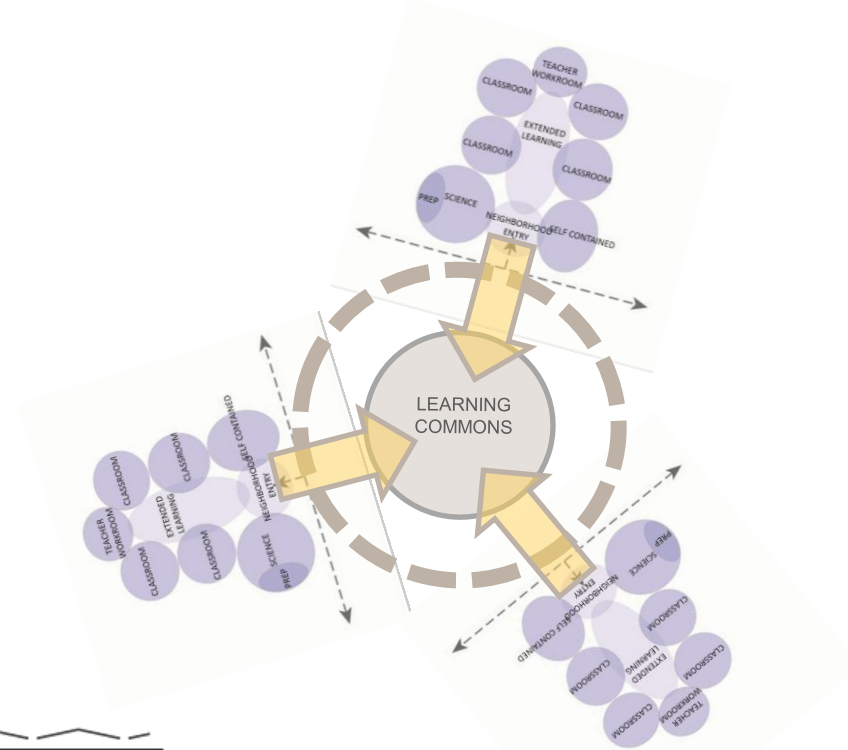
Principle:

- The Pre-School has its own entry but is also integrated into the campus-community commons.

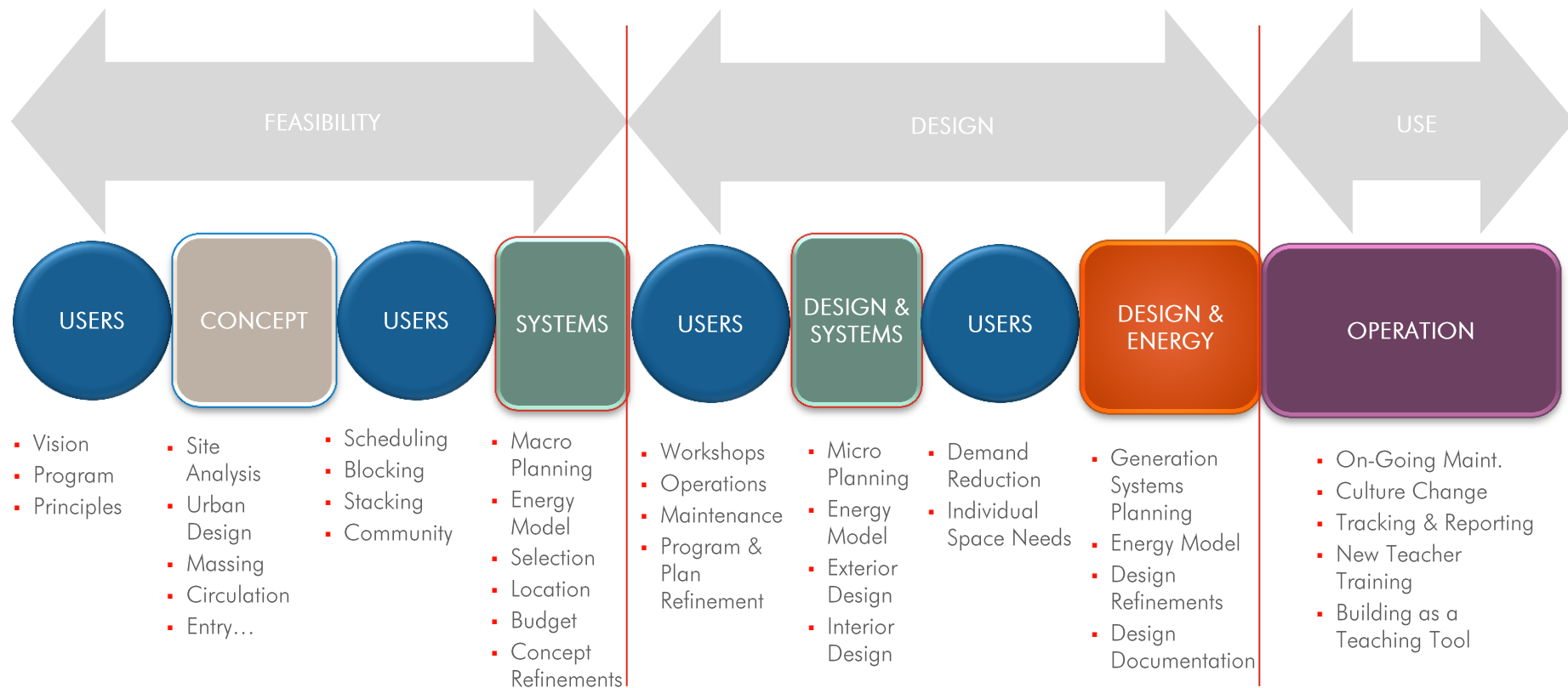


Principle:

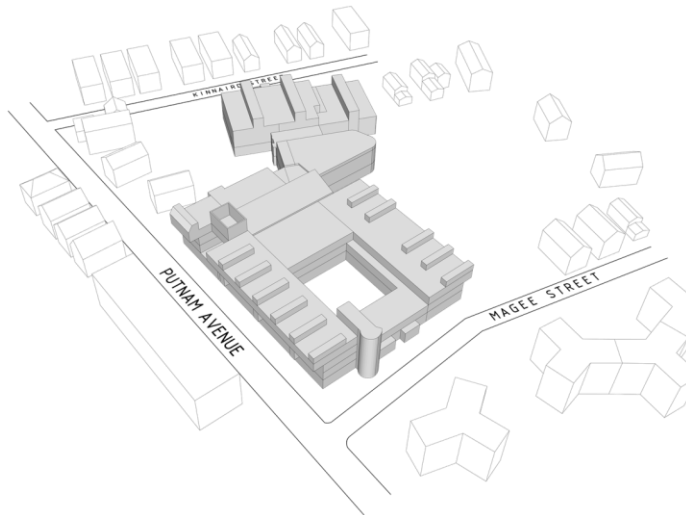
- The learning commons is the heart of each school.



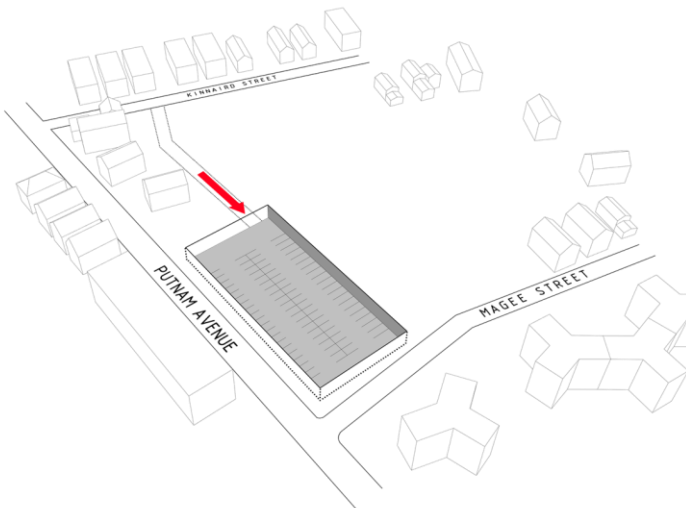
The Integrated Process



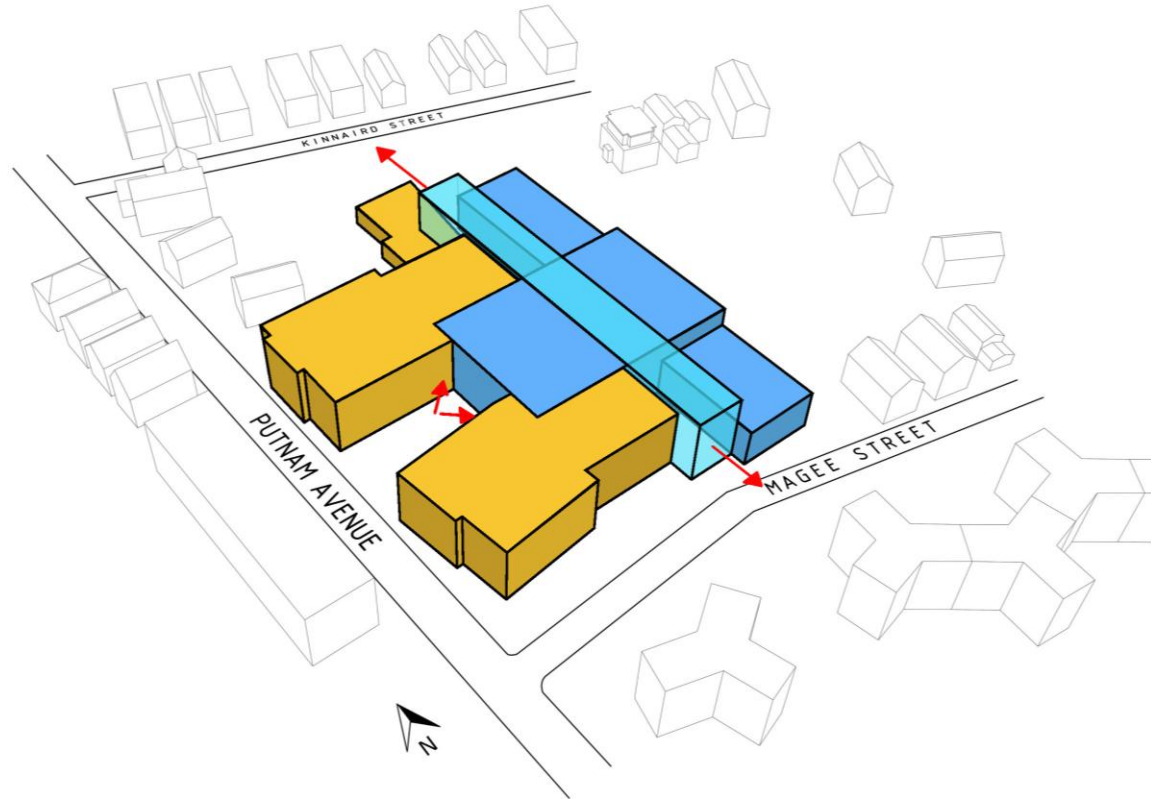
ITERATION FOR INNOVATION



EXISTING BUILDING



BUILDING REUSE
UNDERGROUND PARKING



CONCEPT

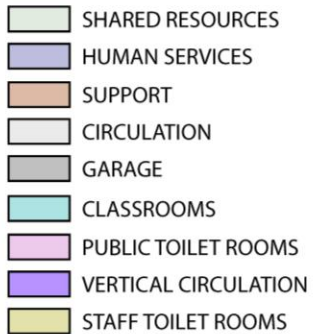
PRIVATE / PUBLIC / KING STREET



- 1. Parking
- 2. Courtyard
- 3. Basketball Court
- 4. Turf Field
- 5. Play Area
- 6. Preschool Play Area













Design Development Floor Plan – Ground Level



Design Development Floor Plan – Level 1



-  SHARED RESOURCES
-  HUMAN SERVICES
-  SUPPORT
-  CIRCULATION
-  UPPER SCHOOL
-  LOWER SCHOOL
-  CLASSROOMS
-  PUBLIC TOILET ROOMS
-  VERTICAL CIRCULATION
-  STAFF TOILET ROOMS



Design Development Floor Plan – Level 2

PROGRAM SPACES

- SHARED RESOURCES
- SUPPORT
- CIRCULATION
- UPPER SCHOOL
- LOWER SCHOOL
- PUBLIC TOILET ROOMS
- VERTICAL CIRCULATION
- STAFF TOILET ROOMS



Design Development Floor Plan – Level 3

PROGRAM SPACES

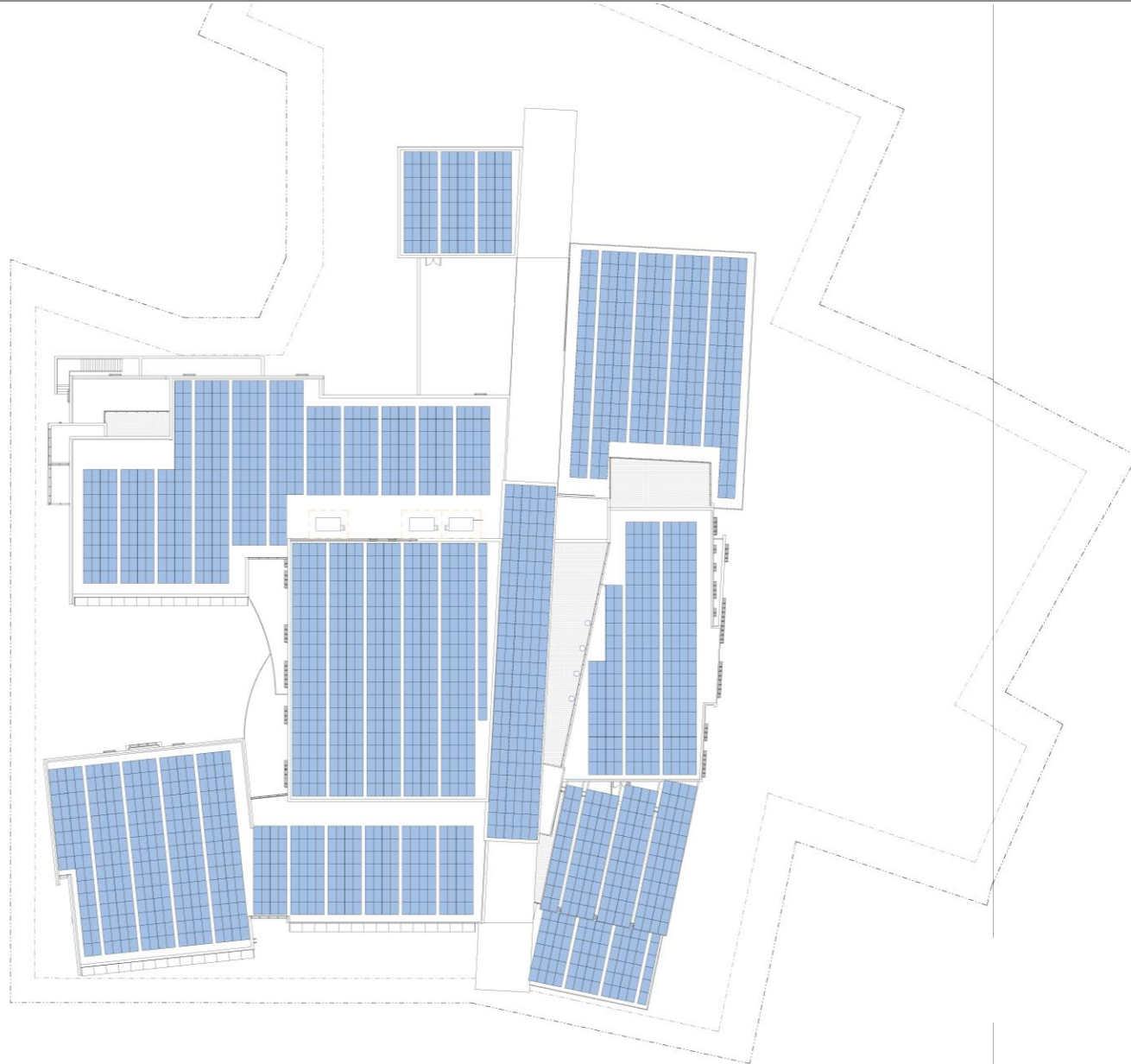
- SHARED RESOURCES
- SUPPORT
- CIRCULATION
- UPPER SCHOOL
- LOWER SCHOOL
- PUBLIC TOILET ROOMS
- VERTICAL CIRCULATION
- STAFF TOILET ROOMS



Design Development Floor Plan – Roof Photovoltaics

PROGRAM SPACES

 PHOTOVOLTAIC PANEL



1) NZE Boot Camp

2) Daylight, lighting & envelope

3) HVAC

4) Equipment, AV & IT

5) Food services

Revised 09/19/12

Net Zero Energy Workshops
Master Schedule



Session 2: Lighting and HVAC

Dates: 9/26/12 – 9/27/12

AM Session – 9/26/12 – 9:30am-12:30pm

Work Session - Lighting

Attendees: Arch staff, Lighting Designer, Electrical Engineer, Sustainability Consultant, NZE Consultant, Cost Estimator

Agenda:

- Lighting Design discuss/develop – beyond classrooms
- Review of Lighting Energy Targets
- Review Lighting Controls
- Renewable Energy Impact

PM Session – 9/26/12– 1:00pm-4:00pm

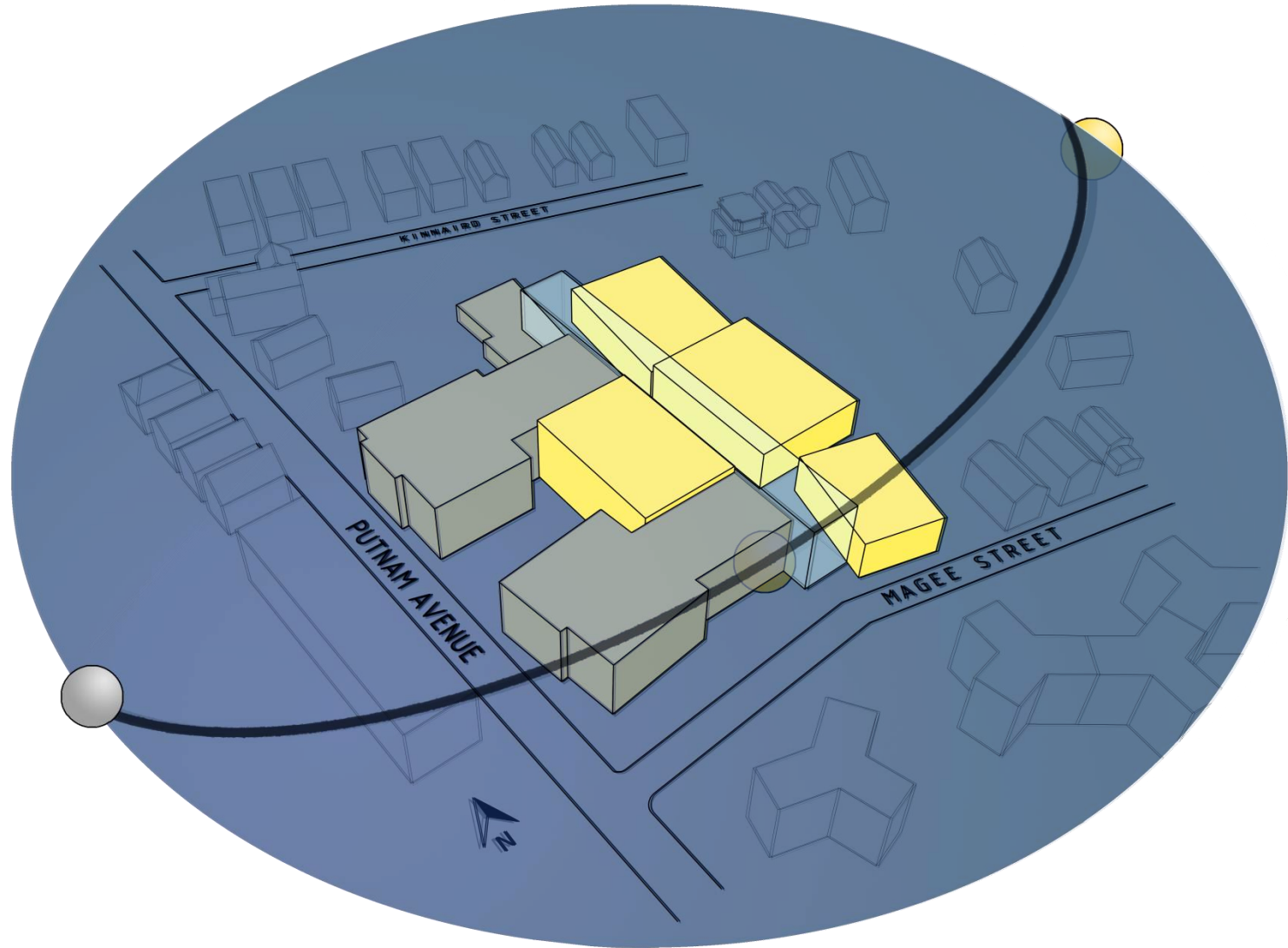
Planning Session – HVAC

Attendees: Arch Staff, MEP Engineer, Sustainability Consultant, NZE Consultant, Civil Engineer, Cost Estimator

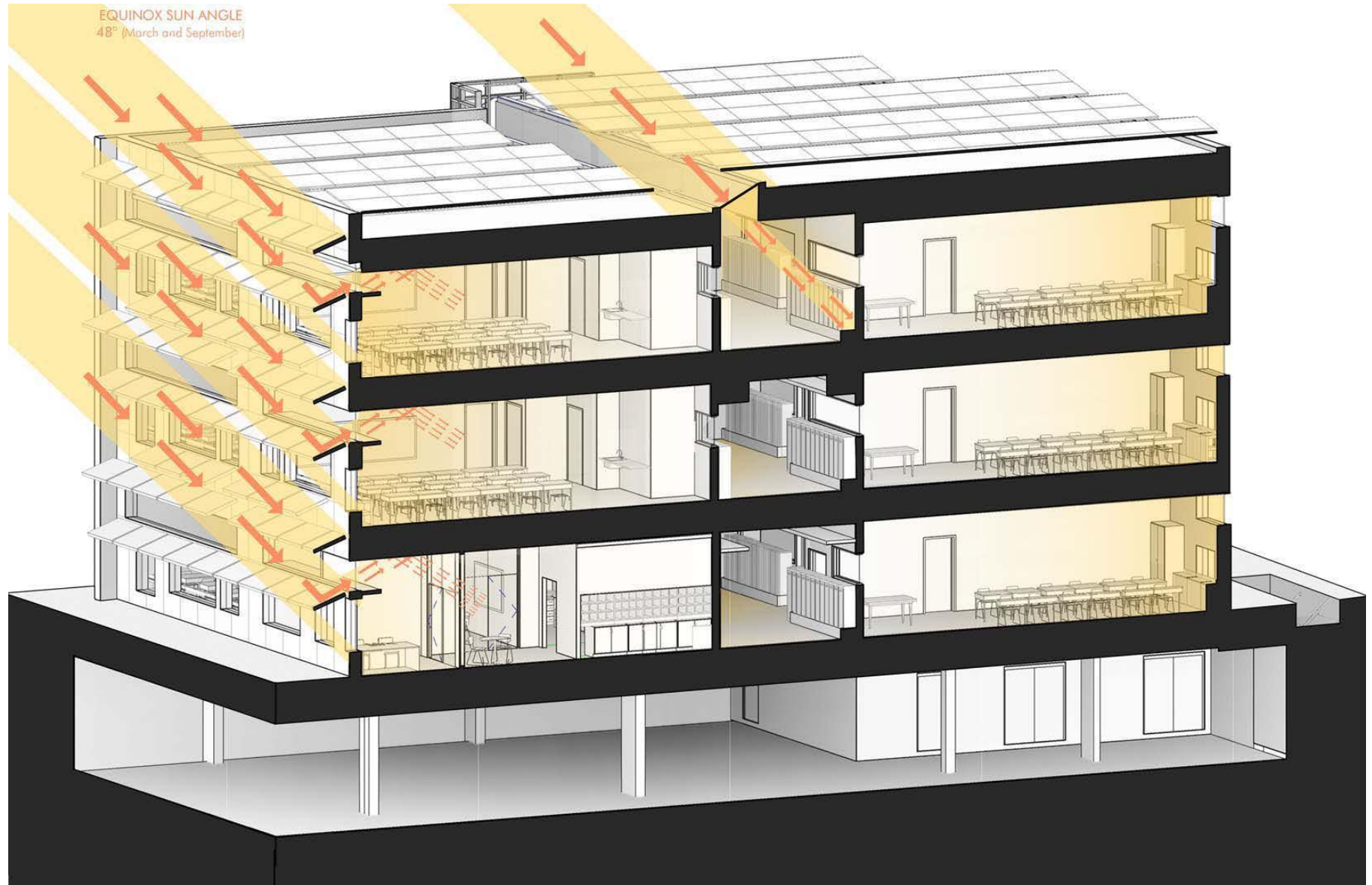
Agenda:

- design discussion
- geothermal well discussion
- Prep for Workshop 3 – review HVAC analysis progress
 - o Outline agenda
 - o Identify roles for design team members
 - o Provide assignments to design team members for next session

MLK Daylighting Workshop: Zoned for Hours of Use



Daylight Section - Classrooms



Daylight Section – King Street & Auditorium



MLK Daylighting Workshop: Solar Access Studies

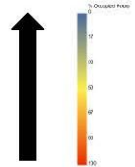
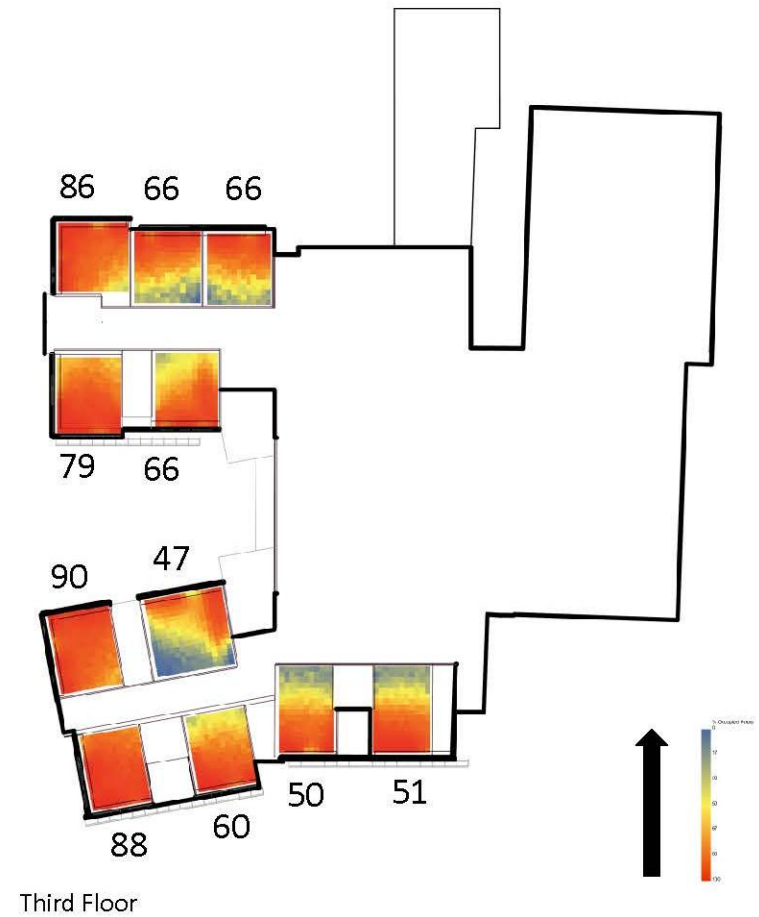
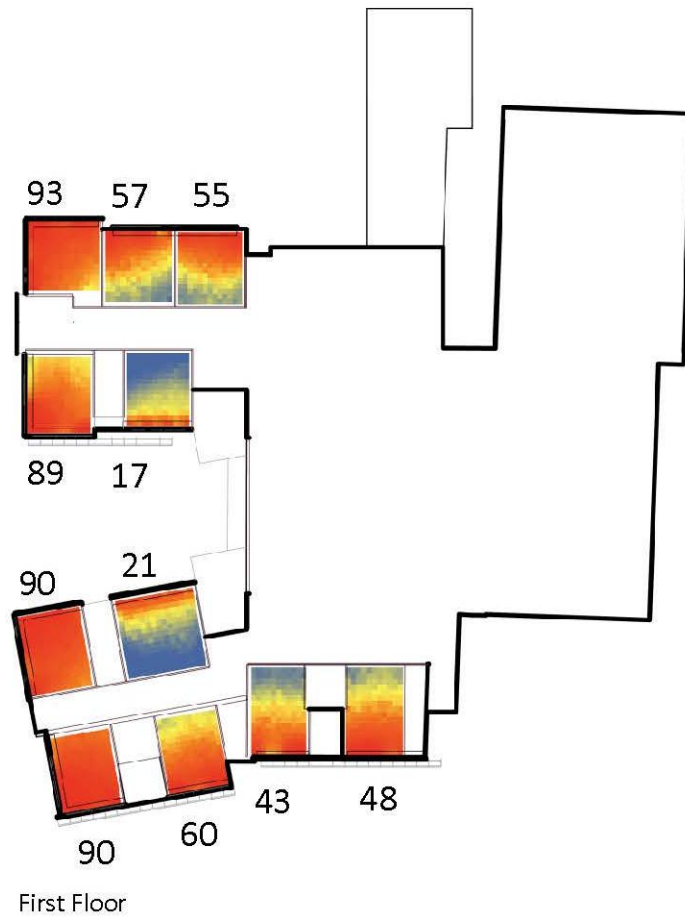
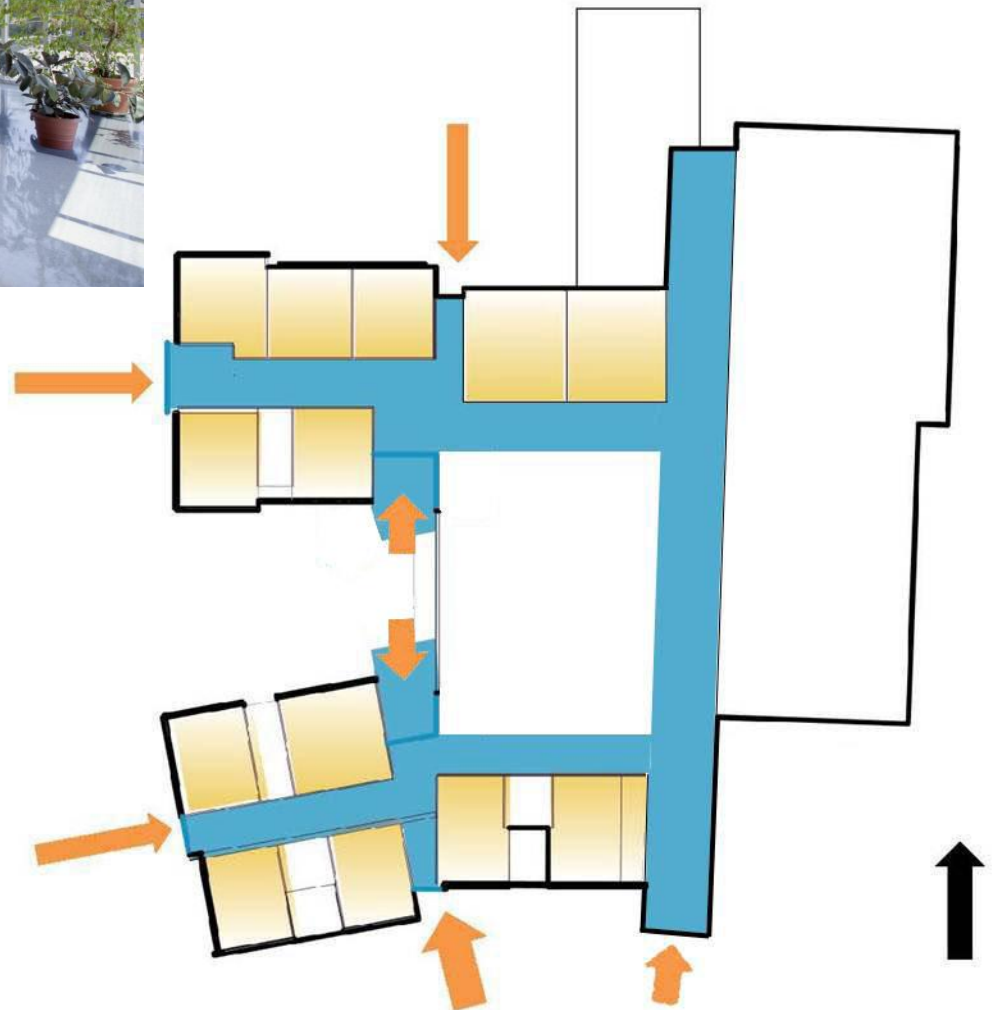
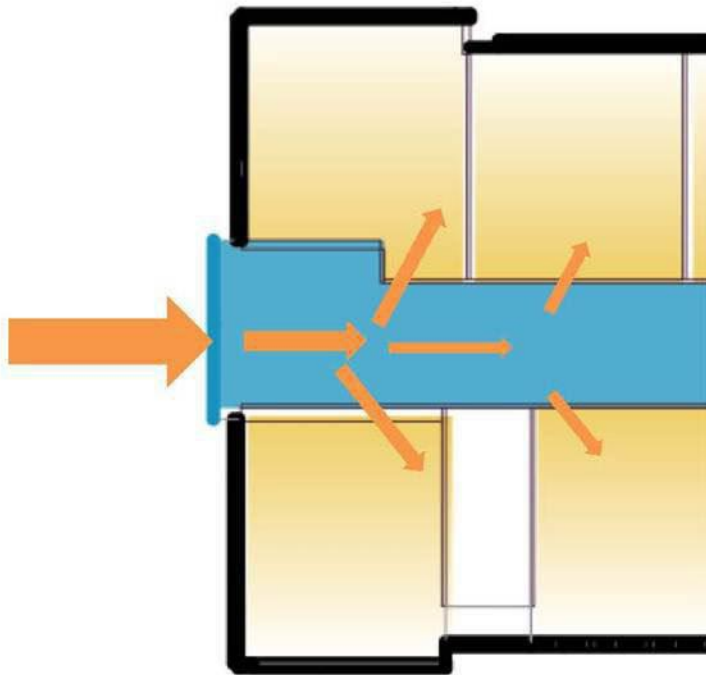


Diagram courtesy of LAM & Associates

Extended Learning Environments, Circulations & Borrowed Light



L-Shaped Classroom: Zoned for Natural Light

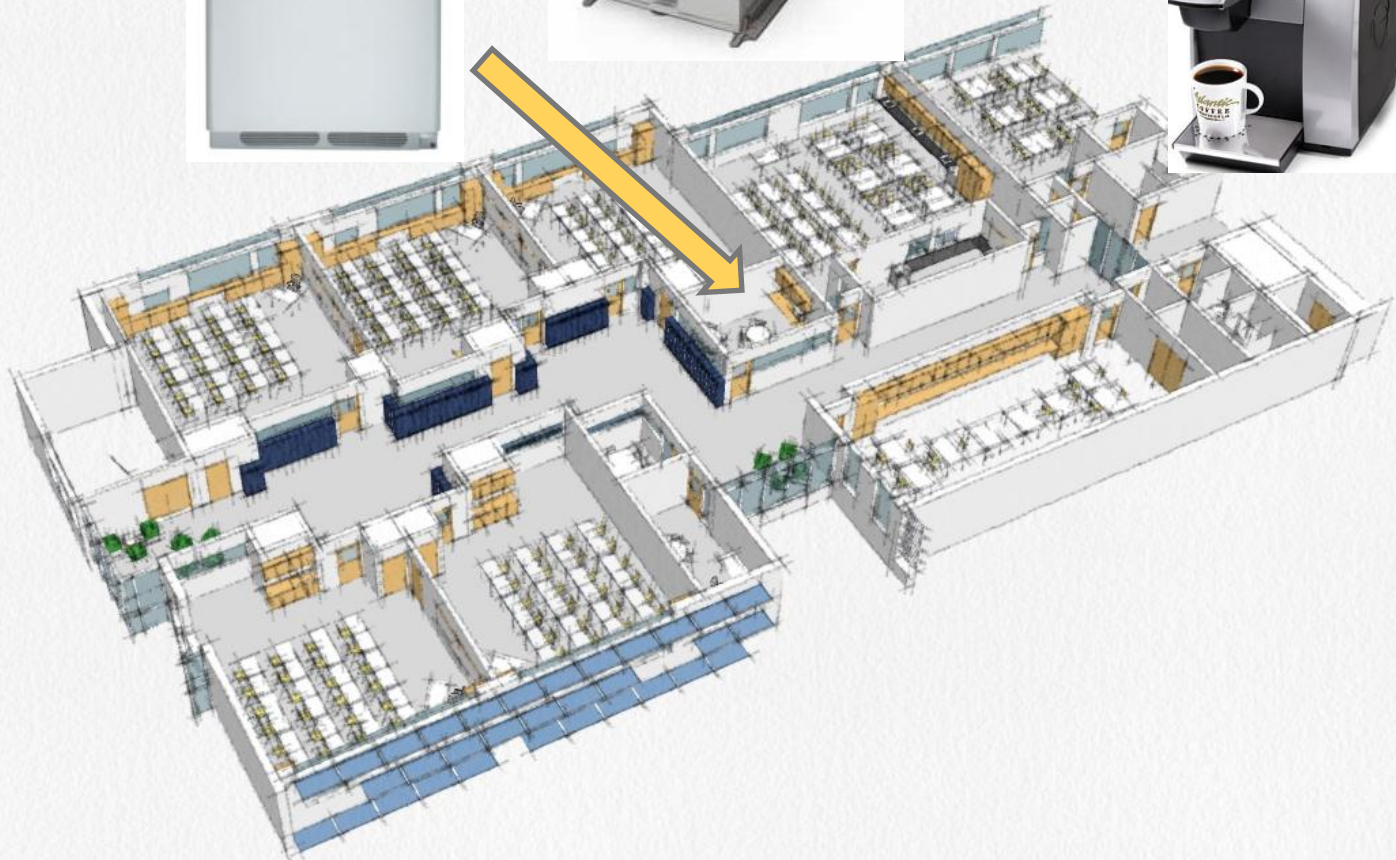


MLK Equipment Workshop – Plug Loads in the Classroom



Features:

- Espresso Machine
- Large Refrigerator
- Microwave
- Printer
- Copier
- Scanner
- Fax (if needed)
- Speed
- Expanded Paper Storage
- Open or secure access
- Energy Star Compliant





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Learning Through the Seasons

BUILDING AS A TEACHING TOOL:

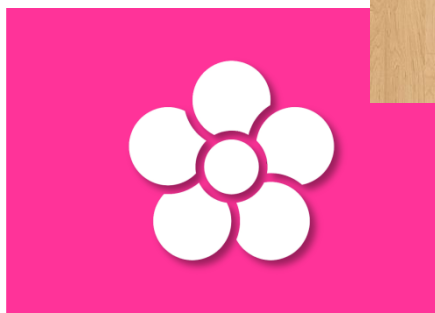
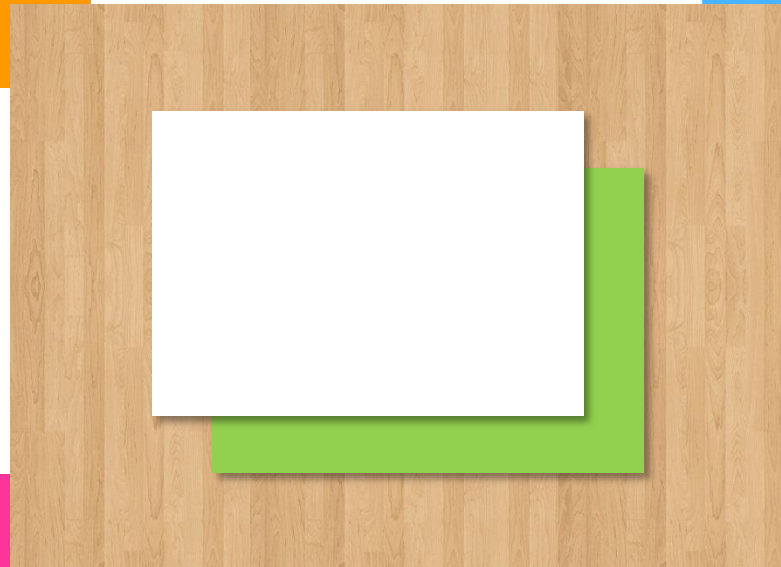
LEARNING THROUGH THE SEASONS



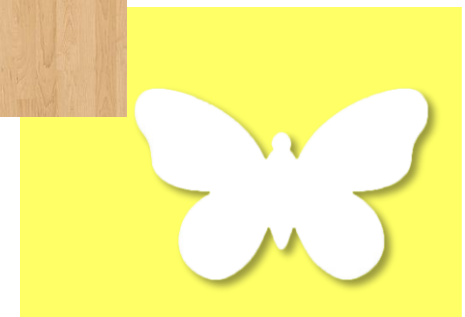
AUTUMN



WINTER

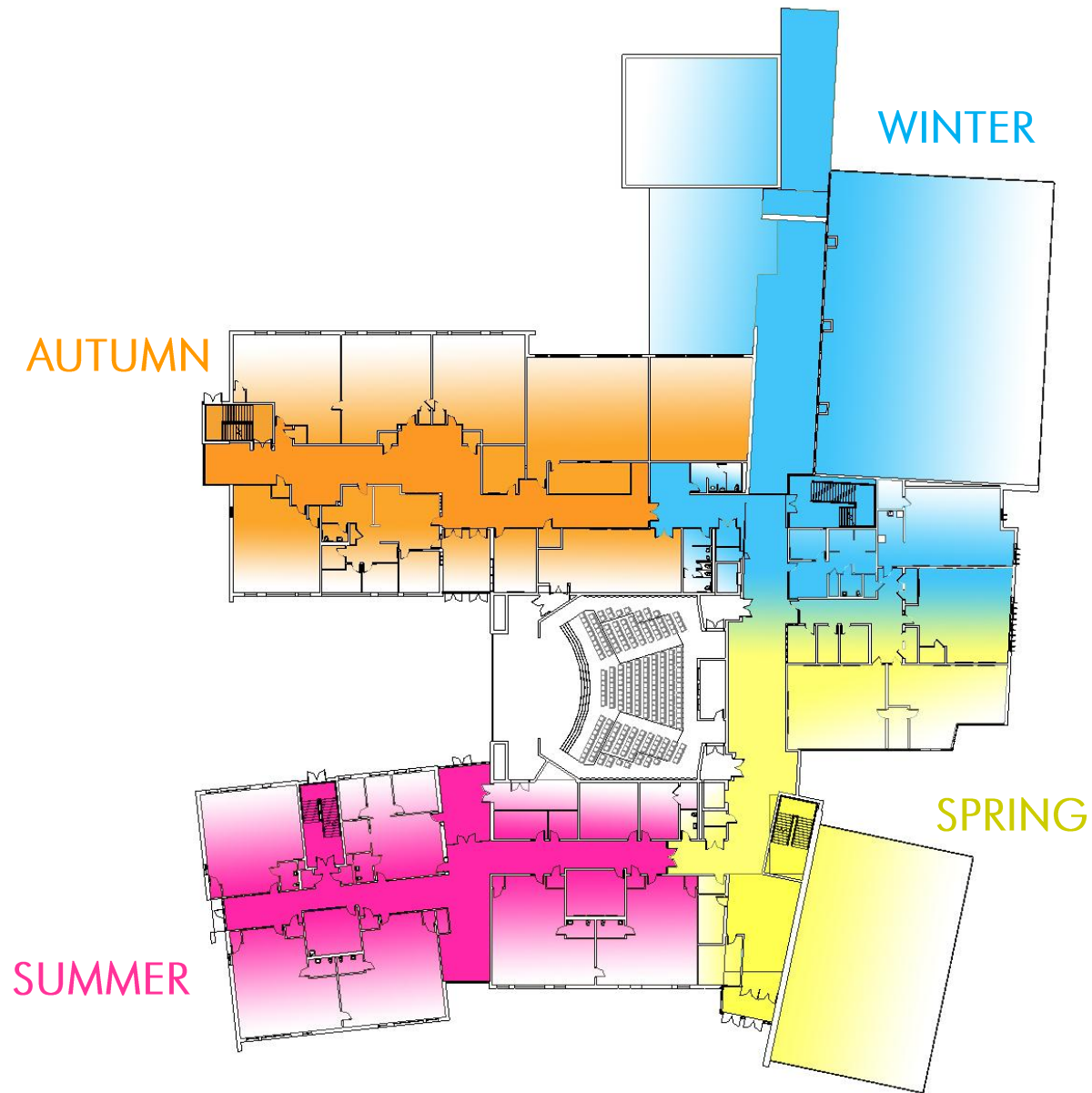


SUMMER

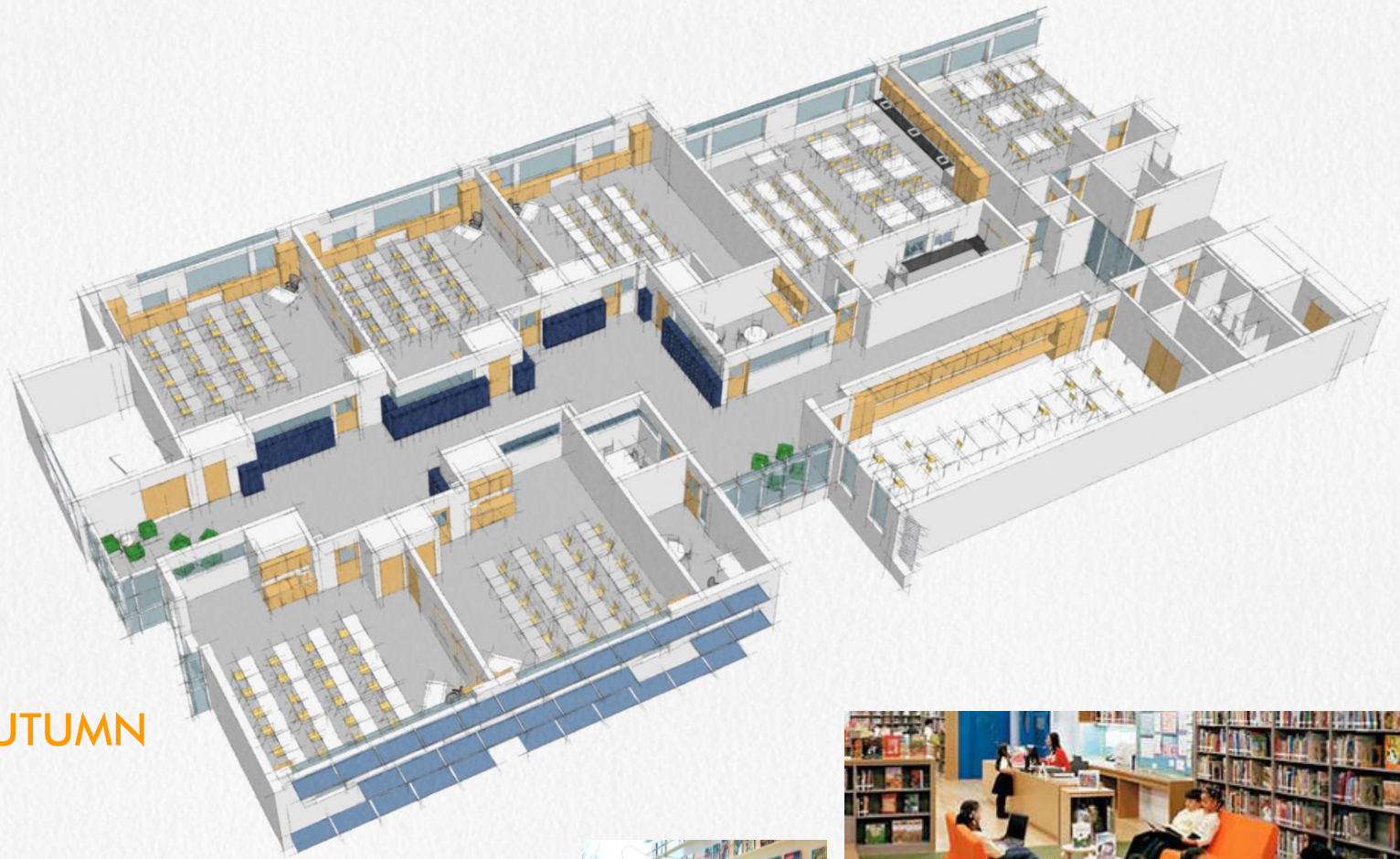


SPRING

Learning Through The Seasons



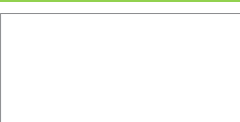
Upper School Academic Neighborhood: Autumn



AUTUMN



Lower School Academic Neighborhood: Summer



SUMMER





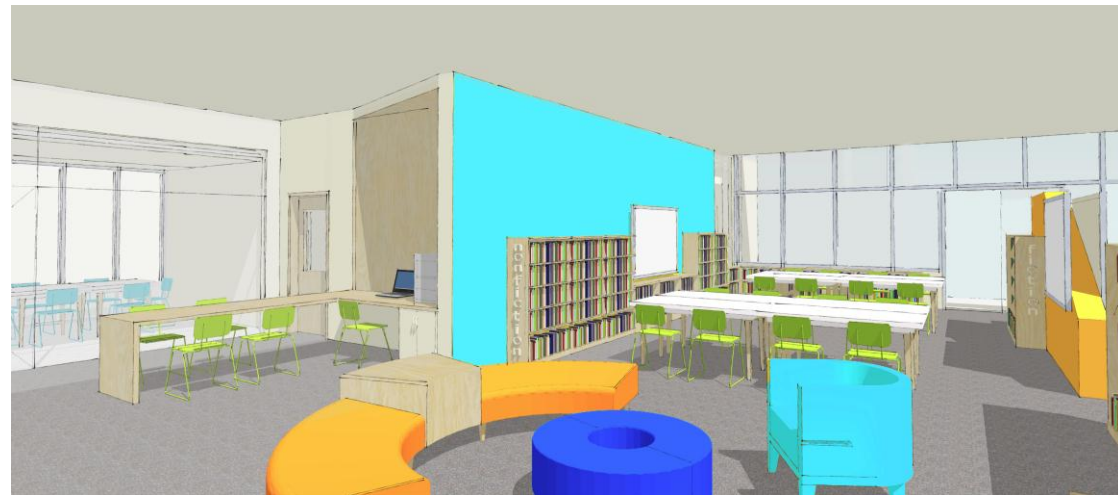
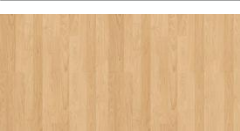
Learning Commons: Winter To Spring

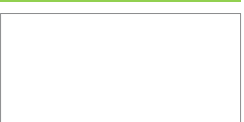


Learning Commons: Winter To Spring



Learning Commons: Upper School

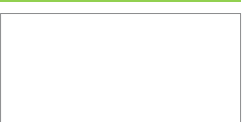




Cafeteria: Upper School



Cafeteria: Lower School

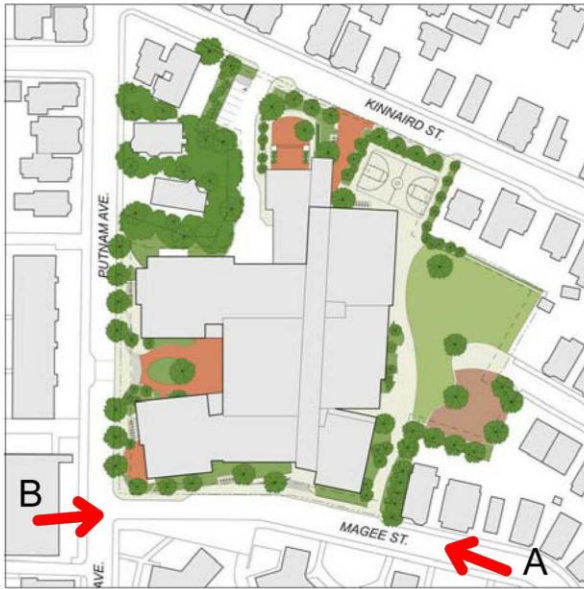




A. VIEW FROM PUTNAM AVENUE LOOKING NORTH



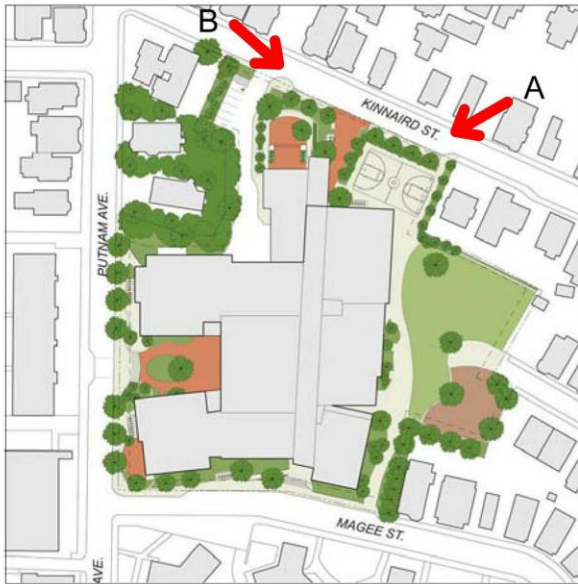
B. VIEW FROM PUTNAM AVENUE LOOKING SOUTH



A. VIEW FROM MAGEE STREET LOOKING WEST



B. VIEW AT MAGEE STREET LOOKING EAST



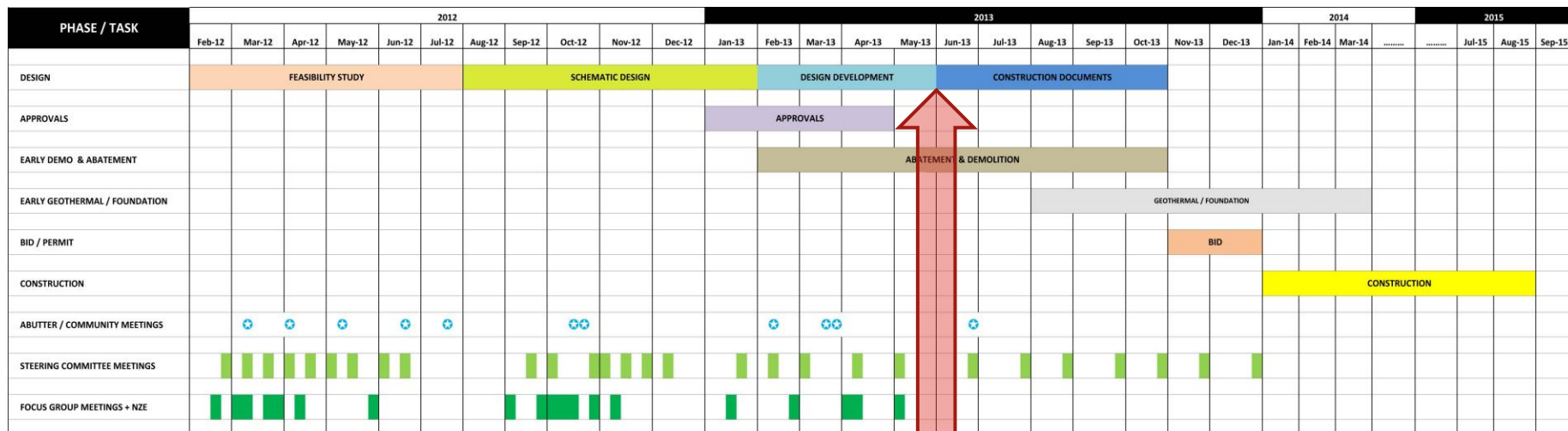
A. VIEW AT KINNAIRD STREET ENTRANCE



B. VIEW AT KINNAIRD STREET DRIVE ENTRANCE

Entry Court at Putnam Avenue







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