FEASIBILITY STUDY
VOLUME 1

KING OPEN AND CAMBRIDGE STREET UPPER SCHOOLS
& COMMUNITY COMPLEX

FEBRUARY 15, 2016

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ACKNOWLEDGMENT

This feasibility study was a collaborative effort of many people, who's support and input made the study successful. The framework put forth in this document will allow for the construction of a new facility which will support the King Open and Cambridge Street Upper School's missions and the Innovation Agenda, as well as, serve the East Cambridge community. We would like to thank the staff and administration of the entities listed below, the Cambridge community as well as the leadership team noted on the previous page.

CAMBRIDGE PUBLIC SCHOOLS

Administration, staff, parents and alumni of King Open and Cambridge Street Schools

CAMBRIDGE DEPARTMENT OF HUMAN SERVICE PROGRAMS

Administration and staff of Preschool Programs, After-School Programs, Community Schools and Recreation

CAMBRIDGE PUBLIC LIBRARY

Administration and staff of Cambridge Public Library and the Valente Branch.

DESIGN AND CONSULTANT TEAM

William Rawn Architects, Associates Inc.

Arrowstreet Inc.

Garcia, Galuska, Desousa, Inc.

LeMessurier Consulting Engineers

In Posse

Nitsch Engineering

Aquatic Design Group

Library Planning Associates, Inc.

Tavares Design Associates, Inc.

VHB/ Vanasse Hangen Brustlin Inc.

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Feldman Land Surveyors

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OWNER'S CONSULTANTS

CDM/Smith

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1.0 Executive Summary

1.1 PROJECT SUMMARY

The project represents the second new school construction project as set forth in Cambridge Public School's Innovation Agenda. This facility will provide the appropriate environments for the King Open and Cambridge Street Upper Schools to achieve the goals of the Innovation Agenda as well as enhance the civic presence of the site and its community amenities.

This document summaries the findings of the feasibilty study which determined the project program, goals and values.

SCOPE

The project includes the complete demolition of all existing structures on the northern side of the site at 850 Cambridge St and the construction of a new facility. The project boundary is approximately the walking path between the existing school building and Donnelly Field. Donnelly Field and the Frisoli Youth Center are not included in the scope of this project. All programs currently on the site will be incorporated into the new building, including King Open School, Cambridge Street Upper School, Human Services Preschool, Extended Day and Community School programs, Valente Libary, and Gold Star Pool. The district offices for Cambridge Public Schools will be added to the program on the site.

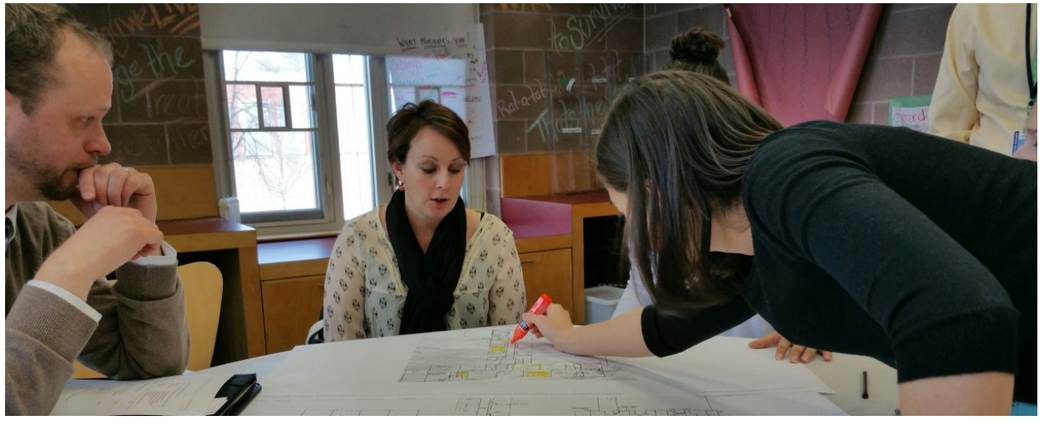
PROCESS

Beginning in January 2015, the architectural team met with all stakeholders of the project including all use groups that are part of the project (schools, branch library, Human Services),

City departments and the surrounding city community. The community engagement and Use Group engagement process is discussed further in section 1.3 and 1.4 respectively.

The architectural team met with each group listed to the right at least twice in order to understand the mission and needs of each. This information was used to generate the space program for the building as well as the design goals and project vision. This information then informed site strategies that were developed. Ultimately two site strategies were presented to the community and users for feedback and narrowed down to a preferred option. The preferred design option is outlined in Chapter 3.0.

Community Meeting



User Group Meeting

GROUPS MET WITH

King Open Elementary Administration

JK/Kindergarten

King Open Grade 1/2

King Open Grade 3/4

King Open Grade 5

King Open Language Arts Ola Program

King Open Student Services

King Open Math & Literacy Coaching

King Open Physical Education

King Open Performing & Visual Arts

Cambridge Street Upper School Administration

Cambridge St Upper School English Language Arts

Cambridge St Upper School Social Sciences

Cambridge St Upper School Math

Cambridge St Upper School Science

Cambridge St Upper School World Language & Ola

Cambridge St Upper School Student Services

Cambridge St Upper School Math & Literacy Coaching

Cambridge St Upper School Health & PE

Cambridge St Upper School Performing & Visual Arts

Information, Communications & Technology Services

District Curriculum Coordinators

Cambridge Health Alliance/Nurse

Transportation (Busing)

Safety & Security

Food Services

Facilities & Maintenance

City Sprouts

Human Services Pre-School

Human Services Extended Day & Community School

Out of School Partnerships

Gold Star Pool

Valente Library

CPS Administration District Offices

Students and Parents

School Alumni

Cambridge Residents

Cambridge Department of Public Works

Cambridge Community Development Department (Planning, Traffic, Zoning)

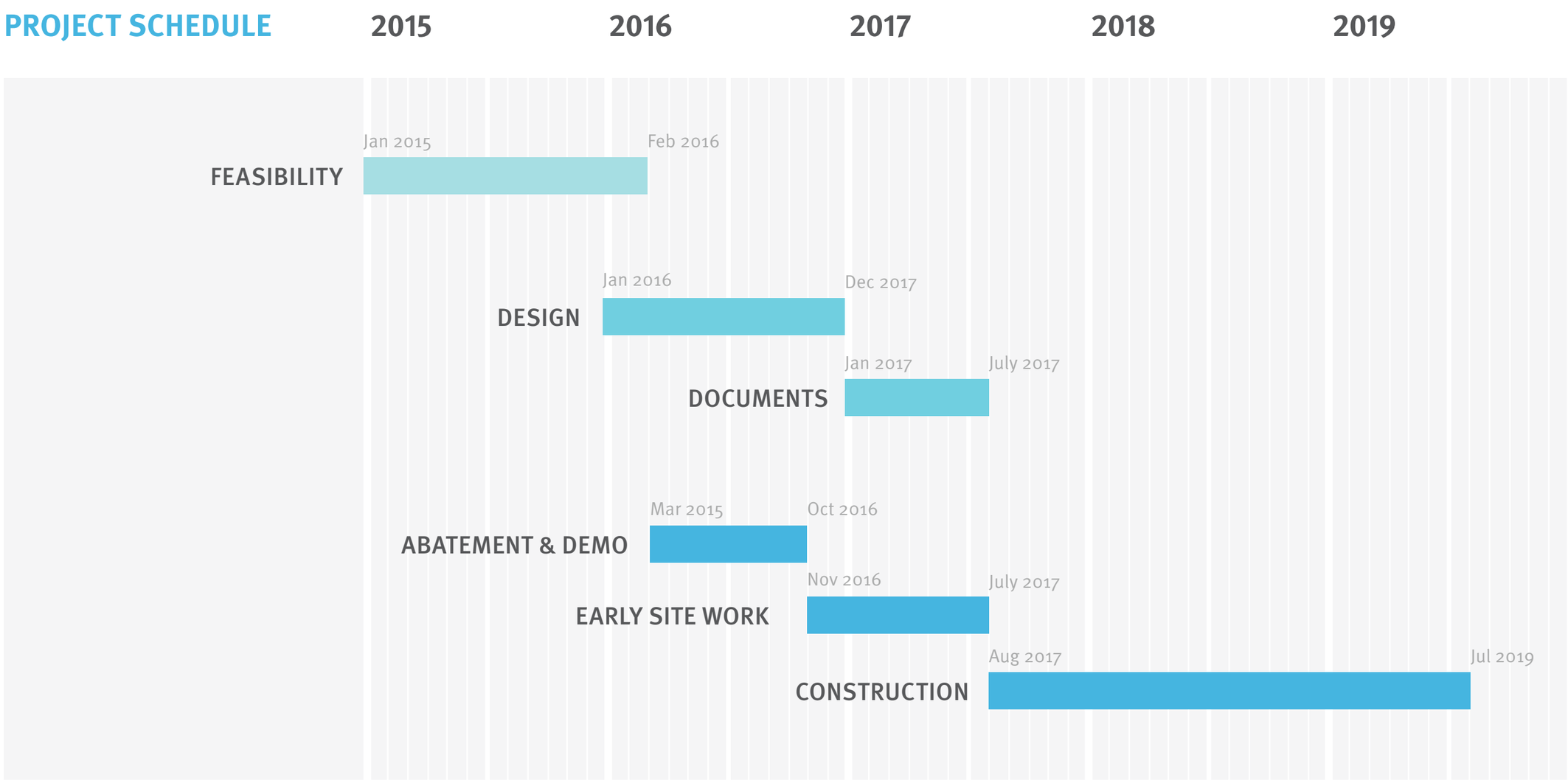
Cambridge Police Department

Cambridge Fire Department

Cambridge Arts Council

East Cambridge Business Association

PROJECT SCHEDULE



1.3 COMMUNITY ENGAGEMENT PROCESS

SUMMARY

Throughout the study the architectural team participated in community meetings to learn the thoughts, concerns and questions of the greater school community and surrounding neighborhood. The sessions included an overview of the project to describe to the community the scope and schedule of the project followed by extensive listening sessions where attendees were broken into smaller groups for discussion around models and drawings.

At each of the listening sessions, the community was invited to provide their input on issues and opportunities regarding the New Building, Site, as well as Neighborhood impact. The architectural team then used this input to study various options for the organization of the schools, library, pool, cafeteria, and other shared program elements on the site. The community expressed interest in a building unique to the schools that is open and inviting, a civic amenity, and sensitive to the neighborhood. Many of the comments heard revolved around increasing and improving open space on and around the site, and this became a driving goal in design decisions and the eventual recommended scheme.

At Community Meeting 3 and the associated Community Preview, two schemes were presented to talk through options regarding the identity of the upper and lower schools, their relationship to each other, presence on Cambridge Street, and the use of shared program elements by the community. Prior to the third community meeting, a community preview was set up in the King Open gymnasium during the school's annual end of school barbeque. Two stations were

set up in the gymnasium, each displaying one of the two possible scheme variations for the new facility organization. Attendees at the barbeque were invited to come by to look at the schemes, ask questions, talk to the Design Team and leave comments on the various boards depicting each scheme. A few hundred people participated in the event including teachers, parents, students, alumni, and neighbors.

At the final community meeting, a recommended scheme was presented and the community was invited to comment and ask questions around the model, informing future studies and decision making during the design phase of the project (Schematic Design through Construction Documents). The recommended scheme creates ease of community access to shared amenities such as the library, gyms, cafeteria, and pool; and increases and improves open space on the site with legible open space on all four sides of the building as well as a green spine through the middle of the site, restoring a historic connection between Donnelly Field and Cambridge Street.

The presentation documents and meeting notes from all of the comunity meetings can be found on the City's project website.

WHAT WAS HEARD FROM THE COMMUNITY

Create a Building Unique to KO and CSUS:

A new building should reflect the unique identity of both King Open and Cambridge Street Upper School. Both schools are committed to carrying out ideals of social justice and openness in education and the building should exhibit these values in the way it engages the street and the public on the exterior.

- Incorporate ideals of Social Justice and Openness into building as part of school's identity
- Schools should have unique identities
- Preserve open space for school activities (City sprouts, recess areas).
- Create flexibility for long-term success of the design
- Bring in new and fresh ideas and technology

Open and Inviting:

Building on the idea of exhibiting social justice, the building should have transparency to the street to display the creative activities within the school while also bringing in natural daylight to create a welcoming environment on the interior of the school.

- Maximize natural light
- Balance openness and safety
- Create transparency from the street
- Creative activities within school should be more public

Sensitivity to Open Space:

Open space is essential to this dense urban community and well used. Historically, Donnelly Field extended to Cambridge Street, but has since been hidden behind the school building and its surrounding hardscape. The community expressed interest in increased and improved open space on the school site reconnecting Cambridge Street to the park.

- Donnelly Field as well as the garden and play areas are heavily used by the neighborhood in the summer and should be incorporated in the new design.
- Outdoor spaces can be more inviting and have less of a “parking lot” feel. Play areas should address all age groups.
- City Sprouts is an important program and should be accommodated in the new design.

A Civic Amenity:

The building should invite the community to make use of the space as a shared resource without compromising the security and needs of the school.

- Afterschool programs should be accessible for both users and community.
- Interest in having the art, music, dance, gym, multipurpose and auditorium rooms accessible to the community.
- Interest in extended season for pool and extended hours for the library.
- Library should be inviting and engage the street to encourage greater use. Program should be welcoming of various age groups and include hang-out space.

Sensitivity to Neighborhood:

As a resource to the community, the building should be well integrated into its location, providing open space for the neighborhood while being sensitive to reduce the negative impact of shadows and traffic.

- Preserve local culture.
- Maximize open space and preserve existing outdoor program (Bocce courts, Play areas)
- Balance height and footprint to reduce negative impact of shadows at and around the site.
- Concerns over increased traffic and parking.
- Consider future locations for existing art
- Construction related issues such as rodent control.
- Strengthen the E-W walk between the school and the park.
- Locate Library prominently in relation to school entrances.

Well-Operating School:

Cambridge Street Upper School and King Open should have a clear presence on the site and be organized to provide a safe and welcoming learning environment with efficient travel patterns starting from drop-off in the morning to pick-up at the end of the school day.

- Provide safe location for parent and bus drop-off convenient to the schools.
- Define separate travel patterns for King Open and CSUS.
- Locate rooms within the building to facilitate efficient transitions throughout the day.
- Consider issues of safety and security.

1.4 USER GROUP ENGAGEMENT PROCESS

The architectural team met with the administration and staff of the King Open, Cambridge Street Upper School, Valente Library and Human Services Programs in order to understand the mission and needs of each. The first session with each group included an overview of the project to describe the scope and schedule of the project followed by extensive listening and vision generation session.

At the second session with each school group the architectural team used project examples, photos and physical models to discuss ways in which the design should support learning, technology, flexibility and other goals to support 21st century learning and the Innovation Agenda.

At the second session with the library and pool the architectural team used project examples, photos and physical models to discuss ways in which these programs could be organized and designed to meet the needs of the patrons and expand the services offered.

The findings of the user group sessions is defined in *Chapter 4.0 Use Group Space Needs*.

2.0 Project Principles

2.1 PROJECT VALUES

Through the feedback we received from teachers, students, staff, community members and city leadership, this project is committed to the following project values:

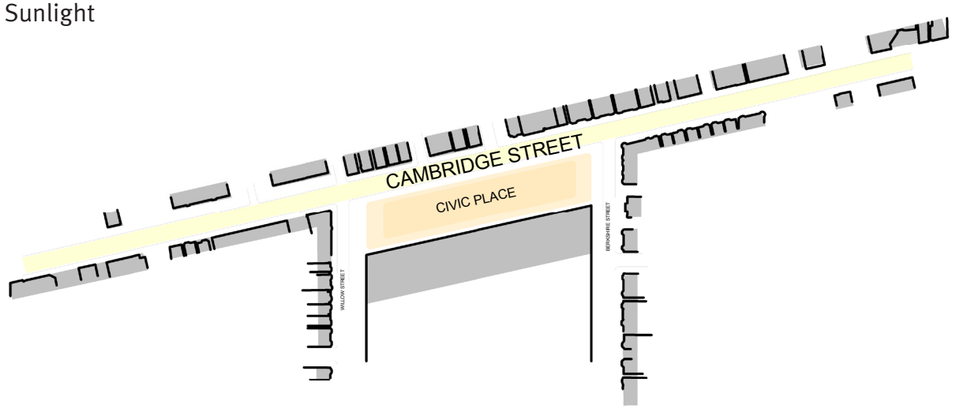
- **SOCIAL JUSTICE**
- **WELCOMING AND DAY-LIT BUILDING**
- **BALANCE OPENNESS AND SECURITY**
- **PROMOTE COLLABORATION AMONG TEACHERS AND STAFF**
- **VALENTE LIBRARY AND GOLD STAR POOL ARE LEARNING-CENTERED**

2.2 ARCHITECTURAL GOALS

The Project Values listed above translated into the following Architectural Goals:

CIVIC QUALITY ALONG CAMBRIDGE STREET

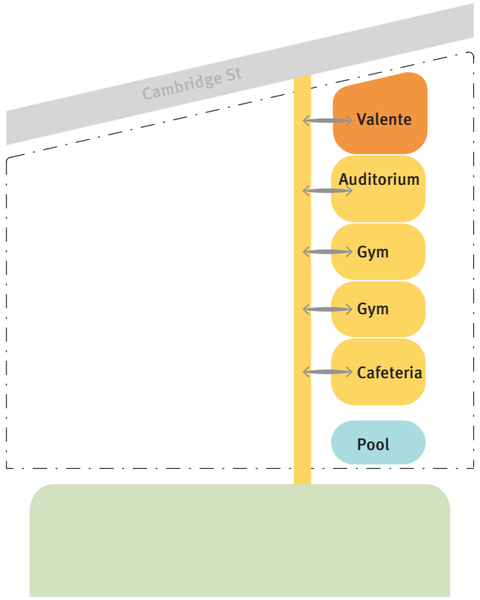
- Civic Scaled Outdoor Space
- Potential for Memorable Architectural Expression
- Prominent Placement for Valente
- Sunlight



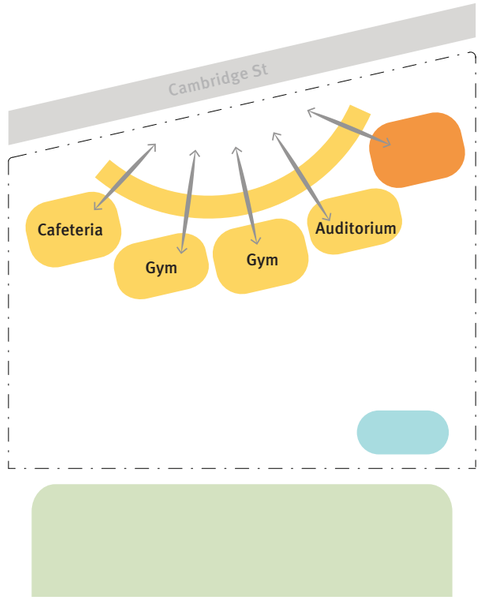
Civic Quality Diagram

COMMUNITY ACCESS

- Easy After Hours Access to “Shared” Resources: gyms, auditorium, cafeteria and perhaps other spaces
- Placing these resources on the site in a welcoming fashion



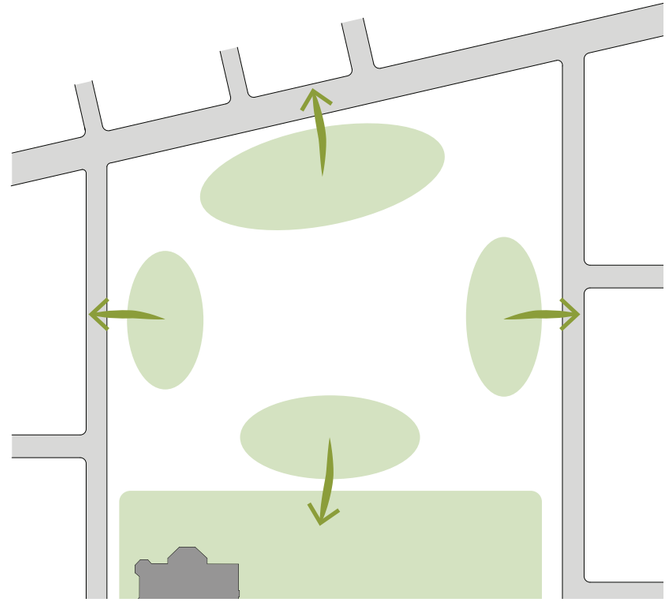
Community Access Along N-S Axis



Community Access Along Cambridge St

OPEN SPACE

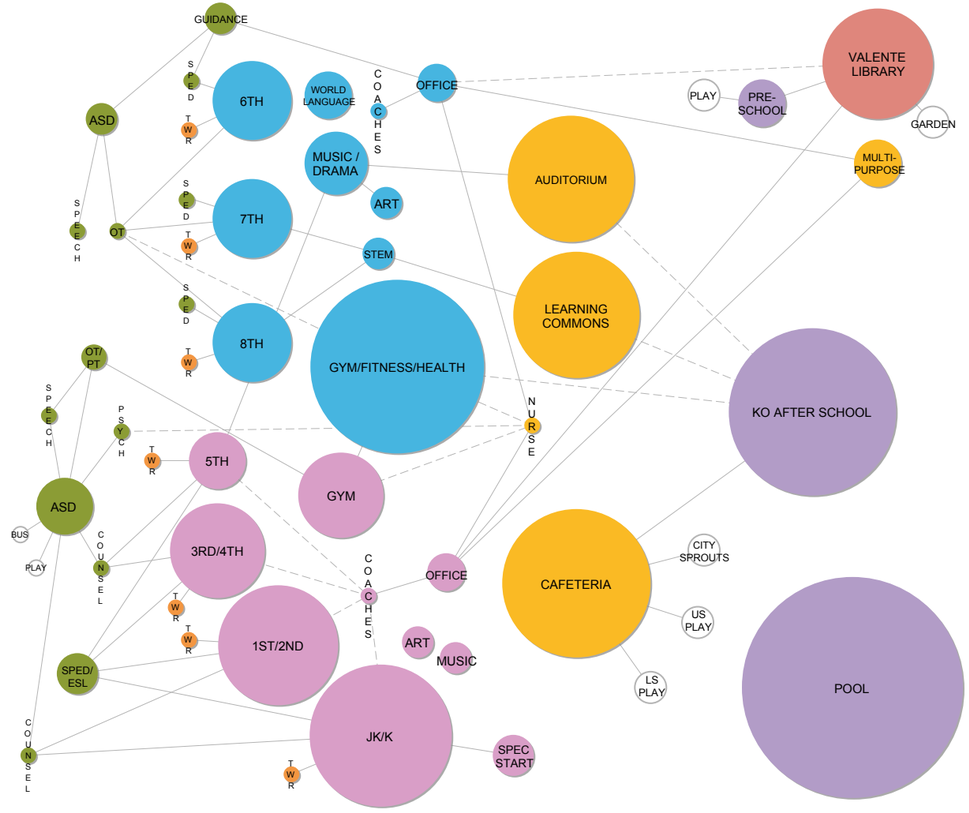
- Maximize Open Space
- Balance Open Space and Height. Organize taller areas to minimize shadows on open space.
- Open Space on All Sides
- Sense of Openness Between Cambridge Street and Donnelly Field



Open Space on All Sides

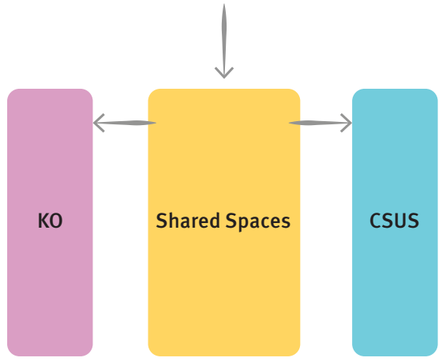
WELL OPERATING SCHOOL

- Giving Identity to Upper and Lower Schools Internally and perhaps Externally
- Provide a Separate Entry for Each School
- Administrative Offices for Each School near Entry
- Well Orchestrated Travel Patterns for Upper and Lower School

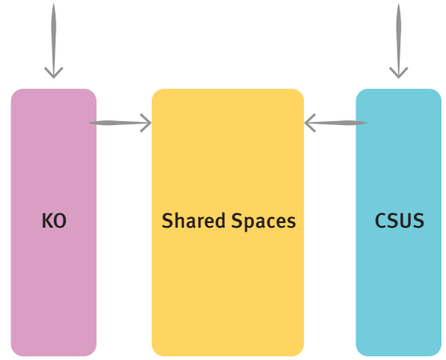


Adjacency Diagram

KO Core Academic
CSUS Core Academic
Student Services
Staff Work Area
Shared Spaces
Human Services
Valente Library



Shared School Entrance

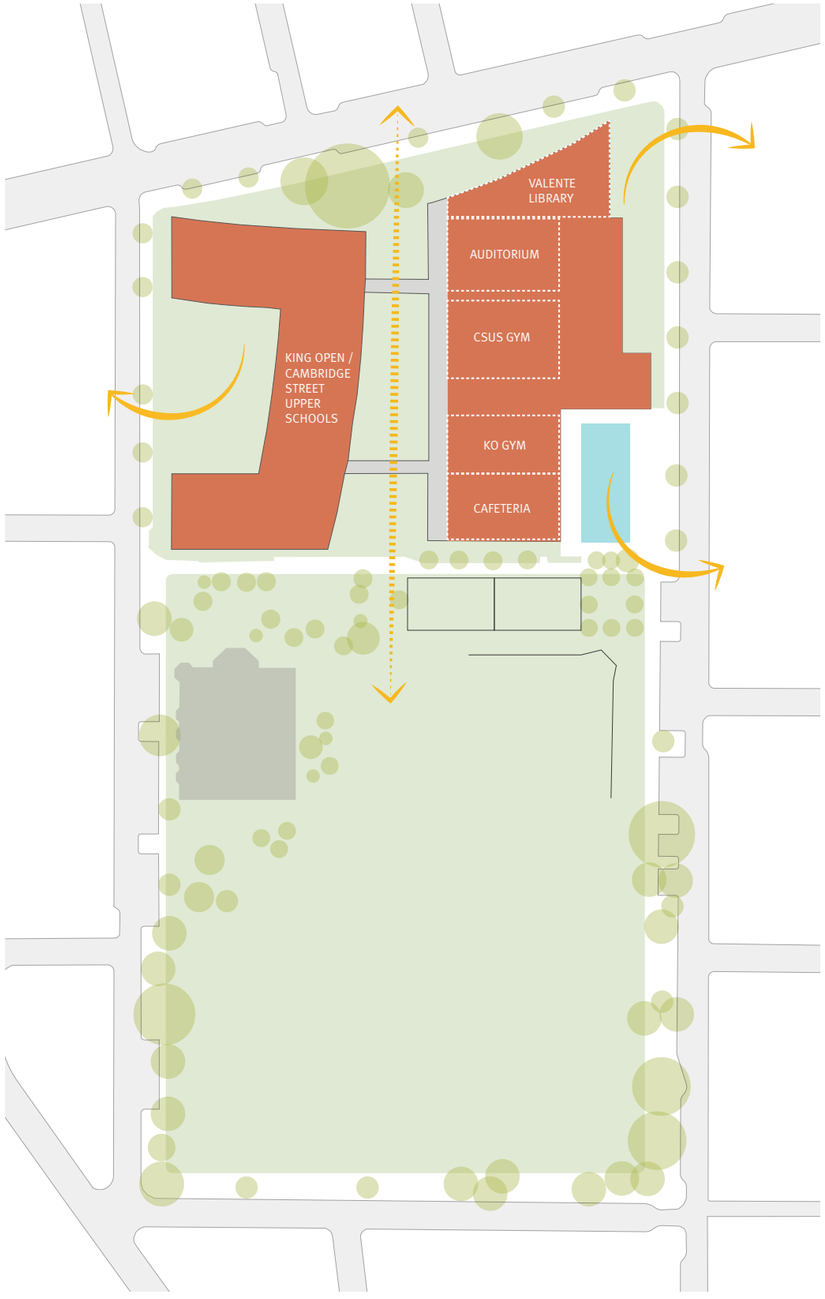


Individual School Entrances

OTHER CONSIDERATIONS

- Pick-Up/Drop-Off
- Inclusion of CPS Admin
- Amount of Parking
- Preserving Tree on Cambridge Street
- Net Zero
- Loading/Trash

3.0 Preferred Design Option



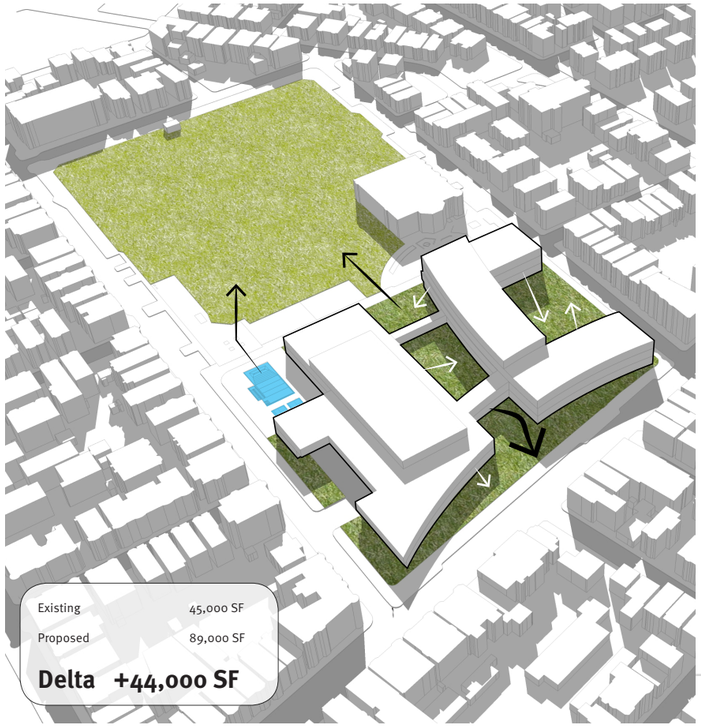
3.1 PREFERRED DESIGN OPTION NARRATIVE

In the recommended design option, spaces which are shared between the schools and also with the community are aligned North to South on the East end of the site. Included in this side of the project are the Library, Auditorium, Gyms, Cafeteria, Pool and CPS Administration (see Section 3.2 and Section 6.2). These combined shared spaces link Cambridge Street to Donnelly Field to the South. King Open and CSUS are together on the West side of the site, surrounding a Recess and Play area facing Willow Street. Two glass connectors link the schools to the shared resources and create an enclosed courtyard at the middle of the site.

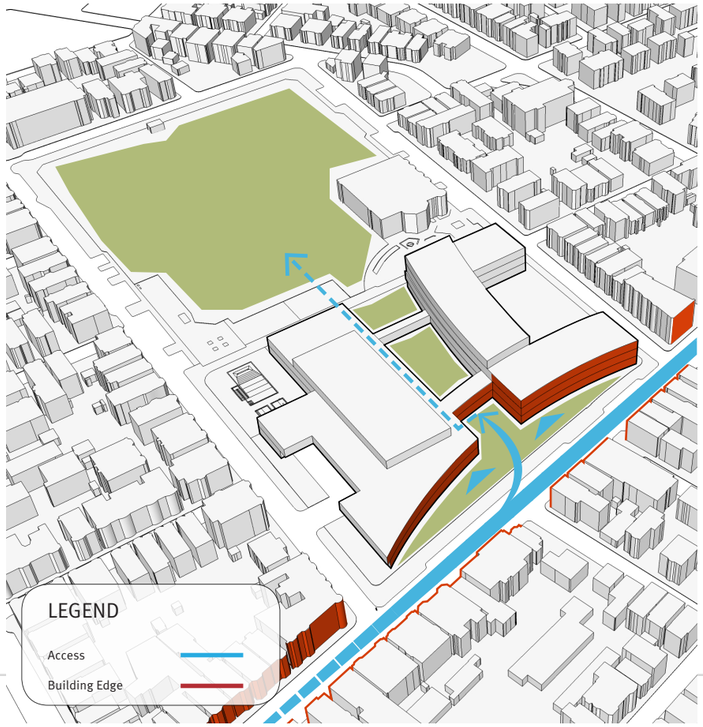
ACHIEVEMENT OF PROJECT VALUES & RESPONSE TO ARCHITECTURAL GOALS

This recommended scheme provides over an acre of new green space on site with parking moved underground. Along Cambridge Street, a generous open space becomes a potential location for community events and is linked by a green spine running North to South through the middle of the site through to Donnelly Field, making Donnelly visible from Cambridge Street. Open space is also legible on each of the additional sides of the site. On the west, a large green space faces Willow, surrounded by the schools. This space may be used for recess and play, while still leaving additional green open to the street. On the East, the library reading garden is reconstructed and sits on the corner of Cambridge Street and Berkshire Street where the Library is located prominently on site.

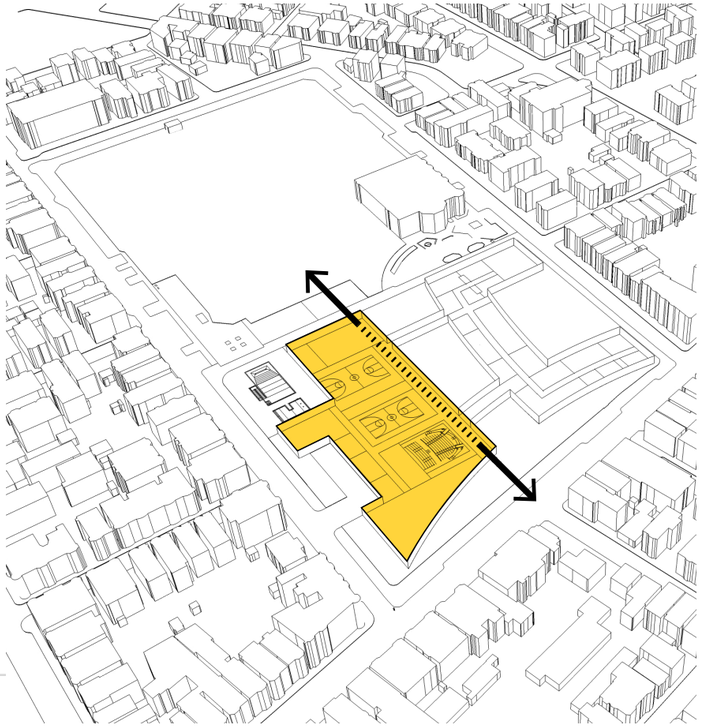
The green spine runs between the school to the west and the shared Program to the east, breaking the building into two and bringing down the scale of the building on site. This break



Open Space Diagram



Urban Design Diagram

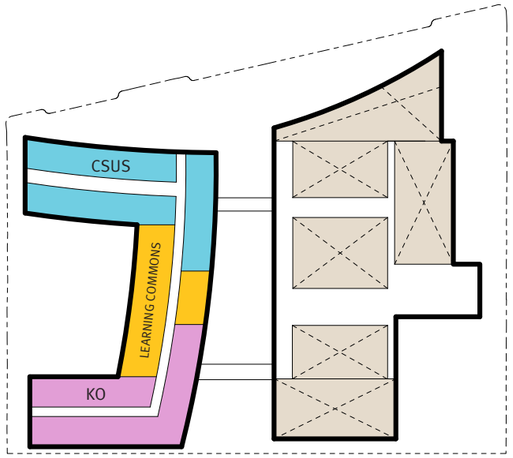


Community Access Diagram

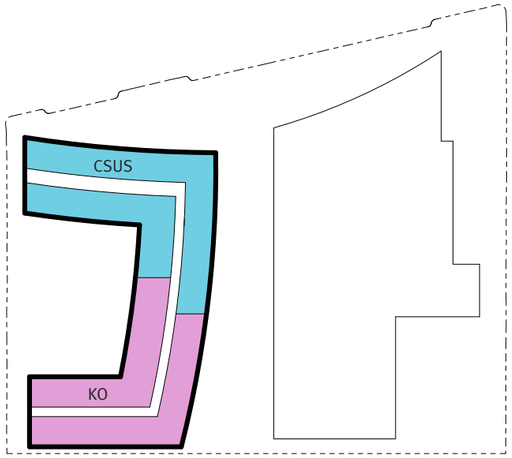
also enables one half of the site to be readily available to the community after hours, with the school program easily closed off from access at the glass connectors. One main corridor runs along the East side of the green connecting all of the shared program, and creating a direct daylit connection through the building from Cambridge Street to Donnelly field.

By breaking the building into two, the school and shared spaces are able to take on their own unique architectural character and be easily visually identified. The grouped shared program is able to stay low with only two stories along the street. To minimize the impact of shadows and the height of the building on open space and the surrounding neighborhood, taller areas of the school massing are set back from the street and kept to four stories or less. The building massing was also studied in terms of surface area for solar panels and location of geothermal wells in order to provide the required energy for a responsible net-zero energy building.

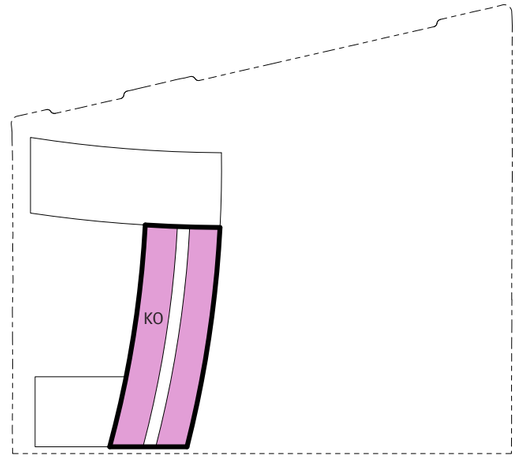
In this preliminary interior layout of the school, the design team verified that the building was able to meet the needs of a well-functioning school. Admin offices are located near the entries, and consideration was made for the orchestration of travel patterns between the upper and lower school, allowing each school to reach their respective shared program elements throughout the day. The building layout will continue to be refined with community and school input through Schematic Design. Based on school input, the location of the cafeteria may move to be closer to the North entrance as the project begins Schematic Design. Further description of the school program and adjacencies within the building are discussed in Section 4 of this report.



Level 2 Plan



Level 3 Plan



Level 4 Plan

Level 1 Plan

3.2 ZONING ANALYSIS

RESIDENTIAL C-1 DISTRICT			
CATEGORY	**REQUIRED per 5.54.1**	**PROPOSED IN PROJECT**	**RELIEF REQUIRED [4]**
Maximum Floor Area Ratio	Existing (.56) or 0.75	1.00	POTENTIAL
Minimum Lot Area (SF)	Existing	Existing	
Minimum Front Yard (ft)	10	10	
Minimum Side Yard (ft)	15	Site has no side yards [1]	
Minimum Rear Yard (ft)	15	15	
Maximum Building Height (ft)	45 within 50ft setback, 55 beyond	56 ft	POTENTIAL
Minimum Open Space Ratio (%)	Existing	40	
Uses	-	Library=A, Pool=A, School=A, Offices=NA (per 4.56)	POTENTIAL
Minimum Lot Frontage (ft)	-	480	
Minimum # of parking spaces School [2]	83	83	
Minimum # of parking spaces Branch Library [3]	2	2	
Minimum # of parking spaces Pool	0	85	
Compact Space Dimension (50% of spaces)	7' x 18'		
Regular Space Dimension	8'-6" x 20'		
Number of Loading Bays	Existing (1)	1	
Number of Long-term Bicycle Parking	20	20	
Number of Short-term Bicycle Parking	110	110	

NOTES:

1. Refer to 5.24.3 for lots facing streets on more than one side.

2. Number is based upon the requirement to provide 3 per 2 classrooms or 1 per 5 auditorium seats whichever is greater.

3. Number is based upon the requirement to provide 1 space per 2 employees.

4. Requirement to be confirmed in Schematic Design.

4.0 Use Group Space Needs

4.1 KING OPEN SCHOOL

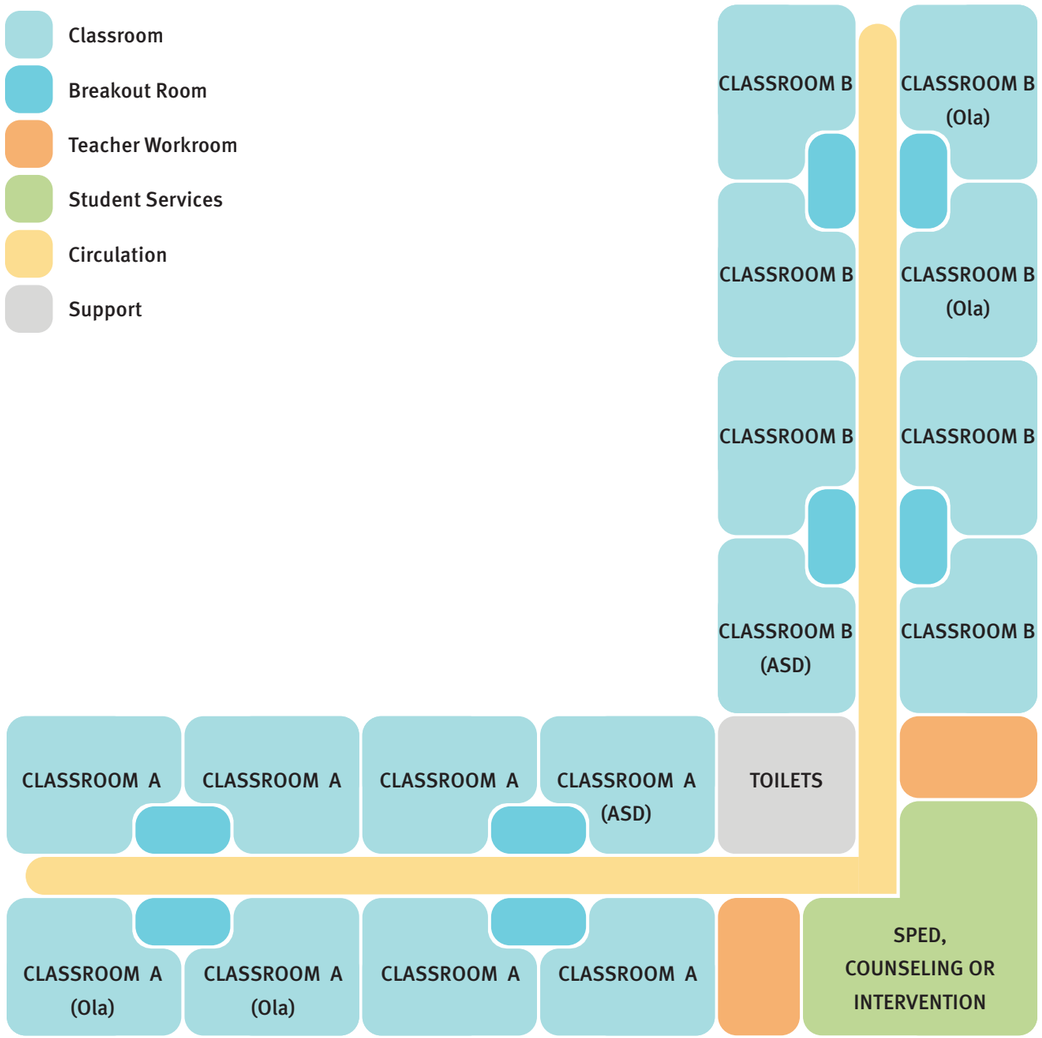
MISSION

The mission of the King Open School is to build an inclusive learning community that supports academic achievement and addresses learning gaps through culturally responsive learning experiences in the monolingual, dual language and specialized classrooms. The principles of social justice guide the school's work. To advance diversity, equality, and fairness, they confront their varying perspectives of social justice to allow these principles to guide decisions, practices, curriculum and relationships.

Toward this mission, the school uses the knowledge and expertise of staff, students, and families to create curriculum informed by the Massachusetts State Standards. They co-plan differentiated instruction. They include in-depth themes and projects that integrate subject areas and culminate in community events. They strive for the social and emotional growth of each student. Above all, they seek to empower students as active change agents in their communities while developing a lifelong love of learning.

VISION FOR THE NEW BUILDING

Through the many user group meetings with the King Open administration and staff, refer to chapter 1.1 for more information, the architects were able to develop the vision and priorities for the new school. King Open should have a clear presence on the site. It should be easy to distinguish the lower school from the upper school both from the exterior and the interior.



Grade Level Organization Concept

When students, parents and visitors enter King Open they should feel welcome. In order to express the welcoming of parents into the school community, a space should be provided for parents where they can work on activites and events that they are doing with the school. The entry lobby should highlight the values of social justice and respect for diversity. Also, the programs and projects happening within the school, including the Ola program should be evident here.

Social justice should be manifest in the design of spaces. The cafeteria should be designed to reduce the number of lunch periods in the day as well as the amount of time spent waiting in line to get lunch. This will allow the students to eat at more reasonable mid-day times and those buying lunch will have more equal amount of time to eat as those who bring lunch. Social justice can also be supported by an inclusionary model for locating special education and other student services.

The Innovation Agenda is designed to raise student achievement, eliminate achievement gaps, and develop 21st century skills. The new school needs to be designed to allow for the activities required to meet this agenda. This includes classrooms with appropriate technology, small group activity spaces and teacher work areas all which foster collaboration and are flexible throughout the semester, year and over time. There should be ample display areas throughout the school to highlight projects from core subjects, Ola, arts and music. This is important to develop collaboration and innovation as well as to show the diversity of King Open.

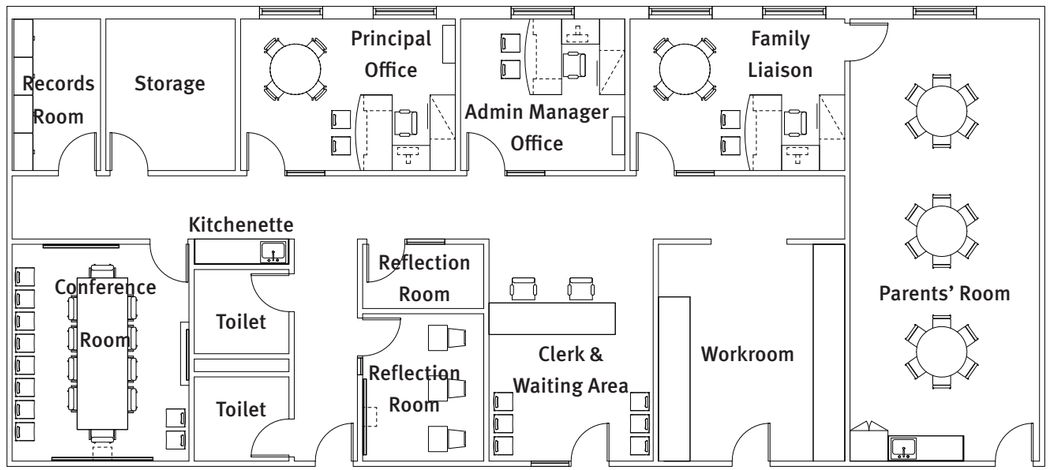
Classrooms should be organized per grade to allow for comraderie and collaboration amongst the grade level students and staff. Classrooms should have an adjacent breakout space to utilize for one-on-one and small group activities and project based learning. Each grade cluster should have dedicated pull out spaces for interventionists to work one on one with students. Student services such as Special Education and Autism Spectrum Disorder classrooms, Speech, ESL, Counseling and Coaching should be located centrally in the school so there is equal access to them from all classroom areas.

Specialist programs should be expanded in the new building to include larger areas for visual and performing arts and libary. All spaces in the school should be considered learning spaces. Gymnasium, auditorium, cafeteria, Learning Commons and multi-purpose room should be equiped to be used for presentations and other learning activities.

KING OPEN SPACE SUMMARY

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA	STUDENTS PER ROOM
CORE ACADEMIC SPACES		**33**	**23,630**	
Special Start Classroom + Toilet	950	1	950	20
JK & Kindergarten Classroom + Toilet	1,200	5	6,000	20
Kindergarten Ola	1,200	1	1,200	20
Kindergarten Breakout	180	3	540	6
Grade 1/2 Classroom	900	4	3,600	25
Grade 1/2 Ola	900	2	1,800	25
Grade 3/4 Classroom	900	4	3,600	25
Grade 3/4 Ola	900	2	1,800	25
Grade 5 Classroom	900	2	1,800	25
Grade 5 Ola	900	1	900	25
Grade 1-5 Breakout	180	8	1,440	6
SPECIAL EDUCATION		**26**	**8,175**	
Grade K/1 ASD	475	1	475	8
Grade 2/3 ASD	475	1	475	8
Grade 4/5 ASD	475	1	475	8
ASD Breakout	180	0	0	
ASD Safe Room	100	3	300	1
Speech	200	3	600	6
ESL	200	3	600	6
OT/PT	1,500	1	1,500	
RTI	80	6	480	2
Reading Recovery	200	2	400	6
SPED Small Group K-5	250	6	1,500	5
SPED Toilet	60	2	120	
SPED Staff Resource Room	500	1	500	
ART & MUSIC		**4**	**2,500**	
Visual Art Room	1,000	1	1,000	25
Art Storage	150	2	300	
General Music	1,200	1	1,200	25
ADMINISTRATION & GUIDANCE		**25**	**4,650**	
Principal Office	200	1	200	
Admin Manager Office	150	1	150	
Family Liaison	200	1	200	

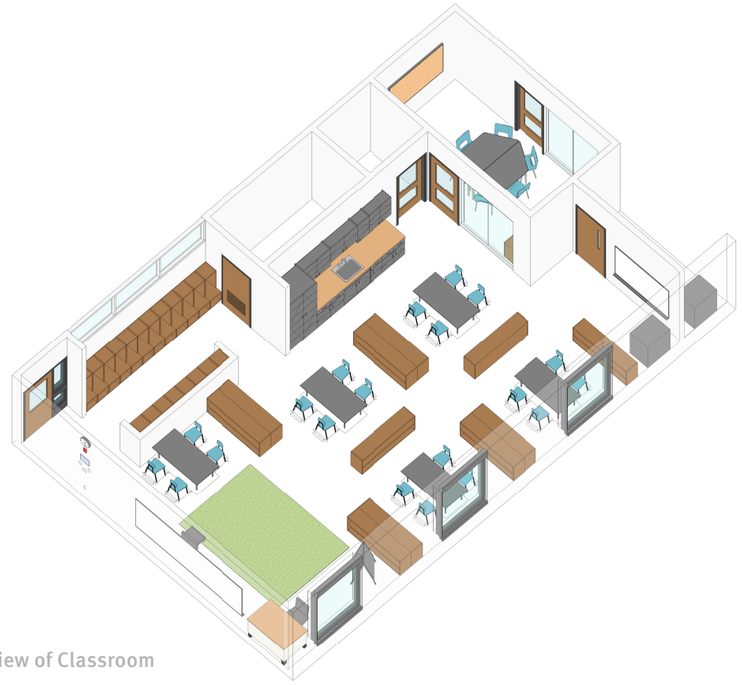
ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA	STUDENTS PER ROOM
Reception/Clerk	200	1	200	
Waiting Room	100	1	100	
Conference Room	250	1	250	
Workroom (Mail/Time & Duplicating)	250	1	250	
Records Room	150	1	150	
Storage	100	1	100	
Reflection Room	150	1	150	
Building Sub / Data Specialist Offfice	100	1	100	
Psychologist	150	1	150	
Counselor	150	2	300	
Counseling Conference Room	250	1	250	
Counseling Reflection Room	100	1	100	
Guidance Storeroom	50	1	50	
Math Coach	200	1	200	
Literacy Coach	200	1	200	
Math/Literacy Resource Room	300	1	300	
TeachersWork/Lunch Room	250	5	1,250	
OTHER		**1**	**500**	
Parents Room	500	1	500	
Total Net Floor Area (NFA)			**38,705**	
Maximum Student Capacity General			**515**	



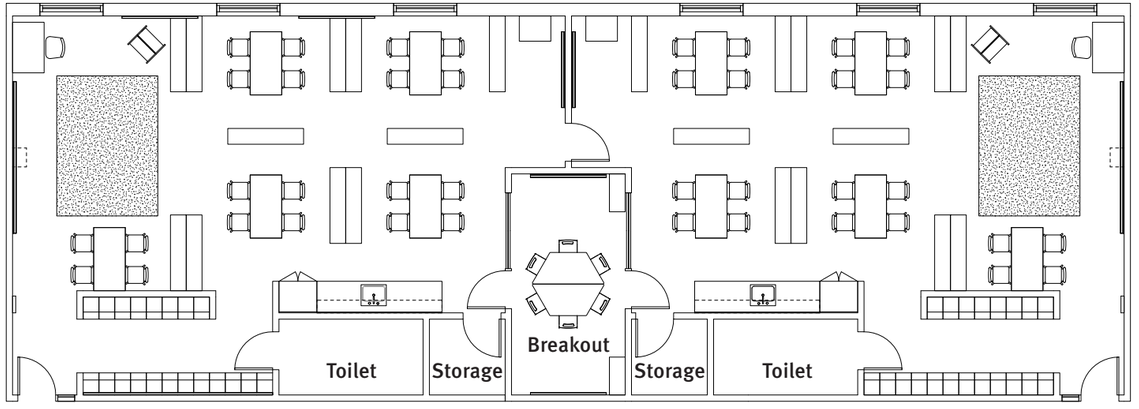
Administration Floor Plan

KING OPEN SCHOOL: ADMINISTRATION

1. **Design Intent/ Use of Space**
   a. Check-in and main administration
2. **Occupants:** Varies
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate at main entrance
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink in Parent's Room and Kitchenette
   f. Security: Normal, high at Records Room
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Carpet in offices, Conference Room, Reception and Waiting Area; linoleum in Workroom and Records Room
   k. Doors: Wood with hollow metal frames
7. **Casework, Equipment and Furniture**
   a. KO Principal's Office
      i. Equipment: Computer, wall clock on central system, desk phone (with PA & callback)
      ii. Furniture: Group table – round, chairs (x6), bookshelf, desk and chair
   b. KO Admin Manager's Office
      i. Equipment: Computer, wall clock on central system, desk phone (with PA & callback)
      ii. Furniture: Side –chairs (x2), bookshelf, desk and chair
   c. Clerk and Waiting Area
      i. Casework: Reception desk (10 LF)
      ii. Equipment: Desk phones (with PA & callback), fax machine, computers (x2)
      iii. Furniture: Chairs (x8)
   d. Conference Room (16-20 people)
      i. Equipment: Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector, whiteboard (4'h x 6'w) in addition to smartboard surface, tackable surface (4'h x 4'w), wall clock on central system, wall phone (with PA & callback)
      ii. Furniture: Chairs (x20), conference table, credenza
   e. Workroom
      i. Casework: Base and wall cabinets (30 LF)
      ii. Equipment: Floor printer/copier, mail machine, laminator, mailboxes
      iii. Furniture: Task chair
   f. KO Reflection Room
      i. Equipment: Smartboard, mobile devices, wall phone (with PA & callback), wall clock on central system
      ii. Furniture: Desk and chair (x3)
   g. KO Family Liaison
      i. Equipment: Computer, desk phone (with PA & callback), wall clock on central system
      ii. Furniture: Group table – round, chairs (x6), bookshelf, desk and chair
   h. Parents' Room
      i. Casework: Tall storage cabinets (x2), base cabinets (12 LF)
      ii. Equipment: Whiteboards (4'h x 10'w)(x2), tackable surfaces (4'h x 4'w), wall clock on central system, wall phone (with PA & Callback)
      iii. Furniture: Folding tables (x4), chairs (x18)
   i. Records Room
      i. Furniture: Lateral files (x8)



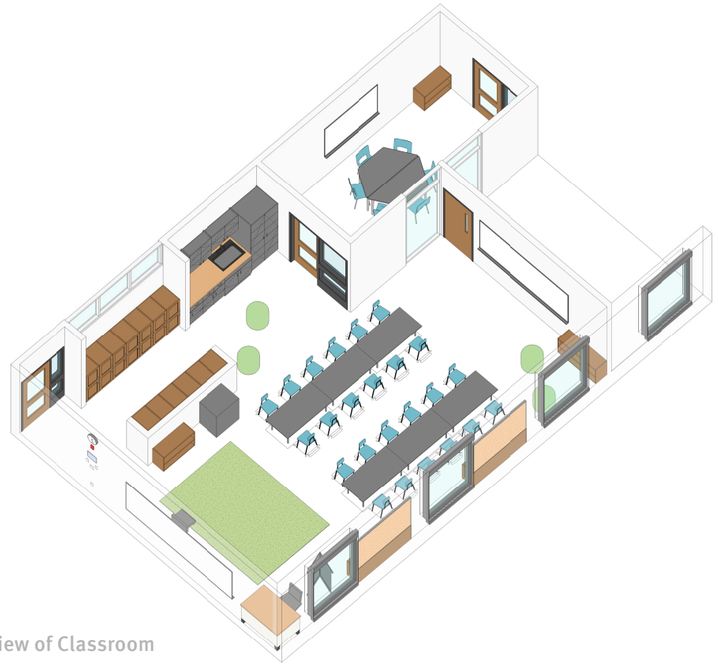
3D View of Classroom



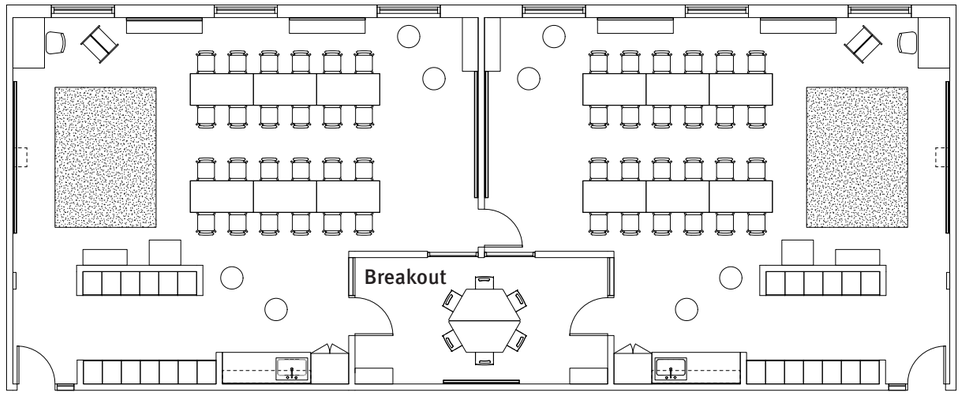
Classroom Floor Plan

KING OPEN SCHOOL: JK & KINDERGARTEN CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 20 students
   b. Provide a diversity of activity centers that engage children. Need flexible furniture to adjust throughout the year.
   c. Considerations for quiet time such as dimming lights and floor space for mats.
2. **Occupants:** 20 students
3. **Size:** See program summary table
4. **Quantity:** 7 (including one Olá classroom and one Special Start classroom)
5. **Adjacencies**
   a. Locate on ground floor
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain, student toilet room
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (10 LF), cubbies (x20 – 48”h x 15”w x 21”d)
7. **Equipment and Furniture**
   a. Smartboard (4’h x 12’w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4’h x 6’w) in addition to smartboard surface
   c. Tackable Surface (4’h x 6’w) (x2)
8. **Furniture**
   a. Student Chairs (x20)
   b. Bookcases (x11)
   c. Group Tables - Rectangle (x5)
   d. Teacher Desk & Chair
   e. Group-time Rug
   f. Easel
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Laptop Charging Cart (by owner)
   f. Document Camera (by owner)



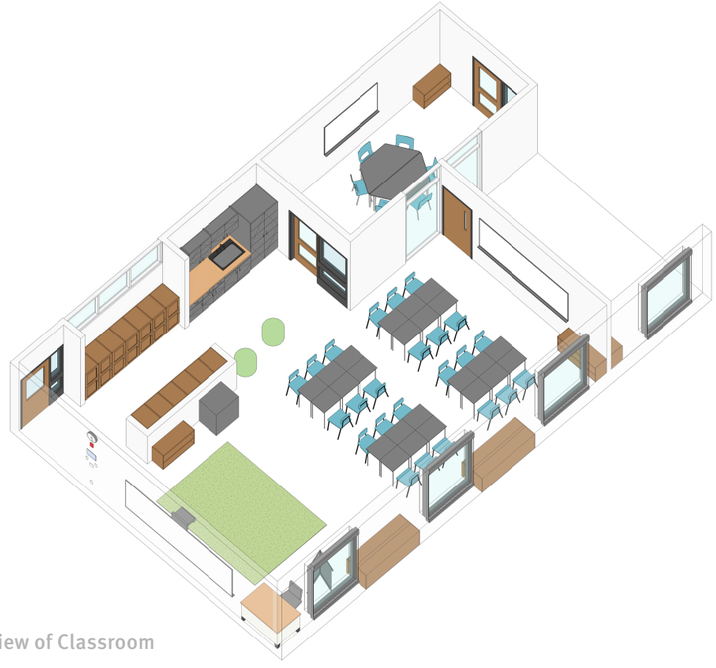
3D View of Classroom



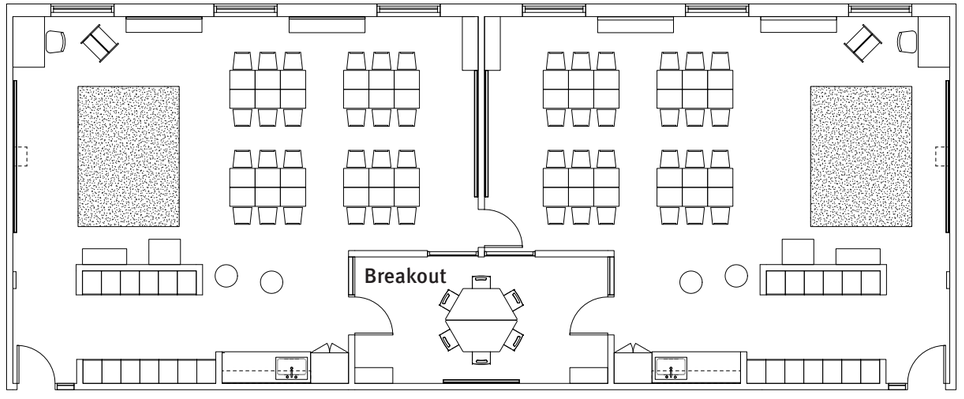
Classroom Floor Plan

KING OPEN SCHOOL: GRADES 1, 2, 3 & 4 CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 3 for each grade (including one Olá classroom)
5. **Adjacencies**
   a. Group Grades 1 and 2 and Grades 3 and 4 together
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (7 LF), cubbies (x20 – 48”h x 18”w x 22”d)
7. **Equipment and Furniture**
   a. Smartboard (4’h x 12’w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4’h x 10’w) in addition to smartboard surface
   c. Tackable Surface (4’h x 6’w) (x2)
8. **Furniture**
   a. Student Chairs (x25)
   b. Bookcases (x4)
   c. Group Tables - Rectangle (x6)
   d. Teacher Desk & Chair
   e. Group-time Rug
   f. Easel
   g. Soft Seating (x4)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Laptop Charging Cart (by owner)
   f. Document Camera (by owner)



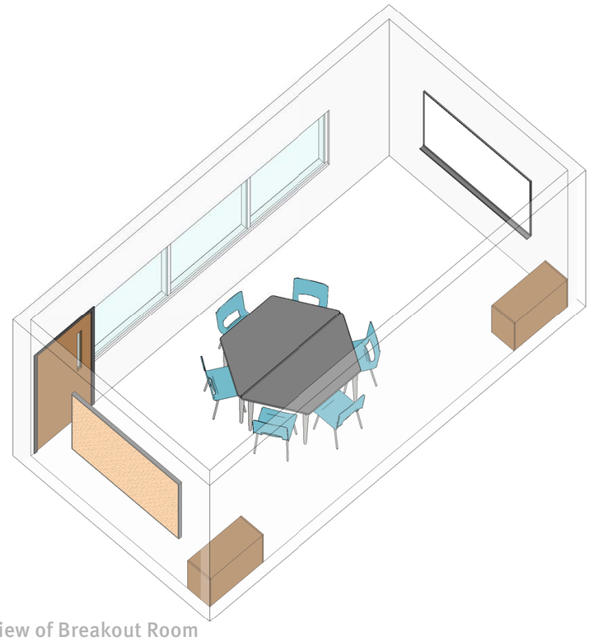
3D View of Classroom



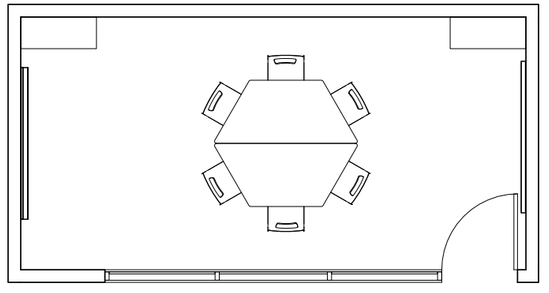
Classroom Floor Plan

KING OPEN SCHOOL: GRADE 5 CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 3 for each grade (including one Olá classroom)
5. **Adjacencies**
   a. Classrooms grouped together
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (7 LF), lockers (x25 – 48”h x 18”w x 22”d) plus storage bins for musical instruments
7. **Equipment**
   a. Smartboard (4’h x 12’w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4’h x 10’w) in addition to smartboard surface
   c. Tackable Surface (4’h x 6’w) (x2)
8. **Furniture**
   a. Student Chairs (x25)
   b. Bookcases (x4)
   c. Desks (x25)
   d. Teacher Desk & Chair
   e. Group-time Rug
   f. Easel
   g. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Laptop Charging Cart (by owner)
   f. Document Camera (by owner)



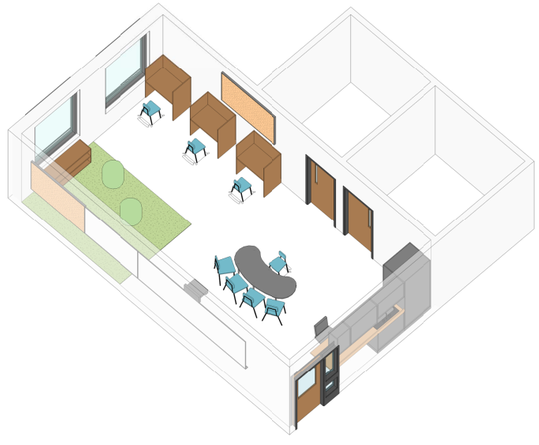
3D View of Breakout Room



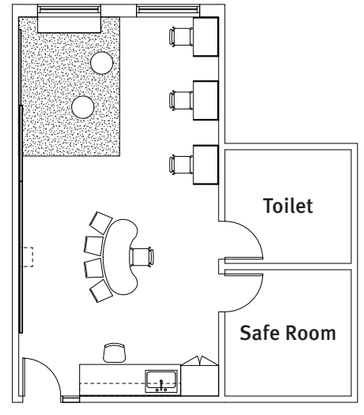
Breakout Room Floor Plan

KING OPEN SCHOOL: BREAKOUT ROOM

1. **Design Intent/ Use of Space**
   a. For a group of up to 6 students
   b. Allows for one-on-one or small group work
2. **Occupants:** 6 students
3. **Size:** See program summary table
4. **Quantity:** 8
5. **Adjacencies**
   a. Shared room between two adjacent classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Linoleum
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Whiteboard (4'h x 6'w)
   b. Tackable Surface (4'h x 6'w)
8. **Furniture**
   a. Student Chairs (x6)
   b. Group Tables – Trapezoid (x2)
   c. Bookshelves (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



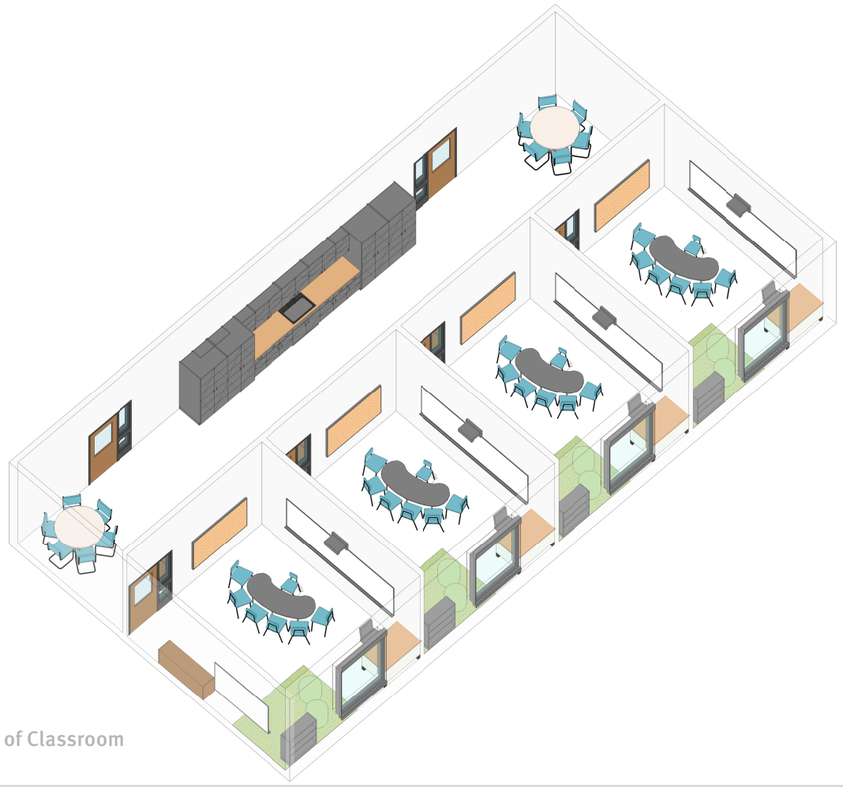
3D View of Classroom



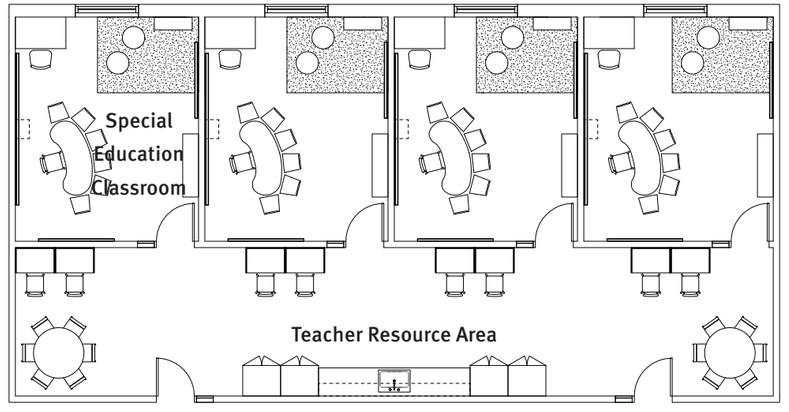
Classroom Floor Plan

KING OPEN SCHOOL: AUTISM SPECTRUM DISORDER CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 8 students
   b. Considerations for individual work areas
2. **Occupants:** 8 students
3. **Size:** See program summary table
4. **Quantity:** 5
5. **Adjacencies**
   a. Locate with ASD Safe rooms and ASD toilets
   b. Locate with quick access to van drop-off/pick-up area
   c. Locate centrally with access to all grade levels
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain, student toilet room
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB, padded walls at Safe Room
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinet, base and wall cabinets (8 LF)
7. **Equipment**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 6'w) in addition to smartboard surface
   c. Tackable Surface
8. **Furniture**
   a. Student Chairs (x5)
   b. Bookcase
   c. Group Table – Kidney
   d. Soft Seating (x2)
   e. Teacher Chair
   f. Group-time Rug
   g. Study Carrels (x3)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Document Camera (by owner)



3D View of Classroom

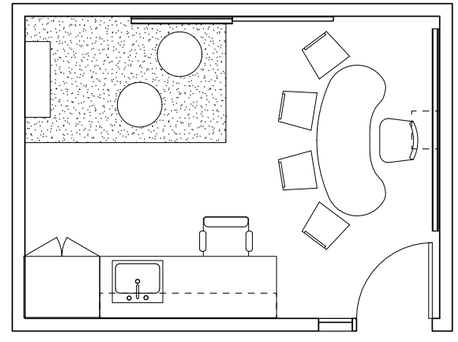


Classroom Floor Plan

KING OPEN SCHOOL: SPECIAL EDUCATION CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 10 students
2. **Occupants:** 10 students
3. **Size:** See program summary table
4. **Quantity:** 6
5. **Adjacencies**
   a. Centrally located to all grade levels' general classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain in Teacher Resource Area
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspend acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x4), base and wall cabinets (12 LF) in Teacher Resource Area
7. **Equipment and Furniture**
   a. SPED classroom
      i. Equipment: Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector, whiteboard (4'h x 6'w) in addition to smartboard surface, tackable surface (4'h x 6'w)
      ii. Furniture: Group table – kidney, chairs (x7), teacher desk and chair, soft seating (x2), bookcases (x2), group-time rug
   b. Teacher Resource Area
      i. Furniture: Study carrels (x8), student chairs (x20), group tables – round (x2)
8. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Document Camera (by owner)

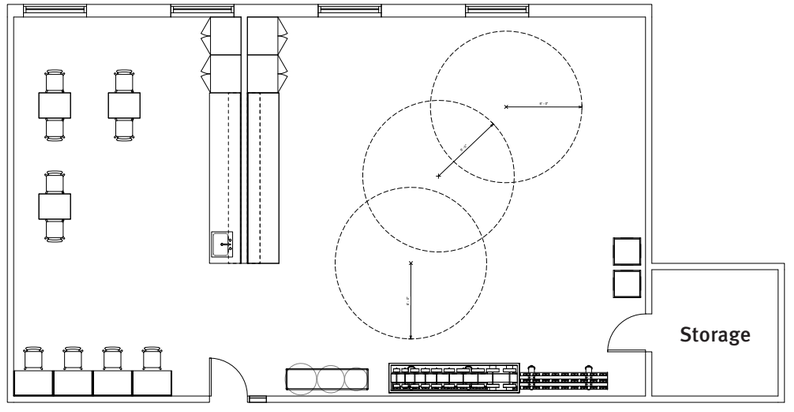
3D View of Recovery Room



Recovery Room Floor Plan

KING OPEN SCHOOL: SPEECH, ENGLISH AS A SECOND LANGUAGE & READING RECOVERY ROOM

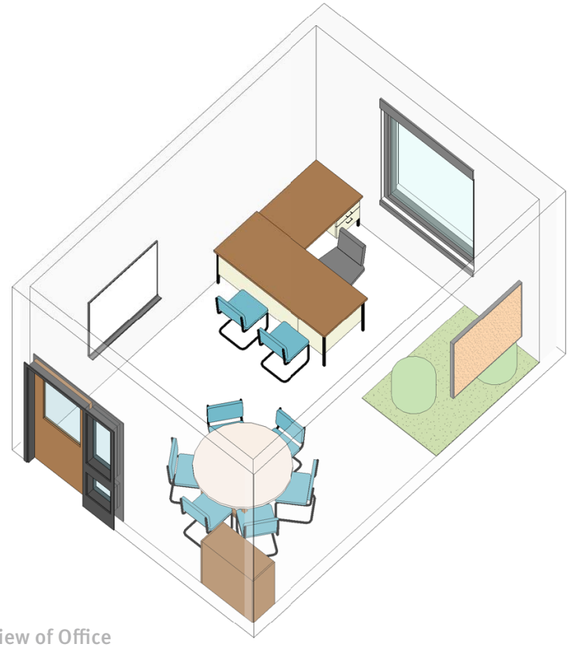
1. **Design Intent/ Use of Space**
   a. For a class of up to 6 students
2. **Occupants:** 6 students
3. **Size:** See program summary table
4. **Quantity:** 4 (two Speech, one ESL and one RR)
5. **Adjacencies**
   a. Locate Speech near ASD
   b. ESL centrally located for ease of access from both schools
   c. Locate Reading Recovery Room by KO Coach Office
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets, base and wall cabinets (7 LF)
7. **Equipment**
   a. Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 4'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 4'w)
8. **Furniture**
   a. Student Chairs (x4)
   b. Bookcase
   c. Group Table - Kidney
   d. Teacher Chair
   e. Group-time Rug
   f. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



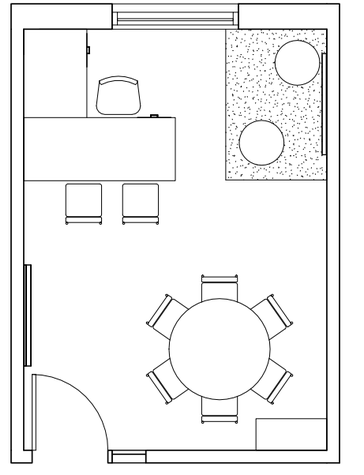
OT/PT Floor Plan

KING OPEN SCHOOL: OCCUPATIONAL/ PHYSICAL THERAPY ROOM

1. **Design Intent/ Use of Space**
   a. For individual OT/PT sessions
   b. Provide fine and gross motor areas
2. **Occupants:** 5 students, 5 staff
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate with storage room
   b. Locate near ASD classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB and athletic wall safety pads
   j. Flooring: Linoleum and recycled rubber tiles
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x4), base and wall cabinets (27 LF)
7. **Equipment**
   a. Miscellaneous OT Equipment (by owner)
   b. Ceiling Suspended Swings and Tracks (x3)
8. **Furniture**
   a. Student Chairs (x3)
   b. Teacher Chairs (x7)
   c. Group Tables – Rectangle (x3)
   d. Work Station (x4)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



3D View of Office

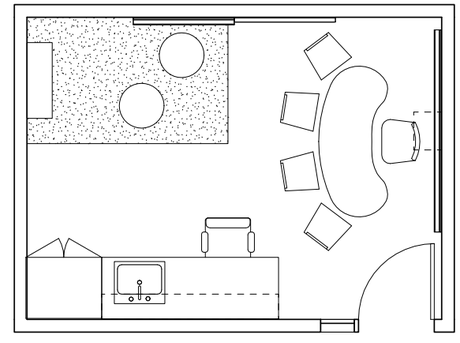


Office Floor Plan

KING OPEN SCHOOL: PSYCHOLOGIST/COUNSELING OFFICE

1. **Design Intent/ Use of Space**
   a. Counseling services for individuals and small groups
2. **Occupants:** 1 counselor, up to 6 guests
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Locate with KO Counseling Conference, KO Counseling Reflection Room, and Guidance Storeroom
   b. Locate within academic wings, preferably near ASD classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Carpet
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Whiteboard (4'h x 4'w)
   b. Tackable Surface (4'h x 4'w)
8. **Furniture**
   a. Desk, Pedestal File, Lateral File
   b. Bookcase
   c. Group Table - Round
   d. Side Chairs (x8)
   e. Task Chair
   f. Group-time Rug
   g. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Desk Phone (with PA & callback)
   d. Mobile Devices (by owner)

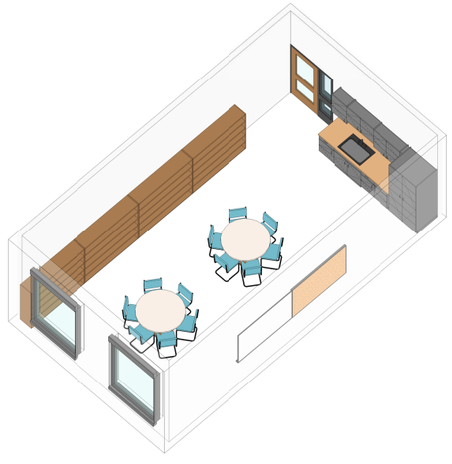
3D View of Office



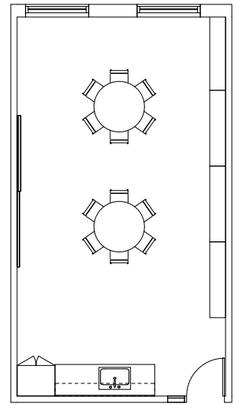
Office Floor Plan

KING OPEN SCHOOL: MATH & LITERACY COACH OFFICE

1. **Design Intent/ Use of Space**
   a. For a class of up to 4 students
2. **Occupants:** 4 Students
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Locate centrally so that all grade levels have equal access
   b. Locate by Reading Recovery Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets, base and wall cabinets (7 LF)
7. **Equipment**
   a. Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 4'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 4'w)
8. **Furniture**
   a. Student Chairs (x4)
   b. Bookcase
   c. Group Table - Kidney
   d. Teacher Chair
   e. Group-time Rug
   f. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner



3D View of Resource Room

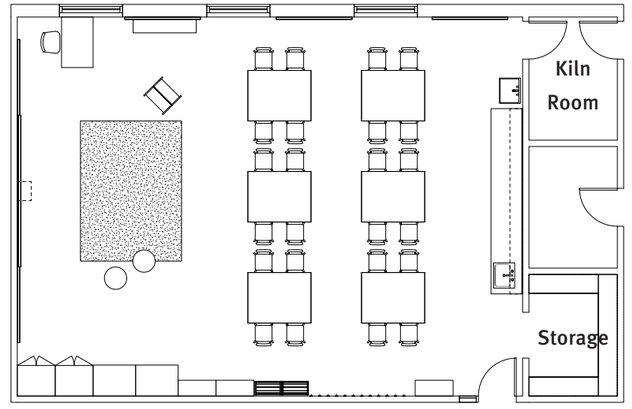


Resource Room Floor Plan

KING OPEN SCHOOL: MATH & LITERACY COACHING RESOURCE ROOM

1. **Design Intent/ Use of Space**
   a. For staff use
   b. Storage of Math and Literacy resource materials for the whole school
2. **Occupants:** Coaching staff
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate by Math & Literacy Coach offices
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Linoleum
   j. Doors: Wood with hollow metal frames
   k. Casework: Tall storage cabinet (x2), base and wall cabinets (8 LF)
7. **Equipment**
   a. Smartboard (4'h x 10'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w)
8. **Furniture**
   a. Chairs (x12)
   b. Group Table – circle (x2)
   c. Bookshelves (30 LF)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)

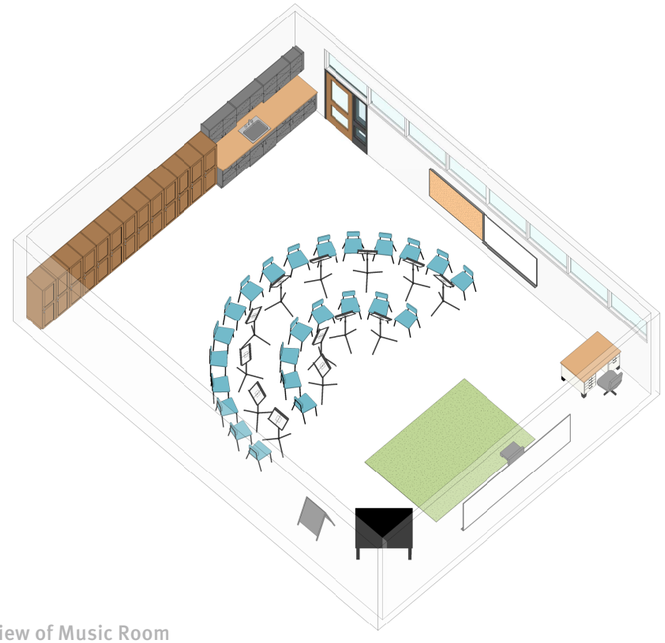
3D View of Art Room



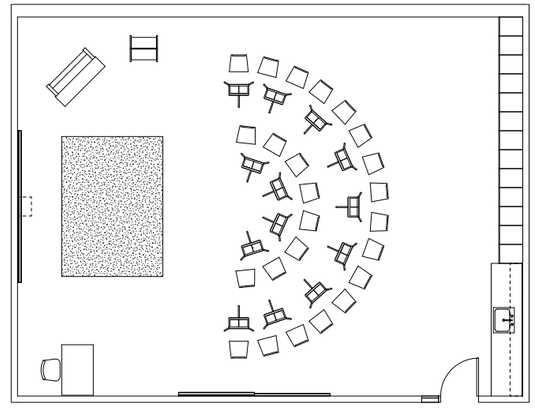
Art Room Floor Plan

KING OPEN SCHOOL: ART ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate with Art Storage Room and Kiln Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Additional ceiling drop-down outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain, slop sink with plaster trap
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets(15 LF)
7. **Equipment**
   a. Smartboard (4'h x 12'w) low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w)(x5)
   c. Drying Rack (x2)(by owner)
   d. Kiln (shared with upper school)
   e. Coathooks (x25)
   f. Blackout Shades
8. **Furniture**
   a. Student Chairs (x25)
   b. Bookcases (x4)
   c. Group Tables (x6)
   d. Soft Seating (x2)
   e. Teacher Desk & Chair
   f. Easel
   g. Flat Files (x2)
   h. Group-time Rug
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



3D View of Music Room



Music Room Floor Plan

KING OPEN SCHOOL: MUSIC ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
   b. Provide a variety of furniture sized for children from Kindergarten to Grade 5
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. NA
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Specialty sound-absorptive ceiling tiles and wall panels
   h. Ceiling: Suspend acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB with increased STC rating
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Base and wall cabinets (10 LF)
7. **Equipment**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 6'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 6'w)
   d. Instrument Storage Cabinets with Adjustable Shelves (20 LF)
   e. Musical Instruments, including Upright Piano (by owner)
8. **Furniture**
   a. Student Chairs (x25)
   b. Music Stands (x13)
   c. Teacher Desk & Chair
   d. Group-time Rug
   e. Art Easel
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Sound System



4.2 CAMBRIDGE STREET UPPER SCHOOL

MISSION

The school's initial mission and vision is driven by the Innovation Agenda which holds the pillars of social justice and academic excellence. Through data collected from scholar lunches, caregiver surveys, staff reflections the school is committed to the following:

- Knowing scholars more deeply in order for them to achieve at higher levels both socially and academically

- Knowing ourselves better in order to create instruction that empowers not only our scholars, but also ourselves and our team members.

- Knowing our instruction better in order to align our understanding of cultural proficiency, rigor, engagement, and high expectations, and use this understanding to provide a culturally inclusive educational experience for all children.

VISION FOR THE NEW BUILDING

Through the many user group meetings with the Cambridge Street Upper School administration and staff, refer to chapter 1.1 for more information, the architects were able to develop the vision and priorities for the new school. Cambridge Street Upper School should have a clear presence on the site. It should be easy to distinguish the upper school from the lower school both from the exterior and the interior. When students enter CSUS they should feel like they

are starting the next step in their educational journey, the inerior design should reflect this. It should be representative of a more mature environment than the elementary school.

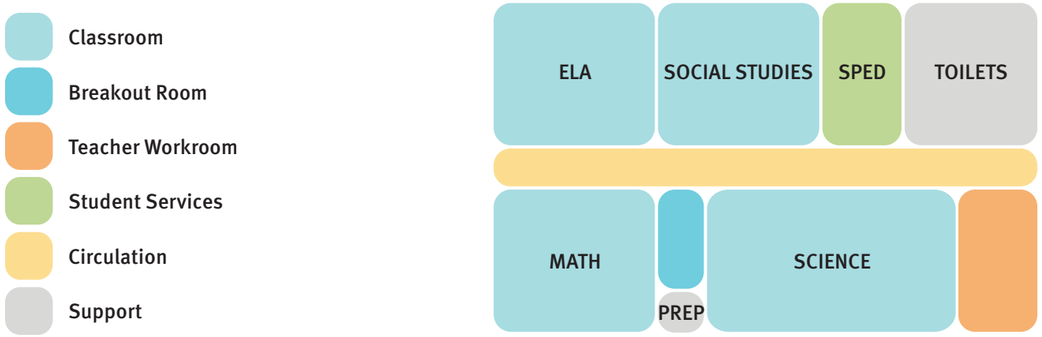
The Innovation Agenda is designed to raise student achievement, eliminate achievement gaps, and develop 21st century skills. The new school needs to be designed to allow for the activities required to meet this agenda. This includes classrooms with appropriate technology, small group activity spaces and teacher work areas all which foster collaboration and are flexible throughout the semester, year and over time. A Science, Technology, Engineering and Math (STEM) classroom will be part of the program in the new building. This classroom will host curricula created to support the Innovation Agenda that requires advanced technology and tools, such as laser cutters. There should be ample display areas throughout the school to highlight projects from core subjects, world languages, arts and music. This is important to develop collaboration and innovation as well as to show the diversity of CSUS.

Classrooms should be organized per grade to allow for comraderie and collaboration amongst the grade level students and staff. Special Education and Autism Spectrum Disorder classrooms should be located within this grade level cluster to foster inclusion. Student services such as Speech, ESL and Coaching should be located centrally in the school so there is equal access to them from all classroom areas.

Specialist programs should be expanded in the new building to include larger areas for visual and performing arts, media lab including recording room, and health and fitness.

It is important that all spaces used by students be within the building to facilitate efficient transitions throughout the daily schedule. Efficient transitions and scheduling are important to increase the learning time throughout he day. The building should include two gymnasiums, one for each school.

All spaces in the school should be considered learning spaces. Gymnasiums, auditorium, cafeteria, Learning Commons and multi-purpose room should all be equiped to be used for presentations and other learning activities.

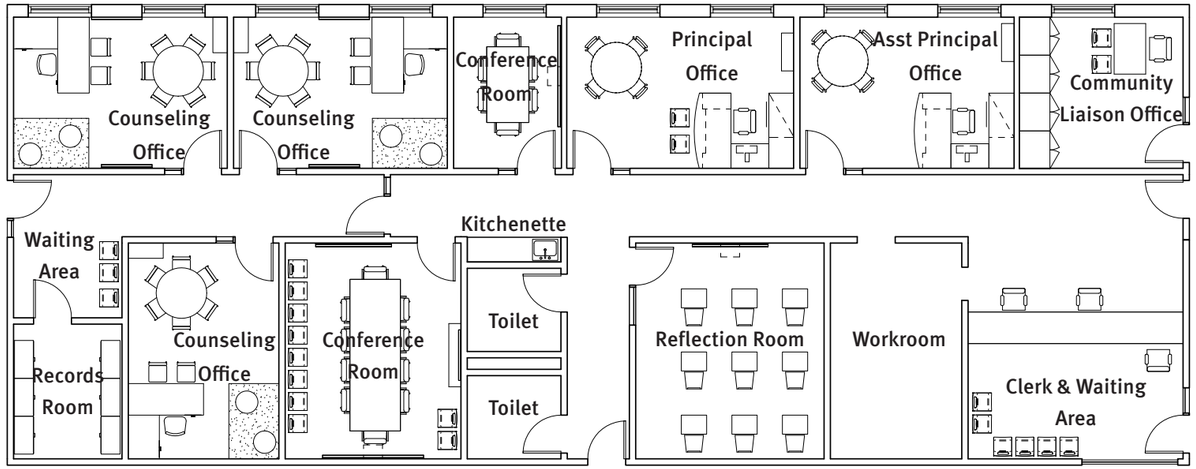


Grade Level Organization Concept

CAMBRIDGE STREET UPPER SCHOOL SPACE SUMMARY

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA	STUDENTS PER ROOM
CORE ACADEMIC SPACES		**19**	**16,940**	
Grade 6-8 Classroom	900	9	8,100	25
Grade 6-8 Ola	900	1	900	25
Grade 6-8 World Language	900	2	1,800	25
Breakout	200	4	800	6
Grade 6 Science Lab	1,200	1	1,200	25
Grade 7 Science Lab	1,200	1	1,200	25
Grade 8 Science Lab	1,200	1	1,200	25
Science Prep room	80	3	240	1
Tech Classroom - STEM	1,500	1	1,500	25
SPECIAL EDUCATION		**13**	**4,720**	
Grade 6-8 ASD	475	2	950	8
Speech	200	2	400	6
ESL	250	1	250	6
SPED Small Group 6	500	2	1,000	10
SPED Small Group 7	500	2	1,000	10
SPED Small Group 8	500	1	500	10
SPED Toilet	60	2	120	
SPED Staff Resource Room	500	1	500	
ART & MUSIC		**4**	**2,500**	
Visual Art Room	1,200	1	1,200	25
Art Storage & kiln	150	1	150	
Band (70 seats)	1,500	1	1,500	25
General Music / Chorus	1,200	1	1,200	25
Music Practice / Ensemble	100	2	200	2
Instrument Storage / Cleaning	150	1	150	
Drama Room w/ storage	1,000	1	1,000	20
HEALTH & PHYSICAL EDUCATION		**1**	**900**	20
Health Classroom	900	1	900	25
ADMINISTRATION & GUIDANCE		**25**	**4,700**	
Principal	200	1	200	
Assistant Principal	200	1	200	
Reception/Clerk	200	1	200	
Waiting Room	100	2	200	

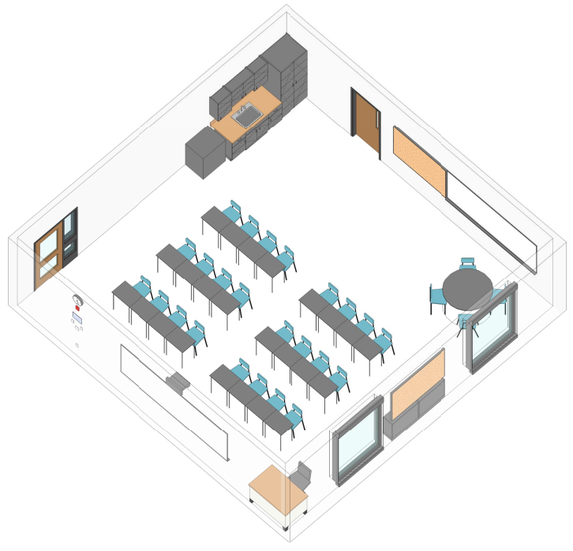
ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA	STUDENTS PER ROOM
Conference room	250	2	500	
Workroom (Mail/Time & Duplicating)	250	2	500	
Records Room	150	2	300	
Storage	100	1	100	
Reflection Room	200	1	200	
Building Sub / Data Specialist Offfice	100	1	100	
Psychologist	200	1	200	
Counselor	200	2	400	
Counseling Waiting	100	1	100	
Guidance Storeroom	50	1	50	
Math & Literacy Coaches Office	300	1	300	
Math Interventionist	200	1	200	
Literacy Interventionist	200	1	200	
TeachersWork/Lunch Room	250	3	750	
Total Net Floor Area (NFA)			**32,660**	
Maximum Student Capacity General			**300**	



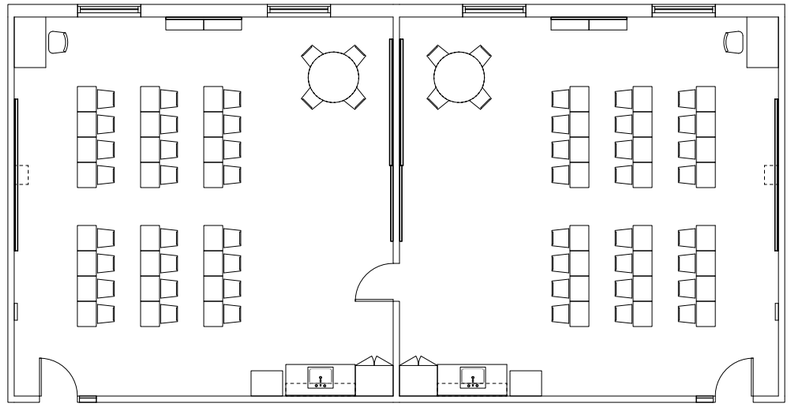
Administration Floor Plan

CSUS: ADMINISTRATION & GUIDANCE

1. **Design Intent/ Use of Space**
   a. Check-in and main administration
   b. Counseling services for individuals and small groups
2. **Occupants:** Varies
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate at main entrance
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink in Kitchenette
   f. Security: Normal, high at Records Room
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Carpet in offices, Conference Room, Reception and waiting areas; linoleum in Workroom and Records Room
   k. Doors: Wood with hollow metal frames
7. **Casework, Equipment and Furniture**
   a. CSUS Principal's Office
      i. Equipment: Computer, wall clock on central system, desk phone (with PA & callback)
      ii. Furniture: Group table – round, chairs (x6), bookshelf, desk and chair
   b. CSUS Admin Manager's Office
      i. Equipment: Computer, wall clock on central system, desk phone (with PA & callback)
      ii. Furniture: Group table – round, chairs (x6), bookshelf, desk and chair
   c. Clerk & Waiting Area – Administration
      i. Casework: Reception desk (17 LF)
      ii. Equipment: Desk phones (with PA & callback), fax machine, computers (x2)
      iii. Furniture: Chairs (x9)
   d. Waiting Area - Guidance
      i. Furniture: Chairs (x3)
   e. Conference Room (16-20 people)
      i. Equipment: Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector, whiteboard (4'h x 6'w) in addition to smartboard surface, tackable surface (4'h x 4'w), wall clock on central system, wall phone (with PA & callback)
      ii. Furniture: Chairs (x20), conference table, credenza
   f. Community Liaison Office
      i. Casework: Tall storage cabinets (x4)
      ii. Equipment: Computer, wall clock on central system, desk phone (with PA & callback)
      iii. Furniture: Chairs (x2), desk and chair
   g. Reflection Room
      i. Equipment: Smartboard (4'h x 6'w) – low reflectivity whiteboard with wall mounted ultra short throw projector, wall clock on central system, wall phone (with PA & callback)
      ii. Furniture: Student chairs (x9), student desks (x9)
   h. Small Conference Room
      i. Equipment: Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector, wall clock on central system, wall phone (with PA & callback)
      ii. Furniture: Small conference table, chairs (6)
   i. Records Room
      i. Furniture: Lateral files (x4)
8. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



3D View of Classroom

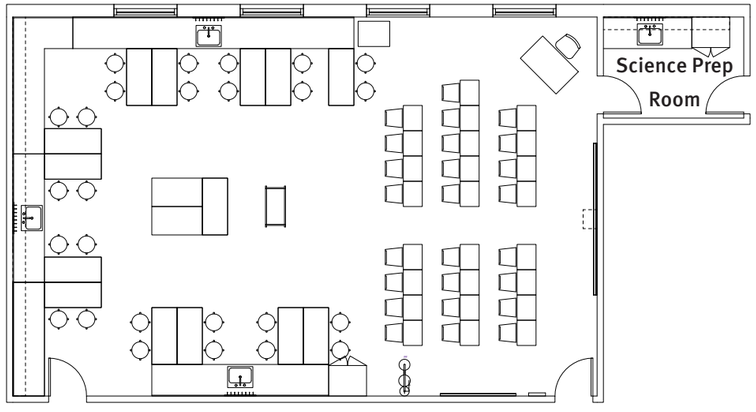


Classroom Floor Plan

CSUS: GRADES 6, 7 & 8 CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 9 classrooms (one Social Studies, Math and English Language Arts classroom per grade), 2 World Language classrooms and 1 Olá classroom
5. **Adjacencies**
   a. Classrooms of each grade grouped together
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Provide additional above counter outlets for World Language classrooms.
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinet, base and wall cabinets (5 LF)
7. **Equipment and Furniture**
   a. Smartboard (4'h x 12'w) low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 10'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 6'w) (x2)
8. **Furniture**
   a. Student Chairs (x25)
   b. Side Chairs (x4)
   c. Bookcases (x2)
   d. Group Table - Round
   e. Student Desks (x25)
   f. Teacher Desk & Chair
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Laptop Charging Cart (by owner)
   f. Document Camera (by owner)

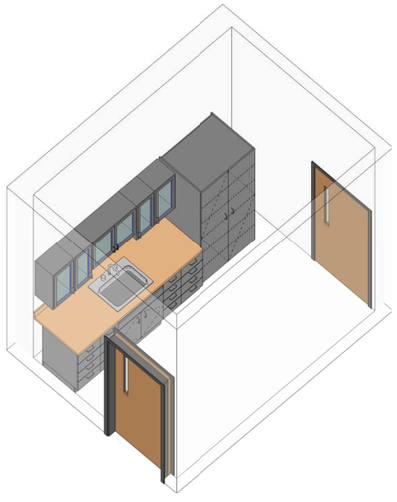
3D View of Classroom/ Lab



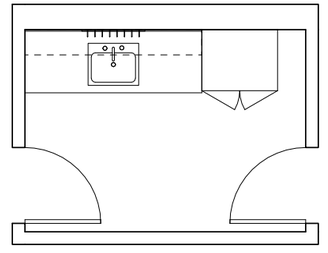
Classroom/ Lab Floor Plan

CSUS: SCIENCE CLASSROOM/ LAB

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 3
5. **Adjacencies**
   a. Locate with Science Prep Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Additional above counter outlets at lab area. Ceiling drop-down outlets at center of room
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sinks (x4), non-potable water supply, acid neutralization system, emergency eyewash and shower with floor drain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with Hollow Metal Frames
   l. Casework: Tall storage cabinet, base and wall cabinets (66 LF), mobile student lab tables (x13). Half of cabinets to have marker board surfacing, half to have glass in doors
7. **Equipment and Furniture**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w)
   c. Drying Pegboard (30"h x 36"w)(x4)
   d. Growing Rack (x3)(by owner)
   e. Blackout Shades
   f. Ceiling Hanging Points for Physics Experiments
   g. Fire Extinguisher
   h. First Aid Kid
   i. Fire Blanket
   j. UV Goggle Cabinet
8. **Furniture**
   a. Student Chairs (x25)
   b. Student Desks (x25)
   c. Teacher Desk & Chair
   d. Student Stools (x25)
   e. Mobile Teaching Cart
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Laptop Charging Cart (by owner)
   f. Document Camera (by owner)



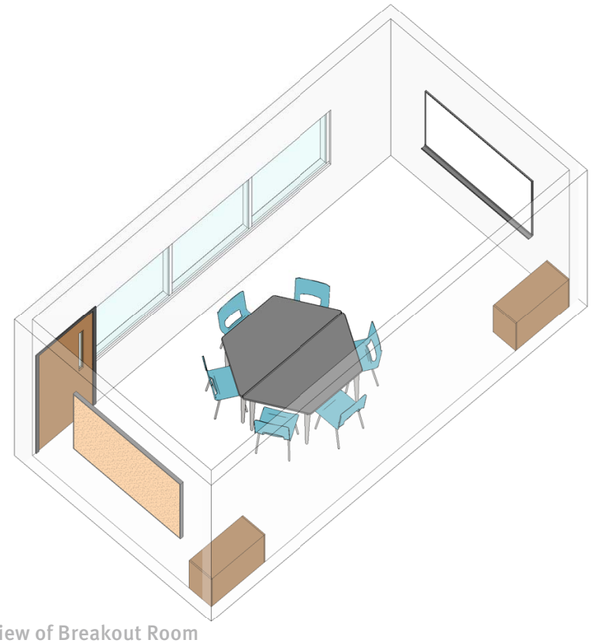
3D View of Science Prep Room



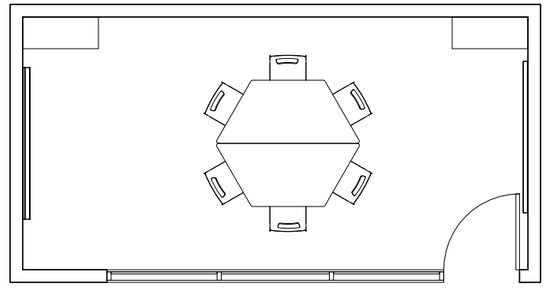
Science Prep Room Floor Plan

CSUS: SCIENCE CLASSROOM/ PREP ROOM

1. **Design Intent/ Use of Space**
   a. Provide preparation space and additional storage for Science Classroom/ Lab
2. **Occupants:** 1 staff
3. **Size:** See program summary table
4. **Quantity:** 3
5. **Adjacencies**
   a. Locate with Science Classroom/ Lab
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with Hollow Metal Frames
   l. Casework: Tall storage cabinet, base and wall cabinets (7 LF). All cabinets to have glass in doors
7. **Equipment and Furniture**
   a. Drying Pegboard (30”h x 36”w)
   b. Dishwasher
   c. Refrigerator
   d. Blackout Shades
   e. Chemical Storage Cabinet
   f. Fire Extinguisher
   g. First Aid Kit
   h. Fire Blanket
8. **Furniture**
9. **Educational Technology Requirements**



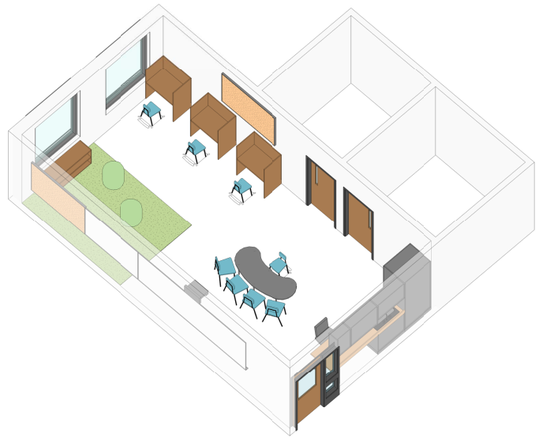
3D View of Breakout Room



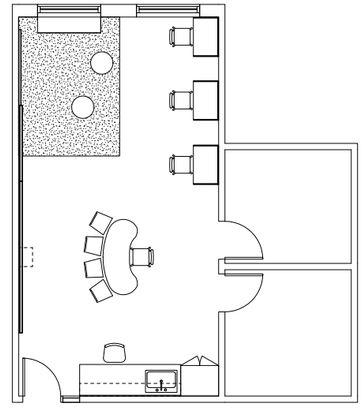
Breakout Room Floor Plan

CSUS: BREAKOUT ROOM

1. **Design Intent/ Use of Space**
   a. For a group of up to 6 students
   b. Allows for one-on-one or small group work
2. **Occupants:** 6 students
3. **Size:** See program summary table
4. **Quantity:** 8
5. **Adjacencies**
   a. Shared room between two adjacent classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Linoleum
   j. Doors: Wood with hollow metal frames
7. **Equipment and Furniture**
   a. Whiteboard (4'h x 6'w)
   b. Tackable Surface (4'h x 6'w)
8. **Furniture**
   a. Student Chairs (x6)
   b. Group Tables – Trapezoid (x2)
   c. Bookshelves (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



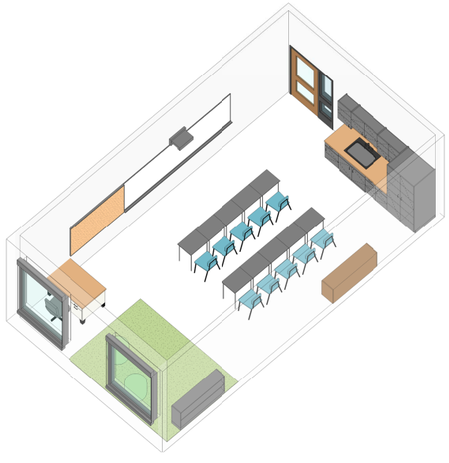
3D View of Classroom



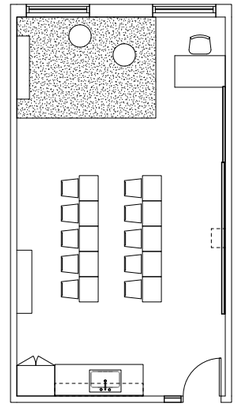
Classroom Floor Plan

CSUS: AUTISM SPECTRUM DISORDER CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 8 students
2. **Occupants:** 10 students
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Locate by ASD toilet
   b. Locate near general classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinet, base and wall cabinets (7 LF)
7. **Equipment and Furniture**
   a. Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w)
8. **Furniture**
   a. Student Chairs (x9)
   b. Bookcase
   c. Group Table - Kidney
   d. Study Carrels (x2)
   e. Teacher Desk & Chair
   f. Group-time rug
   g. Easel
   h. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Document Camera (by owner)



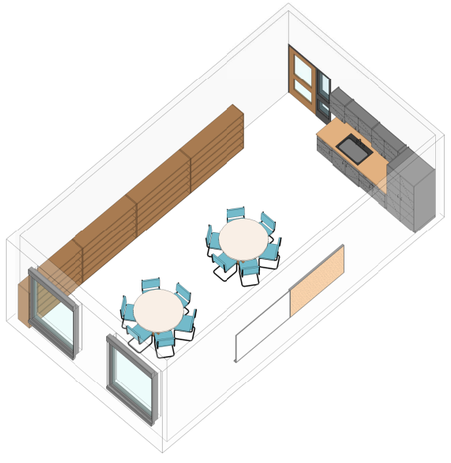
3D View of Classroom



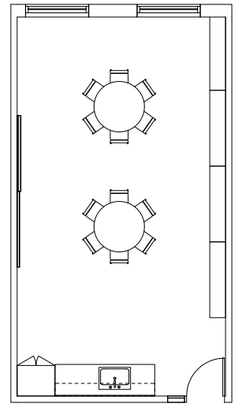
Classroom Floor Plan

CSUS: SPECIAL EDUCATION CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 10 students for pull-out special education learning
2. **Occupants:** 10 students
3. **Size:** See program summary table
4. **Quantity:** 5
5. **Adjacencies**
   a. Locate by CSUS SPED toilet
   b. Locate near general classrooms of same grade level
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinet, base and wall cabinets (7 LF)
7. **Equipment and Furniture**
   a. Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w)
8. **Furniture**
   a. Student Chairs (x9)
   b. Bookcase
   c. Group Table - Kidney
   d. Study Carrels (x2)
   e. Teacher Desk & Chair
   f. Group-time rug
   g. Easel
   h. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Document Camera (by owner)



3D View of Resource Area

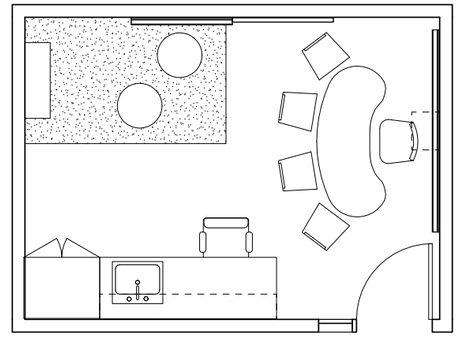


Resource Area Floor Plan

CSUS: SPECIAL EDUCATION RESOURCE AREA

1. **Design Intent/ Use of Space**
   a. For staff use
   b. Considerations for quiet time
2. **Occupants:** SPED staff
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Locate by CSUS SPED classrooms and CSUS SPED Toilet
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Linoleum
   j. Doors: Wood with Hollow Metal Frames
   k. Casework: Tall storage cabinet, base and wall cabinets (8 LF)
7. **Equipment**
   a. Whiteboard (4’h x 6’w)
   b. Tackable Surface (4’h x 6’w)
8. **Furniture**
   a. Chairs (x12)
   b. Group Table – Circle (x2)
   c. Bookshelves (x4)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)

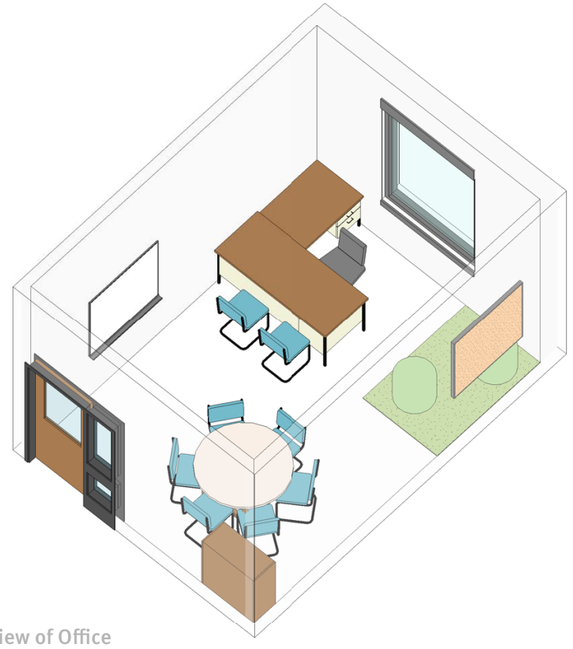
3D View of Classroom



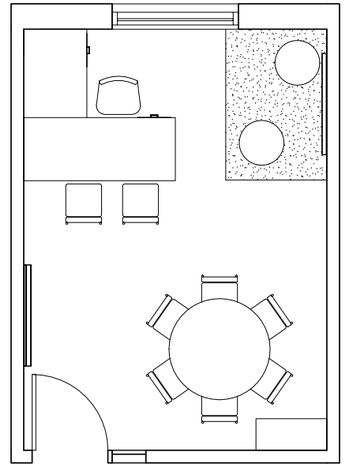
Classroom Floor Plan

CSUS: SPEECH & ENGLISH SECOND LANGUAGE ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 6 students
2. **Occupants:** 6 Students
3. **Size:** See program summary table
4. **Quantity:** 3 (two Speech and one ESL)
5. **Adjacencies**
   a. Locate Speech near ASD
   b. ESL centrally located for ease of access from both schools
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets, base and wall cabinets (7 LF)
7. **Equipment and Furniture**
   a. Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 4'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 4'w)
8. **Furniture**
   a. Student Chairs (x4)
   b. Bookcase
   c. Group Table - Kidney
   d. Teacher Chair
   e. Group-time Rug
   f. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



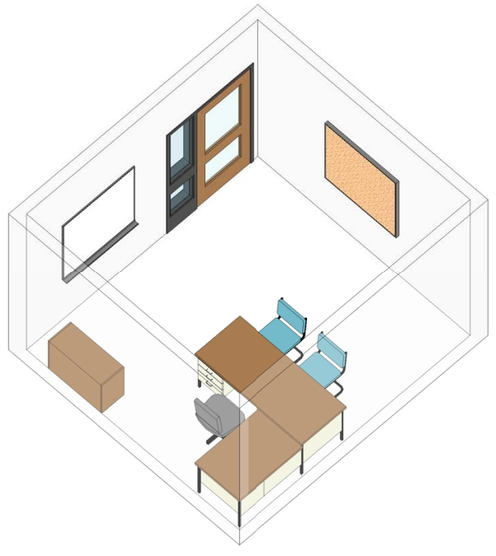
3D View of Office



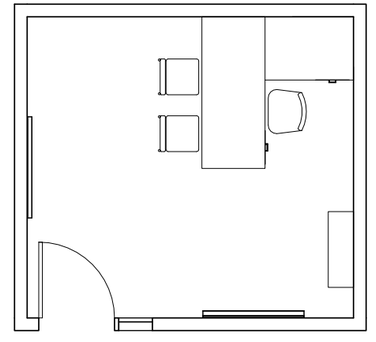
Office Floor Plan

CSUS: COUNSELING OFFICE

1. **Design Intent/ Use of Space**
   a. Counseling services for individuals and small groups
2. **Occupants:** 1 counselor, up to 6 guests
3. **Size:** See program summary table
4. **Quantity:** 3
5. **Adjacencies**
   a. Locate within CSUS Administration and Guidance Area
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspend acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Carpet
   j. Doors: Wood with hollow metal frames
7. **Equipment and Furniture**
   a. Whiteboard (4'h x 4'w)
   b. Tackable Surface (4'h x 4'w)
8. **Furniture**
   a. Desk, Pedestal File, Lateral File
   b. Bookcase
   c. Group Table - Round
   d. Side Chairs (x8)
   e. Task Chair
   f. Group-time Rug
   g. Soft seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)



3D View of Office

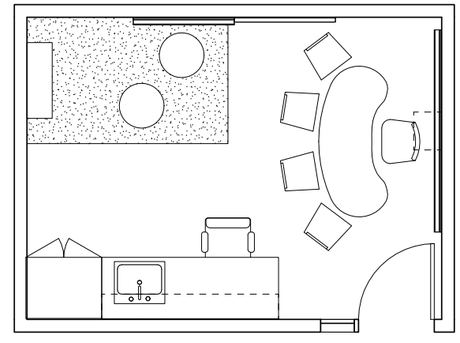


Office Floor Plan

CSUS: MATH & LITERACY COACH OFFICE

1. **Design Intent/ Use of Space**
   a. Office space for Math and Literacy coaches
2. **Occupants:** 1 staff
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Centrally located for ease of access from both schools
   b. Locate by Reading Recovery Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Linoleum
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Whiteboard (4'h x 4'w)
   b. Tackable Surface (4'h x 4'w)
8. **Furniture**
   a. Chairs (x2)
   b. Bookshelf
   c. Desk & Chair
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Desk Phone (with PA & callback)
   c. Mobile Devices (by owner)

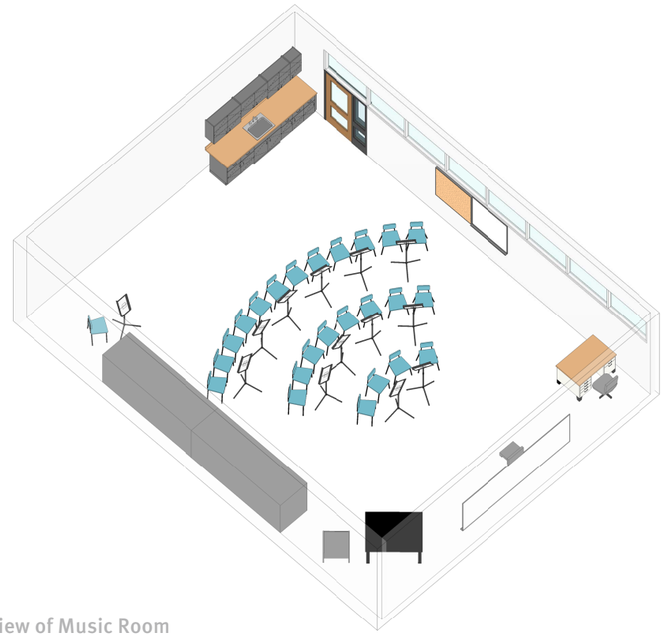
3D View of Classroom



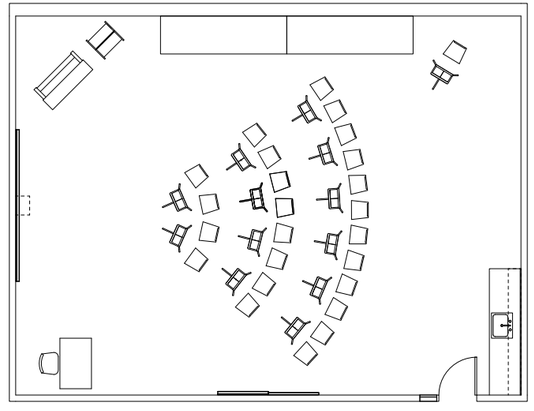
Classroom Floor Plan

CSUS: MATH & LITERACY COACHING INTERVENTIONIST CLASSROOM

1. **Design Intent/ Use of Space**
   a. For focused work with up to 2 students
2. **Occupants:** 2 students and 1 staff
3. **Size:** See program summary table
4. **Quantity:** 2 (one math and one literacy interventionist)
5. **Adjacencies**
   a. Locate centrally so that all grade levels have equal access
   b. Locate by CSUS Math and Literacy Coaches' Offices and CSUS Coaching Resource Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets, base and wall cabinets (7 LF)
7. **Equipment**
   a. Smartboard (4'h x 8'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 4'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 4'w)
8. **Furniture**
   a. Student Chairs (x4)
   b. Bookcase
   c. Group Table - Kidney
   d. Teacher Chair
   e. Group-time Rug
   f. Soft Seating (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)



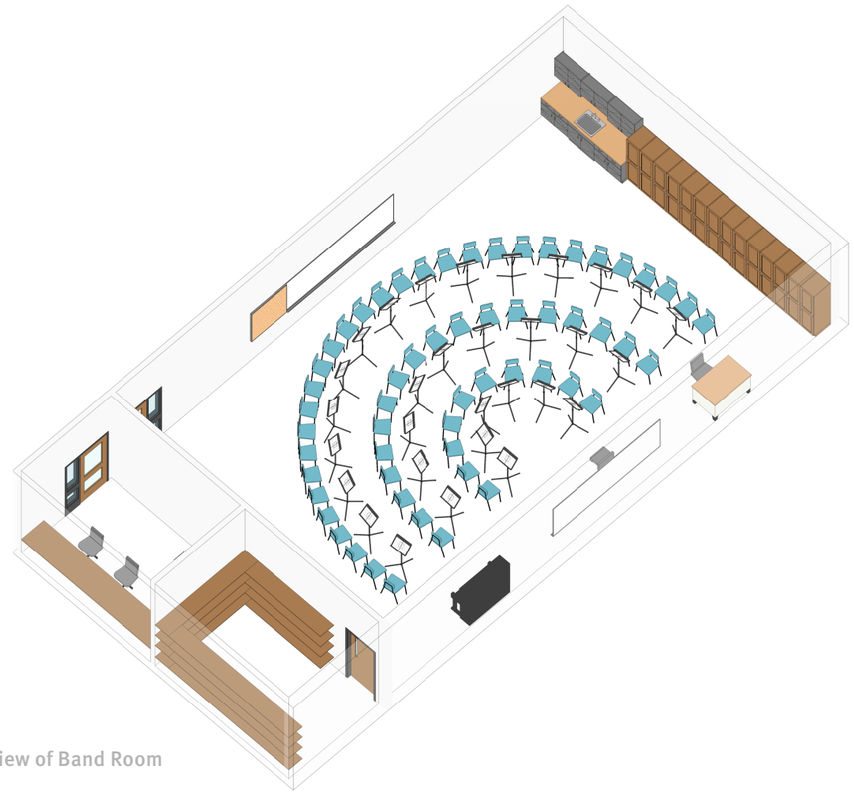
3D View of Music Room



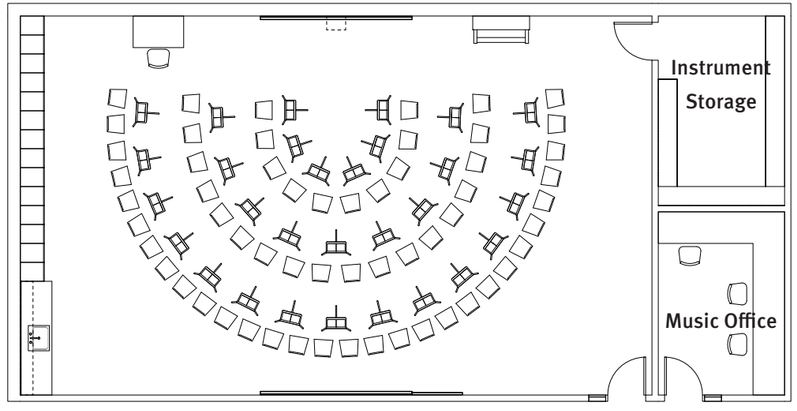
Music Room Floor Plan

CSUS: MUSIC ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate near Band Room and Music Practice rooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Keyboard outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Specialty sound-absorptive ceiling tiles and fabric wrapped wall panels
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB with increased STC rating
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames, acoustic assembly
   l. Casework: Base and wall cabinets (10 LF)
7. **Equipment**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 4'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 4'w)(x2)
   d. Choral Risers (x2)(by owner)
   e. Musical Instruments (by owner)
8. **Furniture**
   a. Student Chairs (x25)
   b. Music Stands (x13)
   c. Teacher Desk & Chair
   d. Easel
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Sound system



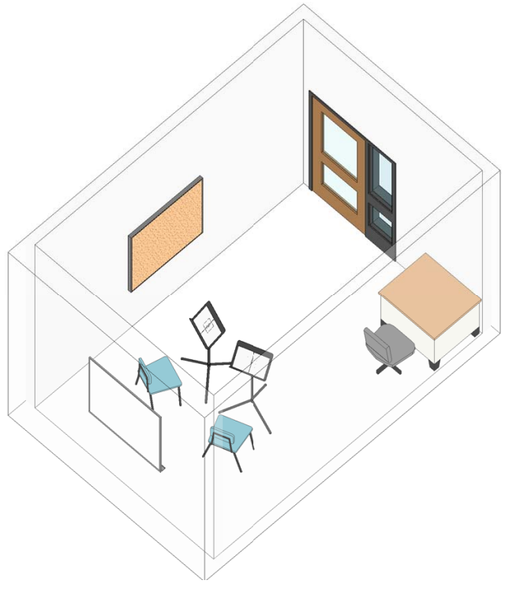
3D View of Band Room



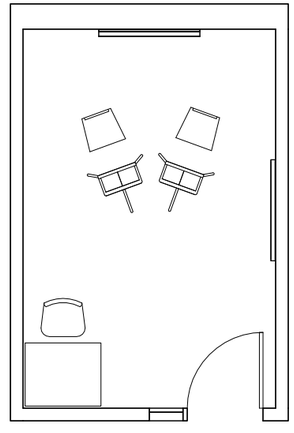
Band Room Floor Plan

CSUS: BAND ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 60 students
2. **Occupants:** 60 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate with Instrument Storage
   b. Locate near CSUS Music Room and Music Practice rooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Keyboard outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Specialty sound-absorptive ceiling tiles and fabric wrapped wall panels
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB with increased STC rating
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Base and wall cabinets (6 LF)
7. **Equipment**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 12'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 4'w)(x2)
   d. Instrument Storage Cabinets with Adjustable Shelves (20 LF)
   e. Musical Instruments (by owner)
8. **Furniture**
   a. Student Chairs (x60)
   b. Music Stands (x30)
   c. Teacher Desk & Chair
   d. Task Chairs (x3)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Sound System



3D View of Practice Room

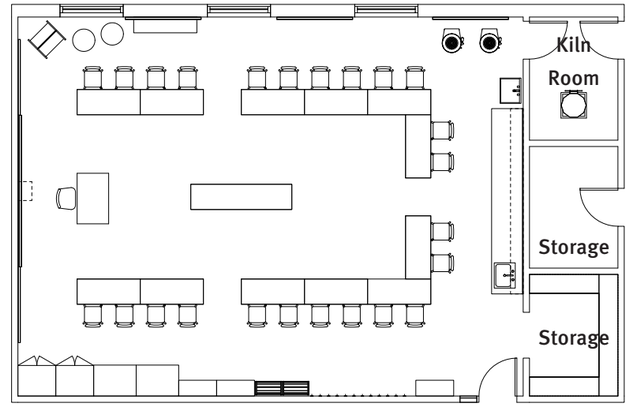


Practice Room Floor Plan

CSUS: MUSIC PRACTICE ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 2 students
2. **Occupants:** 2 students
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Locate near CSUS Music Room and Band Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Keyboard outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Specialty sound-absorptive ceiling tiles and fabric wrapped wall panels
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB with increased STC rating
   i. Flooring: Linoleum
   j. Doors: Wood with hollow metal frames, acoustic assembly
   k. Casework: Base and wall cabinets (10 LF)
7. **Equipment**
   a. Tackable Surface (4'h x 4'w)
   b. Whiteboard (4'h x 4'w)
8. **Furniture**
   a. Student Chairs (x2)
   b. Music Stands (x2)
   c. Teacher Desk & Chair
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Sound System

3D View of Art Room



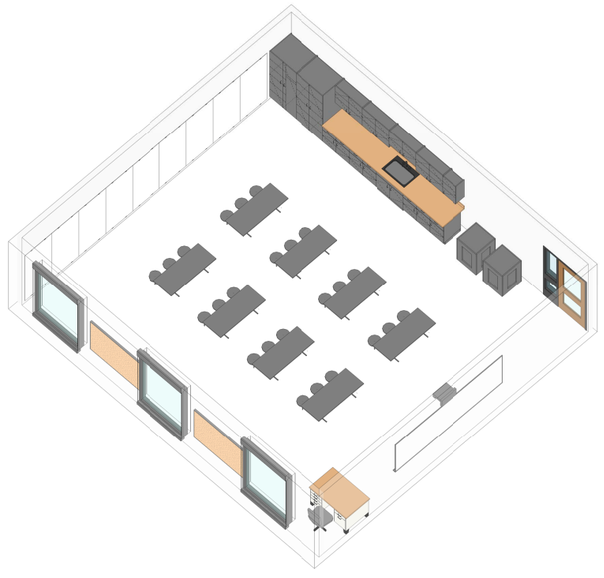
Art Room Floor Plan

CSUS: ART ROOM

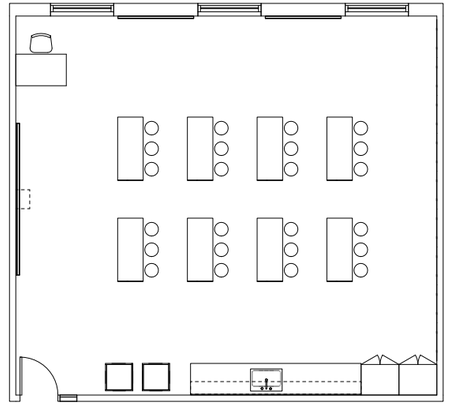
1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate with Art Storage Room and Kiln Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Additional ceiling drop-down outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain, slop sink with plaster trap
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (15 LF)
7. **Equipment**
   a. Smartboard (4'h x 12'w) low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w)(x5)
   c. Drying Rack (x2)(by owner)
   d. Pottery Wheel (x2)(by owner)
   e. Kiln
   f. Coathooks (x25)
   g. Blackout Shades
   h. Hanging Display/ Wire System
8. **Furniture**
   a. Student Chairs (x25)
   b. Bookcases (x4)
   c. Group Tables (x13)
   d. Soft Seating (x2)
   e. Teacher Desk & Chair
   f. Easel
   g. Flat Files (x2)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)

CSUS: DRAMA ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate near Auditorium
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Sprung wood floor with Masonite finish
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinet, base and wall cabinets (6 LF
7. **Equipment**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 6'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 6'w) (x2)
   d. Mirrors (7'h x 3'w)(x10)
   e. Stage Curtains (30 LF)
8. **Furniture**
   a. Student Chairs (x25)
   b. Teacher Desk & Chair
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Sound system



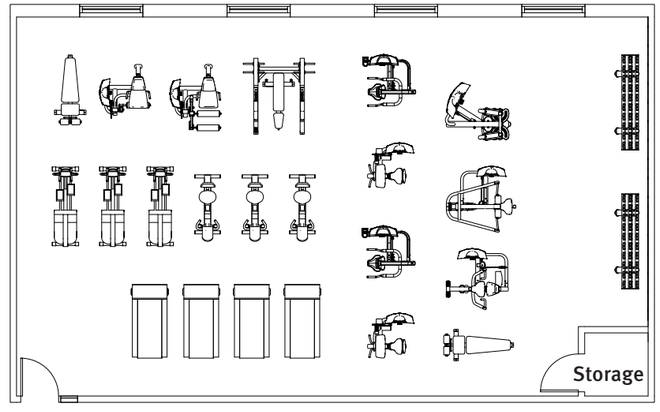
3D View of Health Room



Health Room Floor Plan

CSUS: HEALTH ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate adjacent to gymnasium or have short travel distance to gymnasium
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Provide additional above counter outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (14 LF)
7. **Equipment**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w)(x2)
   c. Mirrors (7'h x 3'w)(x10)
8. **Furniture**
   a. Teacher Desk & Chair
   b. Folding Tables (x8)
   c. Student Chairs (x25)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Document Camera (by owner)



Fitness Room Floor Plan

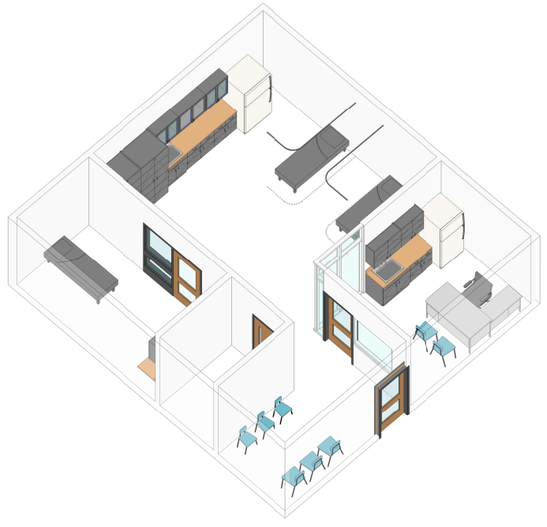
CSUS: FITNESS ROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 25 students
   b. Provide a variety of cardio machines and an open free-weight and stretching area
2. **Occupants:** 25 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate near CSUS Gymnasium
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Additional floor outlets for cardio machines
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Spray applied acoustic material on metal deck
   g. Ceiling: Exposed, painted structure
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Impact resistant rubber flooring
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Miscellaneous Cardio and Free-weight Equipment (by owner)
   b. Mirrors (7'h x 3'w)(x8)
8. **Furniture**
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Sound System
   c. Wall Phone (with PA & callback)

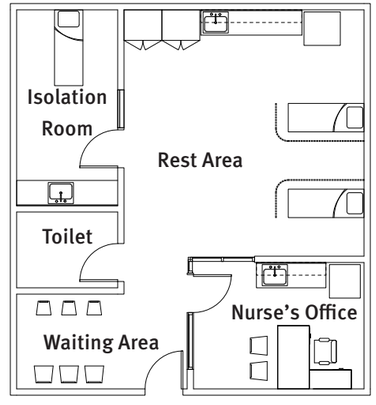
KO & CSUS SHARED SPACE SUMMARY

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA	STUDENTS PER ROOM
ART & MUSIC		**6**	**6,650**	
Auditorium	4,000	1	4,000	400
Stage	1,600	1	1,600	
Auditorium Storage	250	1	250	
Make-up / Dressing Rooms	300	2	600	
Controls / Lighting / Projection	200	1	200	
HEALTH & PHYSICAL EDUCATION		**7**	**15,500**	
CSUS Gymnasium	7,200	1	7,200	50
KO Gymnasium	5,000	1	5,000	50
Fitness/Weight Room	1,000	1	1,000	25
Gym Storeroom	800	1	800	
PE Instructor's Office w/ Shower & Toilet	300	1	300	
Locker Rooms - Boys / Girls w/ Toilets	600	2	1,200	
LEARNING COMMONS		**4**	**6,300**	
Computer Media Area	900	1	900	25
Sound Recording Room	150	1	150	4
Library (reading, stacks, small group rooms, info/help desk, staff workroom)	5,000	1	5,000	50
Technology Workroom/Office	250	1	250	
DINING & FOOD SERVICE		**3**	**6,950**	
Cafeteria / Dining	4,500	1	4,500	300
Kitchen / Servery	2,000	1	2,000	
Chair / Table / Equipment Storage	450	1	450	
MEDICAL		**6**	**610**	
Medical Suite Toilet	60	1	60	
Nurses' Office	150	1	150	
Waiting Room	100	1	100	4
Examination Room / Resting	100	3	300	3
CUSTODIAL & MAINTENANCE		**6**	**1,900**	
Custodian's Office	150	1	150	
Custodian's Workshop	300	1	300	
Custodian's Storage	300	1	300	
Storeroom	450	1	450	
Recycling Room / Trash	400	1	400	
Receiving and General Supply	300	1	300	

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA	STUDENTS PER ROOM
OTHER		**1**	**4,200**	
Lobby	2,000	1	2,000	
Multi-Purpose Room w/ storage (200 ppl)	2,200	1	2,200	
Total Net Floor Area (NFA)			**42,110**	



3D View of Nurse's Suite



Nurse's Suite Floor Plan

SHARED SCHOOL SPACES: NURSE'S SUITE

1. **Design Intent/ Use of Space**
   a. Nurse's suite operated by Cambridge Health Alliance
2. **Occupants:** 3 students in treatment area
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate on ground floor with proximity to King Open and CSUS main offices
   b. Locate with proximity to gyms and recess areas if possible
   c. Need an exterior door in close proximity
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Additional outlets in Rest Area
   b. Lighting: LED lighting with daylight sensor. Allow for zoned dimming at rest area
   c. HVAC: Central
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sinks (x3, one with drinking fountain), student toilet room
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB, view window from Nurse's Office to Waiting Area
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (22 LF)
7. **Equipment**
   a. Refrigerators (x2), lockable with alarms and on emergency power
   b. Cubicle Curtain and Track (x2)
8. **Furniture**
   a. Adult Chairs (x2)
   b. Student Chairs (x6)
   c. Recovery Cots (x3)
   d. Nurse Chair & Desk
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)
   d. Fax Machine (by owner)
   e. Dedicated Data Line from Cambridge Health Alliance

SHARED SCHOOL SPACES: AUDITORIUM

1. **Design Intent/ Use of Space**
   a. For assemblies of 400
   b. Performances, lectures, assemblies and community functions
2. **Occupants:** 400 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate Projection/Control Room within Auditorium, out of sight-lines
   b. Proximity to Music and Drama classrooms preferable
   c. Public/student bathrooms
   d. Lobby
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting, dimmable houselights, placement of lighting such that bulbs can easily be changed
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling panels
   h. Walls/ Partitions: Painted GWB, wood veneer, and fabric wrapped acoustic panels
   i. Flooring: Carpet
   j. Doors: Wood with hollow metal frames
7. **Equipment and Furniture**
   a. Projection Room
      i. Equipment: Projector and computer system (by owner), sound/AV Board (by owner), mobile sound and light control boards (by owner), computer inputs for audio visual presentations
      ii. Furniture: Stackable Chairs (x3)
   b. Auditorium
      i. Equipment: Robotic camera systems (by owner), networked cameras (by owner), mobile sound and light control in center, computer inputs for audio visual presentations
      ii. Furniture: Fixed seating (x400)
8. **Educational Technology Requirements**
   a. Wall clock on central system
   b. Assistive listening system
   c. Wall phone (with PA & callback)
   d. Mobile devices (by owner)

SHARED SCHOOL SPACES: AUDITORIUM STAGE

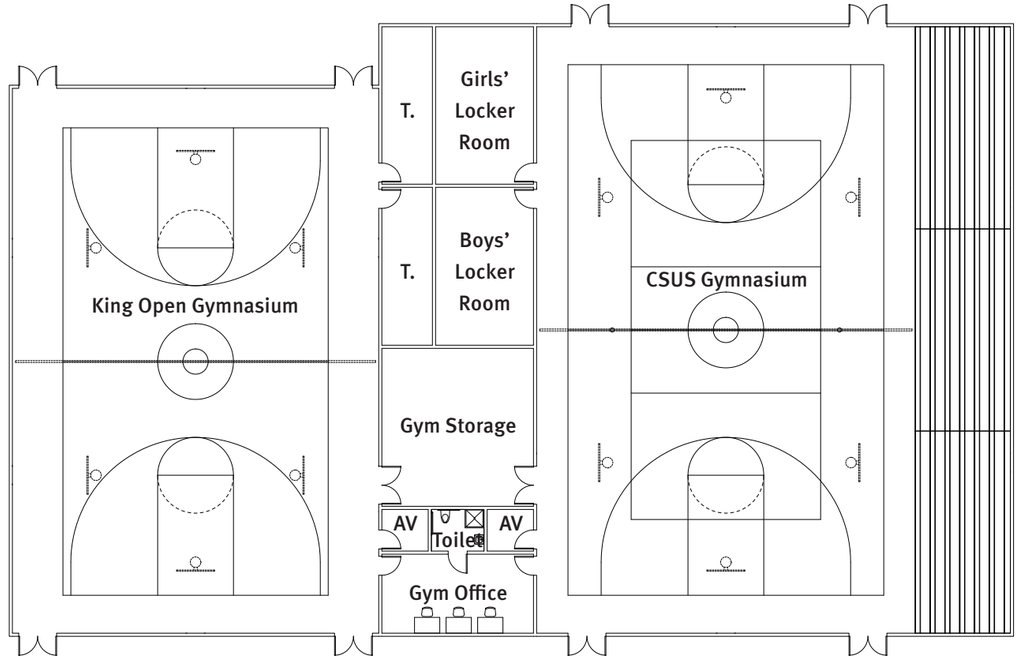
1. **Design Intent/ Use of Space**
   a. Performances, lectures, assemblies and community functions
2. **Occupants:** NA
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Loading Area
   b. Scene and Prop Storage
   c. Dressing rooms
   d. Drama Room
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: Stage lighting and apron lighting
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Hung acoustic performance shell
   g. Ceiling: Exposed
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Wood, with seating tiers at apron
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Fire Retardant Stage Curtains
   b. Fire Curtain
   c. Scrim for Projection Use
   d. Stage Lighting with Console, Dimmer and Racks
   e. Manual Rigging System
8. **Furniture**
   a. Podium/Lectern
   b. Stackable Chairs (x70)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Projection Screen

SHARED SCHOOL SPACES: CAFETERIA DINING AREA

1. **Design Intent/ Use of Space**
   a. Open and transparent dining space with visual connections to interior corridors and exterior courtyards
   b. Dining Area supports CPS food service mission to create an inviting and comfortable dining environment
   c. Design should highlight nutrition and environment
2. **Occupants:** 300 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Servery/ Kitchen
   b. CitySprouts Garden (should be visible and directly accessible from Dining Area)
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles and fabric wrapped wall panels
   i. Walls/ Partitions: Painted GWB and porcelain tile
   j. Flooring: Epoxy terrazzo
   k. Doors: Wood with hollow metal frames
   l. Casework: Trash and recycling center, built-in seating counters (80 LF), built-in booth seating (10 booths)
7. **Equipment**
   a. Whiteboard (4'h x 8'w) in addition to smartboard surface
   b. Tackable Surface (4'h x 8'w) (x2)
8. **Furniture**
   a. Tables and chairs for 300 students, appropriate for K-5 and Grades 6-8 age groups
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Sound System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Projector and Projection Screen

SHARED SCHOOL SPACES: CAFETERIA SERVERY/ KITCHEN

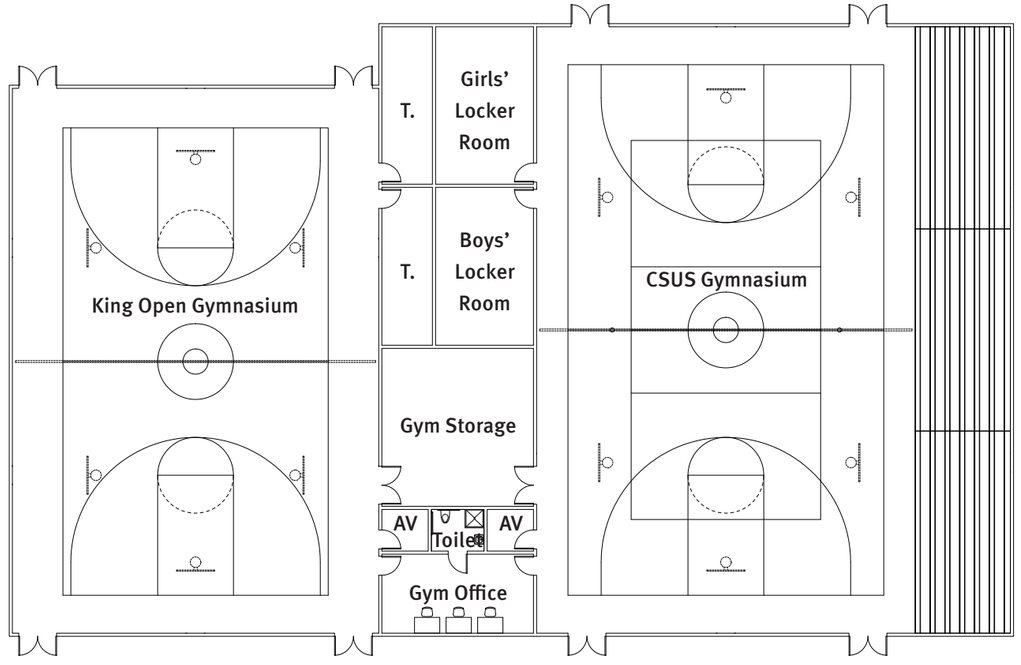
1. **Design Intent/ Use of Space**
   a. High efficiency energy performance is important for equipment
   b. Servery should highlight nutritious offerings
   c. Designated areas for prep, dry storage, ware washing, refrigerator, freezer (walk-in) and recycling/composting
   d. Campus will make its own food (80% scratch/ 20% pre-cooked)
   e. Food services would like to have a blast chiller for district-wide service
2. **Occupants:** Kitchen staff and two cashiers
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Loading Area
   b. Dining Area
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling, kitchen exhaust systems
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Two-compartment food prep sink, hand wash sinks, three-compartment sink, custodial sink
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles (washable)
   i. Walls/ Partitions: Painted GWB and FRP panels
   j. Flooring: Epoxy
   k. Doors: Hollow metal frames and doors
7. **Equipment**
   a. Use district standards for paper towel dispenser, soap dispenser, and waste/recycling/composting receptacles
   b. Refer to Kitchen and Servery narrative for detailed information
   c. Staff Lockers
8. **Furniture**
   a. Desk and Task Chair in Office
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Point of Sale Computer Connections



Gymnasium Floor Plan

SHARED SCHOOL SPACES: KING OPEN GYMNASIUM

1. **Design Intent/ Use of Space**
   a. For two classes with a combined total of 50 students, one class on each half of the gymnasium
   b. For all-school assemblies, after-hours use by the school and outside groups, and After School Program use
2. **Occupants:** 50 students (2 classes), 700 students (assemblies)
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate near Gym Office and Gym Storage
   b. Locate on ground floor
   c. Locate near Donnelly Field
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Centralized heating and cooling, dedicated zone
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Drinking fountain, attached student toilet room
   f. Security: Normal
   g. Acoustics: Sound-absorptive wall panels and acoustic concrete masonry units
   h. Ceiling: Exposed acoustical metal deck
   i. Walls/ Partitions: Ground face block, wall pads
   j. Flooring: Wood athletic floor. Linoleum in Gym Office
   k. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Gym Divider Curtain
   b. Basketball Hoops (x6), retractable and with adjustable height
   c. Volleyball Sleeves, Nets and Poles
   d. Shot Clocks and Scoreboard
   e. Project Adventure Equipment (by owner)
8. **Furniture**
   a. Desk and Task Chair (x3) in Gym Office
   b. Lateral Files (x2) in Gym Office
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Sound System, with the ability to deliver different content for each half of the gym
   c. Wall Phone (with PA & callback)
   d. Projector and Projection Screen
   e. Mobile Devices (by owner)



Gymnasium Floor Plan

SHARED SCHOOL SPACES: CSUS GYMNASIUM

1. **Design Intent/ Use of Space**
   a. For two classes with a combined total of 50 students, one class on each half of the gymnasium
   b. For all-school assemblies, after-hours use by the school and outside groups, and After School Program use
2. **Occupants:** 50 students (2 classes), 1000 students (assemblies)
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate with locker rooms, A/V room, Gym Office and Gym Storage
   b. Locate on ground floor
   c. Locate near Donnelly Field
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Centralized heating and cooling, dedicated zone
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Drinking fountain, adjacent Locker Rooms to have toilet facilities but no showers
   f. Security: Normal
   g. Acoustics: Sound-absorptive wall panels and acoustic concrete masonry units
   h. Ceiling: Exposed acoustical metal deck
   i. Walls/ Partitions: Ground face block, wall pads
   j. Flooring: Wood athletic floor
   k. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Gym Divider Curtain
   b. Basketball Hoops (x6), retractable and with adjustable height
   c. Volleyball Sleeves, Nets and Poles
   d. Shot Clocks and Scoreboard
   e. Project Adventure Equipment (by owner)
   f. Retractable Bleachers, Power Operated
8. **Furniture:** NA
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Sound System, with the ability to deliver different content for each half of the gym
   c. Wall Phone (with PA & callback)
   d. Projector and Projection Screen
   e. Mobile Devices (by owner)

SHARED SCHOOL SPACES: LEARNING COMMONS BOOK STACKS AND READING ROOM

1. **Design Intent/ Use of Space**
   a. Display book collection throughout the space
   b. Provide quiet reading areas and group tables
   c. Accommodate KO and CSUS students in separate reading areas
   d. One area for stacks so students can access books for their reading level from either reading area
   e. Display area for art, STEM and media projects
2. **Occupants:** 1 staff, 50 students
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Information Desk, Small Group rooms, Media Area, IT Workroom, and Recording Room
   b. Centrally located for ease of access from both schools
6. **Technical Criteria**
   a. Power: Convenience outlets per code. Floor outlets in reading areas
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Carpet
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Tackable Surfaces (4'h x 6'w)(x4)
   b. Display Cases
8. **Furniture**
   a. Variety of Tables and Chairs, for small and large groups and individual work
   b. Soft Seating
   c. Bookcases/ Shelving
   d. Display Shelves
   e. Podium for Lectures/ Visiting Authors
   f. Group-time Rug
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)
   d. Computer for Staff and Parents (by owner)
   e. Projector and Projection Screen

SHARED SCHOOL SPACES: LEARNING COMMONS COMPUTER MEDIA AREA & SOUND RECORDING ROOM

1. **Design Intent/ Use of Space**
   a. Area used by students for research, editing media, and using design software
   b. Green screen wall for creating video projects
   c. Audio booth for up to 4 students
2. **Occupants:** 1 staff, 25 students (computer media area), 4 students (sound recording room)
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Within sight lines of information desk
6. **Technical Criteria**
   a. Power: Convenience outlets per code, floor outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Carpet
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Whiteboards (4'h x 6'w)(x4)
   b. Tackboard (4'h x 6'w)
8. **Furniture**
   a. Variety of Tables, for groups and individual work
   b. Shelving
   c. Student Chairs (x29)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Mobile Flat Screen TV (by owner)
   f. Audio Booth Equipment (by owner)
   g. Document Camera (by owner)
   h. Computers (by owner)
   i. Cameras (by owner)
   j. Video Equipment (by owner)
   k. Microphones (by owner)

SHARED SCHOOL SPACES: LEARNING COMMONS SMALL GROUP ROOMS

1. **Design Intent/ Use of Space**
   a. Small group work
2. **Occupants:** 4 students per room
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Within sight lines of information desk
6. **Technical Criteria**
   a. Power: Convenience outlets per code, floor outlets
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Normal
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspend acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Linoleum
   j. Doors: Wood with hollow metal frames
7. **Equipment**
   a. Smartboard (4'h x 6'w)
   b. Whiteboard (4'h x 6'w)
   c. Tackable Surface (4'h x 6'w)
8. **Furniture**
   a. Group Table and Chairs (x4, sized between rooms to accommodate KO and CSUS students)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)

SHARED SCHOOL SPACES: LEARNING COMMONS INFORMATION DESK & STAFF WORKROOM

1. **Design Intent/ Use of Space**
   a. Information Desk is central hub of the KO and CSUS Learning Commons
   b. Workroom for staff/faculty
   c. Secure storage for field equipment (electronic devices)
   d. Student Help Desk
2. **Occupants:** 1 staff, up to 3 students at Information Desk
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Centrally located within Learning Commons with visibility to all areas
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink in Staff Workroom
   f. Security: Normal, secure cabinets for equipment
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum in workroom. Carpet at Information Desk
   k. Doors: Wood with hollow metal frames
7. **Casework, Equipment and Furniture**
   a. Information Desk
      i. Casework: Desk (20 LF)
      ii. Equipment: Book carts, desk phone (with PA & callback), mobile devices (by owner), desktop computer (by owner)
      iii. Furniture: Task chair (x4)
   b. Workroom
      i. Casework: Counter and wall cabinets (15 LF)
      ii. Equipment: Tackboard (4'h x 6'w), floor printer/copier (by owner), laminator (by owner), wall clock on central system, wall phone (with PA & callback), mobile devices (by owner)
      iii. Furniture: Task chair (x2), large table, lateral file

SHARED SCHOOL SPACES: LEARNING COMMONS IT WORKROOM

1. **Design Intent/ Use of Space**
   a. IT staff area for the building
   b. Repair electronic computing equipment
2. **Occupants:** 1 staff
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Information Desk
   b. Convenient to telecomm rooms
6. **Technical Criteria**
   a. Power: Plug strips along counters
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Security: Secured room with camera
   f. Acoustics: Sound-absorptive ceiling tiles
   g. Ceiling: Suspended acoustic ceiling tiles
   h. Walls/ Partitions: Painted GWB
   i. Flooring: Linoleum
   j. Doors: Wood with hollow metal frames
   k. Casework: Tall storage cabinets (x2), counters and wall cabinets (15 LF)
7. **Equipment:** NA
8. **Furniture**
   a. Bookshelf
   b. Filing Cabinet (x3)
   c. Chairs (x6)
   d. Small Group Table - Round
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)

SHARED SCHOOL SPACES: MULTIPURPOSE ROOM

1. **Design Intent/ Use of Space**
   a. For groups of up to 200 people
   b. For use by CPS for district meetings and training
   c. For use by King Open and CSUS staff and students
   d. For potential use by community groups
2. **Occupants:** 200
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Centrally located for ease of access from both schools and for public/ Cambridge Public School use
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB and fabric wrapped acoustic panels
   j. Flooring: Carpet
   k. Doors: Wood with hollow metal frames
   l. Casework: Base and wall cabinets (10 LF)
7. **Equipment**
   a. Whiteboard (4'h x 6'w) (x3)
   b. Tackable Surface (4'h x 6'w) (x1)
8. **Furniture**
   a. Chairs for 200 students, appropriate for K-5 and Grades 6-8 age groups
   b. Tables for 100 students
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Projector and Projection Screen

COMMON SCHOOL SPACES: TEACHER WORKROOM

1. **Design Intent/ Use of Space**
   a. For staff to meet as a grade
   b. Staff lunch room, central copy area and kitchenette
2. **Occupants:** 6 staff
3. **Size:** See program summary table
4. **Quantity:** 8
5. **Adjacencies**
   a. Locate one workroom per floor for each school in a location central to classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (6 LF)
7. **Equipment and Furniture**
   a. Whiteboard (4'h x 4'w)
   b. Tackable Surface (4'h x 4'w)
   c. Microwave
   d. Refrigerator
   e. Laminator (by owner)
8. **Furniture**
   a. Group Table – Round (x2)
   b. Chairs (x6)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner

COMMON SCHOOL SPACES: HALLWAYS

1. **Design Intent/ Use of Space:** NA
2. **Occupants:** NA
3. **Size:** NA
4. **Quantity:** NA
5. **Adjacencies:** NA
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Drinking fountains
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB and porcelain tile at 7'-0"
   j. Flooring: Epoxy terrazzo
   k. Doors: Wood with hollow metal frames. Magnetic hold opens at cross hall and enclosed stairwell doors. No vertical rods
   l. Casework: Counter and base cabinets for paper storage (6 LF)
   m. Lockers: Painted metal
7. **Equipment and Furniture**
   a. Lockers in CSUS Hallways only
   b. Printers or alcoves
   c. Display Cases
   d. Enclosed Tackboard/ Tackable surfaces
8. **Furniture:** NA
9. **Educational Technology Requirements:** NA

COMMON SCHOOL SPACES: TOILET ROOMS

1. **Design Intent/ Use of Space**
   a. Student or staff single and multi-user toilet rooms
2. **Occupants:** Varies
3. **Size:** Varies
4. **Quantity:** Varies
5. **Adjacencies:** NA
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with occupancy sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Floor drain, lavatory, water closet and/ or urinal. Refer to Plumbing Narrative
   f. Security: Normal
   g. Acoustics:
   h. Ceiling: Painted GWB
   i. Walls/ Partitions: Painted GWB and full-height porcelain tile (at wet walls
   j. Flooring: Epoxy
   k. Doors: Wood with hollow metal frames. Key lock from corridor side
   l. Casework: none
   m. Toilet Partitions: High-density polyethylene
7. **Equipment and Furniture**
   a. District Standard Toilet Accessories (by owner)
   b. High Efficiency Hand Dryers
   c. Baby Changing Stations in Public Toilet Rooms
8. **Furniture:** NA
9. **Educational Technology Requirements:** NA

COMMON SCHOOL SPACES: CUSTODIAL AREA

1. **Design Intent/ Use of Space**
   a. Main custodial area for the schools and after school functions. Pool and branch library's custodial area separate
2. **Occupants:** Varies
3. **Size:** Varies
4. **Quantity:** 1
5. **Adjacencies:** NA
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with occupancy sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Floor drain and sink at Custodian Supply Room, barrel wash station
   f. Security: Normal
   g. Acoustics:
   h. Ceiling: Exposed structure
   i. Walls/ Partitions: Painted GWB and FRP panels
   j. Flooring: Epoxy
   k. Doors: Hollow metal frames and doors. Rolling overhead door at loading
7. **Equipment and Furniture**
   a. Trash Bins
   b. Dumpster (exterior)
   c. Recycling Totes
   d. Compost Bin (exterior)
   e. Snow Removal Equipment
   f. Main Custodial Paper and Cleaning Supplies
8. **Furniture:** NA
9. **Educational Technology Requirements:** NA

COMMON SCHOOL SPACES: JANITOR'S CLOSET

1. **Design Intent/ Use of Space:** NA
2. **Occupants:** NA
3. **Size:** Varies
4. **Quantity:** Varies
5. **Adjacencies:** NA
6. **Technical Criteria**
   a. Power: Convenience outlets per code, charging outlets for floor cleaners
   b. Lighting: LED lighting with occupancy sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Floor drain and mop sink with chemical station. Refer to Plumbing Narrative.
   f. Security: Normal
   g. Ceiling: Exposed structure
   h. Walls/ Partitions: Painted GWB and FRP panels at 4'-0" height
   i. Flooring: Epoxy
   j. Doors: Wood with hollow metal frames
7. **Equipment and Furniture**
   a. Utility Rack and Shelf
8. **Furniture:** NA
9. **Educational Technology Requirements:** NA



4.4 HUMAN SERVICE YOUTH PROGRAMS

PRESCHOOL

MISSION

The Human Services Preschool program strives to provide children 2.9 years to 5 years old and their families a quality, nurturing and educational preschool experience that fosters positive child-parent-teacher relationships and supports children's healthy growth and development.

VISION FOR THE NEW BUILDING

Through the user group meetings with the Preschool Program, refer to chapter 1.1 for more information, the architects were able to develop the vision and priorities for the new building. The following elements will be incorprated into the design. There is a demand for more preschool enrollment within the city so a second classroom will be included in the new building. The classrooms should be designed to foster the nurturing environment that is key to the mission. The program is centered around seven domains of learning and exploration. The space and furniture should be flexible to allow for change throughout the year as well as over the years.

Preschool operates throughout the year including snow days and school vacations. The preschool should have its own entrance and identity on the site but also have a secure connection to the school. Sometimes there is collaboration with the schools or Valente Library.

It is desired for the preschool outdoor play areas to be located close to the classrooms as students use them throughout the day. The play area should be seprated from older children.

KING OPEN EXTENDED DAY AND COMMUNITY SCHOOL

MISSION

The afterschool program is completely integrated into the King Open School to support children's social and academic learning by providing a holistic school experience from the moment they enter the King Open building to the time that they are picked up from afterschool. Children engage in developmentally appropriate project-based learning curriculum, both individually and in groups. Extended Day values social learning equally with academic learning. The program develops a menu of activities and learning experiences that encourage children to explore the world around them and develop their interests and talents.

VISION FOR THE NEW BUILDING

The King Open Extended Day (KOED) and Community School programs operate during after school hours including until early evening when school is in session as well as during snow days, school vacations and summer camps. It is essential that the programs have their own entrance separate from the other programs on site so that there can be secure access when it is in operation. The KOED space should be located within the building in a way that it can be secured from the King Open area but within proximity so that it is convenient to access the classrooms that are shared between KO and KOED.

While it is essential to be able to have a dedicated space within the building, it is also important to be able to have a presence so that King Open students and the community can learn about the programs and see projects on display. It would be good to have vision glass into the classrooms so learning can be seen.

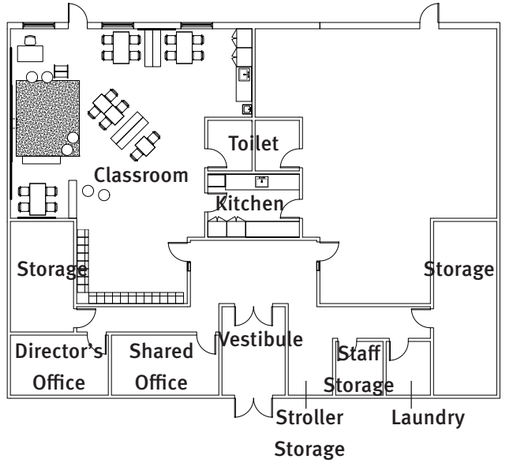
The KOED is a very active after school program in the city and can accommodate up to 140 students. It is neccessary to have some classrooms that are not shared with King Open so that they can properly and efficiently setup activities and lessons allowing for more of the after school time to be utilized. Most activities involve short and long term project-based learning. Storage area is necessary for suplies and the the projects themsleves.

The community school should be located with the KOED program so that it can be secured from the school, however, it should have controled access to the auditorium, gymnasiums and fitness room.

HUMAN SERVICE PROGRAMS SPACE SUMMARY

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA	STUDENTS PER ROOM
PRESCHOOL			**3,245**	
Classrooms	1,000	2	2,000	20
Student Toilet Rooms	65	2	130	
Kitchen/Pantry	150	1	150	
Cubby Area	125	2	250	
Director Office	100	1	100	
Shared Office	150	1	150	
Meeting Room	100	1	100	
Staff Toilet Room	65	1	65	
Stroller Storage	50	1	50	
General Storage	200	1	200	
Laundry	50	1	50	
AFTER SCHOOL INSTRUCTIONAL SPACE			**5,050**	
Extended Day Classroom	900	4	3,600	25
Community School Classroom	900	2	1,800	25
Kitchen	100	1	100	
KOED/CS Storage	100	2	200	
CSUS After School Storage	200	1	200	
Laptop Cart Storage	50	1	50	
AFTER SCHOOL ADMINISTRATION SPACE			**850**	
Community School Office (2 people)	200	1	200	
Extended Day Office (2 people)	200	1	200	
ED/Comm Sch Shared Workroom/Lockers	300	1	300	
Total Net Floor Area (NFA)			**10,545**	
Preschool Student Capacity			**40**	
After School Program Student Capacity			**120**	

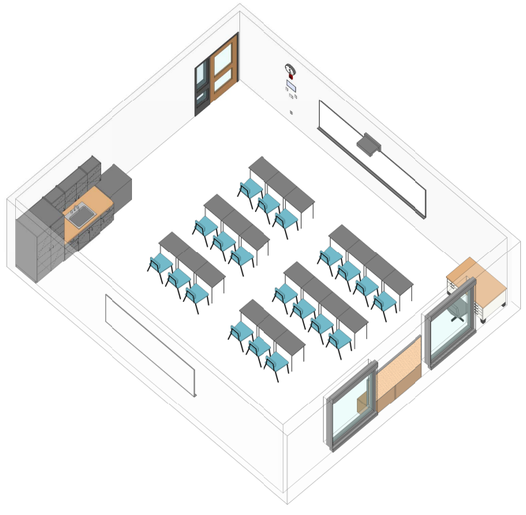
3D View of Classroom



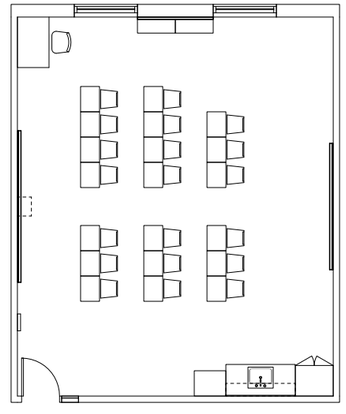
Classroom Floor Plan

HUMAN SERVICES: PRESCHOOL CLASSROOM

1. **Design Intent/ Use of Space**
   a. For a class of up to 20 students
   b. Provide a diversity of activity centers for children to engage based on the "7 Domains"
   c. Considerations for quiet time
   d. Provide separate entrance from KO and CSUS
   e. Includes student toilets, Kitchen/Pantry, Director's Office, Shared Office, Staff Bathroom, Stroller Storage, General Storage and Laundry
2. **Occupants:** 20 students
3. **Size:** See program summary table
4. **Quantity:** 2
5. **Adjacencies**
   a. Locate on ground floor
   b. Needs indoor access to Valente Library
   c. Access to dedicated exterior play area
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain, student hand sink, student toilet room, staff toilet room
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB, solid surface wainscoting up to 3'-0" AFF
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames, Dutch door into the kitchen
   l. Casework: Tall storage cabinets (x4), base and wall cabinets (6 LF) in Classroom; tall storage cabinets (x2), base and wall cabinets (25 LF) in Kitchen, cubbies (x20 – 48"h x 36"w x 24"d)
7. **Equipment and Furniture**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Tackable Surface (4'h x 6'w) (x4)
   c. Clothes Washer and Dryer
   d. Stove, Refrigerators (x2), Microwave and Dishwasher in Kitchen
8. **Furniture**
   a. Student Chairs (x20)
   b. Bookcases (x5)
   c. Group Tables (x6)
   d. Teacher Desk & Chair
   e. Group-time Rug
   f. Easel
   g. Soft Seating (x6)
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Laptop Charging Cart (by owner)



3D View of Classroom



Classroom Floor Plan

HUMAN SERVICES: KING OPEN EXTENDED DAY AND COMMUNITY SCHOOL CLASSROOMS

1. **Design Intent/ Use of Space**
   a. For a class of up to 20 students
   b. Used by King Open Extended Day and Community School programs
   c. Additional classroom space is shared with King Open classrooms
2. **Occupants:** 20 students
3. **Size:** See program summary table
4. **Quantity:** 6
5. **Adjacencies**
   a. Locate near King Open Kindergarten area
   b. Locate with potential to secure area from the rest of the building
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain – provide plaster traps in one community school classroom
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Casework: Tall storage cabinets (x2), base and wall cabinets (6 LF)
7. **Equipment and Furniture**
   a. Smartboard (4'h x 12'w) – low reflectivity whiteboard with wall mounted ultra short throw projector
   b. Whiteboard (4'h x 10'w) in addition to smartboard surface
   c. Tackable Surface (4'h x 6'w)
8. **Furniture**
   a. Student Chairs (x20)
   b. Bookcases (x2)
   c. Student Desks (x20)
   d. Teacher Desk & Chair
9. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Assistive Listening System
   c. Wall Phone (with PA & callback)
   d. Mobile Devices (by owner)
   e. Laptop Charging Cart (by owner)

HUMAN SERVICES: KING OPEN EXTENDED DAY AND COMMUNITY SCHOOL ADMINISTRATION

1. **Design Intent/ Use of Space**
   a. Used by King Open Extended Day and Community School programs
   b. High efficiency energy performance is important for kitchenette equipment
2. **Occupants:** Varies
3. **Size:** See program summary table
4. **Quantity:** 1
5. **Adjacencies**
   a. Locate near King Open Extended Day and Community School Classrooms
6. **Technical Criteria**
   a. Power: Convenience outlets per code
   b. Lighting: LED lighting with daylight sensor
   c. HVAC: Central heating and cooling
   d. Fire Protection: Sprinklered per code
   e. Plumbing: Sink with drinking fountain in kitchen – provide plaster trap
   f. Security: Normal
   g. Acoustics: Sound-absorptive ceiling tiles
   h. Ceiling: Suspended acoustic ceiling tiles
   i. Walls/ Partitions: Painted GWB
   j. Flooring: Linoleum
   k. Doors: Wood with hollow metal frames
   l. Lockers: Painted metal
7. **Casework, Equipment and Furniture**
   a. Workroom and Offices
      i. Casework: Tall storage cabinets (x4), base and wall cabinets (10 LF), work counter (10 LF)
      ii. Equipment: Lockers (x12), whiteboard (4'h x 8'w), tackable surface (4'h x 4'w)
      iii. Furniture: Desks (x4), task chairs (x12), lateral files (x4)
   b. Kitchenette
      i. Casework: Tall storage cabinets (x2), base and wall cabinets (10 LF)
      ii. Equipment: Refrigerator (x2), freezer, dishwasher, stove, microwave
8. **Educational Technology Requirements**
   a. Wall Clock on Central System
   b. Wall Phone (with PA & callback)
   c. Mobile Devices (by owner)

4.5 VALENTE BRANCH LIBRARY

MISSION

The Cambridge Public Library serves as a doorway to opportunity, self-development and recreation for all its residents, and as a forum where they may share ideas, cultures and resources among themselves and with people around the globe. The free availability of information, the lively interaction of people, and the open exchange of ideas animate and extend the democratic mission of the library. The library is a dynamic, community-oriented system providing excellent services, collections and programs to all members of the community. It is dedicated to affording the people of Cambridge resources for recreational reading, independent learning, and the introduction of children to the world of literacy and learning.

The Valente Branch Library celebrates the diverse community which it serves. The library provides services such as computer training, job training, seasonal events such as Easter egg hunt and pumpkin carving, toddler sing-a-longs and story time, English language learning and homework space. In addition to serving the community, the library is available for use by the adjacent preschool, King Open and Cambridge Street Upper School classes. Classes go to the library to utilize the collections including the Portuguese language collection.

In addition to the assortment of English Language materials, the Library is the proud home of the Manuel Rogers, Sr. Center for Portuguese Culture (The Rogers Collection). It is a collection of Portuguese language books, DVDs, and CDs that serves the needs of the Portuguese

VALENTE BRANCH LIBRARY SPACE SUMMARY

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA
ENTRY / CONTROL / CIRCULATION			**1,638**
Traffic dispersal	200	1	200
Customer service desk	375	1	375
Self-Serve center	273	1	273
Staff workroom	435	1	435
Staff conference room	100	1	100
Staff break room	155	1	155
Exterior after hours return room	100	1	100
ADULT			**2,171**
New materials	430	1	430
Technology	408	1	408
Fiction	303	1	303
Nonfiction	440	1	440
Portuguese collection	185	1	185
Nonprint	105	1	105
Quiet study/reading room	300	1	300
TEENS			**792**
Collections	537	1	537
Technology center	255	1	255
YOUTH			**2,148**
Preschool collection	722	1	722
Grade school collection	1,171	1	1,171
Technology center	255	1	255
Storytime area	see below	0	
MEETING / PROGRAMMING			**1,300**
Meeting/storytime room	1,200	1	1,200
Small group study/tutoring room	100	1	100
Total Net Floor Area (NFA)			**8,049**

speaking community including students at the King Open and Cambridge Street Upper schools.

VISION FOR THE NEW BUILDING

Through the user group meetings with the Cambridge Public Library administration and staff, refer to chapter 1.1 for more information, the vision and priorities for the new building were developed. The following elements will be incorporated into the design.

The new Valente Branch Library should allow for appropriate space for community based programs, such as training, story time and seasonal events, through the inclusion of a large meeting room. The adult collections will remain similar to the current capacities, however, the grade school and pre-teen/teen collections should be expanded to meet demands of the students from King Open and Cambridge Street Upper school and the neighborhood. The reading areas should incorporate a variety of seating types and the ability to use a mobile computing device at any area is essential. The seating areas should be designed to create an atmosphere for the clientele, teens, adults or children, that is using the area. The library will be moving to a predominantly self-checkout system and the information desk should be designed accordingly.

There should be an indoor connection from the Valente Branch Library and the schools and human services areas. The connection should allow for security between the spaces but be located in a way that is easy for teachers to arrange trips to the library.

A reading garden is essential to remain on site. If the garden is relocated to another area of the site, the artwork in the reading garden must be relocated with it.

MAIN LIBRARY SPACE:

ADULT COLLECTION AREA

1. **Technical Criteria**
   a. Wood Slatted Ceiling: Rulon or equivalent; maple veneer; 2” deep slats x 1” wide x 1.5” gap between slats. Batt insulation above to achieve acoustic absorption; Ceiling will be approximately 18’ high;
   b. Slate Flooring: assume 20% of area will have inset carpet;
   c. Walls/ Partitions: There will be significant glazing on exterior walls – interior walls will be ptd gwb with 60” high adjustable wood (maple) shelving – include 2” glass fiber fabric wrapped wall panels for 50% of the wall surface;
   d. Allow for an Arazawa museum hanging system along the top edge of perimeter walls and periodically in ceiling to allow for signage and posters and display hanging;
   e. 60” high shelving;
   f. Clerestory windows at interior walls where possible;
   g. FSR floor boxes with slate inlay into cover;
   h. Wireless internet and ample power and data outlets throughout. Along perimeter walls and in floor boxes.

YOUNG ADULT COLLECTION AREA (within same architectural space as Adult Collection)

1. **Technical Criteria**
   a. Wood Slatted Ceiling: Rulon or equivalent; maple veneer; 2” deep slats x 1” wide x 1.5” gap between slats. Batt insulation above to achieve acoustic absorption; Ceiling will be approximately 18’ high;
   b. Slate Flooring: assume 20% of area will have inset carpet;
   c. Walls/ Partitions: There will be significant glazing on exterior walls – interior walls will be ptd gwb with 72” high adjustable wood (maple) shelving – include 2” glass fiber fabric wrapped wall panels for 50% of the wall surface;
   d. Allow for an Arazawa museum hanging system along the top edge of perimeter walls and periodically in ceiling to allow for signage and posters and display hanging;
   e. 48” high shelving – on casters;
   f. Clerestory windows at interior walls where possible;
   g. FSR floor boxes with slate inlay into cover;
   h. Wireless internet and ample power and data outlets throughout. Along perimeter walls and in floor boxes.
   i. Design will include special features – graphics along walls, special furniture, or special technology to define a unique character for the Young Adults Area.

CHILDREN’S COLLECTION AREA (within same architectural space as Adult Collection)

1. **Technical Criteria**
   a. Wood Slatted Ceiling: Rulon or equivalent; maple veneer; 2” deep slats x 1” wide x 1.5” gap between slats. Batt insulation above to achieve acoustic absorption; Ceiling will be approximately 18’ high;
   b. Carpeted flooring within children’s area;
   c. Walls/ Partitions: There will be significant glazing on exterior walls – interior walls will be ptd gwb with 72” high adjustable wood (maple) shelving – include 2” glass fiber fabric wrapped wall panels for 50% of the wall surface;
   d. Allow for an Arazawa museum hanging system along the top edge of perimeter walls and periodically in ceiling to allow for signage and posters and display hanging;
   e. 48” high shelving – on casters;
   f. One permanent staff desk – modular furniture;
   g. FSR floor boxes with slate inlay into cover;
   h. Wireless internet and ample power and data outlets throughout. Along perimeter walls and in floor boxes.
   i. Design will include special graphics – along walls, hung from ceilings, or sculptural elements to define special character within the Children’s Area.

CIRCULATION DESK (within same architectural space as Adult Collection)

1. **Technical Criteria**
   a. Rubber flooring: Expanco Reztec or equal- design team will consider ways that the flooring system can be flexible to allow for changes to future desk configuration;
   b. Desk will be made modular and adjustable – or will be a pre-manufactured furniture system;
   c. Accommodation for Library purchased RFID system;
   d. Ample IT/ Data inputs – may be located in multiple floor boxes and then wired into furniture system;
   e. Power for charging laptops for loans;
   f. Self-checkout stations.

LOBBY (within same architectural space as Adult Collection but separated by glass)

1. **Technical Criteria**
   a. Wood Slatted Ceiling: Rulon or equivalent; maple veneer; 2” deep slats x 1” wide x 1.5” gap between slats. Batt insulation above to achieve acoustic absorption; Ceiling will be approximately 18’ high;
   b. Aluminum walk off mat;
   c. Allow space for display cases of community events;
   d. Accommodate existing memorial;
   e. Mullionless glazing system separating lobby from Main Library Space;
   f. Video message flatscreen/ media wall;
   g. RFID Theft detection system;
   h. Storage rack/ built in display for literature (pamphlets).

PROGRAM ROOM

1. **Technical Criteria**
   a. 12'x12' wood veneer barn door (gasketed) between Program Room and Children's Area; There will also be a 12'x12' glass wall with mullionless glazing to the side of the barn door;
   b. VCT floor;
   c. 15' long Corian Counter with sink; maple base and wall cabinets;
   d. Adjacent Storage Rm for furniture change-overs;
   e. ACT Ceiling;
   f. Access to Natural Light;
   g. Flexible Storage Units;
   h. Projector and Motorized screen;
   i. Marker board and cork bulletin boards;
   j. 2" thick fabric wrapped glass fiber wall panels on 25% of the wall surfaces;
   k. Ample power and data around perimeter of the room, with one floor box at a podium location.

QUIET STUDY ROOM

1. **Technical Criteria**
   a. Carpet;
   b. Painted GWB walls – with 2" fabric wrapped glass fiber panels on 50% of wall surface);
   c. Access to Natural Light;
   d. Glass partition between meeting room and public library space;
   e. ACT Ceiling;
   f. Ample power and data along walls;

SMALL MEETING ROOM

1. **Technical Criteria**
   a. Carpet;
   b. Painted GWB walls;
   c. Glass partition between meeting room and public library space;
   d. Acoustic tile ceiling;
   e. Wired for internet and phone.

STAFF MEETING ROOM

1. **Technical Criteria**
   a. Carpet;
   b. Painted GWB walls;
   c. Glass door and side light between interview room and other staff work areas (shades for privacy);
   d. Acoustic tile ceiling;
   e. Wired for internet and phone.

STAFF OFFICE AREA

1. **Technical Criteria**
   a. Carpet;
   b. Painted GWB walls;
   c. Acoustic tile ceiling;
   d. Wired for internet and phone;
   e. Access by card reader.

STAFF WORK ROOM AND BREAK ROOM

1. **Technical Criteria**
   a. VCT;
   b. Painted GWB walls;
   c. Acoustic tile ceiling;
   d. Kitchen: prep counter (corian), sink, full size refrigerator, microwave, maple base and wall cabinets – include oven, cooktop and dishwasher
   e. Wired for internet and phone;
   f. Access by card reader;
   g. Access to loading for deliveries – also controlled by card reader.

BOOKDROP ROOM

1. **Technical Criteria**
   a. VCT;
   b. Painted CMU walls;
   c. Acoustic tile ceiling;
   d. Fire Rated Separation from Building.

PUBLIC BATHROOMS

1. **Technical Criteria**
   a. Ceramic tile floor;
   b. Ceramic tile wainscot;
   c. Moisture-resistant GWB;
   d. GWB ceiling;
   e. Corian counter surfaces;
   f. Phenolic resin toilet partitions;
   g. Floor drains.

4.6 GOLD STAR POOL

MISSION

The Recreation Department provides quality, affordable and accessible recreational opportunities for residents of all ages in well-designed and maintained facilities. The Gold Star Pool is the only outdoor swimming facility operated by the City of Cambridge. The pool serves as an amenity to residents to for swimming lessons, summer camps, open swim time and a respite from the summer heat.

VISION FOR THE NEW BUILDING

Through the user group meetings with the Pool Program, refer to chapter 1.1 for more information, the architects were able to develop the vision and priorities for the new building. The redesign of the Gold Star Pool will allow the pool to be more integrated into the site with the schools, Donnelly Field and library. The pool should have a visual connection to the street but maintain a sense of oasis. It is important to allow for more residents to be able to take advantage of the pool during the hot summer months. To do this, there should be an expanded deck around the pool with provisions for shade, the main pool should remain similar to the existing pool in size and an additional young swimmers tot pool should be included. The city feels that there is a need for a longer swim season, especially for swim lessons, therefore, heated pool water should be provided to lengthen the swim season to 14 weeks. Refer to *Section 6.1* for other pool options studied.

GOLD STAR POOL SPACE SUMMARY

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA
LOBBY			**450**
Entry Vestibule	0	1	0
Lobby	300	1	300
Control Desk	150	1	150
Cash Control	100	0	0
LOCKER / DRESSING / TOILET			**1,070**
Men's Public Lockers/Dressing	5	50	250
Men's Public Toilets	20	2	40
Men's Public Urinals	10	2	20
Men's Public Lav	10	3	30
Men's Public Showers	15	3	45
Women's Public Lockers/Dressing	5	50	250
Women's Public Toilets	20	3	60
Women's Public Lav	10	3	30
Women's Public Showers	15	3	45
Family/Unisex Changing Rooms	75	2	150
Staff Changing Rooms	75	1	75
Staff Lockers	75	1	75
SUPPORT			**400**
Staff Work / Meeting Space	150	1	150
First Aid / Training	150	1	150
Office	100	1	100
Concession Area	200	0	0
BACK-OF-HOUSE			**1,428**
Pool Deck Storage	300	1	300
Staff Storage	50	1	50
Pool Mechanical Equipment Room	950	1	950
Chemical Storage Rooms	64	1	64
Custodial	64	1	64

ROOM TYPE	ROOM NFA	# OF ROOMS	TOTAL NFA
POOL AREA			**10,314**
Pools	4,450	1	4,450
Pool Deck	5,864	1	5,864
Total Pool Building Net Floor Area (NFA)			**3,348**
Total Pool Deck Net Floor Area (NFA)			**10,314**

5.0 System Recommendations

5.0 SYSTEM RECOMMENDATIONS

The system recommendations included in this feasibility report represent the assumptions we have made to date based on meetings with user groups. In the design phases of the project the systems will be studied and refined further. Final building systems may differ from those outlined in this report.

In Schematic Desgin we will continue to work with the City to study the net zero emissions definition. The mechanical, electrical and plumbing system narratives in this report have references to natural gas that may change in schematic design. Refer to Appendix C: Net Zero Report for additional information.

5.1 TRAFFIC AND PARKING

A Transportation Study was done for the project site. The study presents an evaluation and summary of existing transportation conditions to assist the design team in understanding existing school operations, identify access challenges and opportunities, and to provide guidance and input regarding the framework of future transportation conditions and operations at the school. Proposed design for transportation and parking will be developed during the Schematic Design phase of the project.

EXISTING CONDITIONS

In general, the sidewalks along Cambridge Street, Willow Street and Berkshire Street abutting the existing buildings are in fair to good condition. Main pedestrian access to the existing building is provided off Cambridge Street, with a secondary access off Berkshire Street.

There is strong bicycle connectivity to the surrounding area. Bike lanes are provided in both directions on Cambridge Street. Bicycle parking is provided near main school entrance on Cambridge Street, along the east sidewalk on Willow Street, along the west sidewalk on Berkshire Street and near the entrance to the Gold Star Pool.

The Project site is served by many public transportation options. Massachusetts Bay Transportation Authority (MBTA) local bus routes 65 and 89 stop in front of the site along Cambridge Street. The site is also located approximately 0.8 miles (less than 10 minute walk) from Lechmere Station (Green Line).

Roadway access to the Project site is provided by Cambridge Street, Willow Street and Berkshire Street. Descriptions of these roadways and nearby intersections, including supporting photography, are presented below.

The majority of students walk to the school from the surrounding neighborhood. The least amount of students arrive by parent vehicle. There are three parking lots around the site for faculty and staff, and city residents who do not have a spot in the lots park on-street in the surrounding the neighborhood.

PROPOSED DESIGN

The next step in this evaluation process will focus on an in-depth analysis of future impacts of the Project. VHB will undertake the future evaluation of the selected design scheme. Student populations are expected to remain similar to existing and no additional uses other than what is currently on-site are are planned, therefore, any changes in traffic volumes associated with the Project should not be expected to exacerbate conditions that would otherwise prevail without the redesign of the school. Some changes to transportation infrastructure such as signal timing adjustments, new signage installation and new pavement marking installation might be necessary to better manage the future project impacts. In addition, the location and infrastructure of bus loading and parent pick-up/drop-off will be reviewed in relation to the new building design and the school will review their policy on drop-off/pick-up activity to ensure that this activity occurs safely and effectively.

An underground parking garage will be included in the new building design to accommodate at least the current number of on-site faculty and staff parking.

5.2 CIVIL & SITE

This narrative outlines existing utility infrastructure in the area of the existing site and proposed utility infrastructure and site improvements that will need to be considered for redevelopment of the site.

WATER SYSTEMS:

Domestic water service for the current building is fed from an existing 12” cast iron water main that runs in Cambridge Street. An additional domestic water service feed is located on the west side of the building, fed from the existing 8” cast iron water main in Berkshire Street. Neither the City of Cambridge GIS nor the project survey show any fire service lines servicing the existing building. These will be determined in design phases. There is also an existing 4” cast iron water line that appears to run under the current building connecting the 8” cast iron water main in Berkshire Street to the 8” cast iron water main in Willow Street. It is not known at this time what that line services or if it is an active line.

There is likely adequate fire protection volume and pressures in the existing 12” water line in Cambridge Street. However, a flow test will need to be performed to confirm that the existing water lines in the area will be sufficient for proposed fire and domestic water demands for the project. There are multiple fire hydrants located on all of the streets surrounding the site.

The project will require redundant water feeds (two domestic water feeds and two fire service feeds). The domestic water services to the proposed new building will continue to be fed from Cambridge Street and Berkshire Street. It should be assumed that the existing domestic water service lines will be replaced with new service lines. Additionally, fire service lines should be installed from Cambridge Street and either Willow Street or Berkshire Street to create a redundant water system that can be fed from multiple locations providing the proposed building with reliable fire protection flows and volumes.

SANITARY SEWER:

The existing school is currently sewered by two 6” cast iron services that combine into one 8” cast iron sanitary sewer line that then presumably connects to the existing 15” sanitary sewer main located in Cambridge Street. There are also other existing sewer mains in the area of the site. There is an existing 8” sanitary main in Berkshire Street and also an existing 10” sanitary sewer line in Willow Street.

It should be assumed that the proposed new building will require a new sanitary service line that will connect to the existing 15” sanitary main in Cambridge Street. Additionally, the new school will provide food services within the building that will require the installation of a grease trap and associated piping and venting. The size of the grease trap will depend on the confirmed number of students meals served per day but will likely be approximately 5000-6000 gallons. The grease trap will likely be installed outside the building and will be connected into the proposed sanitary service in Cambridge Street.

SITE GRADING/DRAINAGE:

The existing building is located on an urban site that is 100% developed. With the exception of

some small grass areas in the courtyard and along the front of the school on Cambridge Street, the entire site is impervious surface. The site topography is very flat and doesn't change much from the front of the site along Cambridge Street to the back of the site. The majority of the site sits between elevations 20 and 22. Existing site runoff is currently collected in a system of catch basins and underground piping that conveys the runoff to the existing 36"x40" combined sewer in Cambridge Street, and to the existing storm sewer lines in Willow and Berkshire Streets. There are currently no measures being taken on the site to improve the stormwater quality or control stormwater quantity. Stormwater from the existing site is discharged untreated and unmitigated to the city systems as described above.

The proposed site grading should attempt to meet existing elevations of the surrounding streets and create positive drainage away from the proposed building to avoid sloping grades towards doorways and creating low spots close to the building structure. Proposed grading schemes should also not create situations where abutting properties would potentially receive more stormwater flow from the project site than they do under existing conditions. Additionally, the elevation of the first floor of the new building should be set higher than the 100-year flood elevation for this area as determined by the City of Cambridge.

There are three separate and distinct issues with regards to stormwater design that need to be addressed as part of the proposed project; Stormwater Quantity, Stormwater Quality, and Phosphorus Removal.

The City of Cambridge has a requirement that is used to control stormwater quantity leaving a proposed site. The City requires that stormwater runoff rates from the post development 25-year storm event be reduced to the pre-development 2-year storm event rate. The project will be required to mitigate flows as described above from the new building and project site. The project will reduce the amount of impervious surface on the site which helps control peak runoff rates from the site, however, mitigation will also require the project to construct a stormwater detention/retention system to store and slowly release the stormwater runoff collected on the site. The proposed detention system could be located in open areas within the proposed site. The proposed detention/retention system could include perforated plastic pipe surrounded by crushed stone and geotextile fabric installed underground that would be used as volume to detain the stormwater runoff collected from the site. Based on projects of similar size and site characteristics a system consisting of 300-350 linear feet of 48-inch perforated PVC pipe would be a good first approximation of system size that could be used for initial cost estimating purposes. Overflow from the underground system would be piped to the existing storm drain infrastructure around the site. The exact discharge locations would be determined through discussions with the DPW. The DPW would be looking for the project to tie all new stormwater connections to dedicated drain lines and do whatever possible to direct water away from combined sewer systems. It should be assumed that all new stormwater conveyance pipes will be CPP pipe ranging in size between 12"-18". The exception would be the connection pipe to the City systems which would be PVC in lieu of CPP.

Stormwater quality will be addressed through the use of catch basins with deep sumps and hoods, green roofs, proprietary structural BMP's and an overall greening of the project site. The Massachusetts Stormwater Handbook requires that a volume of 0.5-inches multiplied by the impervious area on the site be treated by water quality BMP's to remove 80% TSS annually. The chosen BMP's will be sized to treat the required volume of stormwater to meet the standard.

Phosphorous removal will need to be addressed as part of the project. The EPA requires that an existing site, being redeveloped, be designed to remove 65% of phosphorus annually that would normally runoff the site and discharge into receiving waters. Phosphorus removal can be achieved through the use of infiltration BMP's (underground pipe infiltration systems, rain gardens, etc…). Based on preliminary geotechnical investigations groundwater elevations and clay heavy soils in this area may make infiltration BMP's less viable on this site. More in-depth geotechnical analysis, perk testing, and infiltration testing will be required in the areas where infiltration BMP's will be proposed to determine their feasibility for the project. Other methods of phosphorus removal would need to be explored if the infiltration BMP's are not feasible such as:

- The use of proprietary phosphorus removal units such as a Jellyfish®.
- Rainwater Harvesting and Reuse: Collection of rainwater from all the roof areas, to be reused as make-up water for irrigation and/or toilet flushing would mitigate for stormwater

quantity, quality, and phosphorus removal. Refer to Mechanical Narrative for more information.

- The use of injection wells to return stormwater collected on-site back to the groundwater table would mitigate for stormwater quantity, quality, and phosphorus removal. Drilling injection wells, holding tanks and associated appurtenances (piping, pumps, etc…) would be required. Coordination with the geotechnical engineer would be required to determine if this solution is feasible for the project.

The proposed project may require under slab drainage to be installed under the lower levels of the proposed building allowing for greater protection from high groundwater conditions. The City of Cambridge does not allow collected groundwater (from under slab drainage systems) to be discharged to its municipal storm water system. Therefore any groundwater that is collected in the underdrain system will need to be discharged on site and not allowed to find its way to the municipal storm drains. Infiltration BMP's (if feasible) and/or rainwater harvesting and reuse are ways to accomplish this requirement.

GAS SERVICE:

The building is currently serviced by a 1" gas line that connects to the existing 8" gas main located in Cambridge Street. The existing gas line connects to the building in the vicinity of the North West corner along Cambridge Street. There are also other existing gas mains in the area of the site. There is an existing 12" gas main in Berkshire Street and an existing 4" gas main in Willow Street. It should be assumed that the proposed building will continue to be fed by a new gas service line from Cambridge Street.

IRRIGATION:

The intent of the project will be to choose drought resistant, native plant species on the majority of the site that would require no irrigation. However, there may be portions of the site landscape such as street trees and/or portions of some grass areas that will require irrigation. This irrigation could be fed from an on-site rainwater collection tank.

SITE FEATURES:

The proposed site features for the project should be chosen to be durable and as maintenance free as possible. Site features will include playground equipment, surfacing for playground, site furniture (benches), bicycle racks (per City of Cambridge Standard), porous paving/pavers in plaza areas and walkway between site and Donnelly Field and porous bituminous pavements in roadways/bus drop-off areas (all pavement and pavers shall be consistent with City of Cambridge standards), and decorative site fencing.

SITE LANDSCAPING:

The majority of the site will be grass and play areas for the students but there will be some areas of intensive plantings and hardscaping around the building mainly along Cambridge St and the Reading Garden and plantings used as screening at the loading areas. Planting beds will be provided for the City Sprouts program.

5.3 STRUCTURAL

The superstructure will be a structural steel frame supporting concrete slabs on steel deck. The final slab-on-deck construction will be based on the fire rating, acoustic and loading considerations at roofs, and consideration of floor finishes. For the Feasibility Study stage, it is recommended to plan on 3" 18-gage galvanized composite steel deck plus 3¼" lightweight concrete reinforced with WWF 6x6xW2.9xW2.9 at floors and roofs of the academic wings. Roofs over the long span spaces for the gymnasiums will be 1½" 20-gage Type B roof deck. There may be consideration to expose the structure in the long span spaces and enhance the aesthetic. For this consideration, provide an alternate pricing for acoustical deck.

The Academic Wing is approximately 80 ft wide with a double-loaded corridor and up to 300 ft long. Bay sizes are planned at 32 ft x 30 ft using W18 beams and W24 girders. It is understood that all partitions in the Academic Wing will be drywall on metal stud, and not masonry. The frame will be laterally supported by braced frames located within the demising walls between rooms and at selected locations along the corridor. Using these assumptions, the façade will be a mix of masonry, metal panel and glass supported at each floor level. The structural steel in the Academic Wings can be budgeted at 12 psf. For the masonry portions of the façade, budget for a relieving angle system at each floor with masonry at 65 lbs/lf.

The Group Activity Wing will include an auditorium with a clear span roof of approximately 100 feet. The roof framing and tall columns for the two-story space should be budgeted at 20 psf with appropriate allowances for performance related secondary structure for lighting, catwalks, rigging, etc. The baseline long span framing will consist of long span joist girders, steel joists and some steel beams. In the event a more sculpted aesthetic is desired, the steel should consist mostly of steel wide flange sections, and a premium should be applied to the price-per-ton to account for more complex geometry and detailing.

The Cafeteria may have occupied space above it and can have interior columns. The Gymnasiums are clear-span spaces with dimensions of 60 ft x 90 ft, and 75 ft x 100 ft. The roofs of the gyms will be composed of 1½" roof deck supported on steel joists and spaced at 5'-0" on center framing to joists girders spaced at 25 ft to 30 ft on center. The roof framing and supporting columns with intermediate girts to brace TL two-story walls and bracing can be budgeted at 15 psf. The Cafeteria space, pool building, music and drama spaces should be budgeted similar to the Auditorium.

There is an alternate to consider placing 25,000 sf of office and administrative space above the long span spaces. To account for this, the roof deck could be replaced by 25,000 sf of 3" deck + 3¼" LWC reinforced with WWF6x6xW2.9xW2.9. The long span floor framing would support intermediate columns for the office space lightweight roof. The aggregate structure can be budgeted at 7 psf for the office roof, 25 psf for the long span floor structure, plus add 6 psf for bracing and columns. The footings sizes will increase to 9'-0" x 9'-"x1'-0" at the perimeter and 12'-0"x12'-0"x2'-3" at the interior.

A project goal is to provide 130,000 sf of PV panels to meet the net zero goal. Since the roof footprint is less than that. There are two options for how to accomodate PV on thr roof. One option is to slope the roofs 5 degrees to angle the panels for maximum solar exposure. Another design option is to provide a sloped steel trellis 8 ft to 10 ft above the roof for PV panel support.

The trellis would cantilever out beyond the face of the buildings. For such an exposed steel frame composed of tubes, pipes and rolled sections, the steel should be budgeted with either hot-dip galvanizing or a very durable paint system. The frames at the Academic Wing can be budgeted at 12 psf, and the foundation concrete should be increased by 10% for increases in footing sizes. For the exposed steel trellis at the long span spaces, the steel should be budgeted at 15 psf. Foundation concrete in this Wing should be increased 15% for increases in footing sizes. Care should be taken in budgeting these trellises with accessory items to allow for safe access for maintenance of the panels and mitigation devices for snow and ice hazards.

The Library will be a one-story tall floor-to-roof structure with an articulated roof design. The roof can be composed of metal deck supported on steel beams, and to allow for an appropriate allowance for an articulated, and perhaps exposed, steel frame design, we suggest budgeting 15 psf and utilize a high price per ton (say $5000/ton).

There will be a one-level below-grade space beneath the Group Activity Wing for parking. The geotechnical report indicates that this below-grade space can be kept free of water by utilizing a below-slab underdrain routed to an appropriate sump and pump system.

Assuming the basement is 12 ft to 14 ft deep, the foundation walls will be 14" thick and can be budgeted with 5 psf of reinforcing. The basement slab on grade will be 5" thick reinforced with WWF 6x6xW2.9xW2.9. The floor of the Cafeteria and Gymnasium forming the roof of the garage can be framed in structural steel with columns spaced at 27'-0" x 25'-0" supporting W18 composite beams and girders. The slab on deck will be 3" 18-gage galvanized steel deck plus 4½" lightweight concrete reinforced with WWF 4x4xW4.0xW4.0. The columns will be supported on spread footings bearing in the dense sand layer above the clay layer with an allowable bearing of 1.5 tsf. Typical footing sizes will be 10'-0" x 10'-0" x 2'-0" reinforced with 9 #9 bottom each way.

The foundation system will consist of removal of the existing building and its foundations in the zone of the Academic Wing down to the sound bearing where the existing footings are founded. Structural fill will then be placed from the sound bearing stratum up to 4'-0" below finished grade/Level 1. New footings for the Academic Wing will be 7'-0"x7'-0"x1'-6" at the perimeter and 10'-0"x10'-0"x2'-0" at the interior. Reinforcing will be 75 lbs/cu.yd. As an alternate, to mitigate the 1" to 3" settlement predicted in the Geotechnical Report, common backfill can be placed on top of the structural backfill to elevation 25'-0" to provide a 6-month long surcharge prior to foundation construction.

5.4 MECHANICAL, ELECTRICAL, PLUMBING & FIRE PROTECTION

The mechanical, electrical, plumbing and fire protection systems have been discussed with the City, CPS, users and facilities and maintenance staff. These discussions have developed a set of criteria to which the systems shall adhere. The main goal of the project is to use little energy while maintaining a comfortable and maintainable environment.

- Operate at Net Zero or Net Positive Energy - reduce energy use through design and supply the energy used with solar renewable sources (photovoltaics and/or thermal hot water)
- Allow for energy use to be tracked and systems to be adjusted - building energy use requires measurement and verification to operate at maximum efficiency
- Utilize systems that are easily maintained and do not impact operations of the building while they are being maintained.

LIFE CYCLE COST ANALYSIS

A life cycle cost analysis will be done to evaluate various mechanical, electrical and plumbing systems and determine which meets the goals of the project as outlined above. As the project progresses into design these systems will be further evaluated and defined.

MECHANICAL

DESIGN PARAMETERS

- Project weather and Code temperature values are listed herein based on weather data values as determined from ASHRAE weather data tables and the International Energy Conservation Code.
- Outside: Winter 5 deg. F, Summer 91 deg. F DB 74 deg. F WB
- Inside: 70 deg. F +/- 2 deg F for heating, 75 deg. F +/- 2 deg F (55% RH) for cooling. Unoccupied temperature setback will be provided (60 deg F heating (adj.), 85 deg F cooling (adj.).
- Outside air is provided at the rate in accordance with ASHRAE guide 62.1-2010 and the International Mechanical Code as a minimum. All occupied areas will be designed to maintain 800 PPM carbon dioxide maximum.
- All new HVAC systems shall be tested, adjusted, balanced and commissioned as part of the project scope.
- Automatic Temperature Controls – Building Energy Management System: A new DDC (direct digital control) automatic temperature control and building energy management system shall be installed to control and monitor building HVAC systems. Energy metering shall be installed to monitor the energy usage of building HVAC systems and utilities (gas, water).

SYSTEM DESCRIPTIONS

Central Heating Plant: *LEED for Schools Credit EP2 & EC1*

Heating for the entire building will be capable of being provided through the use of a high efficiency gas-fired condensing boiler plant. The Geothermal heating and cooling plant is intended to be the primary source for heating the building, and the boiler plant shall be a back-up plant.

The new boiler plant shall be provided with (2) 2,750 MBH output boilers and (2) end suction base mounted pumps primary and standby with a capacity of 550 gpm each will be located in the mechanical room. Boilers shall each be sized for approximately 50% of the building heating load. In addition to new boilers and pumps, new hot water accessories including air separators and expansion tanks shall be provided.

The boiler plant will supply heating hot water to heating equipment and systems located throughout the building through a two-pipe fiberglass insulated schedule 40 black steel and copper piping system. The boiler plants shall supply a maximum hot water temperature of 180 deg F on a design heating day and the hot water supply water temperature will be adjusted downward based on an outside temperature reset schedule to improve the overall operating efficiency of the power plants. Primary and standby end suction base mounted pumps will be provided with variable frequency drives for variable volume flow through the water distribution system for improved energy efficiency.

Combustion air for each boiler will be directly ducted to each boiler through a galvanized ductwork distribution system. Venting from each boiler shall be through separate double wall aluminized stainless steel (AL29-4C) vent system and shall discharge approximately 12 feet above the roof level. Final venting height will be depending on the location of building intake air locations and adjacent roofs.

Central Cooling Plant: *LEED for Schools Credit EP2 & EC1*

Base Design: A geothermal heating and cooling plant will be provided which will include (7) seven water to water source heat pump chillers with a capacity of 70 tons each. The heat pump chiller units will be located in the basement mechanical room. The heat pump chillers will be provided with ground source condenser water from (150) closed loop type ground source geothermal wells.

Alternate Design: A chilled water power plant will be provided which will include (7) seven water to water source heat pump chillers with a capacity of 70 tons each. The heat pump chiller units will be located in the basement mechanical room. The heat pump chillers will be provided with ground source condenser water from (15) 1500 feet deep standing column type ground source geothermal wells. Each well will have a capacity of 30 tons and 75 gpm.

Base and Alternate Design: Two (2) water to water heat exchangers located in the basement mechanical room will also be provided to separate each ground source condenser water loop from the heat pump chiller unit condenser water loops. Primary and standby condenser water pumps with a capacity of 1094 gpm and variable frequency drives (which will control down to maintain a minimum flow to the chiller) will be provided for overall variable flow condenser water system distribution.

The heat pump chiller will distribute between 45° and 55° chilled water to the active chilled beam distribution systems located in the central administration area of the building, i.e. administration offices, main teachers' lounge, and central lobby areas. The chilled water distribution piping will be of the fiberglass insulated schedule 40 type and will be completely separate from the hot water distribution piping system. Chilled water pumps with a capacity of 1094 gpm and variable frequency drives (which will control down to maintain a minimum flow to the chiller) will be provided for overall variable flow chilled water system distribution. Hot water will be distributed from hot water heating pumps described in the Central Heating Plant section. Automatic isolation control valves shall be installed so that the hot water pumps will either distributed hot water from the boiler plant or geothermal heating plant system.

SYSTEMS PER PROGRAM AREA

Classroom Heating and Ventilation (General Classrooms, Science, Art & Music, and SPED Classrooms):

LEED of Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

It is proposed that spatial air-conditioning and ventilation for zones will be by floor mounted vertical displacement diffusers. Ventilation air will be provided by the associated central air handling ventilation unit. Air handling units with supply and return fans with VFDs, dual energy recovery wheels, hot water heating and chilled water cooling coils with modulating capacity control, and MERV 13 filtration will be provided to serve the displacement ventilation system. Supply air will be provided to the space through supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers located within the classrooms. Return air will be drawn back to the units by ceiling return air registers located within the classroom and will be routed back to the air handling unit by return air ductwork distribution system. Supplemental hot water light shelf radiant heating panels will be provided along exterior walls.

Air handling units shall be mounted on the roof with enclosure on all sides and photovaltaic trellis system overhead. All air handling units will be housed within factory constructed mechanical enclosures. The systems will be delivered to the site and hoisted into place on top of the building's upper roof. Insulation of equipment and piping to be performed in field and will be provided by the HVAC Contractor.

Each classroom shall be provided with a variable volume (VAV) terminal box with combination temperature, humidity, and CO2 sensor controls and shall be interlocked with occupancy sensors and window strikes that shall close the VAV damper when the windows are opened. The controls will reduce outside air as allowed maintaining a maximum of 800 PPM while providing sufficient ventilation to the diffusers to meet the required heating or cooling load of the classroom. As VAV boxes modulate, the supply and return air fans associated Variable Frequency Drives (VFD) of the air handling units will adjust the fan speed based on system static pressure, reducing the energy consumed by the fans.

Gymnasiums:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

Each gymnasium will be served by an air handling unit of the recirculation design. Each unit will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and chilled water cooling coils with modulating capacity control, and MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM to serve a displacement ventilation system. Supply air will be provided to the space through a duct distribution system and shall be connected to wall mounted displacement ventilation diffusers located within the gymnasium. As levels of carbon dioxide drop, generally relating to a reduction in population, the variable frequency drive located in the rooftop unit will modulate to reduce air flow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by ceiling return air registers located within the gymnasium and will be routed back to the rooftop unit by a return air ductwork distribution system. Supplemental hot water radiant heating panels will be provided along exterior walls.

Fitness Rooms and P.E. Office Areas:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

The fitness rooms and P.E. office areas will be served by an air handling unit of the recirculation design. The unit will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM to serve a displacement ventilation system. Supply air will be provided to the space through a supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers throughout each space. As levels of carbon dioxide drop, generally relating to a reduction in population, the variable frequency drive located in the rooftop unit will modulate to reduce air flow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by ceiling return air registers and will be routed back to the rooftop unit by a return air ductwork distribution system. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Supplemental hot water radiant heating panels will be provided along exterior walls.

Locker Rooms:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

The locker rooms and adjacent areas will be served by an air handling unit of the 100% outside air design with energy recovery. The unit will include supply and return fans with VFDs, hot water heating and cooling coils with modulating capacity control, MERV 13 filtration. Supply air ventilation will be provided to each space through supply duct which will travel throughout each locker room area to a series of ceiling mounted supply registers. Exhaust air ductwork and air distribution devices shall be installed and shall be routed from the locker rooms to the air handling unit.

Multi-Purpose Room and Lobby:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

The multi-purpose room and lobby areas will be served by an air handling unit of the recirculation design. The unit will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM to serve a displacement ventilation system. Supply air will be provided to the space through a supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers throughout each space. As levels of carbon dioxide drop, generally relating to a reduction in population, the variable frequency drive located in the rooftop unit will modulate to reduce air flow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by ceiling return air registers and will be routed back to the rooftop unit by a return air ductwork distribution system. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Supplemental hot water radiant heating panels will be provided along exterior walls.

Media Center:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

The media center and support areas will be served by an air handling unit of the recirculation design. The unit will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM to serve a displacement ventilation system. Supply air will be provided to the space through a supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers throughout each space. As levels of carbon dioxide drop, generally relating to a reduction in population, the variable frequency drive located in the rooftop unit will modulate to reduce air flow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by ceiling return air registers and will be routed back to the rooftop unit by a return air ductwork distribution system. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Supplemental hot water radiant heating panels will be provided along exterior walls.

Administration and Nurse Areas:

LEED for Schools Credit EO2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

Spatial heating and air-conditioning for the King Open and Cambridge Street Upper Schools administration and nurse areas will each be served by horizontal ceiling concealed type ducted 4-pipe heating and cooling active chilled beam induction units with hot water and chilled water for the induction unit system provided by the individual hot water and chilled water central recirculation piping system communicating with the boiler and chilled water power plants. Each zone shall be provided window strikes that shall be interlocked with the induction unit control valves that shall modulate the coil closed when the windows are opened.

Each air handling unit will include supply and return fan with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, and MERV 13 filtration. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

Auditorium and Stage:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

The auditorium and stage will be provided with roof-mounted air handling units of the

recirculation design capable of providing 100% outside air variable volume displacement ventilation air distribution.

The auditorium unit will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM to serve a displacement ventilation system.

The stage unit will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM to serve a displacement ventilation system.

Supply air ventilation to the auditorium will be provided to the space through a supply duct distribution system that will connect to displacement diffusers under the seating. In addition, carbon dioxide controls will be installed which will monitor the overall level of carbon dioxide at a threshold level of 800 ppm. As levels drop generally relating to a reduction in population the air handling unit outside air damper will modulate to reduce air flow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by return air registers located high on walls within the space or near the ceiling of the space.

Cafeteria and Staff Lunch Areas:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

The Cafeteria area will be served by an air-handling unit capable of providing 100% outside air. The units will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, and MERV 13 filtration. Supply air ventilation will be provided to each space which will satisfy building code requirements based on population. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Perimeter hot water radiation heating equipment shall be provided for exterior zones.

Kitchen:

LEED for Schools Credit EP2

The kitchen areas shall be provided with a kitchen exhaust fan from a kitchen exhaust air fan system. The kitchen will be heated and provided with make-up air from AHU described above. It is estimated that a kitchen exhaust fan system is required.

A variable volume kitchen exhaust hood control system consisting of kitchen exhaust stack temperature and smoke density sensors, supply and exhaust fan variable speed drives and associated controller will be provided by the kitchen equipment vendor. This system installation shall be field installed and coordinated with the ATC and Electrical contractors

Valente Library:

LEED for Schools Credit EP2, EC1, EC5, IEQP1, IEQC1, 2, 3.1, 3.2, 5, 6.2 & 7.1

The Valente Library and support areas will be served by an air handling unit of the recirculation design. The unit will include supply and return fans with VFDs, dual energy recovery wheels, hot water heating and cooling coils with modulating capacity control, MERV 13 filtration, and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM to serve a displacement ventilation system. Supply air will be provided to the space through a supply duct distribution system and shall be connected to wall mounted displacement ventilation diffusers throughout each space. As levels of carbon dioxide drop, generally relating to a reduction in population, the variable frequency drive located in the rooftop unit will modulate to reduce air flow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by ceiling return air registers and will be routed back to the rooftop unit by a return air ductwork distribution system. It is proposed that spatial heating and air-conditioning for in this area will be provided with variable air volume boxes with temperature and CO2 controls. Supplemental hot water radiant heating panels will be provided along exterior walls.

Lobby, Corridor, and Entry Way Heating:

Hot water convectors, cabinet unit heaters and fin tube radiation heating equipment shall

be installed to provide heating to these areas. Corridors shall be ventilated from adjacent air handling unit systems.

Custodial Support Areas:

Custodial support areas will be heated and ventilated by a heating and ventilation unit. The unit will include supply and return fans with VFDs, hot water heating with modulating capacity control, and MERV 13 filtration. Storage areas will be heated by radiation heating equipment. Horizontal type unit heaters will heat areas adjacent to the loading dock. All custodial closets will be exhausted by exhaust air fan systems.

The custodial office will be provided with supplemental high efficiency variable refrigerant AC systems providing full air conditioning.

Utility Areas:

Utility areas will be provided with exhaust air fan systems for ventilation, and will typically be heated with horizontal type ceiling suspended unit heaters.

The main IDF room will be air conditioned by high efficiency ductless AC cooling units.

Underground Parking Garage:

New underground parking garage shall be provided with garage exhaust air fan systems and associated make-up ventilation and gas detection control systems.

ELECTRICAL SYSTEMS

SEQUENCE OF OPERATIONS AND INTERACTIONS

- Classroom and corridor lighting will be controlled via “addressable relays”, which is achieved through programming networked controls. The control of the relays shall be by automatic means such as an occupancy sensor in each classroom. The system will be interfaced with the DDC control system for scheduled functions. The controllability shall be in conformance with LEED for Schools IEQ Credit 6.1. The lighting controls shall have BacNet gateway for DDC input functions.
- Addressable modules will be utilized for plug load control. Controlled plugs will be identified and will be controlled via occupancy sensors or schedules.
- Exterior lighting will be controlled by photocell “on” and “schedule” for “off” operation. The parking area lighting will be controlled by “zones” and will have dimmed level control.
- Emergency and exit lighting will be run through life safety panels to be on during normal power conditions as well as power outage conditions. The emergency lighting system will have time control so that lights are “on” only when building is occupied. Security lighting at vestibules will be provided.

DISTRIBUTION SYSTEM

- New primary feeders will be brought from an electrical manhole on Cambridge Street to a utility owned pad mounted transformer. Secondary conductors will be brought to the new main switchboard via a concrete encased duct-bank.
- New construction service ratings are designed for a demand load of 10 watts/s.f. The service capacity will be sized for 3000 amperes with 100 percent rating at 277/480 volt, 3 phase, 4 wire. The buss will be rated at 4000 amperes to accommodate with PV system per NEC 690.64. Lighting and power panels will be provided to accommodate respective loads. The equipment will be located in dedicated rooms or closets.
- The main switchboard will be service entrance rated with continuous rated copper bussing and provided with external TVSS. The main circuit breaker will be 100% rated with field adjustable LSIG settings. The distribution section will feed remote panels and equipment throughout the building. All switchgear and distribution equipment that is floor mounted shall be installed on a 4” high concrete housekeeping pad.
- Lighting panels (200A, 277/480V, 3Ph, 4W) will be installed on bi-levels in dedicated electrical rooms.
- Power panels (225A, 120/208V, 3Ph, 4W) will be installed on each level to accommodate

approximately 10,000 square feet of area served.

- All bussing shall be copper.
- The distribution system will be “solar ready”.

LIGHTING SYSTEM

The lighting systems shall be designed to reduce the need for electric lighting by utilizing avaialble daylight from windows and skylights. The design intent is to provide daylight into all regularly occupied spaces as well as hallways.

- Classroom lighting fixtures consist of pendant mounted direct/indirect linear LED luminaries with integral dimming drivers. The fixtures will be pre-wired for dimming control where natural daylight is available and also for multi-level switching. Two daylight zones will be provided in each classroom. The media wall shall be separately controlled. The classroom power density will be targeted for less than 0.4 watts/sq. ft.
- Office lighting fixtures will consist of pendant mounted direct/indirect linear LED luminaries with integral dimming drivers. Offices on the perimeter with windows shall have daylight dimming controls similar to classrooms. The classroom power density will be targeted for less than 0.4 watts/sq. ft.
- In general the lighting power density target will be 60 percent less than IECC 2009. The power density reduction relates to LEED for Schools Credit EAC1.
- Lighting levels will be approximately 30 foot candles in classrooms and offices. The daylight dimming foot candle level will be in compliance with LEED for Schools IEQ 6.1.
- Gymnasium lighting will be comprised of LED fixtures with up-light component. The fixtures will be provided with protective wire guards. The light level will be designed for approximately 50 foot candles.
- Daylight dimming will be provided within 15 feet of skylights or glazing. Daylight dimming controls will be similar in operation to classrooms.
- Corridor lighting will be comprised of recessed direct linear and cove fixtures with LED light source. The corridor light level will be designed for approximately 15 foot candles. Corridor lighting will be on schedule control and only “on” during occupied hours. The corridor lighting will have full dimming capability and the levels can be controlled by schedule on the DDC system.
- Cafeteria and Commons lighting will be recessed linear LED fixtures. The light levels will be designed for approximately 20 foot candles. Daylighting controls will be provided on perimeter light fixtures with 15 ft. of glazing
- Kitchen and servery lighting will consist of recessed 2 ft. x 4 ft. acrylic lensed gasketed troffers with aluminum frame doors with LED fixtures. Light levels will be approximately 50 foot candles.
- Each area will be locally switched and designed for multi-level controls. Each classroom, office space, and toilet room will have an occupancy sensor to turn lights off when unoccupied. Daylight sensors will be installed in each room where natural light is available for dimming of light fixtures. The control system shall be in accordance with LEED for Schools Credit IEQ 6.1.
- The entire school will be controlled with an automatic networked lighting control system using the DDC control system for programming schedule.
- Occupancy sensors will be dual technology PIR/microphonic to avoid interference with assistive hearing devices on students or staff.

SITE LIGHTING SYSTEM

LEED for Schools Credit SSc8

- Fixtures for area lighting will be pole-mounted cut-off ‘LED’ luminaries in the parking area. Pole heights will be 12 ft. The exterior lighting will be connected to the automatic lighting control system for scheduled operation. The site lighting fixtures will be dark sky compliant. The illumination level is 0.5 foot candles minimum for parking areas in accordance with Illuminating Engineering Society.

- Building perimeter fixtures will be 'LED' wall-mounted cut-off over exterior doors for exit discharge lighting.

EMERGENCY GENERATOR

- An interior 500 kw diesel fired emergency generator will be provided. Light fixtures and LED exit signs will be installed to serve all egress areas such as corridors, intervening spaces, toilets, stairs, and exit discharge exterior doors. The generator will be located on the roof.
- The generator will be sized to include fire safety systems, elevator, boilers/circulating pumps, refrigeration equipment, communications systems, etc.
- Emergency lighting panels will be located on bi-levels (100A, 277/480V, 3Ph, 4W). The feeders will be 2 hour rated. The panels will be located in 2 hour rated closets.
- Optional stand-by panelboards will be located on each level. (225A, 120/208V, 3 phase, 4 wire) and on bi-levels (200A, 277/480V, 3 phase, 4 wire)

WIRING DEVICES

- Each classroom will have a minimum of two duplex receptacles per teaching wall and two double duplex receptacles on dedicated circuits at classroom computer workstations. The teacher's workstation will have a double duplex receptacle also on a dedicated circuit.
- Office areas will generally have one duplex outlet per wall. At each workstation a double duplex receptacle will be provided.
- Corridors will have a cleaning receptacle at approximately 25 ft. intervals.
- Exterior weatherproof receptacles with lockable enclosures will be installed at exterior doors.
- Lab will have manual shutoff switches for electric, water, and gas.
- A system of computer-grade panelboards with double neutrals and transient voltage surge suppressors will be provided for receptacle circuits.
- Strategically selected plug loads will be controlled via the networked automatic lighting control system I/O modules. Receptacles will be marked as "controlled" and controlled via occupancy sensors or schedule.

METERING

- Metering shall be provided for natural gas, electric (KYZ meter) and water.
- Sub-metering will be provided for lighting, mechanical equipment, kitchen equipment, elevators and plug loads with a BACNet interface for connection to either the BMS system or a building dashboard system.

FIRE ALARM SYSTEM

- A fire alarm and detection system will be provided with 60 hour battery back-up. The system will be of the addressable type where each device will be identified at the control panel and remote annunciator by device type and location to facilitate search for origin of alarms. A key repository box will be provided at main entrance.
- Smoke detectors will be provided in corridors, stairwells and other egress ways, data rooms, and electric rooms.
- The sprinkler system will be supervised for water flow and tampering with valves.
- Speaker/strobes will be provided in egress ways, classrooms, assembly spaces, open areas and other large spaces. Strobe only units will be provided in single toilets and conference rooms.
- Manual pull stations will be provided at exit discharge doors and at each egress stairwell not located at grade level.
- The system will be remotely connected to automatically report alarms to the fire department via a method approved by the fire department. The system shall be Web accessible with built-in HTML server.
- Manufacturer will be FCI or equal.

UNINTERUPTIBLE POWER SUPPLY (UPS)

- One 24kw, three phase centralized UPS systems will be provided with battery back-up located in the Head End room.
- The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers, communication systems, etc. during a prolonged power outage.
- The UPS systems will also be connected to the standby generator.

PHOTOVOLTAIC SYSTEM

- A grid-tied photovoltaic system utilizing net metering will be installed. The system will include roof and wall mounted PV panels, wiring, rapid-shut down modules, inverters, disconnect switches, signage, weather station and connection to BMS/building dashboard. The size of the system will determine quantity and locations of the inverters.
- The system shall be installed to comply with NEC Article 690, the Uniform Solar Energy Code- ICC, UL 1703, IEEE 1547 and UL 1741. All interconnection and service equipment shall be provided by the Electrical Contractor in adherence with Eversource regulations.

PLUMBING

The Plumbing Systems that will serve the project are cold water, hot water, tempered water, sanitary waste and vent system, grease waste system, special waste system, storm drain system, natural gas, and rainwater reclamation. The Building will be serviced by Municipal water and sewer system. All Plumbing in the building will conform to Accessibility Codes and to Water Conserving sections of the Plumbing Code.

DRAINAGE SYSTEM

- Soil, Waste, and Vent piping system will be provided to connect to all fixtures and equipment. System will run from 10 feet outside building and terminate with stack vents through the roof.
- A separate Grease Waste System starting with connection to an exterior concrete grease interceptor running thru the kitchen and servery area fixtures and terminating with a vent terminal through the roof. Point of use grease interceptors are to be provided at designated kitchen fixtures.
- Storm Drainage system will be is provided to drain all roofs with roof drains piped through the building to exterior rainwater cistern. Roof water will be re-used to flush water closet and urinal flush valves and provide for irrigation.
- A separate Special Waste System shall be provided starting with a connection to an interior limestone chip acid neutralizer, running thru the building to collect science classroom fixtures and terminating with vent terminals through the roof.

WATER SYSTEM

- New 4 inch domestic water service from the municipal water system will be provided. A meter and backflow preventer, if required, will be provided.
- Cold water distribution main will be provided. Non-freeze wall hydrants with integral back flow preventers will be provided along the exterior of the building.
- Domestic hot water heating will be provided with a combination of gas fired, high efficiency, condensing water heaters with separate storage tank. System is to be equipped with thermostatically controlled mixing devices to control water temperature to the fixtures.
- A pump will re-circulate hot water from the piping system.
- Reduced pressure backflow preventers will be provided for HVAC boiler make-up water and Science Classroom non-potable water.
- Reduced pressure backflow preventer will be provided for Pool make-up water.
- Pool hot water heating will be provided through flat plate solar thermal system.

GAS SYSTEM

Natural gas service will be provided for the building and will serve the boilers, domestic water heaters, kitchen cooking equipment, roof top equipment and generator.

PLUMBING FIXTURES

- All plumbing fixtures shall be high efficiency (low flow) fixtures complying with LEED Schools credit WEp1 and WEc3.
- Fixtures shall be the manufacturer's guaranteed label trademark indicating first quality. All acid resisting enameled ware shall bear the manufacturer's symbol signifying acid resisting material.

RAINWATER RECLAMATION SYSTEM

The Plumbing design will incorporate a rainwater reclamation system which will harvest rainwater from roof areas. This water will then be stored in an underground exterior storage cistern where it will be used for both flushing water closets and urinals and also for irrigation of plantings on the site.

- The water to be used for irrigation will be pumped directly from the underground storage tank through a set of sediment filters and out to the distribution piping and to the irrigation heads. The irrigation system will be piped completely separate from the flushing system and is not part of the Plumbing work.
- The water to be used for flushing will be pumped from the cistern into the building and then through a treatment system. At the discharge of storage, the gray water system will be pressurized by a duplex booster pump system which will maintain the pressure required to operate the fixtures on the system. This system will also have an automated city water back-up in the case of insufficient rainfall.
- Treated water will be stored in an interior 3,000 gallon capacity, atmospherically vented storage tank which is the suction tank for the booster pump system. The tank level control system is set to provide water from the cistern, or when no raw water is available city water will be provided to the storage tank. The storage tank will only store fully treated water which has been pumped from the cistern and has been chlorinated, softened and adjusted for pH. City water, when used for make-up, will not be treated. The water in the storage tank, whether from the cistern, from the City supply or a combination thereof, will be continuously re-circulated and sanitized with a UV light. At the discharge of storage, the gray water system will be pressurized by a duplex booster pump system which will maintain the pressure required to operate the fixtures on the system. The pumps are variable frequency drive designed to maintain system pressure, by varying the flow and thereby conserving energy.
- The booster pump system is totally independent of the raw water treatment system except that it will receive a signal from the storage tank to signal low suction. The pump controller will shut down and remain down for 5 minutes when low suction is sensed. If suction is not restored in 5 minutes an alarm shall sound locally. Provide dry contacts for a remote signal. The booster pump control system will respond only to system pressure on the gray water distribution system maintaining the system pressure at 65 P.S.I. The pumps are variable frequency drive designed to maintain system pressure, by varying the flow and thereby conserving energy.

FIRE PROTECTION

SYSTEM DESCRIPTION

- The building will be served by a new 8 inch fire service, double check valve assembly, wet and dry alarm valves complete with electric bell, and fire department connection meeting local thread standards. A dry system will be provided for the parking garage level.
- System will be a combined standpipe/sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 s.f. as required by NFPA 13-2013.
- Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow

switch and test connection with drain. Standpipes meeting the requirements of NFPA 14-2013 shall be provided in the egress stairwells and in the Stage area. Roof manifolds will be provided at each standpipe.

- All areas of the building, including all finished and unfinished spaces, combustible concealed spaces, all electrical rooms and closets will be sprinklered.
- All sprinkler heads will be quick response, pendent in hung ceiling areas and upright in unfinished areas.
- Fire department valves and cabinets will be provided on each side of the Stage in the Building.

BASIS OF DESIGN

- The mechanical rooms, kitchen, science classrooms, storage rooms, and parking garage areas are considered Ordinary Hazard Group 1; stage is considered Ordinary Hazard Group 2; general classrooms, offices, corridors, pool, and all other areas are considered light hazard.
- Required Design Densities:
  a. Light Hazard Areas 0.10 GPM over 1,500 s.f.
  b. Ordinary Hazard Group 1 0.15 GPM over 1,500 s.f.
  c. Ordinary Hazard Group 2 0.20 GPM over 1,500 s.f.
- Sprinkler spacing (max.):
  d. Light Hazard Areas: 225 s.f.
  e. Ordinary Hazard Areas: 130 s.f.
- A flow test was performed by the City to confirm public water supply characteristics. Based on the test a fire pump should not be required.

PIPING

Sprinkler piping 1-1/2 in. and smaller shall be ASTM A-53, Schedule 40 black steel pipe. Sprinkler/standpipe piping 2 in. and larger shall be ASTM A-135, Schedule 10 black steel pipe.

FITTINGS

Fittings on fire service piping, 2 in. and larger, shall be Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends. Branch line fittings shall be welded or shall be mechanical tees. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe, where used with mechanical couplings, shall be roll grooved and shall be threaded where used with screwed fittings. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.

JOINTS

Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads. Joints on piping, 2 in. and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet sprinkler system as recommended by manufacturer.

SPRINKLERS

- All sprinklers to be used on this project shall be Quick Response type and shall be stamped with date of manufacture and temperature rating. Temperature ratings shall be determined by the location of the heads per NFPA 13-2013, section 8.3.2.5, and shall be minimum 155 degrees F. throughout except in special areas around heat producing equipment, skylights, and attics in which case use temperature rating to conform with hazard as specified in NFPA 13-2013. Orifice diameter and K factor shall be appropriate to meet the hydraulic design criteria, the available water supply, and NFPA Standards.
- Furnish spare heads of each type installed located in a cabinet along with special sprinkler wrenches. The number of spares and location of cabinet shall be in complete accord with NFPA 13-2013.

- Upright sprinkler heads in areas with no ceilings shall be quick response, upright natural brass finish heads. Include heavy duty sprinkler guards in all mechanical rooms, storage rooms, and gymnasium. In pool area, all heads shall have a corrosive resistant lead coating.
- Sidewall heads shall be quick response with white polyester head and escutcheon.
- Pendent wet sprinkler heads shall be quick response recessed adjustable escutcheon, white polyester finish.
- Concealed heads shall be quick response concealed type, 1-1/2 inch adjustment white cover plate. In special areas, as may be noted on the Drawings, provide alternate cover plate finishes.

DOUBLE CHECK VALVE ASSEMBLY

- Double check valve assembly shall be MA State approved, U.L./F.M. approved, with iron body bronze mounted construction complete with supervised OS & Y gate valves and test cocks. Furnish two spare sets of gaskets and repair kits.

ROOF MANIFOLD

- Roof manifold shall be polished brass 2 way fire department outlet connection assembly – 2-1/2” x 2-1/2” x 4”.

FIRE STANDPIPE EQUIPMENT

- Fire Department Valves shall be fitted with 2-1/2 inch x 1-1/2 inch reducer, caps and chains all conforming to Local Fire Department thread standard. Valves shall be polished chrome plated and shall be mounted in a recessed cabinet as indicated on Drawings.
- Cabinets for the Fire Department Valves shall be 18 inch x 18 inch x 10 inch deep cabinet, fully recessed, solid door, prime painted steel. Include graphic and door catch.
- Provide 24 inch x 24 inch access panels at floor control locations or recessed cabinets as appropriate to the wall construction. Provide graphic.

5.5 TECHNOLOGY & SECURITY

TECHNOLOGY

The data system infrastructure will consist of fiber optic backbone cabling horizontal wiring will consist of Category 6A UTP Plenum rated cabling for both data and telephone systems for gigabit connectivity as well as Category 6A with (2) strands of multimode fiber data at strategic locations for future 10 giggabit connecting. The telephone infrastructure will accommodate a VOIP telephone system or PBX. A cell phone repeat system will be installed in the building.

Each classroom will have 2 data outlets for student module computing device charging stations. Two data and one voice with video and audio connections to a wall-mounted interactive whiteboard will be provided at the teacher's station. A wall intercom outlet with 2-way ceiling speaker will be provided for communications with administration. Wireless access points will be provided in all classrooms and other spaces as needed for 100% wireless coverage. Provisions for sound lift systems in each classroom will be provided.

A central paging system will be provided and integrated with the telephone system. The paging system head end shall have web based software for program changes. The zones shall include: each classroom, corridors per floor, gymnasium, cafeteria, auditorium, and exterior.

A wireless GPS/LAN based master clock system will be provided with battery wireless remote clocks that act as transceivers.

All educational technology hardware (computers, projectors, etc.) will be supplied by the Owner. In order to purchase the most up-to-date hardware the teaching technology equipment will be purchased during construction.

SECURITY

The integrated electronic security system will be required to be fully compatible with the city of Cambridge current security system platform. All aspects of the system including electronically coded identification cards, software databases, and operating software are interchangeable with the city's current security platform.

- A Closed Circuit TV system will consist of computer servers with image software, computer monitors and IP based closed circuit TV cameras. The head end server will be located in the head end MDF room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders (SAN) will record all cameras and store this information for 45 days at 30 images per second (virtual real time).
- The location of the cameras is generally near toilet rooms, laptop charging rooms, computer labs, cafeteria, gymnasium, stairwells, and in corridors and exterior building perimeter. The exterior cameras are fixed type and located at entrances and perimeter. Cameras shall be vandal resistant dome type and wall mounted. 180 deg. and 360 deg. cameras will be utilized as necessary for optimal coverage.
- The system will fully integrate with the access control system to allow viewing of events

from a single alarm viewer. Camera images and recorded video will be linked to the access system to allow retrieval of video that is associated with an event.

- The security system shall have alarms for boilers, sump pumps, sewage ejectors, and refrigeration equipment.
- An intrusion system will consists of security panel, keypads, motion detectors and door contacts. The system is addressable which means that each device will be identified when an alarm occurs. The system is designed so that each perimeter classroom with grade access will have dual tech sensors along the exterior wall and corridors, door contacts at each exterior door.
- The system can be partitioned into several zones. Therefore, it is possible to use the Gym area while the remainder of the school remains alarmed.
- The system will include a digital transmitter to summons the central station in the event of an alarm condition, the city's current UL Listed central station will be utilized.
- A card access system includes a card access controller, door controllers and proximity readers/keypads. Proximity readers will be located at various locations. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer. Card access shall be provided at entrances, IT rooms, and elevator.
- The alarm condition will also initiate real time recording on the integrated CCTV System. The system may be programmed with graphic maps allowing the end user to quickly identify alarm conditions and lock/unlock doors.
- The system is modular and may be easily expanded to accommodate any additional devices.
- An intercom system with built-in security camera shall be provided at the main entry, loading dock, library, after hours entry and pool building entry. Any door can be unlocked via workstation with proper credentials.

5.6 ACOUSTICS

CORE LEARNING SPACES

The school, preschool and after school programs will be designed to meet the LEED v4 Schools prerequisite IEQp3. All core learning spaces, including general, ASD and SPED classrooms, breakout rooms, speech, OT/PT, ESL, interventionists, coaches, counseling, art, music and learning commons, will be designed to the following standards.

ROOM	ADJACENT ROOM	STC/IIC RATING OF PARTITION/CEILING	DOOR RATING
Core Learning Room w/ passthrough door	Core Learning	STC 50	STC 30 w/ perimeter gasket
	Corridor	STC 45	STC 30 w/ perimeter gasket
Core Learning Room w/o passthrough door	Core Learning	STC 50	
	Stair	STC 50	
	Toilet Room	STC 53	
	Office/conference room	STC 50	
	Music, Auditorium, Gymnasium, Cafeteria, Mechanical	STC 60	
Core Learning Room	Occupied Space Above	IIC 45 (CAC 35)	
Core Learning Room	Music Room Above	IIC 45 (CAC 35) + isolation ceiling	

REFLECTION ROOMS

The Reflection Rooms and ASD Safe Rooms to have wall partitions with STC 50 and IIC 50. Glazing in the partitions of these rooms are to have an STC 50 rating, which can be achieved by two layers of 1/4" laminated glass with 4in air space.

CAFETERIA AND GYMNASIUMS

The Cafeteria dining area shall be designed with ceiling and wall mounted acoustical baffles to absorb sound within the space and prevent disruption of adjacent spaces.

AUDITORIUM

The perimeter walls of the auditorium and stage will be designed with a high STC rating, most likely STC 60 or higher. An acoustical study will be done to determine requirements for this space.

MECHANICAL AND ELECTRICAL EQUIPMENT

Ductwork and equipment which runs through or adjacent to Core Learning Rooms shall be designed to produce a maximum 40 dBA background sound level. Rooftop mechanical equipment shall be mounted on concrete slabs on metal deck with vibration isolation curbs with spring isolators. Main supply and return ducts shall have sound atenuators at air handlers.

The rooftop emergency generator will be provided with sound atenuation enclosure and be mounted as noted above.

5.7 FOOD SERVICE

KITCHEN

The new kitchen will provide scratch cooking for approximately 300 students per lunch period. Breakfast is also served to the elementary school daily. The kitchen will be setup to provide three distinct serving areas to serve 100 students each. This will provide flexibility to serve the upper and the lower schools separately if both schools are during the same period or 100 students fromt he same school during a lunch period. There will be a central cooking and prep area to provide for the three serveries. Storage in the shared kitchen space will be provided for paper goods, dry food, freezer and cooler. The cooler space will be large enough to allow for more fresh goods to be used for cooking.

The cooking equipment would be varied so as to provide a range of menu options. The equipment would include Combi Ovens, Convection Ovens, Steamers, Grill, Range and Skillet. A blast freezer would be incorporated to allow for holding of excess production and for off season vegetables.

Each servery will be set up with hot and cold stations along with grab and go storage. The students will go through the lines and will be served the hot meal and the cold meal. Students would also have access to use grab and go for salads, and yogurts.

Clean up will incorporate composting and the possibility of using reusable trays. The option to use reusable trays would be facilitated by a tray drop off area with dish machine.

Loading – should have close proximity to kitchen and kitchen on grade level. Typically uses box trucks (24-ft) for deliveries.

DINING

The CPS Food Services program philosophy is that lunch should be provide in an atmosphere that is comfortable and encourages healthy eating and a connection with curriculum. CPS Food service is recognized nationwide as a high-quality and innovative program. The program focuses on scratch prep, local ingredients and connection to the City Sprouts garden. The design should reflect all that is going on with food services, farm to table, ethnic cuisine, compost and healthy eating. Seating should not feel institutional but have a setting that feels like home or a retail dining experience. There should be a variety of seating types and areas through the dining space. Natural light is important in the dining area. Access to the outdoors for seating and City Sprouts access would be great to have. A prep area open to seating area or perhaps glass wall to corridor would be the best way to connect students and curriculum. Kitchen and server should be able to be closed off when events happen in the cafeteria seating area. They need accommodation for composting and recycling of waste.

CPS is looking into universal breakfast in classrooms. This would have an impact in terms of disposal in the classrooms and will need to be looked at in design.

CURRICULUM COLLABORATION

Food Services does several programs which connect to food education and also connect with other educational programs within the schools. The program caters to the local community with culturally specific cuisine. In a partnership with Cambridge Public Health they hold an international taste test. Some dishes that are well liked are added to the menu. Information goes out to teachers about how the dishes are made and with what ingredients are. Some teachers assign reading and research lessons based on the dishes. ANother program focuses around Chinese New Year.

City Sprouts connects with Food Services as well. Produce from the gardens is used in dishes and City Sprouts will do a lesson in the cafeteria around the dishes.

5.8 POOL SYSTEMS

The Gold Star Pool will include two bodies of water which will be designed to be utilized for approximately thirteen weeks during the peak summer season. After seasonal use the pool shall be drained, winterized, and covered with a safety cover to prevent damage and reduce risk during the remainder of the year when the pools are not being used.

The larger body of water will include: a 4-lane x 25-yard lap pool and a zero-depth accessible ramp. The lap portion shall be 35' wide x 75'-1" in length. The 35 foot width provides for four 8'0" wide swim lanes with 1'-6" between the sides of the pool and the outside lanes, and the 25-yard length provides area to support the following programs: Fitness Swimming, Open Swimming, Learn to Swim Programs, Lap Swimming, Local Competitive Swimming, Recreational Water Sports, Lifeguard, Red Cross and Public Safety Training, Physical Education Programs, Kinesiology, Therapy and Physiology Programs, Recreational Class Based Programs (aerobics, aqua zoomba, etc.).

Permanent tile lane markings on the bottom and ends of the pool shall be provided per competitive requirements. Starting block anchors shall be provided to allow for short course yard swim events, with blocks at the deep end of the pool. Pool water depths shall range from 3'-6" feet to 10'-0" with a 7'-3" section at the main drains with the exception of the zero-depth entry ramp portion of the pool. The pool shall feature a skimmer gutter system and shall include in-pool lights to allow for safe night use. Ingress and egress shall be provided with walk-in stairs, the zero-depth entry ramp, three (3) sets of grab rails, and an ADA compliant accessible lift.

The smaller body of water will be a C shaped pool with depths ranging from 1'-0" at the bottom of the stairs to a depth of 3'-0" at the opposite end of the pool. The peninsula the creates the C shape is designed to help separate the shallower water from the deeper water so that users who are not as comfortable with deeper water can more easily be supervised and controlled. The pool shall be designed to support the following programs: Open Swim, Learn to Swim, Physical Education Programs, Kinesiology, Therapy and Physiology Programs, Recreational Class Based Programs (aerobics, aqua zoomba, etc.). The pool shall feature a skimmer gutter system and shall include in-pool lights to allow for safe night use. Ingress and egress shall be provided with walk-in stairs, one (1) set of grab rails, and an ADA compliant accessible lift.

POOL CONSTRUCTION METHODS

Pool shall be machine excavated and hand trimmed, where permitted by soil conditions. If soil conditions are not suitable for using the excavation as a form, pool shall be over-excavated and formed (one-sided formwork). Upon completion of pool structure curing period, forms shall be stripped, and engineered backfill shall be compacted to 95% maximum density provided to pool deck sub-grade elevation.

Finish sub-grade elevation of pool floor shall be lowered by a minimum of 18" (450 millimeters) to accommodate a layer of drain rock within the excavation and provide a working mat during construction. Perforated pipes and a sounding well with submersible pump(s) shall be provided to mitigate potential ground water migration into the excavation during construction phase, and hydrostatic relief valves shall be installed within pool main drain sumps (minimum of 2 each) to mitigate potential for hydrostatic pressure when pool is drained post-construction.

Pool structure shall be steel reinforced, pneumatically-applied concrete with a minimum compressive strength of 3,000 pounds per square inch (207 bar). Shotcrete finish shall be compatible with installation of pool interior waterproof finishes.

Pool finishes shall consist of a rim-flow gutter spanning over a continuous perimeter gutter system, a 150 millimeter (6") band of ceramic tile below waterline, 300 millimeter (12") wide unglazed ceramic mosaic tile lane lines and targets on the tank floor and walls, and white marble pool plaster for all other interior finishes.

POOL SUPPORT BUILDING

The pool support building will be a traditionally constructed building with highly durable finishes to withstand the wet conditions of a building that services a swimming pool.

Pool Mechanical and Chemical Enclosure: The pool mechanical and chemical equipment and

systems shall be located in an enclosure capable of providing protection from the elements and from vandals. The room shall be either treated with forced air equivalent of providing 1.5cfm/sf or be designed in such a manner that airflow can occur naturally at both low and high elevations. The enclosure itself can be a prefabricated structure or a site built structure comprised of long lasting and highly durable surfaces. The floor slab of the enclosure shall be concrete with a medium broom finish and shall feature floor drains connecting to sanitary sewer as needed and one (approximately 6") connection for the backwashing of filters. A (approximately 1") fill line will be provided into the enclosure. Two separate chemical rooms will be provided as part of the enclosure. Each room will be approximately 8' x 8'. These rooms shall have doors that open externally, not directly into the enclosure with the rest of the equipment. Air should be prevented from travelling between these two rooms or from the rooms into the main enclosure. No floor drains shall be provided in these rooms.

Pool Equipment:

Pool safety equipment, maintenance equipment, fittings, and deck equipment shall be installed in strict accordance with pertinent codes and regulations and the manufacturer's published recommendations, anchoring firmly and securely for long life under hard use.

Pool mechanical equipment shall conform to the following design criteria:

Circulation pumps (minimum of two, sized for 100% of total required flow rate each) shall be horizontally mounted end suction centrifugal pumps, bronze fitted, stainless steel shaft, with fuse coat epoxy on all wetted surfaces. Motors shall be totally enclosed, fan cooled, premium efficiency, 1,150 RPM.

Filtration system shall be hi-rate sand with a flow rate not to exceed 15 gallons per minute / square foot of filter area. Filtration system shall be furnished complete with influent piping manifold, effluent piping manifold, backwash piping manifold, and all necessary valves and fittings as required for normal filtration and automated backwash operations. Influent and effluent pressure gauges, pool water temperature gauges and flow meter with paddlewheel flowsensor shall also be provided as part of a fully integrated system.

Chemical treatment system shall utilize calcium hypochlorite as the primary oxidant. The oxidant feed system shall be capable of providing a constant in-tank chlorine residual of 1-15 parts per million. The pH shall be controlled to a reading of 7.2 - 7.6 through the utilization of muriatic acid. Both chemical feed systems shall be automatically controlled by a single chemical controller with the capacity of monitoring and continually adjusting ORP, PPM, and pH.

Pool water heating system shall incorporate the use of multiple natural gas fired pool heaters piped to dedicated cupro-nickel pool heat exchangers with minimum 97% thermal efficiency, sized to provide a 25 degree Fahrenheit temperature rise within twenty-four hours, and shall be furnished with electronic ignitions, integral recirculating pumps, and cupro-nickel heat exchangers. A pair of tees with blind flanges on outlet side shall be provided downstream of the filtration system (but upstream of pool water heating system) to allow for installation of thermal solar heating system in the future if ever desired.

Pool Mechanical:

Pool mechanical piping shall consist of Schedule 40 PVC for all below grade piping and Schedule 80 PVC for all above grade piping. Piping shall be sized for velocities not to exceed 6 feet per second (1.8 meters per second) for suction (return) piping and 8 feet per second (2.4 meters per second) for discharge (supply) piping. All underground piping shall have a minimum of 18" (450 millimeters) of earth cover. Provisions shall be made for automated filling of the pool to compensate for water loss due to filter backwash operations and evaporation.

Pool Electrical:

Lap Pool electrical work shall include: conduit, conductors and breakers for all single phase electrical equipment; conduit, conductors and motor starters for all three phase electrical equipment; and control circuitry and interface between circulation pump(s), filtration microprocessor, pool water heater recirculating pumps, passive thermal solar system controls, water chemistry controller and water level controller. LED lighting fixtures shall be utilized for underwater lighting of the pool, which shall provide an 85% reduction in installed underwater lighting watts. In addition, the LED fixtures are rated for 50,000 hours of service, versus 3,000 hours for incandescent fixtures.

5.9 SUSTAINABILITY

The goal of this project is to provide a building that has a healthy, comfortable interior space while creating a minimal impact on the environment. The building will also allow for transparentlt learning, where the building and site systems will support curriculum related those systems. To achieve this goal the building will adress the areas of energy use, water use, content of building materials, air quality, acoustics, solid waste and resilience, each of which has a variety of aspects that contribute to it.

NET ZERO ENERGY

In its major construction projects, the City of Cambridge seeks to lead by example in reducing and minimizing greenhouse gas emissions and other environmental impacts of its facilities. The City of Cambridge has set a municipal standard of achieving Net Zero for new construction municipal projects by 2020. The City plans to implement this requirement sooner if possible. This project will have a goal to be design to Net Zero Energy potential. Net Zero Energy refers to a building for which, on an annual basis, all greenhouse gas emissions resulting from building operations are offset by carbon-free energy production. The building will incorporate design strategies which significantly reduce the energy use loads compared to a “typical” building of the same type. The resultant energy use will be provided for by renewable energy in the form of solar (photovoltaic) and solar thermal energy.

Achievement of the net zero energy goal will require a combination of several strategies including the following:

- Reduce annual energy requirements of the project through continued optimization of the building design.
- Engagement with occupants and building users to reduce their energy needs without sacrificing on building programs and mission.
- Strategies for purchasing the most efficient photovoltaic (PV) panels available for the project.
- Larger areas of PV supported on structures independent of building roof areas, either above the building or on site.

All of the above strategies and approaches can be implemented on the project but will require the full participation and engagement of all stakeholders. Achieving net zero energy will not occur without a mindset of active engagement in the goal. If net zero energy is to be achieved, it will be necessary to make changes in occupant behavior. In addition, stakeholders will need to work hard at optimizing the use of energy on the project. Finally, changes in procurement for the PV system and changes to the design may be required. These are all possible and therefore net zero energy is a possibility for the King Open and Cambridge Street Upper Schools & Community Complex.

Refer to Volume 3: Appendix C for the full Net Zero Report.

RESILIENCY

The project will work with the Cambridge Climate Change Vulnerability Assessment and Plan as they are developed to incorporate aspects that pertain to the project site. Per the preliminary CCVA this site will be prone to some minimal flooding and extreme heat in the coming years. The project will address these issues as design progresses.

The building will be equiped with an emergency generator to provide life safety, freeze protection and refrigeration as needed.

Refer to the civil, site, mechanical and electrical system recommendations in this chapter for further information on these topics.

LEED

The project will be designed to the LEED v4 BD+C: Schools rating system and aim to achieve a minimum silver certification. The credit goals will adjust as the design progresses in subsequent phases but attached is a preliminary checklist.

PROJECT CHECKLIST - LEED V4 FOR BD+C: SCHOOLS

Y	?	N			
0	1	0	Credit 1	Integrative Process	1
4	**8**	**3**	**Location and Transportation**		**15**
0	0	na	Credit 1	LEED for Neighborhood Development Location	15
1	0	0	Credit 2	Sensitive Land Protection	1
0	2	0	Credit 3	High Priority Site	2
2	3	0	Credit 4	Surrounding Density and Diverse Uses	5
1	1	2	Credit 5	Access to Quality Transit	4
0	1	0	Credit 6	Bicycle Facilities	1
0	0	1	Credit 7	Reduced Parking Footprint	1
0	1	0	Credit 8	Green Vehicles	1
6	**4**	**2**	**Sustainable Sites**		**12**
Y			Prereq 1	Construction Activity Pollution Prevention	Required
Y			Prereq 2	Environmental Site Assessment	Required
1	0	0	Credit 1	Site Assessment	1
2	0	0	Credit 2	Site Development - Protect or Restore Habitat	2
1	0	0	Credit 3	Open Space	1
0	3	0	Credit 4	Rainwater Management	3
1	0	1	Credit 5	Heat Island Reduction	2
0	1	0	Credit 6	Light Pollution Reduction	1
0	0	1	Credit 7	Site Master Plan	1
1	0	0	Credit 8	Joint Use of Facilities	1
5	**3**	**4**	**Water Efficiency**		**12**
Y			Prereq 1	Outdoor Water Use Reduction	Required
Y			Prereq 2	Indoor Water Use Reduction	Required
Y			Prereq 3	Building-Level Water Metering	Required
0	2	0	Credit 1	Outdoor Water Use Reduction	2
4	1	2	Credit 2	Indoor Water Use Reduction	7
0	0	2	Credit 3	Cooling Tower Water Use	2
1	0	0	Credit 4	Water Metering	1
26	**3**	**2**	**Energy and Atmosphere**		**31**
Y			Prereq 1	Fundamental Commissioning and Verification	Required
Y			Prereq 2	Minimum Energy Performance	Required
Y			Prereq 3	Building-Level Energy Metering	Required
Y			Prereq 4	Fundamental Refrigerant Management	Required
6	0	0	Credit 1	Enhanced Commissioning	6
16	0	0	Credit 2	Optimize Energy Performance	16
1	0	0	Credit 3	Advanced Energy Metering	1
0	2	0	Credit 4	Demand Response	2
3	0	0	Credit 5	Renewable Energy Production	3
0	1	0	Credit 6	Enhanced Refrigerant Management	1
0	0	2	Credit 7	Green Power and Carbon Offsets	2
5	**8**	**0**	**Materials and Resources**		**13**
Y			Prereq 1	Storage and Collection of Recyclables	Required
Y			Prereq 2	Construction and Demolition Waste Management Planning	Required
0	5	0	Credit 1	Building Life-Cycle Impact Reduction	5
1	1	0	Credit 2	"Building Product Disclosure and Optimization - Environmental Product Declarations"	2
0	2	0	Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
2	0	0	Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2
2	0	0	Credit 5	Construction and Demolition Waste Management	2
8	**8**	**0**	**Indoor Environmental Quality**		**16**
Y			Prereq 1	Minimum Indoor Air Quality Performance	Required
Y			Prereq 2	Environmental Tobacco Smoke Control	Required
Y			Prereq 3	Minimum Acoustic Performance	Required
0	2	0	Credit 1	Enhanced Indoor Air Quality Strategies	2
2	1	0	Credit 2	Low-Emitting Materials	3
1	0	0	Credit 3	Construction Indoor Air Quality Management Plan	1
0	2	0	Credit 4	Indoor Air Quality Assessment	2
1	0	0	Credit 5	Thermal Comfort	1
1	1	0	Credit 6	Interior Lighting	2
2	1	0	Credit 7	Daylight	3
1	0	0	Credit 8	Quality Views	1
0	1	0	Credit 9	Acoustic Performance	1
4	**2**	**0**	**Innovation**		**6**
1	0	0	Credit 1	Exemplary Performance Eac 5 Renewable Energy Production 100%	1
1	0	0	Credit 1.2	Exemplary Performance MRc5 Construction and Demolition Waste Management 90%	1
0	1	0	Credit 1.3	Innovation: Building as a Teaching Tool	1
0	1	0	Credit 1.4	Pilot Credit: Food Production	1
1	0	0	Credit 1.5	Pilot Credit: Social Equity within Project Team (Construction Workers)	1
1	0	0	Credit 2	LEED Accredited Professional	1
3	**1**	**0**	**Regional Priority**		**4**
0	1	0	Credit 1	Regional Priority: Rainwater Management 2 of 3 points	1
1	0	0	Credit 2	Regional Priority: Indoor Water Use Reduction 4 of 7 points	1
1	0	0	Credit 3	Regional Priority: Optimize Energy Performance 8 of 16 points	1
1	0	0	Credit 4	Regional Priority: Renewable Energy Production 2 of 3 points	1
61	**38**	**11**	**TOTALS**	**Possible Points:**	**110**

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110

6.0 Other Design Options

6.1 INDOOR POOL ALTERNATE

There was some request by community members to include an indoor year round pool in the project instead of an outdoor pool. This alternate pool design was reviewed as part of the feasibility study. It was determined that indoor pool is not feasible for the project for several reasons. First, the City of Cambridge does not see a high demand for an indoor pool beyond the pool at the War Memorial Building. The City is looking at expanded open swim time at the War Memorial. Secondly, the bulk of the massing for an indoor pool would decrease the amount of open space on the site and increase the building height. Third, there is a high construction and operational cost for an indoor pool. The operational cost including heating water, conditioning the space, maintenance and operations staff is significantly more than an outdoor pool. Finally, an indoor pool would prevent the project from being able to meet the net zero energy goal. The energy used to heat the pool water and condition the indoor environment is significant and there is not enough room on the site to generate the amount of renewable energy needed to supply the nergy use for the indoor pool.

Model of Selected Option with CPS Administration Offices

6.2 CPS ADMINISTRATION OFFICES ALTERNATE

The relocation of the Cambridge Public Schools District Administration Offices from Thorndike Street to the project site was considered as part of the feasibility study. Specifically it was studied in two locations, either below the school wing on a sub-grade level or above the group activity wing on the fourth floor. It was determined that CPS Administration Offices would be most appropriately located on this site above the group activity wing on the eastern side of the site.

The inclusion of the CPS Administration Offices will be considered as a programming and design element through Schematic Design. The final determination whether to include CPS Administration Offices shall be determined by the City after more detailed cost, zoning, net zero and other related issues are analyzed during Schematic Design.

CPS ADMINISTRATION OFFICES

DEPARTMENT	ROOM NFA	# OF RMS	TOTAL NFA	# OF STAFF
Curriculum and Educator Support			**1,350**	**22**
Assessment Specialist	60	1	60	1
Bilingual Coach	45	1	45	1
Bilingual Coordinator	80	1	80	1
Bilingual TIC	45	2	90	2
English Language Arts Coach	45	1	45	1
English Language Arts Coordinator	80	1	80	1
Math Coach	45	2	90	2
Math Coordinator	80	1	80	1
Program Manager Staff Development	60	1	60	1
R&D Analyst	60	1	60	1
Science Mentor	60	2	120	2
Secretary	60	2	120	2
Social Studies Coach	45	1	45	1
Social Studies Coordinator	80	1	80	1
STEM Coordinator	80	1	80	1
Bilingual Liason (Itinerant)	45	3	135	3
General Office Area	80	1	80	
Family Communications & Engagement			**120**	**2**
Communications Manager	60	1	60	1
Welcoming Schools Coordinator	60	1	60	1
Financial Operations/Budget/Grants			**440**	**5**
Asst Director Budget/Fin Ops	120	1	120	1
Financial Operations Specialist	60	1	60	1
Grants Coordinator	60	1	60	1
Budget Analyst	60	2	120	2
General Office Area	80	1	80	
Financial Operations/Payroll			**435**	**6**
Payroll Clerk	45	3	135	3
Payroll Manager	100	1	100	1
Payroll System Support Specialist	60	2	120	2
General Office Area	80	1	80	
Financial Operations/Purchasing & AP			**415**	**5**
Accounts Payable Clerk	45	1	45	1
Buyer	45	2	90	2
Purchasing/AP Manager	100	1	100	1
Assistant Manager AP	60	1	60	1
General Office Area	120	1	120	
Human Resources			**915**	**9**
Affirmative Action / EEO	60	1	60	1
Benefits Specialist	100	1	100	1
Clerk Specialist	45	1	45	1
Employment Clerk	45	2	90	2
Executive Director of HR	180	1	180	1
HRIS Data Coordinator	60	1	60	1
Manager of HR	120	1	120	1
Secretary	60	1	60	1
General Office Area	80	1	80	
Reception Area	80	1	80	
HR Applicant Desk Area	20	2	40	
Mailroom & Delivery			**250**	**1**
Mailroom Clerk	250	1	250	1
Office of Student Services			**965**	**11**
Assistant Superintendent of Student Services	180	1	180	1
Coordinator of Early Childhood	80	1	80	1
Coordinator of Instruction	80	1	80	1
Coordinator Out-of-District	80	1	80	1
Director of Student Services	120	1	120	1
Program Manager-Academic Challenge	60	1	60	1
Secretary	60	1	60	1
Secretary to Asst Super/Director	60	1	60	1
SpEd Parent Advisory Council Coord	45	1	45	1
Teacher Compliance Specialist	60	1	60	1
TIC of Psychologists	60	1	60	1
General Office Area	80	1	80	
Office of Student Services/Fiscal & Ops			**270**	**4**
Assistant Program Manager	60	1	60	1
Clerk Specialist	45	1	45	1

CPS ADMINISTRATION OFFICES

DEPARTMENT	ROOM NFA	# OF RMS	TOTAL NFA	# OF STAFF
Fiscal & Operations Manager	120	1	120	1
IEP Management Clerk	45	1	45	1
Title I & Early Childhood & OST			**790**	**10**
Early Childhood Director	120	1	120	1
Early Childhood Program Quality Specialist	60	1	60	1
Family Liaison	60	1	60	1
Kindergarten Program Manager	60	1	60	1
OST Assistant Manager	60	1	60	1
Program Manager	80	1	80	1
Secretary	60	1	60	1
Title I Director	120	1	120	1
CFCE Itinerant Staff	45	2	90	2
General Office Area	80	1	80	
Admin / Chief Operating Officer			**320**	**2**
Chief Operating Officer	180	1	180	1
Operations Assistant	60	1	60	1
General Office Area	80	1	80	0
Admin / Chief Financial Officer			**180**	**1**
Chief Financial Officer	180	1	180	1
Admin / Assistant Superintendent			**420**	**3**
Assistant Superintendent of C&I	180	1	180	1
Assistant Superintendent of Elem & Early Ed	180	1	180	1
Secretary	60	1	60	1
Admin / Deputy Superintendent			**240**	**2**
Deputy Superintendent	180	1	180	1
Secretary	60	1	60	1
Admin / Legal			**425**	**3**
Law Student Intern	45	1	45	1
Legal Counsel	120	1	120	1
Secretary	60	1	60	1
Conference/Workroom	120	1	120	
General Office Area	80	1	80	
Admin / Superintendent			**660**	**3**
Chief of Staff	120	1	120	1
Secretary	60	1	60	1

DEPARTMENT	ROOM NFA	# OF RMS	TOTAL NFA	# OF STAFF
Superintendent	180	1	180	1
Superintendent's Conf Room - 15 ppl	220	1	220	
Superintendent's Reception	80	1	80	
Shared			**2,280**	
Large Training Room - 50 ppl	650	1	650	
Large Conference Room - 20 ppl	250	1	250	
Medium Conference Room - 15 ppl	220	2	440	
Small Conference Room - 8 ppl	150	2	300	
Lobby	120	1	120	
Staff Lounge	200	1	200	
Copy/Printer/Supply Rooms	80	4	320	
Office Area			**10,475**	
Total Net Floor Area (NFA)			**12,570**	
Total Staff Count				**89**

Architects' Design Lab

6.3 OTHER OPTIONS STUDIED

After hearing from both the users and the community, the architectural team setup a "design lab" within their office. The team looked at many case studies of existing schools and massing schemes were put together organizing the required program on site. Many options were studied and discussed with the city based on their Civic Quality, their ability to serve the needs of the School, Community Accessibility, and Open Space. These resulted in two options which were presented to the community for feedback. Refer to Chapter 3.0 for the selcted design option.