ARROWSTREET

DESIGN DEVELOPMENT REPORT

SQUANTUM SCHOOL

QUINCY, MA
20 DECEMBER 2024

PREPARED FOR
QUINCY SCHOOL BUILDING COMMITTEE &
MASSACHUSETTS SCHOOL BUILDING AUTHORITY

December 20, 2024

Ms. Carley Belfield, Project Coordinator
Ms. Christina Forde, Project Manager
Massachusetts School Building Authority
40 Broad Street, Suite 500
Boston, MA 02109

Re: Squantum School, Quincy MA Design Development Submission

Dear Ms. Belfield & Ms. Forde,

Enclosed for your review is the Design Development Design submission package for the Squantum School project in Quincy, MA, which includes the following documents:

- (1) Electronic copy of Design Development (DD) binder (electronic transfer by e-mail)
- (1) Electronic copy of 4 set of drawings (electronic transfer by e-mail)
  - Design Development drawings of the Main Building Package
  - 50% Construction Documents Geothermal Package
  - 50% Construction Documents Demolition Package
  - 50% Construction Documents Enabling Package
- (1) Electronic copy of 4 sets specifications (electronic transfer by e-mail)
  - Design Development drawings of the Main Building Package
  - 50% Construction Documents Geothermal Package
  - 50% Construction Documents Demolition Package
  - 50% Construction Documents Enabling Package
- (1) Electronic copy of DESE Submission (electronic transfer by e-mail)

We hereby certify that we have reviewed and coordinated the materials contained in this submittal, and that the submittal is complete. We also confirm that the City / District have approved the materials for submission to the MSBA.

Please contact me or Tom Kerwin with any questions or comments.

Sincerely,

Brian Laroche
Project Director

CC: Kevin Mulvey, Superintendent of Schools
Paul Hines, Commissioner of Public Buildings,
Larry Spang, Arrowstreet Architects

Acknowledgments

City of Quincy

Mayor Thomas P. Koch	Mayor of Quincy
Chris Walker	Chief of Staff
Mary Mulvey	Executive Assistant
Danielle Delloiacono	Administrative Assistant
Helen Murphy	Mayors Office Director of Operations
James Timmins	City Solicitor
Janet Petkun	Assistant City Solicitor
Eric Mason	Director of Municipal Finance
Brian Glavin	Director of IT
Rob Conlon	Director of Inspectional Services
James Anderson	Chief Building Inspector
Thomas Pecoraro	Chief Plumbing & Gas Inspector
Francis X White	Chief Wiring Inspector
Paul Hines	Commissioner of Public Buildings
Fiona Durkin	Executive Assistant Public Buildings
Gary Cunniff	Director of Engineering
Shelly Dein	Director of Energy and Sustainability
Walter MacDonald	Director of Building Maintenance
Ally Sleiman	Director of Emergency Management
Al Grazioso	Commissioner of Public Works
David Murphy	Commissioner of Natural Resources
Paul Costello	City Enginer
Kathryn Logan	Purchasing Agent
Joseph Jackson	Chief Fire Department
James Campbell	Captain Fire Prevention
Brent Campbell	Superintendent of Fire Alarm
Mark Kennedy	Chief Police Department

Quincy Public Schools

Kevin Mulvey, J.D.	Superintendent of Schools
Erin Perkins	Assistant Superintendent
Laura Owens	Assistant to Superintendent
Maura Papile, L.I.C.S.W.,	Senior Director of Student Support Services
Kim Connolly	Director of Diversity, Equity & Inclusion
Michael Draicchio	Director of Safety, Security & Transportation
Sara Dufour	Director of School Nutrition
Julie Graham	Director of Special Education
James Mullaney	Director of Business Affairs
Kevin Segalla	Coordinator, Custodial Services
Bob Cavallo	IT Systems Administrator
Stephen Sylvia	Squantum School Principal

School Building Committee

Mayor Thomas P. Koch	Mayor of Quincy
Kevin Mulvey, J.D.	Superintendent of Schools
Erin Perkins	Assistant Superintendent
Kathryn Logan	Purchasing Agent
Tina Cahill	School Committee Member
Paul Hines	Commissioner of Public Buildings
Stephen Sylvia	Squantum School Principal
Eric Mason	Director of Municipal Finance
Frank Santoro	Member of Community with Architecture Exp.
Susan Vinitsky	Squantum School Parent
Kim Wheelwright	Squantum School Parent
Walter MacDonald	Director of Building Maintenance

Massachusetts School Building Authority

Christina Forde	Project Manager
Carley Belfield	Project Coordinator

Owners Project Manager

PCA360

Tom Kerwin	Project Executive
Brian Laroche	Project Director

Construction Manager at Risk

Lee Kennedy

Tom LeClerc	Project Executive/Vice President
Ryan Kennedy	Director of Preconstruction
Brian Senk	General Superintendent

Design Team

Architect, Sustainability, Interior Design

Arrowstreet

Larry Spang	Principal
Tina Soo Hoo	Project Manager
Autumn Waldron	Project Architect

Structural Engineers	Lim Consultants, Inc.
Civil Engineering	Green International Affiliates, Inc.
Transporation Consultants	MDM Transportation Consultants, Inc.
Landscape Architect	Terraink
MEP/FP	GGD Consulting Engineers, Inc.
Security Consultant	Pamela Perini Consultanting
Acoustical & Audio/Video	Cavanaugh Tocci
Lighting Design	HLB Lighting Design
Foodservice Consultant	Crabtree McGrath Associates, Inc.
Building Code & Accessibility	Code Red
Education Planner	New Vista Design
Hazardous Materials Engineer	Universal Environmental Consultants
Geotechnical Engineer	Lahlaf
Geo-Environemental Engineer	Ransom
Specifications	Kalin Associates, Inc.
Cost Estimating	PM&C

SQUANTUM SCHOOL

Design Development Report
20 December 2025

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6A.1 INTRODUCTION

Introduction

We are pleased to submit this document for Design Development of the Squantum School in Quincy, Massachusetts. The work reflected is a collaborated effort of the Design Team, the Owner's Project Manager, the City of Quincy and Quincy Public Schools.

The Design Team, working closely with the School and City, has successfully advanced the school's design through the Design Development phase. This collaboration ensures that the project meets the educational and operational needs of the school community while aligning with broader city goals. The thoughtful planning and design effort reflects the commitment to creating a modern, functional learning environment for the Squantum School community.

The Squantum School project involves constructing a new school on its existing site, with strategic planning to ensure minimal disruption to students and staff. The 1971 wing will remain operational during construction, providing continuity in a safe environment while adjacent to an active construction site.

Basic Project Information

The new Squantum School is a public elementary school which will be located at 50 Huckins Avenue, Quincy, Massachusetts. The school will supports grades kindergarten to fifth grade. The Squantum School project includes a significant building addition and renovation to support a student enrollment of 380 and a staff of 80. The building is organized as a two-story structure in a total of 79,801 gross square feet. The total site area is 3.066 acres. The site topography has a slope, starting with the highest point at the southeast corner of the site with an elevation of 49.32' to the lowest point at the northwest corner of the site with an elevation of 31.4'. Many of the existing trees on the site are to be protected included two mature pin oak trees at the front of the school. There are no known resource areas located within the site. The site development includes renovation of a portion of the 1919 building with the remainder of the proposed building as a new addition. Included on the site is staff parking, separate bus and van drop-off/pick-up zone. The site takes advantage of the City paper for parent drop-off/pick-up which is a significant improvement to the current drop-off/pick-up on the south side of Huckins Avenue (opposite of the school). The school is fortunate to be located directly adjacent to Moses Park which is protected by Article 97. The school is making improvements to the Park to better serve the school and the community.

The building being design to be an all-electric building to achieve Net Zero Ready status on opening day.

To prioritize safety and efficiency:

- Safety Measures and Collaboration: The project team is working with Lee Kennedy to implement safety protocols and minimize disruptions to learning throughout the construction process.
- Early Enabling Packages:
  - » Geothermal Well Installation: Installing the wells ahead of building construction optimizes the use of the field for construction staging and lay down.
  - » Prepare the 1971 and create a connection to the modular classroom as the interim condition while the new school is being constructed.
  - » Demolition: The removal of the 1945 building and most of the 1919 structure is scheduled for summer 2025. During this time construction documents will be out for bid, with construction anticipated for fall 2025.
- The Early Packages and phased approach to the schedule limits the school's temporary conditions to two years.
- The New School is planned to be open fall 2027, and sitework will continue to construct the parking lot, complete landscaping, and restore and complete the park enhancements for the school.

Since the submission of the Schematic Design for the Squantum School project on June 21, 2024, several critical milestones have been achieved, advancing the project toward funding and implementation:

1. Schematic Design Revisions and Resubmission:
    - » The Schematic Design was resubmitted to the Massachusetts School Building Authority (MSBA) following revisions to address MSBA's review of the project's scope and budget.
    - » The MSBA provided comments on October 15, 2024, to which the project team responded by October 29, 2024.
2. Approval to Proceed to Module 5:
    - » On October 30, 2024, the MSBA Board voted to advance the Squantum School project into Module 5, Funding the Project, signaling a significant step forward.
3. Quincy City Council and Finance Committee Votes:
    - » On November 12, 2024, the Quincy City Council unanimously approved moving the request for the full project appropriation of $108,712,832 to the Finance Committee.
    - » On December 16, 2024, the Quincy City Council voted in favor of the full appropriation, solidifying financial support for the New Squantum School project.

These achievements reflect a strong commitment from both state and city stakeholders to move forward with this trans-formative project.

During DD, the City issued RFP for Modular classrooms. On October 11, Notice of Award as presented to Aries Building Systems. On October 16, the contract was issued and on November 18, the contract was fully executed.

Enrollment

The Squantum School shall remain as grades kindergarten to fifth. The project is approved with the design enrollment of 380 students.

Gross Area

The Design Development gross floor area (GSF) has slightly increased from the Schematic Design GSF, at 79,801 GSF to 80,058 GSF. The approved gross square feet in the Project Funding Agreement is 79,801 GSF. The increase remains under the allowable 1.5 grossing factor. The reason for the increase in GSF is due the Massachusetts Energy Code. For full explanation, refer to the Sustainability Requirement section "Energy Code Compliance Update – Passive House Pathway" on page 139.

Project Type

The New Squantum School is planned as an addition and renovation project planned in two phases, where the building will construction in phase and sitework will be completed as phase two. It is phased to allow existing 1971 building along with modular classrooms serve as the interim school.

Delivery Method

The School Building Committee approved Construction Manager at Risk (CMR) as the preferred vehicle of construction for the project.

Following the Schematic Design phase, the School Building Committee established a Construction Management Pre-qualification Sub-Committee to oversee the selection of a construction management company for the New Squantum School project.

This committee conducted a thorough evaluation process, which included:

- Reviewing proposals from multiple construction management firms.
- Conducting interviews with qualifying contractors to assess their capabilities and alignment with project needs.
- Evaluating each contractor's qualifications based on established criteria.

After completing this rigorous process, on October 11, the committee selected and awarded Lee Kennedy as the Construction Manager at Risk for the project. Their appointment reflects their proven expertise and ability to meet the project's goals of safety, efficiency, and quality during construction.

PCA360, on behalf of the City, negotiated the Agreement for CMR services with Lee Kennedy Company. On October 23, the contract was issued and on December 9, the contract was returned from Lee Kennedy for execution with the City.

Project Budget & Construction Costs

The Project Funding Agreement (PFA) has a total project budget of $108,712,832.

The PFA has an estimated construction cost of $81,246,053. The submittal notes that the OPM's current reconciled estimated construction cost is $82,112,720.

The CMR's current construction cost estimate is $82,112,720 by Lee Kennedy Company.

The Designer's current construction cost is $82,189,116 by PM&C.

A copy of the Designer's cost estimate is provided in Section "6A.3.4
Cost Estimates".

A copy of the CMR's cost estimate is provided in Section"6A.3.4
Cost Estimates".

6A.2 OPM DELIVERABLES

6A.2.1 Submittal Review & Coordination

The following review was performed by PCA360 after the Design Development (DD) pricing drawings were released and prior to the final DD submission to the MSBA. PCA360 is with working Arrowstreet and Lee Kennedy to follow up on these items as the project progresses into the Construction Documents (CD) phase.

Based on the review of the DD drawings and specifications, PCA360 recommends approval of the DD submission to the MSBA.

OPM'S Written Designer Submission

The following review was performed by PCA360. The drawings and specifications reviewed were the DD pricing set and prior to the final DD submission to MSBA. PCA360 is working with Arrowstreet and Lee Kennedy to follow up on these item as the project progress into the Construction Document phase. Refer the follow pages for PCA360's review memo.

December 3, 2024

Paul Hines, Commissioner of Public Buildings
City of Quincy
1305 Hancock Street
Quincy, MA 02169

Re: Squantum School, PCA360 Design Development review comments

Dear Paul,

The design development documents have been reviewed for constructability, technical accuracy, coordination, cost effectiveness, operability, phasing, bid ability, and site logistics during construction. Please find attached a copy of the drawing review comments that were prepared by PCA360 and provided to the design team. The following is a summary of the review topics that were followed when evaluating the documents:

Constructability The OPM conducted a detailed constructability review by analyzing the feasibility of executing the design as proposed. This included identifying any potential challenges in materials, methods, or sequencing. We reviewed the plans with respect to industry best practices, ensuring the design can be built safely and efficiently without undue complications or rework. PCA360's comments also highlighted areas where additional details or clarifications were needed to prevent construction delays.

Technical Accuracy To ensure technical accuracy, the OPM reviewed the design documents to confirm compliance with applicable building codes, standards, and project requirements. We collaborated closely with the design team to verify specifications, and other technical details. Any discrepancies or omissions were flagged and addressed during our review meetings.

Coordination Between Disciplines The OPM evaluated the design for interdisciplinary coordination to ensure that architectural, structural, mechanical, electrical, and plumbing systems are properly integrated. PCA360's comments were intended to help improve the clarity of responsibilities between different trades.

Cost Effectiveness Our review included an assessment of cost effectiveness, ensuring that the design aligns with the project's budget while maintaining quality. We evaluated material selections, construction methods, and value engineering opportunities to recommend alternatives where appropriate. These adjustments aim to optimize the budget without compromising the project's objectives.

Operability The operability of the finished facility was carefully considered to ensure it meets the end-users' needs. The OPM evaluated design elements such as layout efficiency, accessibility, and maintainability. Feedback from City departments, including Public Building and School officials, was instrumental in refining the design to enhance long-term usability.

Phasing With the CMR now onboard, significant attention has been given to phasing. The OPM reviewed the sequencing of demolition, temporary construction, and the integration of new facilities while maintaining existing operations. Our collaboration with the team has led to a more comprehensive scope of work for phased construction, which will be reflected in the next iteration of the drawings.

Bid Ability The OPM assessed the design documents for bid ability, ensuring that the scope is clear and well-defined to minimize contractor uncertainty. We reviewed specifications and drawings to confirm that they provide sufficient detail for accurate and competitive bidding. PCA360's feedback was essential in refining the documents to reduce the risk of bid irregularities.

Site Logistics Site logistics during construction were evaluated to address access, material staging, and safety considerations. The OPM reviewed the construction site's constraints and provided recommendations to improve efficiency and minimize disruptions to adjacent properties and operations. Input from City departments and recent discussions with the CMR have further enhanced the planning for site logistics.

In addition to the team review (OAC), PCA360 has reviewed the documents with many of the City Departments, including Public Building, School, DPW, and Inspectional Services, and has relayed those comments to the design team in the form of meeting notes.

The combined efforts of the project team and City Departments have resulted in a thorough review of the design development documents, ensuring a high level of readiness for the next phase. We are confident that these evaluations and revisions will contribute to the successful execution of the project.

Sincerely,

Brian Laroche
Project Director

CC: Kevin Mulvey, Superintendent of Schools
Paul Hines, Commissioner of Public Buildings, City of Quincy
Larry Spang, Arrowstreet

Drawing Set	Sheet	Comment
Geothermal	Cover	No indication that this is geothermal well field pricing set
Geothermal	G0.2	Sheet Index for Geothermal has 7 sheets, however 13 sheets in printed set
Geothermal	C1.02	Scope of silt fence not clear, no delineation (linetype).
Geothermal	C1.02	R&D scope should not be included on a stormwater management plan
Geothermal	C1.02	Stormwater management details missing (silt fence, haybales, swaddle, stock pile materials, etc.)
Geothermal	GT-01	Note has 40 wells, HA report indicated total 36 required. (note that 2 exist, so the bidder knows to price only 34 in the bid.)
Geothermal	GT-01	GT-01 note has wells at 500 feet deep, at some point there was a discussion that 400 was an option, but would that require more wells and deeper wells, which is the most economical approach?
Geothermal	GT-01	CM's in interviews there was discussion about having a manifold chamber where all of the well piping was collected before heading to the school. This seems like a good concept that we'd like to explore with HA / GGD.
Geothermal	GT-01	"Approximate location of air relief valve" we've been stating that there are no impact to the parkland above, this is contrary. Although the vents are in chambers that are flush to the ground, can they be located at the edge of the parkland property line so that they don't impede on the use of the parkland.
Geothermal	GT-01	Notes #5, coordinate with other trades, there will be no other trades on the project during the well field installation.
Geothermal	GT-01	Water line in Winslow needs to be removed, it does not exist.
Geothermal	GT-01	City drain line installed in Summer 2024, needs to be added to the plan. Coordinate the elevations of GSHE piping elevation with the stormwater as-builts.
Geothermal	GT-01	The dashed limits of the GSHE scope should be just the area for that scope, not the entire site. In addition, the dashed line needs to follow the property line, currently several of the wells are outside the limits shown.
Geothermal	GT-01	Timing of brining in well field piping into the building needs to be factored, this scope to drill the wells is intended to be early and then they go away. This scope does not describe the timing of the piping work and ultimately how and went to test the early system vs the complete.
Geothermal	A1.00	Need to update the parkland scope to the current scope.

Demolition	Cover	No indication that this is demolition pricing set
Demolition	MD1.01	The 1971 wing has selective demolition, should this be shown on this set? I requires some abatement which I believe should be included in the demolition scope.
Demolition	MD1.01	No indication of the phasing of the enablement scope vs the demolition of the portion of the school in 2025.
Enablement	E.G0.03	The "Code Compliance Notes" are covering the legend.
Enablement	E.G0.03	Why provide 10' wide clearance between the existing school and the fencing line, can that be reduced to 5'...egress only requires 49.2"?
Enablement	E.G0.03	Can fencing be turned and die into the building at the corner by the egress doors? The building can act as the barrier to separate the two buildings. LKCo will need as much space as possible to install shoring.
Enablement	E.G0.03	Can the fencing between 1971 and modular at the construction line go from corner of modular directly to 1971?
Enablement	E.G0.04	Phase 2 enabling plan has two classrooms without labels, all the classrooms should be programmed, please confirm/
Enablement	E.G0.04	Phase 1 Early Site work, Winslow will not be paved by the City or ever used as an interim circulation route.
Enablement	E.G0.04	Phase 1 Early Site work plan has a typo "Isolvation" should be "Isolation"
Enablement	EX.01	Can survey plan be updated to remove the water line from Winslow that was confirmed not to exist? Can the 18" drain line that was added in 2024 be shown per as-built plans provided?
Enablement	E.C0.01	Can the layout of the two Conex boxes be updated per OAC meeting notes on 11/20?
Enablement	E.C0.01	Can the sidewalk from Huckins to 1971 be shown as bituminous rather than cast concrete?
Enablement	E.C0.01	The area between the modular, connector and 1971 building should be fully paved with bituminous, the area will be heavily used, no grass will grow, dirt will be tracked into the building.
Enablement	E.C0.01	Any new pathways should all be bituminous not cast concrete.
Enablement	E.C0.01	Need to show a parking plan for staff on Parke Ave that can accommodate 50 vehicles, PCA360 intends to bring this up at the next OAC to devise a scope. A bituminous path from the North modular doors need to connect to the staff parking area.

Enablement	E.C0.01	Need to work with DPW on how dumpster will work, is it a type that can be wheeled or will it need to be driven directly up to or backed into? Need to show a dumpster enclosure with a fence. Can be chain link with privacy slats.
Enablement	E.C0.01	Does the front yard of the 1971 school get fenced in for a play area? This was discussed in the working groups as an option for a play area for the school.
Enablement	ES.003	There are a lot of extra details for concrete that are not going to be used. Currently the only concrete work should be the modular foundation piers, that scope to be confirmed with modular provider.
Enablement	ES.004	There are a lot of extra details for concrete that are not going to be used. Currently the only concrete work should be the modular foundation piers, that scope to be confirmed with modular provider.
Enablement	ES.100	The boiler room scope will now be a Conex box, delete scope to site build structure.
Enablement	ES.100	Can the connector be built on helical foundations and not have to install concrete?
Enablement	ES.100	Can the connector have a cantilever overhang over the entry of 4' to protect the doors and landings?
Enablement	E.AD2.01	The existing 1971 connector to the 1949 wing should have a note indicating that temporary shoring will be required during demolition, before the new is constructed. .
Enablement	E.AD3.00	Note "E.15" and "E.15" not defined.
Enablement	E.A0.01	Project General Notes not all applicable to enablement scope, should be reviewed and updated.
Enablement	E.A1.00	Show gates at existing walkways for fenced in outdoor play area.
Enablement	E.A1.00	At 1971 egress at the West, the space is dimensioned as 12', other drawing is 10', can it be 5' which still meets required egress? The reason is to allow LKCo as much space for their work as possible. Sewer line needs to be run through here as well as supportive excavation.
Enablement	E.A1.00	1971, modular and connector entry area should be fully paved.
Enablement	E.A1.00	Do not use any concrete for walkways, only bituminous paving.
Enablement	E.A1.00	Can the layout of the two Conex boxes be updated per OAC meeting notes on 11/20?
Enablement	E.A1.00	Would like a 8'x16' Conex box to be shown for school storage in the space between the 1971 and modular to the West. Align

		and tight with modular corner with doors facing the existing exterior door. Need hardware on existing door to be modified to always locked both directions.
Enablement	E.A2.01	Walls missing from Room 6A and 6. Did we discuss having walls surrounding the multi-use space for acoustic separation to the classrooms?
Enablement	E.A2.01	Door missing between Room 1 and 2.
Enablement	E.A2.01	The boiler room scope will now be a Conex box, delete scope to site build structure.
Enablement	E.A2.01	The connector ramp railing extensions are not show, looks like if added could impede access.
Enablement	E.A2.01	Modular note to be updated to show that utility connections and site prep are by CM.
Enablement	E.A2.01	Do you have a furniture plan for the front office? Should Steve have a wall office in this room with a counter to separate the staff from incoming guests / students / parents?
Enablement	E.A3.00	Can there be vision panels 4" x ?? In the exterior doors?
Enablement	E.A3.00	Lighting for exterior doors?
Enablement	E.A3.00	Overhang for protection of exterior doors from snow and rain?
Enablement	E.A4.00	Can roofing be pitched to a gutter? Show overhang for doors? Framed floor is drawn to the exterior
Enablement	E.A5.00	Can the in-fill of exterior windows keep the window but use shaft wall with exterior densglass for in-fill? Be great not to have to abate the windows at this time if at all possible.
Enablement	E.PD2.01	Need to have provisions for draining the existing building 10" drain that is currently shown to be capped. The line could turn 90 and connect to the existing drainage that is under the modular. It is likely that a manhole structure is needed and the piping all going to the new City storm drain line in Winslow. The existing drains in the front yard of the school need to be maintained during the temporary condition,
Enablement	E.M0.01	Should there be two electric boilers that are smaller, that way there is redundancy built into the boiler plant?
Enablement	E.E100	Can the layout of the two Conex boxes and electrical service be updated per OAC meeting notes on 11/20?
Enablement	E.E200	One-line diagram needs to be updated per OAC meeting notes on 11/20.
Enablement	E.E300	Layout of building does not match the architectural layout. Notes don't seem appropriate for spaces that are to be demolished.
Enablement	E.SEC002	See mark-up

Enablement		
Enablement		
New School	G0.06	Expand occupancy tables per discussion during ISD review. The total 2nd floor was reported to ISD as 495, not 499.
New School	G0.07	The construction laydown area should be shown to extend to the neighboring property on Mayflower and the parkland.
New School	EX.01	The survey should be updated to removed the water line in Winslow that was confirmed to not exist, in addition the drain line should be added per the as-builts.
New School	C1.02	The catch basins on the South and East side of the existing school property need to be maintained and temporarily connected to the new drain line in Winslow during the construction of the new school
New School	C1.03	What is the grid depicted over the generator and transformer area?
New School	C1.03	Should a parking spot on either side of the front and rear entry crosswalks be HC? Or maybe just one at the rear? Item for discussions with QPB.
New School	C1.03	Need to review the dumpster enclosure, not sure this is large enough. The school dept will store large wheeled bins in the enclosure that will be used for recycling. They will only keep one or two in the building. In addition, future provisions for storage of compost waste. need to be considered. Review with DPW waste management director for dumpster / bin requirements.
New School	C1,04	The grade of the sidewalk on the East entry door is 43', however the bus lane is 43', there does not seem to be enough grade change for the curb / HC ramp. Need to ensure positive drainage away from the building.
New School	C1.05	Proposed SMH-1 for the connection in the street for the new grease trap needs to be reviewed with the City Engineer, the City has permitted a chimney connection to the sewer main on projects.
New School	C1.05	Basement access, sidewalk is to have a steep bump (ramp) at the edge of City sidewalk to the walkway to ensure that water will not get into the basement if the street were flooded.
New School	C1.05	The plan is very hard to read, there is too much going on with the existing survey shown as well as the proposed.
New School	CT1.00	School Zone Signs to be include as part of the project, should be stand alone solar powered up and down on Huckins Ave.

New School	L0.01	Patrick White memorial tree (#5) called to be removed, needs to be called out to be relocated. I believe it is mistaken as tree #4 which has a "T" which indicates it is to be transplanted.
New School	L4.03	The double gate at detail 4 is too wide, the opening is only 14' wide. Should be single arm that nests into a post both at closed and open positions to allow for it to be secured in position. No support leg with foot, swing arm only.
New School	L4.03	Details for fence enclosures at #6 and #3 don't match the plan configuration. Need to review in detail the design of the stand along dumpster enclosure with QPB.
New School	S1.02	The interior ramp near the rear entry is not depicted on the plan.
New School	A1.00	Park plan needs to be updated to current scope
New School	A2.22A	Literacy 103 - the projector should be centered on the room not the wall.
New School	A2.22B	
New School		
New School	A2.23A	The guardrail from Corridor 200 should be full height and possibly a glass wall? Both the school committee and superintendent have asked for this.
New School		
New School	A2.24A	The roof plan needs to be developed to show the taper insulation plan, roof drain sumps, overflow drains, etc. The roof over the library, should the flat be recessed slightly with a short parapet with internal drains?
New School	A2.24B	Can the 10' separation be reviewed with ISD to see if we can get relief.
New School	A2.31	What is the ceiling finish above the open stairwell?
New School	A2.41	The ceiling finishes in the lower level are they exposed structure? The office should at a minimum be ACT, outdoor storage should be gwb and rated. They will be using for storage of snow blower...does this need a door direct to the exterior?

New School	A3.00	There are some areas in the Southwest Axon that have the terracotta tile siding but are not able to be viewed from the street level, can they be substituted for a metal panel finish?
New School	A3.01	The rising wall of the cafeteria, could it be metal panel finish, it is setback. The metal panel screen wall needs to have its own supporting structure, should it be elevated above the roofing?
New School	A4.00	There is a brick rectangle show in the courtyard, this must be a 3D model error? What would the roofing material be on the back side of the library roof within the courtyard?
New School	A4.01	The cross hatch in the classroom, is that a screen? Why the hatch?
New School	A4.01	The 3D model roof slops at the rooftop mechanical room seem to have inconsistency with pitches
New School	A4.21	The entry canopy steel should be within the finish, is that a 3D model issue?
New School	A5.10	The plan detail needs to be further developed...
New School	A5.20	The detail of the 1919 eave needs to be further developed, coordinate with S5.01. How does roof truss detail intersect with the tube steel? Gutter does not seem like it is a historically appropriate shape.
New School	S5.01	Truss connection to structure is unresolved.
New School	A6.06	QPS Food Service needs to review the kitchen layout. How the cooler works does not see to be correct. The cash register does not align with the servery line. Not sure they require access to the kitchen from the serving line side?
New School	A6.09	The gym floor lines do not align with the hoops. Did QPS ask for volleyball court lines?
New School	A6.09	Exterior door glass to have film to obscure vision.
New School	A6.12	The FFE bookshelves, QPS had indicated they didn't like the serpentine shaped bookcases...need to review the furniture layout. Bookcases built into the perimeter walls and nooks are good, as QPS requested.
New School	A6.14	The counter should not extend beyond the window at the East. Show a chair at the desk.
New School	A6.14	Nurse office is quite large, should review with QPS. Wonder if a staff toilet from the corridor should be added. This toilet could be for adults who should not be using the boys / girls toilet rooms during after hour events.
New School	A7.01	Wall finish throughout stairways and corridors should have tile to 4' for durability
New School	A7.02	Sump pit in elevator?

New School	A10.13A	The floor plan for the classroom is missing the wing wall to limit visibility into the classroom safe area, the change in floor finish needs to be within safe zone.
New School	FP1.00	The floor plan is not current, the NAS area is depicting unexcavated basement area.
New School	FP1.01A	NAS area is including a closet, is that intentional?
New School	FP1.02B	STE 204 does not have any coverage
New School	P1.00A	The 4" domestic water service is stubbed out at Mayflower, not Winslow.
New School	P1.00A	The elevator sump piping is not shown
New School	P1.00A	Floor plans don't match the current architectural drawings
New School	P1.01A	No drains shown for classroom sinks
New School	P1.01B	The 10" storm will need a temporary accommodation during construction due to the existing school building remaining. The existing school and proposed drains exit the same approximate location, temp manhole to connect to Winslow drain line.
New School	P1.02B	The 4" F.D. in Trash Receiving 110 is not shown
New School	P1.02B	Should the HB in Trash Receiving 110 be hot water?
New School	P1.03B	STE 204 three bay sink has no fixture tag
New School	P1.05B	Tapered roof insulation plan needs to be updated, the layout is not coordinated.
New School	P1.05B	4" R.D. covered by column line 2.7 tag
New School	M0.01	Condensate pumps should only be used if gravity is not possible.
New School	M0.11	City does not like automatic chemical make-up, they want it to have manual make-up. If there is a break and water flows, then the make-up will use up all of the glycol.
New School	M0.11	Coupon rack not shown, provide a detail and notes on plan for location.
New School	M1.0	Plan backgrounds need to be updated to match architectural.
New School	E002	Provide lighting cutsheets so that lighting fixture selections can be reviewed.
New School	E004	
New School	E100A	Lighting plans are not complete
New School	E101A	Lighting plans are not complete
New School	E101B	Lighting plans are not complete
New School	E102A	Lighting plans are not complete
New School	E102B	Lighting plans are not complete

New School	E200A	Only one outlet shown in custodial workshop, needs many more. Is the intention that it is code required spacing not shown and only unique outlet placements shown?
New School	E201A	Media Center 101 has no clock shown
New School	E201A	Need to review the clock system specification / function with the school department. Same for the PA system.
New School	E304	Provide (2) 4" conduit sleeves between 2nd and 1st and 1st to basement for future. Cap.
New School	T100A	"See note #19" cannot find?

Commissioning Consultant Coordination

The project has not received assignment for a Commissioning (Cx) Agent yet. Per email correspondence dated December 9, 2024, the MSBA will accept this DD submission without Cx Review. Cx review and coordination of Cx comments to be completed after Project Funding Agreement.

MSBA Schematic Design Comments & Response

The City of Quincy provided a resubmission of Schematic Design to the MSBA on August 29, 2024.

MSBA issued SD review comments on October 15, 2024. The City of Quincy responded to the MSBA SD review comments on October 29, 2024.

A copy of the District's responses to the MSBA SD review comments is provided in Appendix "A. District's Responses to MSBA SD Review Comments".

In the District's responses submitted on October 29, 2025, there are no outstanding comments requiring additional information.

DCAMM Designer Evaluation

The District submitted the required Designer Evaluations to Division of Capital Asset Management and Maintenance on November 15, 2024, for the completion of Schematic Design. Refer to the following page for confirmation.

MASSACHUSETTS SCHOOL BUILDING AUTHORITY
DESIGNER EVALUATION NOTIFICATION FORM

Confirmation that the District has submitted all required Designer Evaluations to the Division of Capital Asset Management and Maintenance (DCAMM), using the DCAMM/DSB Autocene platform, pursuant to M.G.L. c. 7c, § 48(h)

Awarding Authority (District): *City of Quincy*

Project Name: *Squantum School*

MSBA Project ID: *202002430095*

Designer Evaluation #1 - "Study" (at completion of schematic design)

11/15/2024 (Indicate the submission date of the Study Evaluation)

4.00 (Indicate the overall score for the Study Evaluation)

X _____ ;and, _____ *11/15/2024*

District Signature **Date** **OPM Signature** **Date**

Designer Evaluation #2 - "Design" (at completion of 100% construction documents)

(Indicate the submission date of the Design Evaluation)

(Indicate the overall score for the Design Evaluation)

;and,

District Signature **Date** **OPM Signature** **Date**

Designer Evaluation #3 - "Construction" (at final GC/CM payment)

(Indicate the submission date of the Construction Evaluation)

(Indicate the overall score for the Construction Evaluation)

;and,

District Signature **Date** **OPM Signature** **Date**

The information submitted in this notification form represents, to the best of my knowledge, a true and accurate summary of the information submitted by the District to the DCAMM,using the DCAMM/DSB Autocene platform. Districts that need to update or correct any information submitted in this notification form shall contact the MSBA immediately. Districts are solely responsible for any false or misleading information submitted in this notification form.

Designer Selection Board

1 Ashburton Place, Room 1018A, 10th Floor, Boston, MA 02108 www.mass.gov/dsb Telephone: (617) 727-4046

Submit References

Back

ARROWSTREET

PROJECT NAME Squantum School

LOCATION 50 Huckins Ave, Quincy, MA 02171

DSB LIST # (if appl.)

PROJECT TYPE (all that apply) ☐ Master Plan ☐ Feasibility Study ☐ Facility Conditions Assessment ☑ New Construction
☐ Alteration/Renovation ☐ Repair/Maintenance ☐ Restoration/Preservation ☐ Addition

FACILITY TYPE Educational Facility

REFERENCE CONTACT NAME Brian LaRoche

REFERENCE CONTACT EMAIL blaroche@pca360.com

REFERENCE CONTACT PHONE 617.723.5056

REFERENCE AGENCY NAME PCA 360

PERFORMANCE SCORES (0-4.0)
4.0 Exceeded Expectations: outstanding performance
3.0 Satisfactory: at standard, satisfactory performance
2.0 Improvement Required: below satisfactory performance
1.0 Unsatisfactory: Unacceptable performance

Rate Designer Performance Related To:

MANAGEMENT Communication with stakeholders, responsiveness, contribution to decision-making, project leadership
○ 1 ○ 2 ○ 3 ◉ 4

QUALITY Articulation of scope, coordination, provision of expertise, quality control, plans and presentations
○ 1 ○ 2 ○ 3 ◉ 4

SCHEDULE Scheduling and timely completion of tasks, timeliness of revisions, schedule responsibility and accountability
○ 1 ○ 2 ○ 3 ◉ 4

BUDGET Cost control, accuracy and completeness of estimates, adherence to design fee, invoicing timeliness
○ 1 ○ 2 ○ 3 ◉ 4

OVERALL RATING 4

OVERALL COMMENTS This is a review of Arrowstreet during schematic design of the New Squantum School. Arrowstreet actively participated in weekly meetings and presented to various committees and councils throughout the schematic design phase of the New Squantum School, which spans 79,000 sq ft. They worked closely with both the owner's project manager and the project owner, successfully delivering the schematic design on time.

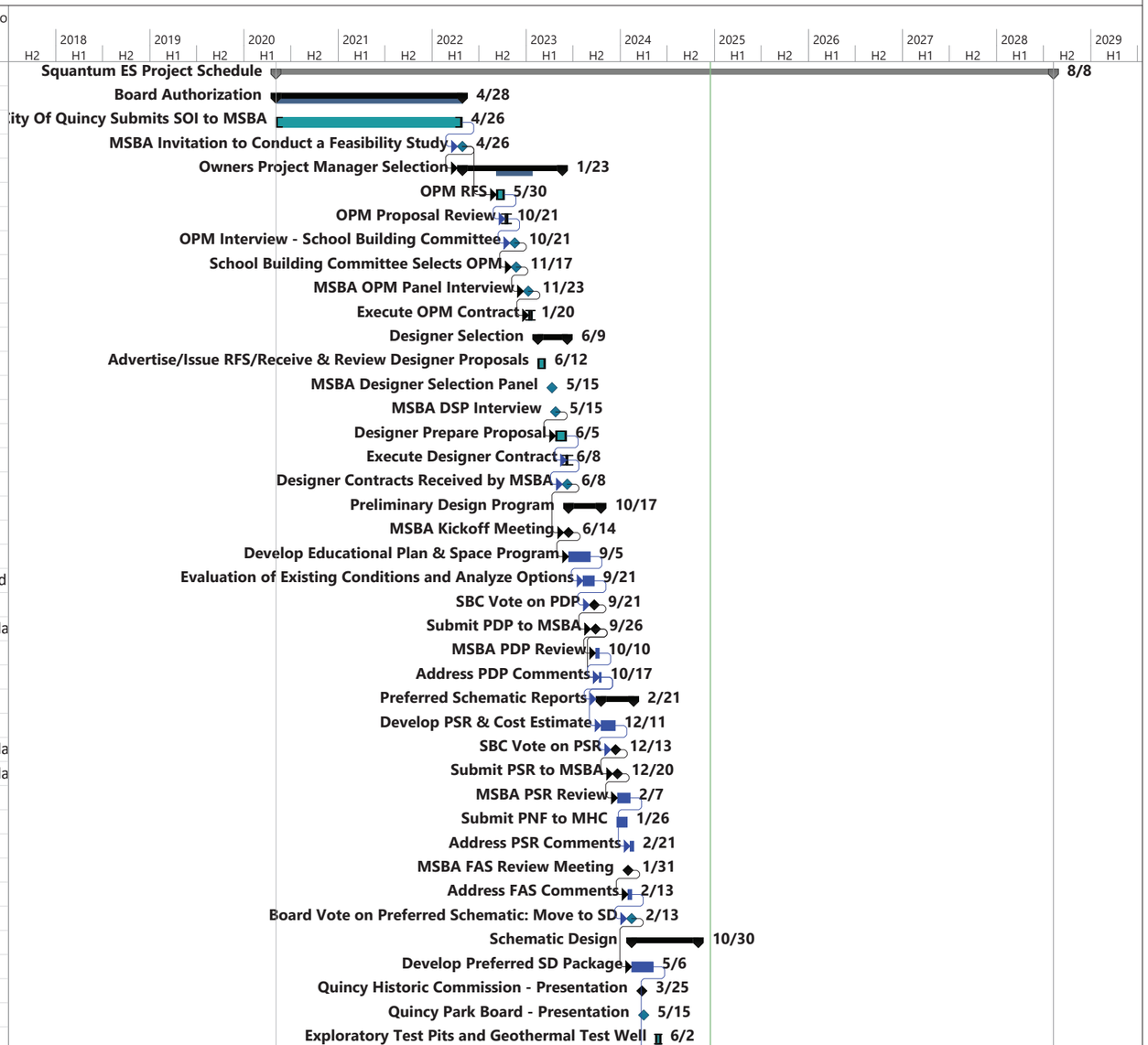
6A.2.2
Project Schedule

Project Schedule

Refer to the following pages for PCA360's Project Schedule.

Squantum School Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
0		**Squantum ES Project Schedule**	**2157 days?**	**Mon 5/4/20**	**Tue 8/8/28**	
1		**1 Board Authorization**	**518 days?**	**Mon 5/4/20**	**Wed 4/27/22**	
2		1.1 City Of Quincy Submits SOI to MSBA	517 days	Mon 5/4/20	Tue 4/26/22	
3		1.2 MSBA Invitation to Conduct a Feasibility Study	0 days	Thu 4/28/22	Thu 4/28/22	2
4		**2 Owners Project Manager Selection**	**278 days**	**Thu 4/28/22**	**Sat 5/20/23**	**3**
5		2.1 OPM RFS	23 days	Wed 9/7/22	Fri 10/7/22	3
6		2.2 OPM Proposal Review	10 days	Mon 10/10/22	Fri 10/21/22	5
7		2.3 OPM Interview - School Building Committee	0 days	Thu 11/17/22	Thu 11/17/22	6
8		2.4 School Building Committee Selects OPM	0 days	Wed 11/23/22	Wed 11/23/22	7
9		2.5 MSBA OPM Panel Interview	0 days	Mon 1/9/23	Mon 1/9/23	8
10		2.6 Execute OPM Contract	10 days	Tue 1/10/23	Mon 1/23/23	9
11		**3 Designer Selection**	**82 days**	**Wed 2/15/23**	**Fri 6/9/23**	
12		3.1 Advertise/Issue RFS/Receive & Review Designer Proposals	21 days	Wed 2/15/23	Wed 3/15/23	
13		3.2 MSBA Designer Selection Panel	0 days	Tue 4/11/23	Tue 4/11/23	
14		3.3 MSBA DSP Interview	0 days	Tue 4/25/23	Tue 4/25/23	
15		3.4 Designer Prepare Proposal	30 days	Tue 4/25/23	Mon 6/5/23	14
16		3.5 Execute Designer Contract	3 days	Tue 6/6/23	Thu 6/8/23	15
17		3.6 Designer Contracts Received by MSBA	0 days	Fri 6/9/23	Fri 6/9/23	16
18		**4 Preliminary Design Program**	**90 days**	**Wed 6/14/23**	**Tue 10/17/23**	
19		4.1 MSBA Kickoff Meeting	0 days	Wed 6/14/23	Wed 6/14/23	17
20		4.2 Develop Educational Plan & Space Program	60 days	Wed 6/14/23	Tue 9/5/23	19
21		4.3 Evaluation of Existing Conditions and Analyze Options	32 days	Wed 8/9/23	Thu 9/21/23	20FS-20 d
22		4.4 SBC Vote on PDP	0 days	Thu 9/21/23	Thu 9/21/23	21
23		4.5 Submit PDP to MSBA	0 days	Tue 9/26/23	Tue 9/26/23	22FS+3 da
24		4.6 MSBA PDP Review	2 wks	Wed 9/27/23	Tue 10/10/23	23
25		4.7 Address PDP Comments	1 wk	Wed 10/11/23	Tue 10/17/23	23,24
26		**5 Preferred Schematic Reports**	**91 days**	**Wed 10/18/23**	**Wed 2/21/24**	**25**
27		5.1 Develop PSR & Cost Estimate	39 days	Wed 10/18/23	Mon 12/11/23	25
28		5.2 SBC Vote on PSR	0 days	Wed 12/13/23	Wed 12/13/23	27FS+2 da
29		5.3 Submit PSR to MSBA	0 days	Wed 12/20/23	Wed 12/20/23	28FS+5 da
30		5.4 MSBA PSR Review	7 wks	Thu 12/21/23	Wed 2/7/24	29
31		5.5 Submit PNF to MHC	30 days	Mon 12/18/23	Fri 1/26/24	
32		5.6 Address PSR Comments	2 wks	Thu 2/8/24	Wed 2/21/24	30
33		5.7 MSBA FAS Review Meeting	0 days	Wed 1/31/24	Wed 1/31/24	
34		5.8 Address FAS Comments	2 wks	Wed 1/31/24	Tue 2/13/24	33
35		5.9 Board Vote on Preferred Schematic: Move to SD	0 days	Wed 2/14/24	Wed 2/14/24	34
36		**6 Schematic Design**	**185 days**	**Wed 2/14/24**	**Wed 10/30/24**	
37		6.1 Develop Preferred SD Package	59 days	Wed 2/14/24	Mon 5/6/24	35
38		6.2 Quincy Historic Commission - Presentation	0 days	Mon 3/25/24	Mon 3/25/24	
39		6.3 Quincy Park Board - Presentation	0 days	Mon 4/1/24	Mon 4/1/24	
40		6.4 Exploratory Test Pits and Geothermal Test Well	15 days	Fri 5/17/24	Thu 6/6/24	

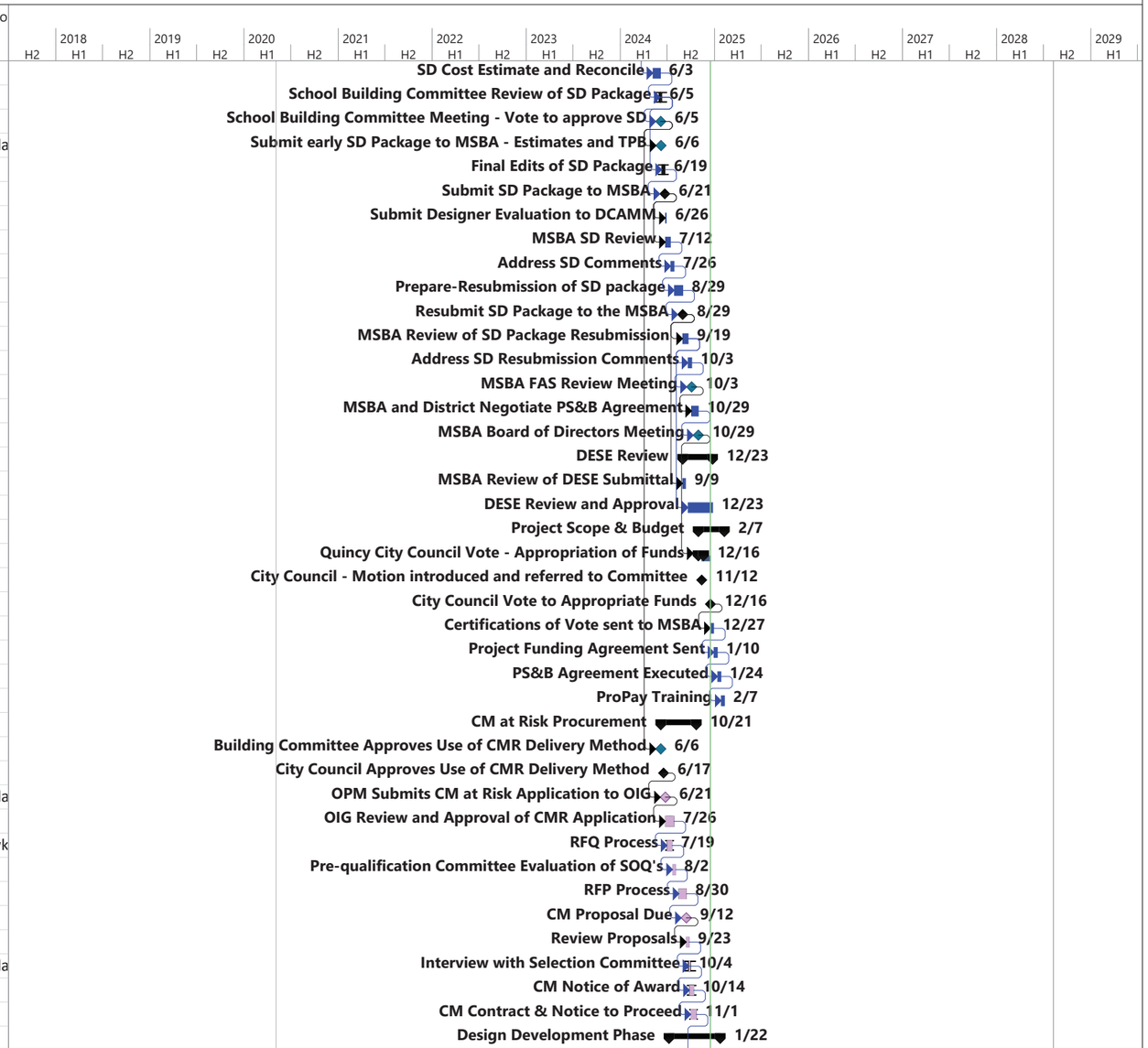


Project: Squantum ES Project S
Date: Mon 12/16/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task			
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task			
Milestone	Rolled Up Progress	Duration-only	Path Predecessor Summary Task	Path Driving Predecessor Summary Task			
Summary	External Tasks	Manual Summary Rollup	Path Predecessor Normal Task	Path Driving Predecessor Normal Task			
Project Summary	External Milestone	Manual Summary	Path Successor Milestone Task	Critical			
Group By Summary	Inactive Task	Start-only	Path Successor Summary Task	Critical Split			
Rolled Up Task	Inactive Milestone	Finish-only	Path Successor Normal Task	Progress			

Squantum School Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
41		6.5 SD Cost Estimate and Reconcile	4 wks	Tue 5/7/24	Mon 6/3/24	37
42		6.6 School Building Committee Review of SD Package	2 days	Tue 6/4/24	Wed 6/5/24	41
43		6.7 School Building Committee Meeting - Vote to approve SD	0 days	Thu 6/6/24	Thu 6/6/24	42
44		6.8 Submit early SD Package to MSBA - Estimates and TPB	0 days	Fri 6/7/24	Fri 6/7/24	43FS+1 da
45		6.9 Final Edits of SD Package	2 wks	Mon 6/10/24	Fri 6/21/24	42
46		6.10 Submit SD Package to MSBA	0 days	Fri 6/21/24	Fri 6/21/24	45
47		6.11 Submit Designer Evaluation to DCAMM	3 days	Mon 6/24/24	Wed 6/26/24	46
48		6.12 MSBA SD Review	3 wks	Mon 6/24/24	Fri 7/12/24	46
49		6.13 Address SD Comments	2 wks	Mon 7/15/24	Fri 7/26/24	48
50		6.14 Prepare-Resubmission of SD package	24 days	Mon 7/29/24	Thu 8/29/24	49
51		6.15 Resubmit SD Package to the MSBA	0 days	Thu 8/29/24	Thu 8/29/24	50
52		6.16 MSBA Review of SD Package Resubmission	3 wks	Fri 8/30/24	Thu 9/19/24	51
53		6.17 Address SD Resubmission Comments	2 wks	Fri 9/20/24	Thu 10/3/24	52
54		6.18 MSBA FAS Review Meeting	0 days	Fri 10/4/24	Fri 10/4/24	53
55		6.19 MSBA and District Negotiate PS&B Agreement	18 days	Fri 10/4/24	Tue 10/29/24	54
56		6.20 MSBA Board of Directors Meeting	0 days	Wed 10/30/24	Wed 10/30/24	55
57		**7 DESE Review**	**82 days**	**Fri 8/30/24**	**Mon 12/23/24**	
58		7.1 MSBA Review of DESE Submittal	7 days	Fri 8/30/24	Mon 9/9/24	51
59		7.2 DESE Review and Approval	67 days	Fri 9/20/24	Mon 12/23/24	52
60		**8 Project Scope & Budget**	**73 days**	**Wed 10/30/24**	**Fri 2/7/25**	
61		**8.1 Quincy City Council Vote - Appropriation of Funds**	**14 days**	**Wed 10/30/24**	**Mon 11/18/24**	**56**
62		8.1.1 City Council - Motion introduced and referred to Committee	0 days	Tue 11/12/24	Tue 11/12/24	
63		8.1.2 City Council Vote to Appropriate Funds	0 days	Mon 12/16/24	Mon 12/16/24	
64		8.2 Certifications of Vote sent to MSBA	2 wks	Mon 12/16/24	Fri 12/27/24	63
65		8.3 Project Funding Agreement Sent	2 wks	Mon 12/30/24	Fri 1/10/25	64
66		8.4 PS&B Agreement Executed	2 wks	Mon 1/13/25	Fri 1/24/25	65
67		8.5 ProPay Training	2 wks	Mon 1/27/25	Fri 2/7/25	66
68		**9 CM at Risk Procurement**	**98 days**	**Thu 6/6/24**	**Mon 10/21/24**	
69		9.1 Building Committee Approves Use of CMR Delivery Method	0 days	Thu 6/6/24	Thu 6/6/24	43
70		9.2 City Council Approves Use of CMR Delivery Method	0 days	Mon 6/17/24	Mon 6/17/24	
71		9.3 OPM Submits CM at Risk Application to OIG	0 days	Mon 6/24/24	Mon 6/24/24	70FS+5 da
72		9.4 OIG Review and Approval of CMR Application	5 wks	Mon 6/24/24	Fri 7/26/24	71
73		9.5 RFQ Process	3 wks	Mon 7/1/24	Fri 7/19/24	72FS-4 wk
74		9.6 Pre-qualification Committee Evaluation of SOQ's	10 days	Mon 7/22/24	Fri 8/2/24	73
75		9.7 RFP Process	4 wks	Fri 8/16/24	Thu 9/12/24	74
76		9.8 CM Proposal Due	0 days	Thu 9/12/24	Thu 9/12/24	75
77		9.9 Review Proposals	7 days	Fri 9/13/24	Mon 9/23/24	76
78		9.10 Interview with Selection Committee	3 days	Tue 9/24/24	Thu 9/26/24	77FS+6 da
79		9.11 CM Notice of Award	12 days	Thu 9/26/24	Fri 10/11/24	78
80		9.12 CM Contract & Notice to Proceed	3 wks	Tue 10/1/24	Mon 10/21/24	79
81		**10 Design Development Phase**	**143 days**	**Mon 7/8/24**	**Wed 1/22/25**	



Project: Squantum ES Project S
Date: Mon 12/16/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task
Milestone	Rolled Up Progress	Duration-only	Path Predecessor Summary Task	Path Driving Predecessor Summary Task
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Project Summary	External Milestone	Manual Summary	Path Successor Milestone Task	Critical
Group By Summary	Inactive Task	Start-only	Path Successor Summary Task	Critical Split
Rolled Up Task	Inactive Milestone	Finish-only	Path Successor Normal Task	Progress

Squantum School Project Schedule

ID	Task Mod	Task Name	Duration	Start	Finish	Predecesso
82		10.1 DD Documents Development (incl. early release package set)	85 days	Mon 7/8/24	Fri 11/1/24	
83		10.2 DESE Approval Letter	0 days	Mon 7/29/24	Mon 7/29/24	
84		10.3 DD Cost Estimate & Reconciliation	4 wks	Mon 11/4/24	Fri 11/29/24	82,80
85		10.4 OPM and District Review of DD Documents	2 days	Mon 12/2/24	Tue 12/3/24	84
86		10.5 DD Cost Estimate Submitted to MSBA	0 days	Fri 12/6/24	Fri 12/6/24	84FS+5 da
87		10.6 Project Registration Date with USGBC for LEED	1 day	Thu 12/12/24	Thu 12/12/24	
88		10.7 DD Documents Submitted to MSBA (incl 50% CD's for early enablemer	0 days	Wed 12/18/24	Wed 12/18/24	85FS+11 d
89		10.8 MSBA Review DD Documents (incl 60% CD for enablement set)	3 wks	Thu 12/19/24	Wed 1/8/25	88
90		10.9 OPM & Designer to Address MSBA DD Review Comments	2 wks	Thu 1/9/25	Wed 1/22/25	89
91		**11 Contact Documents Phase**	**180 days**	**Thu 12/19/24**	**Wed 8/27/25**	
92		11.1 CD 60% Documents	30 days	Thu 12/19/24	Wed 1/29/25	88
93		11.2 CD 60% Cost Estimate Development & Reconciliation	4 wks	Thu 1/30/25	Wed 2/26/25	92
94		11.3 OPM & District Review of 60% Documents	5 days	Thu 2/27/25	Wed 3/5/25	93
95		11.4 60% Documents Submitted to MSBA (100% CD for Early Enablement)	0 days	Wed 3/5/25	Wed 3/5/25	94
96		11.5 60% Cost Estimate Submitted to the MSBA	0 days	Wed 3/5/25	Wed 3/5/25	95
97		11.6 MSBA Review of 60% Documents	3 wks	Thu 3/6/25	Wed 3/26/25	96
98		11.7 Address 60% Review Comments	2 wks	Thu 3/27/25	Wed 4/9/25	97
99		11.8 CD 90% Document Development	38 days	Thu 1/30/25	Mon 3/24/25	92
100		11.9 CD 90% Cost Estimate Development	4 wks	Tue 3/25/25	Mon 4/21/25	99
101		11.10 OPM & District Review of 90% documents	5 days	Tue 4/22/25	Mon 4/28/25	100
102		11.11 90% documents submitted to MSBA	21 days	Tue 4/29/25	Tue 5/27/25	101
103		11.12 90% Estimate Submitted to MSBA	1 day	Wed 5/28/25	Wed 5/28/25	102
104		11.13 MSBA Review of 90% Documents	3 wks	Thu 5/29/25	Wed 6/18/25	103
105		11.14 OPM & Designer 90% Review Comments Response	2 wks	Thu 6/19/25	Wed 7/2/25	104
106		11.15 CD 100% Complete	10 days	Thu 7/3/25	Wed 7/16/25	105
107		11.16 100% Bid Documents Submitted to MSBA	0 days	Wed 7/16/25	Wed 7/16/25	106
108		11.17 Submit Designer Evaluation to DCAMM	3 days	Thu 7/17/25	Mon 7/21/25	107
109		11.18 Building Permit Filled	30 days	Thu 7/17/25	Wed 8/27/25	106
110		11.19 NPDES General Permit Filling	30 days	Thu 7/17/25	Wed 8/27/25	106
111		**12 Bidding**	**607 days**	**Mon 5/15/23**	**Tue 9/9/25**	
112		12.1 Geothermal Well Package - Bidding, Award and Mobilization	60 days	Fri 12/20/24	Thu 3/13/25	128FS-120
113		12.2 Bid out Enablement work	25 days	Mon 5/15/23	Fri 6/16/23	
114		12.3 Trade Sub-Contractor Pre-Qualification	45 days	Thu 4/17/25	Wed 6/18/25	106FS-65
115		**12.4 Bidding Main Package Due (Trade/Non-trade Subcontractors)**	**15 days**	**Thu 7/17/25**	**Wed 8/6/25**	**106**
116		12.4.1 Filed Sub Bid Advertisement / Start of GC sub Bidding	15 days	Thu 7/17/25	Wed 8/6/25	
117		12.4.2 Receipt of Filed Sub-Bids and Receipt of GC sub Bids	0 days	Wed 8/6/25	Wed 8/6/25	116
118		12.5 GMP Development by Construction Manager	19 days	Thu 8/7/25	Tue 9/2/25	115
119		12.6 Execution of GMP	5 days	Wed 9/3/25	Tue 9/9/25	118
120		12.7 Notice to proceed for Construction (New School)	0 days	Tue 9/9/25	Tue 9/9/25	119
121		**13 Construction**	**1206 days**	**Mon 6/19/23**	**Mon 1/31/28**	
122		**13.1 Enablement Work (City of Quincy)**	**97 days**	**Thu 4/18/24**	**Fri 8/30/24**	

Project: Squantum ES Project S
Date: Mon 12/16/24

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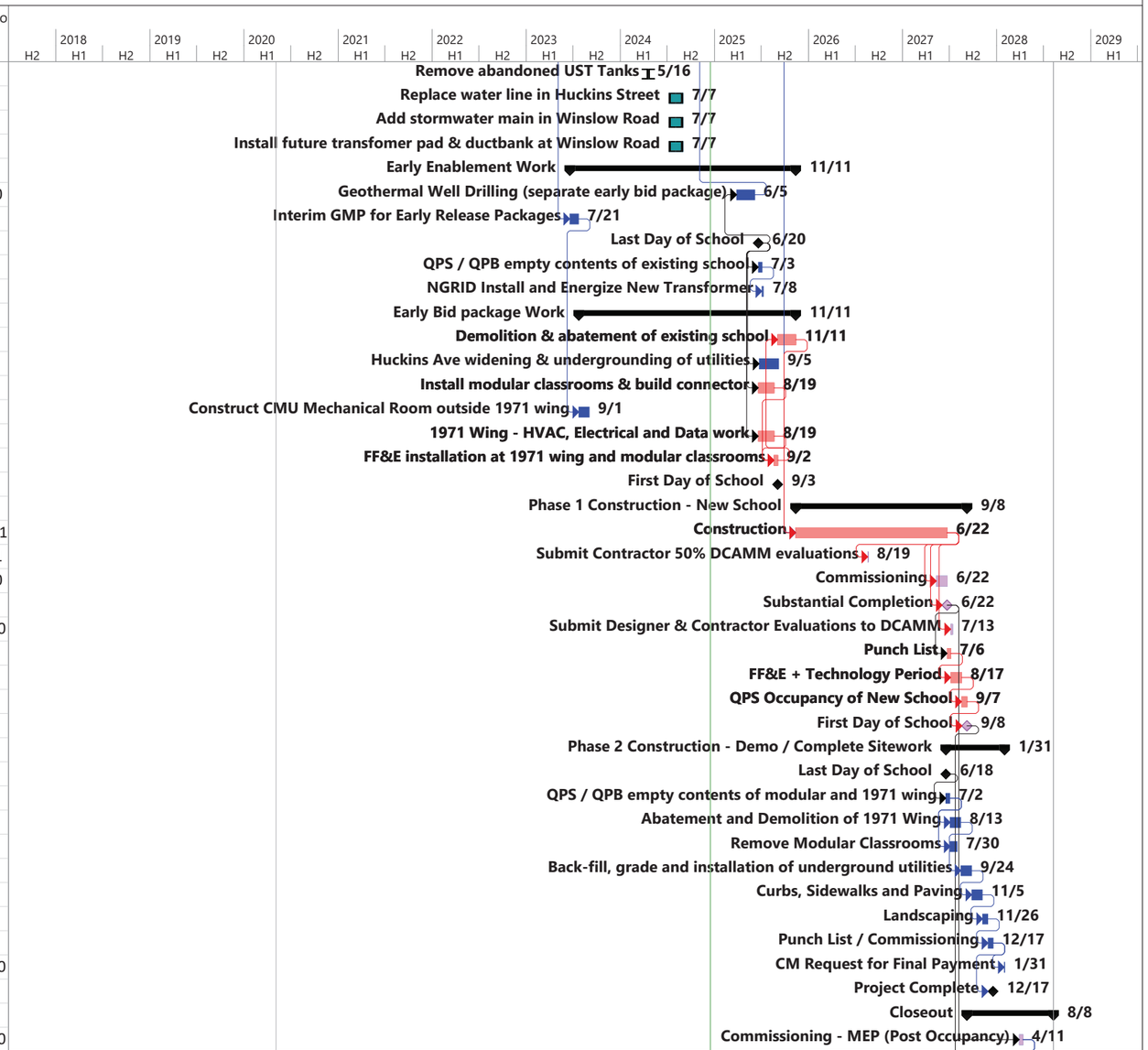
Squantum School Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
123		13.1.1 Remove abandoned UST Tanks	2 days	Thu 4/18/24	Fri 4/19/24	
124		13.1.2 Replace water line in Huckins Street	*8 wks*	Mon 7/8/24	Fri 8/30/24	
125		13.1.3 Add stormwater main in Winslow Road	8 wks	Mon 7/8/24	Fri 8/30/24	
126		13.1.4 Install future transfomer pad & ductbank at Winslow Road	8 wks	Mon 7/8/24	Fri 8/30/24	
127		**13.2 Early Enablement Work**	**627 days**	**Mon 6/19/23**	**Tue 11/11/25**	
128		13.2.1 Geothermal Well Drilling (separate early bid package)	50 days	Fri 3/28/25	Thu 6/5/25	130FS-60
129		13.2.2 Interim GMP for Early Release Packages	25 days	Mon 6/19/23	Fri 7/21/23	113
130		13.2.3 Last Day of School	0 days	Fri 6/20/25	Fri 6/20/25	
131		13.2.4 QPS / QPB empty contents of existing school	10 days	Fri 6/20/25	Thu 7/3/25	130
132		13.2.5 NGRID Install and Energize New Transformer	3 days	Fri 7/4/25	Tue 7/8/25	131
133		**13.2.6 Early Bid package Work**	**602 days**	**Mon 7/24/23**	**Tue 11/11/25**	
134		13.2.6.1 Demolition & abatement of existing school	50 days	Wed 9/3/25	Tue 11/11/25	139
135		13.2.6.2 Huckins Ave widening & undergrounding of utilities	55 days	Mon 6/23/25	Fri 9/5/25	130
136		13.2.6.3 Install modular classrooms & build connector	43 days	Fri 6/20/25	Tue 8/19/25	130
137		13.2.6.4 Construct CMU Mechanical Room outside 1971 wing	30 days	Mon 7/24/23	Fri 9/1/23	129
138		13.2.6.5 1971 Wing - HVAC, Electrical and Data work	43 days	Fri 6/20/25	Tue 8/19/25	130
139		13.2.7 FF&E installation at 1971 wing and modular classrooms	10 days	Wed 8/20/25	Tue 9/2/25	138,136
140		13.2.8 First Day of School	0 days	Wed 9/3/25	Wed 9/3/25	
141		**13.3 Phase 1 Construction - New School**	**475 days**	**Wed 11/12/25**	**Wed 9/8/27**	
142		13.3.1 Construction	21 mons	Wed 11/12/25	Tue 6/22/27	109,118,1
143		13.3.2 Submit Contractor 50% DCAMM evaluations	1 day	Wed 8/19/26	Wed 8/19/26	142FS-11
144		13.3.3 Commissioning	30 days	Wed 5/12/27	Tue 6/22/27	142FS-30
145		13.3.4 Substantial Completion	0 days	Tue 6/22/27	Tue 6/22/27	142
146		13.3.5 Submit Designer & Contractor Evaluations to DCAMM	5 days	Wed 7/7/27	Tue 7/13/27	142FS+10
147		13.3.6 Punch List	2 wks	Wed 6/23/27	Tue 7/6/27	145
148		13.3.7 FF&E + Technology Period	6 wks	Wed 7/7/27	Tue 8/17/27	147
149		13.3.8 QPS Occupancy of New School	3 wks	Wed 8/18/27	Tue 9/7/27	148
150		13.3.9 First Day of School	0 days	Wed 9/8/27	Wed 9/8/27	149
151		**13.4 Phase 2 Construction - Demo / Complete Sitework**	**162 days**	**Fri 6/18/27**	**Mon 1/31/28**	
152		13.4.1 Last Day of School	0 days	Fri 6/18/27	Fri 6/18/27	
153		13.4.2 QPS / QPB empty contents of modular and 1971 wing	11 days	Fri 6/18/27	Fri 7/2/27	152
154		13.4.3 Abatement and Demolition of 1971 Wing	30 days	Mon 7/5/27	Fri 8/13/27	153
155		13.4.4 Remove Modular Classrooms	20 days	Mon 7/5/27	Fri 7/30/27	153
156		13.4.5 Back-fill, grade and installation of underground utilities	30 days	Mon 8/16/27	Fri 9/24/27	154
157		13.4.6 Curbs, Sidewalks and Paving	30 days	Mon 9/27/27	Fri 11/5/27	156
158		13.4.7 Landscaping	15 days	Mon 11/8/27	Fri 11/26/27	157
159		13.4.8 Punch List / Commissioning	15 days	Mon 11/29/27	Fri 12/17/27	158
160		13.4.9 CM Request for Final Payment	1 day	Mon 1/31/28	Mon 1/31/28	159FS+30
161		13.4.10 Project Complete	0 days	Fri 12/17/27	Fri 12/17/27	159
162		**14 Closeout**	**240 days**	**Wed 9/8/27**	**Tue 8/8/28**	
163		14.1 Commissioning - MEP (Post Occupancy)	2 wks	Wed 3/29/28	Tue 4/11/28	145FS+10

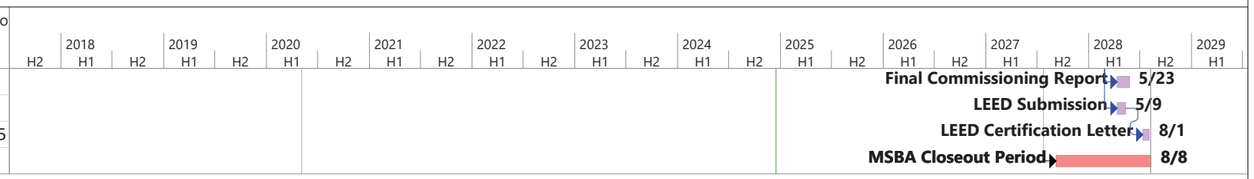


Project: Squantum ES Project S
Date: Mon 12/16/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task
Milestone	Rolled Up Progress	Duration-only	Path Predecessor Summary Task	Path Driving Predecessor Summary Task
Summary	External Tasks	Manual Summary Rollup	Path Predecessor Normal Task	Path Driving Predecessor Normal Task
Project Summary	External Milestone	Manual Summary	Path Successor Milestone Task	Critical
Group By Summary	Inactive Task	Start-only	Path Successor Summary Task	Critical Split
Rolled Up Task	Inactive Milestone	Finish-only	Path Successor Normal Task	Progress

Squantum School Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
164		14.2 Final Commissioning Report	30 days	Wed 4/12/28	Tue 5/23/28	163
165		14.3 LEED Submission	1 mon	Wed 4/12/28	Tue 5/9/28	163
166		14.4 LEED Certification Letter	3 wks	Wed 7/12/28	Tue 8/1/28	165FS+45
167		14.5 MSBA Closeout Period	12 mons	Wed 9/8/27	Tue 8/8/28	150



Project: Squantum ES Project S
Date: Mon 12/16/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task			
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task			
Milestone	Rolled Up Progress	Duration-only	Path Predecessor Summary Task	Path Driving Predecessor Summary Task			
Summary	External Tasks	Manual Summary Rollup	Path Predecessor Normal Task	Path Driving Predecessor Normal Task			
Project Summary	External Milestone	Manual Summary	Path Successor Milestone Task	Critical			
Group By Summary	Inactive Task	Start-only	Path Successor Summary Task	Critical Split			
Rolled Up Task	Inactive Milestone	Finish-only	Path Successor Normal Task	Progress			

6A.2.3
Project Scope & Budget

Construction Cost Estimates

- OPM construction cost estimate using the Uniformat and CSI Format can be found at Section "6A.3.4
Cost Estimates" on page 235
- OPM reconciliation of the CMR and Designer construction cost estimates can be found on the following page.

The OPM, Design Team, CMR met between December 10 and December 18 for reconciliation meetings with Lee Kennedy CMR and Designer's cost estimator PM&C. Additionally, the design team and consultants reviewed the estimates carefully and provided comments for the cost estimators. During these meetings, the teams reviewed each category carefully to reconcile quantities and unit costs.

- OPM Cost Estimate Comparison Forms (Uniformat and CSI Format) can be found in on the following pages.

Updated Project Budget

Budget Statement for the Squantum School Project
The Project Scope and Budget (PS&B) agreement for the Squantum School establishes a total project budget of $108 million. On December 16, 2024, the Quincy City Council voted to appropriate the necessary funds to meet this commitment. By leveraging its robust bonding capacity and excess levy capacity of $49 million, the city can comfortably manage its financial obligations, including a debt exclusion exceeding $500 million. This decisive action demonstrates Quincy's commitment to advancing educational infrastructure and providing a state-of-the-art learning environment for its students.

The Project Funding Agreement (PFA) outlines a total project budget of $108,712,832, which remains unchanged. However, adjustments within the budget reflect evolving project needs. The PFA's estimated construction cost was $81,196,053. The OPM's current reconciled construction cost estimate is $82,112,720, exceeding the original budget by $916,667.

The higher construction cost is primarily due to a scope transfer related to the temporary modular classroom building. Initially, $3,193,080 was allocated under the Swing Space/Modulars budget line item. However, the modular provider's contract was awarded at $1,554,444, resulting in savings of $1,638,848. When the Construction Manager at Risk (CMR) was engaged, the modular scope—including grading, foundations, utility connections, fire alarm, and —was transferred to the CMR. This adjustment increased the construction budget while decreasing the Swing Space/Modulars line item, leaving the total project budget unchanged. To reconcile these changes, the City of Quincy will submit a Budget Revision Request (BRR) to reallocate $916,667 from the modular savings to the construction budget.

Currently, the CMR's construction cost estimate, prepared by Lee Kennedy Company, is $82,112,720, while the Designer's estimate, prepared by PM&C, is $82,189,116. Reconciled estimates and a comparison spreadsheet are included in the submission for reference.

Refer "3011 Total Project Budget" on page 44 for updated 3011 reflecting updated construction budget of $82,112,720.

Recent Passive House WUFI and ASHRAE energy model results indicate that the building's Energy Use Intensity (EUI) exceeds the target, necessitating enhanced thermal insulation across all planes. The estimated cost impact of $700,000 may be mitigated by using spray foam insulation, which is expected to reduce this amount by at least half. These cost adjustments have been incorporated into the pricing alternates in the estimates but are not yet part of the base scope.

Value Engineering

To further optimize costs, the City is considering value engineering alternatives for site-related work. Further simplifying the parkland scope and substituting stone retaining walls with cast-in-place walls are two proposed measures. Together, these changes are expected to offset the increased costs associated with the thermal envelope enhancements. Refer the following page for the list of pricing alternates which includes cost saving options will continue to be considered into the CD phase of the project. As required by MSBA, refer to the "Value Engineering Summary Tracking Sheet" on page 34.

The City of Quincy is committed to delivering a high-quality educational facility that meets the needs of the community while carefully managing costs. Through strategic decisions and rigorous budget reviews, the project team has optimized the design, reduced unnecessary expenditures, and identified cost-effective solutions. Quincy's strong financial standing and value-driven approach ensure the successful completion of this vital project. This City Council vote underscores the city's dedication to providing students with a state-of-the-art learning environment that aligns with both educational goals and community values.

Lee Kennedy Co. Inc.,
122 Quincy Shore Drive, Quincy, MA 02171
(t) 617-825-6930 (f) 617-265-0815

PROJECT: Squantum School
LOCATION: Quincy, MA
OWNER: Squantum School
DATE: 12/18/2024 Rev. 3

ALTERNATE SUMMARY

No	Description	Cost
1	Roofing: Faux Slate Roof Shingles ILO real slate roof tiles on the 1919 building	$ (20,739)
2	Roofing: Faux Slate Roof Shingles on new roofs ILO asphalt roof shingles.	$ 1,419,800
3	Roofing: Aluminum shing roofing shingles ILO asphalt roof shingles.	$ 1,048,468
4	Site Wall: Concrete segmented wall (BOD: Versa-Lok or Unilok Commercial) ILO of Natural Stone Wall Solutions	$ (203,401)
5	Lightning Prevention System ILO Lightning Protection System	$ (29,627)
6	Roof Deck at 1919 Roof: T&G ILO metal roof deck.	$ 236,423
7	Ceiling: 2x2 ACT ILO GWB ceilings at Toilet Rooms Boys 111 and Girls 113.	$ (4,307)
8	Flooring: Resilient Linoleum Sheet Flooring ILO Terrazzo in the Main Lobby/Main Hall	$ (198,814)
9	Flooring: Large Format Porcelain Floor Tile ILO Terrazzo in the Main Lobby/Main Hall	$ (29,686)
10	Flooring: Resilient Linoleum Sheet Flooring ILO porcelain floor tile in the Cafeteria	$ (147,793)
11	Walls: FRP ILO Wall Tile in the Kitchen.	FRP in base
12	Walls: Porcelain Wall Tile Wainscot 4' ht. ILO FRP wainscot at all Toilet Rooms	$ 21,554
13	Walls: FRP 4' wainscot ILO wall tile wainscot in the Gym Toilet Rooms Boys #111 and Girls #113	$ (7,692)
14	Walls: FRP Wainscot 4' ht. ILO wall tile 4' ht. wainscot at all Corridor walls	$ (71,361)
15	Outdoor Service Court: Utility screen enclosure wall ILO of Masonry Wall enclosure	$ (6,764)
16.1	Plant Beds and Tree Irrigation on Huckins Ave	$ 2,165
16.2	Lawn Irrigation around building	$ 90,449
16.3	Tree Irrigation around Building	$ 9,991
17	Fiberglass Windows triple-glaze (Manuf: Cascadia) ILO Aluminum Windows (triple-glaze)	$ (55,892)
18	Fiberglass Curtainwall triple-glaze (Manuf: Cascadia) ILO Alum. Curtainwall (triple-glaze)	$ (55,038)
19	Roof Structure 1919 Roof: Metal truss with lowered acoustical GWB ceiling (11' ht.) ILO of exposed wood truss with vaulted acoustical GWB ceiling	TBD
20	Park: Existing Ballfield as is ILO new ballfield in new location	$ (299,690)
21	Flooring: Terrazzo ILO porcelain floor tile in the Cafeteria	$ 32,191
22	Flooring: Carpet Tile ILO of Broadloom carpet at Media Center	$ (7,839)
23	Kallwall insulated panel fenestration at the Gym East Façade ILO of alum and glass curtainwall	$ (15,235)
24 a	4" ILO 3" under slab XPS insulation	$ 119,834
24 b	6" ILO 4" continuous board insulation at EWA-2A/2B, EWA-3A/3B/3C, EWA-4A, and EWA-5A/5B. Note that masonry ties will need to be increased from 4" to 6" ties.	$ 478,114
24 c	10" ILO 7.5" of spray cellulose under the metal deck at ERA-2	$ 131,058
25	Lighting Alternates: a. Refer to HLB's Budget Hierarchy ALT A b. Refer to HLB's Budget Hierarchy ALT B	Omit
26	Add Alternate: 30 Year Roof Warranty ILO 20 Year Warranty	$ 17,093
27	Add Alternate: Impact Resistant Windows/Storefront/Curtainwall Systems ILO standard rated windows/storefront/curtainwall systems. Triple glazing shall remain	$ 153,833
28	Stage Lighting: Reduce scope to simplified light fixtures and controls.	$ (34,185)
29	Mock Up: In-situ ILO stand-along mockup (including testing In-situ).	$ (120,986)
30	Schoolguard SG5 glass: double glazed units ILO of triple glazed units.	In Base
31	Media Center: full glass double door (alum. Interior) ILO of folding glass door system.	$ (11,395)
32	Fire Alarm Control Panel (Enabling Package): Relocate existing FA control panel from existing wall to nearby wall (approximately 20-30 feet) ILO new FA control panel.	N/A

Note: See Introduction for Assumptions and Qualifications
Breakouts are for accounting purposes only and are not considered separate projects

Value Engineering Summary Tracking Sheet

Project information								
MSBA ID	Calendar Year of sub bid date	District	School	OPM	Designer	CM/GC	Procurement Type (DBB/CMR)	PS&B Authorised Date (Board Meeting)
202002430095	2025	Quincy	Squantum	PCA360	Arrowstreet	Lee Kennedy	CMR	10/30/2024

PFA or PSBA data					
PS&B/PFA Construction Budget W\ Pre-Con & Alts	Design & Pricing Contingency	Design & Pricing Contingency (% of Construction Budget)	Escalation to mid point of construction ($)	Escalation to mid point of construction (%)	Total Project Budget
$81,421,053	$6,289,687	7.72%	$2,723,434	3.34%	$108,712,832

DD											
Designer Current Cost Estimate	CM's Current Cost Estimate	OPM Reconciled DD Estimate after VE	Design & Pricing Contingency	Design & Pricing Contingency (% of DD Construction Budget)	Escalation to mid point of construction	Escalation to mid point of construction (%)	Approved VE at DD since PFA	% OF approved VE since PFA	DD Total Project Budget	DD Date	Comments
$82,102,502	$82,112,720	$82,112,720	$4,259,909	5.19%	$1,738,859	2.12%	$0	0.00%	$108,712,832	12/20/2024	Vote, Log, and revised cost estimate including VE included in

CD60													
Designer Current Cost Estimate	OPM's Current Cost Estimate	OPM Reconciled CD60 Estimate after VE	Design & Pricing Contingency	Design & Pricing Contingency (% of CD60 Construction Budget)	Escalation to mid point of construction	Escalation to mid point of construction (%)	Approved VE at CD60	% OF CD60 VE to PFA	Approved VE since PFA	% of approved VE since PFA	CD60 Total Project Budget	CD60 Date	Comments
				#DIV/0!		#DIV/0!		0.00%	$0	0.00%			

CD90													
Designer Current Cost Estimate	OPM's Current Cost Estimate	OPM Reconciled CD90 Estimate after VE	Design & Pricing Contingency	Design & Pricing Contingency (% of CD90 Construction Budget)	Escalation to mid point of construction	Escalation to mid point of construction (%)	Approved VE at CD90	% OF CD90 VE to PFA	Approved VE since PFA	% of approved VE since PFA	CD90 Total Project Budget	CD90 Date	Comments
				#DIV/0!		#DIV/0!		0.00%	$0	0.00%			

Final Cost						
Sub Bid Date	Bid/GMP Date	Combined Approved VE	Combined Approved VE since PFA (%)	Total Bid/GMP Amount	Total Over(+) /Under(-) PFA Construction Budget	Bid/GMP Variance to PFA (%)
		$0	0.00%		($81,421,053)	-100.00%

RECONCILED CONSTRUCTION COST ESTIMATE TEMPLATE

District:	Quincy Public Schools
Project:	Squantum School
OPM:	PCA360
Designer:	Arrowstreet
CM (if applicable):	Lee Kennedy Company
Project Type:	Core - New Construction
Submittal (DD/60/90):	Design Development
Proposed Gross SqFt:	79801

CSI DIVISION	DESCRIPTION	DESIGNER COST ESTIMATE	CM Cost Estimate	OPM Reconciled Amount
n/a	GMP Fee	$1,531,330	$1,506,918	$1,506,918
n/a	GMP Insurance	$2,068,466	$2,130,972	$2,130,972
n/a	GMP Contingency	$7,750,757	$8,114,307	$8,114,307
1000	General Requirements	$7,977,284	$8,078,962	$8,078,962
2000	Existing Conditions	$2,811,060	$2,940,500	$2,940,500
3000	Concrete	$3,854,064	$3,837,191	$3,837,191
4000	Masonry	$2,549,561	$2,393,286	$2,393,286
5000	Metals	$4,833,835	$4,868,974	$4,868,974
6000	Woods, Plastics, Composites	$1,086,901	$2,022,309	$2,022,309
7000	Thermal and Moisture Protection	$6,656,468	$6,300,623	$6,300,623
8000	Openings	$2,753,168	$3,065,007	$3,065,007
9000	Finishes	$8,599,097	$8,065,313	$8,065,313
10000	Specialties	$910,287	$1,123,534	$1,123,534
11000	Equipment	$1,148,340	$1,058,900	$1,058,900
12000	Furnishings	$949,645	$131,740	$131,740
13000	Special Construction	$86,070		
14000	Conveying Equipment	$270,000	$244,000	$244,000
21000	Fire Suppression	$667,026	$673,118	$673,118
22000	Plumbing	$2,057,555	$2,078,815	$2,078,815
23000	Heating Ventilating and Air Conditioning	$7,937,980	$7,711,323	$7,711,323
26000	Electrical	$6,416,354	$6,539,920	$6,539,920
27000	Communications			
28000				
31000	Earthwork	$4,473,739	$6,610,640	$6,610,640
32000	Exterior Improvements	$2,330,003	$1,141,381	$1,141,381
33000	Utilities	$2,470,126	$1,475,000	$1,475,000
	Subtotal Base Contract Amount	**$82,189,116**	**$82,112,720**	**$82,112,720**
	Bid Alternates (If applicable)	$0	$0	$0
	TOTAL AMOUNT	$82,189,116	$82,112,720	$82,112,720
	TOTAL $/SF	1029.925891	1028.968559	1028.968559

COST ESTIMATE COMPARISON SPREADSHEET (UNIFORMAT)

Squantum School - Add / Reno

Estimated Construction Start Date:			October-24			December-24			December-24			XXXX			XXXX		
Division #		Description	Project Scope & Budget			Project Funding Agreement			Design Development			60% CD			100% CD		
			GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost
A		Substructure	79,801	$4,254,827	$53.32	79,801	$4,254,827	$53.32	79,801	$4,128,418	$51.73			#DIV/0!			#DIV/0!
B		Shell	79,801	$16,722,341	$209.55	79,801	$16,722,341	$209.55	79,801	$19,768,593	$247.72	0	$0	#DIV/0!	0	0	#DIV/0!
	B10	Superstructure	79,801	$5,216,660	$65.37	79,801	$5,216,660	$65.37	79,801	$8,795,463	$110.22	0		#DIV/0!	0		#DIV/0!
	B20	Exterior Enclosure	79,801	$8,575,976	$107.47	79,801	$8,575,976	$107.47	79,801	$8,234,516	$103.19	0	$0	#DIV/0!	0	0	#DIV/0!
		B2010 Exterior Walls	79,801	$6,031,232	$75.58	79,801	$6,031,232	$75.58	79,801	$7,380,265	$92.48	0		#DIV/0!	0		#DIV/0!
		B2020 Exterior Windows	79,801	$2,303,100	$28.86	79,801	$2,303,100	$28.86	79,801	$854,251	$10.70	0		#DIV/0!	0		#DIV/0!
		B2030 Exterior Doors	79,801	$241,644	$3.03	79,801	$241,644	$3.03	79,801		$0.00	0		#DIV/0!	0		#DIV/0!
	B30	Roofing	79,801	$2,929,705	$36.71	79,801	$2,929,705	$36.71	79,801	$2,738,614	$34.32	0		#DIV/0!	0		#DIV/0!
C		Interiors	79,801	$8,050,812	$100.89	79,801	$8,050,812	$100.89	79,801	$9,325,249	$116.86	0		#DIV/0!	0		#DIV/0!
D		Services	79,801	$16,505,233	$206.83	79,801	$16,505,233	$206.83	79,801	$17,247,177	$216.13	0	$0	#DIV/0!	0	0	#DIV/0!
	D10	Conveying	79,801	$243,700	$3.05	79,801	$243,700	$3.05	79,801	$244,000	$3.06	0		#DIV/0!	0		#DIV/0!
	D20	Plumbing	79,801	$2,202,067	$27.59	79,801	$2,202,067	$27.59	79,801	$2,078,815	$26.05	0		#DIV/0!	0		#DIV/0!
	D30	HVAC	79,801	$7,516,212	$94.19	79,801	$7,516,212	$94.19	79,801	$7,711,323	$96.63	0		#DIV/0!	0		#DIV/0!
	D40	Fire Protection	79,801	$759,640	$9.52	79,801	$759,640	$9.52	79,801	$673,118	$8.43	0		#DIV/0!	0		#DIV/0!
	D50	Electrical	79,801	$5,783,614	$72.48	79,801	$5,783,614	$72.48	79,801	$6,539,921	$81.95	0		#DIV/0!	0		#DIV/0!
E		Furnishings & Fixed Equipment	79,801	$1,724,026	$21.60	79,801	$1,724,026	$21.60	79,801	$1,190,640	$14.92	0		#DIV/0!	0		#DIV/0!
		Building Subtotal	**79,801**	**$47,257,239**	**$592**	**79,801**	**$47,257,239**	**$592**	**79,801**	**$51,660,077**	**$647.36**	**0**	**$0**	**#DIV/0!**	**0**	**0**	**#DIV/0!**
F		Special Construction & Demo	79,801	$2,564,588	$32.14	79,801	$2,564,588	$32.14	79,801	$2,940,500	$36.85	0		#DIV/0!	0		#DIV/0!
G		Other Site Construction	79,801	$9,875,039	$123.75	79,801	$9,875,039	$123.75	79,801	$7,680,986	$96.25	0	$0	#DIV/0!	0	0	#DIV/0!
	G10	Site Preparation	79,801	$4,579,078	$57.38	79,801	$4,579,078	$57.38	79,801	$1,378,593	$17.28	0		#DIV/0!	0		#DIV/0!
	G20	Site Improvements	79,801	$3,680,956	$46.13	79,801	$3,680,956	$46.13	79,801	$3,126,195	$39.17	0		#DIV/0!	0		#DIV/0!
	G30	Mechanical Utilities	79,801	$849,625	$10.65	79,801	$849,625	$10.65	79,801	$2,875,698	$36.04	0		#DIV/0!	0		#DIV/0!
	G40	Electrical Utilities	79,801	$765,380	$9.59	79,801	$765,380	$9.59	79,801	$300,500	$3.77	0		#DIV/0!	0		#DIV/0!
		Subtotal	**79,801**	**$59,696,866**	**$748**	**79,801**	**$59,696,866**	**$748**	**79,801**	**$62,281,563**	**$780.46**	**0**	**$0**	**#DIV/0!**	**0**	**0**	**#DIV/0!**
Z		Mark-Ups	79,801	$21,499,187	36.0%	79,801	$21,499,187	36.0%	79,801	$18,092,300	29.0%	0	#REF!	#REF!	0	#REF!	#REF!
Z		Insurance	79,801	$2,024,230	3.4%	79,801	$2,024,230	3.4%	79,801	$1,037,500	1.7%	0	#REF!	#REF!	0	#REF!	#REF!
Z		Subcontractor Bonds	79,801		0.0%	79,801		0.0%	79,801	$541,894	0.9%	0	#REF!	#REF!	0	#REF!	#REF!
Z		GC Bonds	79,801		0.0%	79,801		0.0%	79,801	$551,578	3.0%	0	#REF!	#REF!	0	#REF!	#REF!
		GMP Contingncy	79,801	$2,049,258	101.2%	79,801	$2,049,258	101.2%	79,801	$2,115,539	203.9%	0	#REF!	#REF!	0	#REF!	#REF!
Z		Design & Pricing Contingency	79,801	$8,561,726	14.3%	79,801	$8,561,726	14.3%	79,801	$4,259,909	6.8%	0	#REF!	#REF!	0	#REF!	#REF!
Z		General Conditions	79,801	$6,932,344	11.6%	79,801	$6,932,344	11.6%	79,801	$8,078,962	13.0%	0	#REF!	#REF!	0	#REF!	#REF!
Z		Overhead & Profit	79,801	$1,931,629	3.2%	79,801	$1,931,629	3.2%	79,801	$1,506,918	2.4%	0	#REF!	#REF!	0	#REF!	#REF!
		Construction Subtotal	**79,801**	**$81,196,053**	**$1,017**	**79,801**	**$81,196,053**	**$1,017**	**79,801**	**$80,373,863**	**$1,007.18**	**0**	**#REF!**	**#REF!**	**0**	**#REF!**	**#REF!**
Z		Escalation to Construction Mid-Point	79,801	$0	0.0%	79,801	$0	0.0%	79,801	$1,738,859	2.8%	0	#REF!	#REF!	0	#REF!	#REF!
		Total Addition Cost	**79,801**	**$81,196,053**		**79,801**	**$81,196,053**		**79,801**	**$82,112,720**		**0**	**#REF!**		**0**	**#REF!**	
		$/GSF		**$1,017**			**$1,017**			**$1,029**			**#REF!**			**#REF!**	

		Alternates															
		1															
		2															
		3															
		4															

MSBA TEMPLATE (UNIFORMAT), REVISED 5-13-2010

COST ESTIMATE COMPARISON SPREADSHEET (CSI FORMAT)

Squantum School - Add / Reno													
Est. Construction Start Date: May 2025		12/20/2024			XXXX			XXXX			XXXX		
Description		Design Development			60% CD			100% CD			Bid Data		
		GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost	GSF	Total Cost	Unit Cost
General Requirements Subgroup													
1	General Requirements		3,556,733										
	GMP Contingency		2,115,539										
	Insurance	79801	1,037,500	$13.00			#DIV/0!			#DIV/0!			#DIV/0!
	Subcontractor Bonds	79801	541,894	$6.79	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
	GC Bonds	79801	551,578	$6.91	0		#DIV/0!	0					#DIV/0!
	Design & Pricing Contingency	79801	4,259,909	$53.38	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
	General Conditions	79801	4,522,229	$56.67	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
	Overhead & Profit	79801	1,506,918	$18.88	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
Facilities Construction Subgroup													
2	Existing Conditions	79801	2,940,500	$36.85	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
3	Concrete	79801	3,837,191	$48.08	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
4	Masonry	79801	2,393,286	$29.99	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
5	Metals	79801	4,868,974	$61.01	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
6	Wood, Plastics and Composites	79801	2,022,309	$25.34	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
7	Thermal & Moisture Protection	79801	6,300,623	$78.95	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
8	Openings	79801	3,065,007	$38.41	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
9	Finishes	79801	8,065,313	$101.07	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
10	Specialties	79801	1,123,534	$14.08	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
11	Equipment	79801	1,058,900	$13.27	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
12	Furnishings	79801	131,740	$1.65	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
13	Special Construction	79801		$0.00	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
14	Conveying	79801	244,000	$3.06	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
Facilities Services Subgroup													
21	Fire Suppression	79801	673,118	$8.43	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
22	Plumbing	79801	2,078,815	$26.05	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
23	HVAC	79801	7,711,323	$96.63	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
25	Integrated Automation	79801		$0.00	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
26	Electrical	79801	5,155,394	$64.60	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
27	Communications	79801	821,664	$10.30	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
28	Electrionic	79801	562,862	$7.05	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
Site and Infrastructure Subgroup													
31	Earthwork	79801	6,610,640	$82.84	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
32	Exterior Improvements	79801	1,141,381	$14.30	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
33	Utilities	79801	1,475,000	1848.3%	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
34	Transportation	79801		0.0%	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
35	Waterway and Marine Construction	79801		$0.00	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
	Construction Subtotal	79801	80,373,874	$1,007.18	0	0	#DIV/0!	0	0	#DIV/0!	0	0	#DIV/0!
	Escalation to Construction Mid-Point	79801	1,738,859	$21.79	0		#DIV/0!	0		#DIV/0!	0		#DIV/0!
	Total Cost	**79801**	**82,112,720**		**0**	**0**		**0**	**0**		**0**	**0**	
	$/GSF		**$1,029**			**#DIV/0!**			**#DIV/0!**			**#DIV/0!**	

Alternates													
1													
2													
3													
4													

Squantum School
Quincy Public Schools

Total Project Budget: All costs associated with the project are subject to 963 CMR 2.16(5)	Estimated Budget	Scope Items Excluded from the Estimated Basis of Maximum Facilities Grant or Otherwise Ineligible	Estimated Basis of Maximum Total Facilities Grant[1]	Estimated Maximum Total Facilities Grant[1]
Feasibility Study Agreement				
OPM Feasibility Study	$400,000	$0	$400,000	
A&E Feasibility Study	$750,000	$0	$750,000	
Environmental & Site	$358,986	$0	$358,986	
Other	$2,050	$0	$2,050	
Feasibility Study Agreement Subtotal	**$1,511,036**	**$0**	**$1,511,036**	**$1,000,910**
Owner's Project Manager				
Design Development	$226,418	$0	$226,418	
Construction Contract Documents	$316,986	$12,110	$304,876	
Bidding	$212,670	$0	$212,670	
Construction Contract Administration	$1,914,031	$1,724,621	$189,410	
Closeout	$202,795	$0	$202,795	
Extra Services	$0	$0	$0	
Reimbursable & Other Services	$0	$0	$0	
Cost Estimates	$20,000	$0	$20,000	
Advertising	$20,000	$0	$20,000	
Permitting	$0	$0	$0	
Owner's Insurance	$0	$0	$0	
Other Administrative Costs	$50,000	$0	$50,000	
Administration Subtotal	**$2,962,900**	**$1,736,731**	**$1,226,169**	**$812,214**
Architecture and Engineering				
Basic Services				
Design Development	$1,942,500	$1,768,421	$174,079	
Construction Contract Documents	$3,108,000	$31,524	$3,076,476	
Bidding	$233,100	$0	$233,100	
Construction Contract Administration	$2,331,000	$2,331,000	$0	
Closeout	$155,400	$0	$155,400	
Other Basic Services	$0	$0	$0	
Basic Services Subtotal	**$7,770,000**	**$4,130,945**	**$3,639,055**	
Reimbursable Services				
Construction Testing	$10,000	$0	$10,000	
Printing (over minimum)	$25,000	$0	$25,000	
Other Reimbursable Costs	$416,260	$0	$416,260	
Hazardous Materials	$194,150	$0	$194,150	
Geotechnical & Geo-Environmental	$218,900	$0	$218,900	
Site Survey	$8,250	$0	$8,250	
Wetlands	$0	$0	$0	
Traffic Studies	$53,240	$0	$53,240	
Architectural / Engineering Subtotal	**$8,695,800**	**$4,130,945**	**$4,564,855**	**$3,023,760**
CM at Risk Pre-Construction Services				
Pre-Construction Services	$225,000	$0	**$225,000**	**$149,040**

Construction Costs				
SUBSTRUCTURE				
Foundations	$4,128,418			
Basement Construction	$0			
SHELL				
Super Structure	$8,795,463			
Exterior Closure				
Exterior Walls	$7,380,265			
Exterior Windows	$854,251			
Exterior Doors				
Roofing	$2,738,614			
INTERIORS				
Interior Construction	$9,325,249			
Staircases				
Interior Finishes				
SERVICES				
Conveying Systems	$244,000			
Plumbing	$2,078,815			
HVAC	$7,711,323			
Fire Protection	$673,118			
Electrical	$6,539,921			
EQUIPMENT & FURNISHINGS				
Equipment	$1,190,640			
Furnishings			$0	
SPECIAL CONSTRUCTION & DEMOLITION			$0	
Special Construction	$2,940,500			
Existing Building Demolition		$0		
In-Building Hazardous Material Abatement		$0		
Asbestos Containing Floor Material / Ceiling Tile Abatement		$0		
Other Hazardous Material Abatement		$0		
BUILDING SITE WORK				
Site Preparation	$1,378,593	$0		
Site Improvements	$3,126,195	$0		
Site Civil / Mechanical Utilities	$2,875,698	$0		
Site Electrical Utilities	$300,500	$0		
Scope Excluded Site Work		$0		
Construction Trades Subtotal	$62,281,563	$0		
Contingencies (Design and Pricing)	$5,998,766	$0		
Sub-Contractor Bonds	$541,894	$0		
General Conditions	$8,078,962	$0		
D/B/B Overhead & Profit		$0		
GMP Insurance	$1,589,078	$0		
GMP Fee	$1,506,918	$0		
GMP Contingency	$2,115,539	$0		

Construction Cost over Funding Cap		$31,447,741		
Construction Budget	**$82,112,720**	**$31,447,741**	**$50,664,979**	**$33,560,482**
Miscellaneous Project Costs				
Utility Company Fees	$100,000	$0	$100,000	
Testing Services	$150,000	$0	$150,000	
Swing Space / Modulars	$4,477,131	$4,477,131	$0	
Other Project Costs (Mailing & Moving)	$373,300	$373,300	$0	
Miscellaneous Project Costs Subtotal	**$5,100,431**	**$4,850,431**	**$250,000**	**$165,600**
Furnishings and Equipment				
Furniture, Fixtures, and Equipment	$1,414,341	$958,341	$456,000	
Technology	$1,736,438	$1,280,438	$456,000	
FF&E Subtotal	**$3,150,779**	**$2,238,779**	**$912,000**	**$604,109**
Project Budget	**$103,758,666**	**$44,404,627**	**$59,354,039**	**$39,316,115**

Board Authorization	
Design Enrollment	380
Total Building Gross Floor Area (GSF)	79,801
Total Project Budget (excluding Contingencies)	$103,758,666
Scope Items Excluded or Otherwise Ineligible	- $44,404,627
Third Party Funding (Ineligible)	- $0
Estimated Basis of Maximum Total Facilities Grant[1]	$59,354,039
Reimbursement Rate[1]	66.24%
Est. Max. Total Facilities Grant (before recovery)[1]	$37,865,283
Cx Costs associated with Ineligible Building Area[2]	-- $4,673
Cost Recovery associated with Prior Projects[2]	- $0
Estimated Maximum Total Facilities Grant[1]	$37,860,610

Construction Contingency[3]	$4,105,636
Ineligible Construction Contingency[3]	$2,435,882
"Potentially Eligible" Construction Contingency[3]	$1,623,921
Owner's Contingency[3]	$894,363
Ineligible Owner's Contingency[3]	$82,402
"Potentially Eligible" Owner's Contingency[3]	$811,961
Total Potentially Eligible Contingency[3]	$2,435,882
Reimbursement Rate	66.24%
Potential Additional Contingency Grant Funds[3]	$1,613,528
Maximum Total Facilities Grant	$39,474,138
Total Project Budget	**$108,712,832**

60.40	Reimbursement Rate Before Incentive Points
5.84	Total Incentive Points
66.24%	MSBA Reimbursement Rate

NOTES:

This template was prepared by the MSBA as a tool to assist Districts and consultants in understanding MSBA policies and practices regarding potential impact on the MSBA's calculation of a potential Basis of Total Facilities Grant and potential Total Maximum Facilities Grant. This template does not contain a final, exhaustive list of all evaluations which the MSBA may use in determining whether items are eligible for reimbursement by the MSBA. The MSBA will perform an independent analysis based on a review of information and estimates provided by the District for the proposed school project that may or may not agree with the estimates generated by the District using this template.

1 - The Estimated Basis of Total Facilities Grant and Estimated Maximum Facilities Grant amounts do not include any potentially eligible contingency funds and are subject to review and audit by the MSBA.

2 - Costs associated with the commissioning of ineligible building area is estimated to result in the recovery of a portion of the overall commissioning cost. The OPM has estimated this recovery of funds to be $_____. The proposed demolition of the _____ School is expected to result in the MSBA recovering a portion of state funds previously paid to the District for the _____ project at the existing facilities completed in ____. The MSBA will perform an independent analysis based on a review of its records and information and estimates provided by the District for the proposed school project that may or may not agree with the estimated cost recovery generated by the District and its consultants using this template.

3 - Pursuant to Section 3.21 of the Project Funding Agreement and the applicable policies and guidelines of the Authority, any project costs associated with the reallocation or transfer of funds from either the Owner's contingency or the Construction contingency to other budget line items shall be subject to review by the Authority to determine whether any such costs are eligible for reimbursement by the Authority. All costs are subject to review and audit by the MSBA.

Early Release Packages Anticipated Scope and Schedule

As outlined in Schematic Design submission, early release packages were identified as part the Squantum School project. With engagement of Lee Kennedy, early release package are being refined.

No early bid awards have been awarded as of the issuance of the Design Development submission.

The following is a draft schedule for the Early Release Packages:

Early Release Package	Issued to Estimators	Issued to MSBA	Anticipated Trade Bids	Anticipated Awards
Geothermal Package	11/1/24	50% CD 12/20/24	Non-trade bids February 2025	March/April 2025
Enabling Package	11/1/24	50% CD 12/20/24	February 2025	March/April 2025
Demolition Package	11/1/24	50% CD 12/20/24	March 2025	May 2025

6A.3 DESIGNER DELIVERABLES

6A.2.3.1
General Requirements

Designer's Work Plan

In accordance to Module 6 Detail Design, the Design Team will meet with the Project's Working Group and meet for project coordinations.

	Construction Documents
Thursday, January 2, 2025	Begin Construction Documents
	60% CD Drawings and Specifications
Wednesday, January 15, 2025	Working Group Meeting #34 & Project Coordination Agenda: TBD
Wednesday, January 22, 2025	Working Group Meeting #35 & Project Coordination Agenda: TBD
January TBD	Community Meeting
Wednesday, January 29, 2025	Working Group Meeting #36 & Project Coordination Agenda: TBD
Wednesday, February 5, 2025	Working Group Meeting #37 & Project Coordination Agenda: TBD
Friday, February 7, 2025	Send 60% CD Pricing Set to Cost Estimators
Wednesday, February 12, 2025	Working Group Meeting #38 & Project Coordination Agenda: TBD
Wednesday, February 19, 2025	Working Group Meeting #38 & Project Coordination Agenda: TBD
February TBD	MSBA DD Review Comments
February TBD	District's Response to MSBA DD Review Comments (14 days)
Friday, February 28, 2025	100% CD Early Release Packages: Geothermal Package Enabling Package Demolition Package
Friday, February 28, 2025	Cost Estimates Received (Designer's and CMR's estimates)
Feb-Mar 2025	OPM Drawing Review
Monday, March 3, 2025	Cost Reconciliation Meeting & VE Analysis
Thursday, March 13, 2025	Submit 60% CD to MSBA (includes 100% CD for Early Release Packages)
	90% CD Drawings and Specifications
Thursday, March 20, 2025	Working Group Meeting #39 & Project Coordination Agenda: TBD
Thursday, March 27, 2025	Working Group Meeting #40 & Project Coordination Agenda: TBD
Thursday, April 3, 2025	Working Group Meeting #41 & Project Coordination Agenda: TBD
April 2025	Community Meeting

Thursday, April 10, 2025	Working Group Meeting #42 & Project Coordination Agenda: TBD
Tuesday, April 15, 2025	Construction Start: Early Release Packages Geothermal Package Enabling Package
Thursday, April 17, 2025	Send 90% CD Pricing Set to Cost Estimators
Thursday, April 17, 2025	Begin Structural Peer Review of 100% CD Structural Drawings
April 2025	OPM Drawing Review
April 2025	MSBA 60% CD Review Comments
April 2025	District's Response to MSBA Review Comments (14 days)
Thursday, April 24, 2025	Working Group Meeting #43 & Project Coordination Agenda: TBD
Thursday, May 1, 2025	Working Group Meeting #44 & Project Coordination Agenda: TBD
Thursday, May 8, 2025	Cost Estimates Received (Designer's and CMR's estimates)
Friday, May 9, 2025	Cost Reconciliation Meeting & VE Analysis
Monday, May 26, 2025	Submit 90% CD to MSBA
	100% CD Drawings and Specifications
May 2025	MSBA 90% CD Review Comments
May 2025	District's Response to MSBA Review Comments (14 days)
June 2025	Construction Start: Early Release Package Demolition Package
June 2025	Community Meeting
June 2025	Working Group Meeting and Project Coordination
Friday, June 27, 2025	Draft 100% CD Set
Thursday, July 17, 2025	Final 100% CD Set submit to MSBA for record
EARLY PACKAGES	
Februray 2025	Bid - Early Package: Geothermal Wellfield Construction
February 2025	Bid - Early Package: Enabling fo 1971 and Modular Classrooms
March 2025	Bid - Early Package: Demolition and Hazmat 1919 and 1949 Buildings
April 2025	Construction - Early Package: Geothermal Wellfield Construction
April 2025	Construction - Early Package: Enabling fo 1971 and Modular Classrooms
June 2025	Construction - Early Package: Demolition and Hazmat 1919 and 1949 Buildings
MAIN PACKAGE	
Sept 2025	Construction Phase 1 - New School
June 2027	Construction Phase 2 - Site Work
Winter/Spring 2027-2028	Substantial Completion
May - Aug 2028	Project Closeout
	Post Occupancy Evaluation

Basis of Design Narratives

This section includes basis of design narratives for the following disciplines:

- Architecture
- Structure
- Civil
- Landscape
- Mechanical
- Plumbing
- Fire Protection
- Electrical
- Data/Communications

Architecture

The Squantum School is thoughtfully designed to serve 380 students in grades kindergarten through fifth within a 2-story, 79,801 gross square feet structure. The building's program, detailed in the Updated Space Summary on page 100, reflects a commitment to both educational excellence and community integration.

The design of the building is intended to support the school as well as the community, incorporating the educational, architectural and community priorities.

Future Ready Learning

The building is designed to foster modern educational practices, creating spaces that enable:

- Student-Directed Learning: Empowering students to take ownership of their education in environments that support independent and guided exploration.
- Teamwork and Collaboration: Encouraging cooperative learning through flexible spaces designed for group projects and peer interaction.
- Expression and Communication: Providing areas where students can share ideas, showcase creativity, and build confidence in communication skills.
- Critical Thinking: Creating environments that inspire problem-solving and innovative thinking through dynamic, adaptable spaces.
- Global Awareness: Integrating features that connect students to broader cultural and global perspectives.

The design reflects a forward-thinking approach, ensuring that the school not only meets today's educational demands but also equips students with the skills and mindset needed to thrive in a rapidly changing world.

The new school will incorporate a portion of the existing historic 1919 facade with a significant new addition on the same site at 50 Huckins Avenue, Quincy. By choosing to maintain the school's location within the Squantum peninsula, the project aims to preserve the school's close ties to the local community and minimize disruptions for students and families.

The new Squantum School is thoughtfully designed to integrate with its existing site while addressing key community and educational priorities. Here's an overview of the site design and its features:

Site Layout and Traffic Management

- 2/3 of the Site for the New School: The new school building occupies the majority of the existing site, leaving 1/3 for important site functions.
- Traffic and Parking: The design prioritizes smooth traffic flow with dedicated staff parking and separate drive aisles for bus and van drop-offs and pick-ups.
- Parent Drop-Off/Pick-Up Zone: Utilizing Winslow Road (a paper street) for parent drop-off helps reduce traffic congestion on Huckins Avenue.

Landscaping and Safety

- Welcoming Atmosphere: Plantings and benches are strategically placed to create an inviting environment.

- Tree Preservation: The design takes care to protect existing trees, particularly two large pin oak trees along Huckins Avenue, minimizing tree removal.

Outdoor Spaces

- Moses Park and Field Improvements: The design includes planned improvements to the adjacent Moses Park and Field, enhancing the school and community's access to recreational spaces.
- Internal Courtyard: A secure, easily accessible outdoor courtyard will be integral to the school's curriculum, offering space for learning, movement, and social-emotional development.

Building Design and Organization

- Main Entrance and Public/Community Spaces: The new school features a main entrance from Huckins Avenue, leading to a "main street" that organizes key public and community spaces, such as the cafeteria, gymnasium, courtyard, and media center, separate from the classroom wing.
- Nurse's Suite Location: The nurse's suite is strategically placed near a secondary main entrance for quick access by emergency medical personnel.

Integration of the 1919 Building

- Historical Significance: The design team recognized the importance of the 1919 building, deciding to re-purpose it to host a community-centered function.
- Media Center as the Heart of the School: The media center was moved from the second floor of the 1919 building to the first floor, positioning it as the "heart of the school" and creating a central, inviting space for students and the community.
- Community Focus: The integration of the media center with the courtyard fosters natural light, while the relocation of the art room offers direct access to the courtyard, inspiring creativity and providing students with an outdoor connection.

Community Engagement

- Main Street and Courtyard as Focal Points: The school's design intentionally connects public spaces to the outdoors, with direct views and access to the courtyard along the "main street." This courtyard will serve as a vibrant, communal gathering space for the Squantum and Quincy residents, encouraging social interaction and strengthening the sense of community.

In essence, the design of the Squantum School harmonizes with its surroundings, integrates historical elements, and fosters both educational and community engagement. The school will not only serve as a learning hub but also as a key feature of the local community, providing opportunities for connection and growth.

The designation of the Squantum School as a Resiliency Hub underscores its importance as a community resource, particularly during extreme weather events or other emergencies. The strategic adjacency of the cafeteria and gym off the "main street" ensures easy access for community members to receive support, resources, coordination, and shelter before, during and after extreme weather events caused by climate change.

Classrooms and Special Education

The organization of the core classrooms and special education classrooms into grade-level "neighborhoods" within the Squantum School's 2-story wing is a deliberate and thoughtful design choice that promotes community, inclusivity, and equity within the school environment.

Grade-Level Neighborhoods

- Sense of Community: By clustering classrooms by grade level, the design fosters a sense of belonging, helping students and teachers form stronger connections and support networks.
- Enhanced Collaboration: The neighborhood model encourages collaboration among teachers and students within each grade, enriching the learning experience.

Inclusivity and Accessibility

- Integration and Equity: Each grade neighborhood is designed to be inclusive, ensuring that students with diverse learning needs can seamlessly access resources and feel part of the community.
- Proximity to Support Services: Therapy rooms and breakout spaces are integrated into each neighborhood, offering essential support services and flexible learning areas tailored to individual student needs.

Comprehensive Support Services

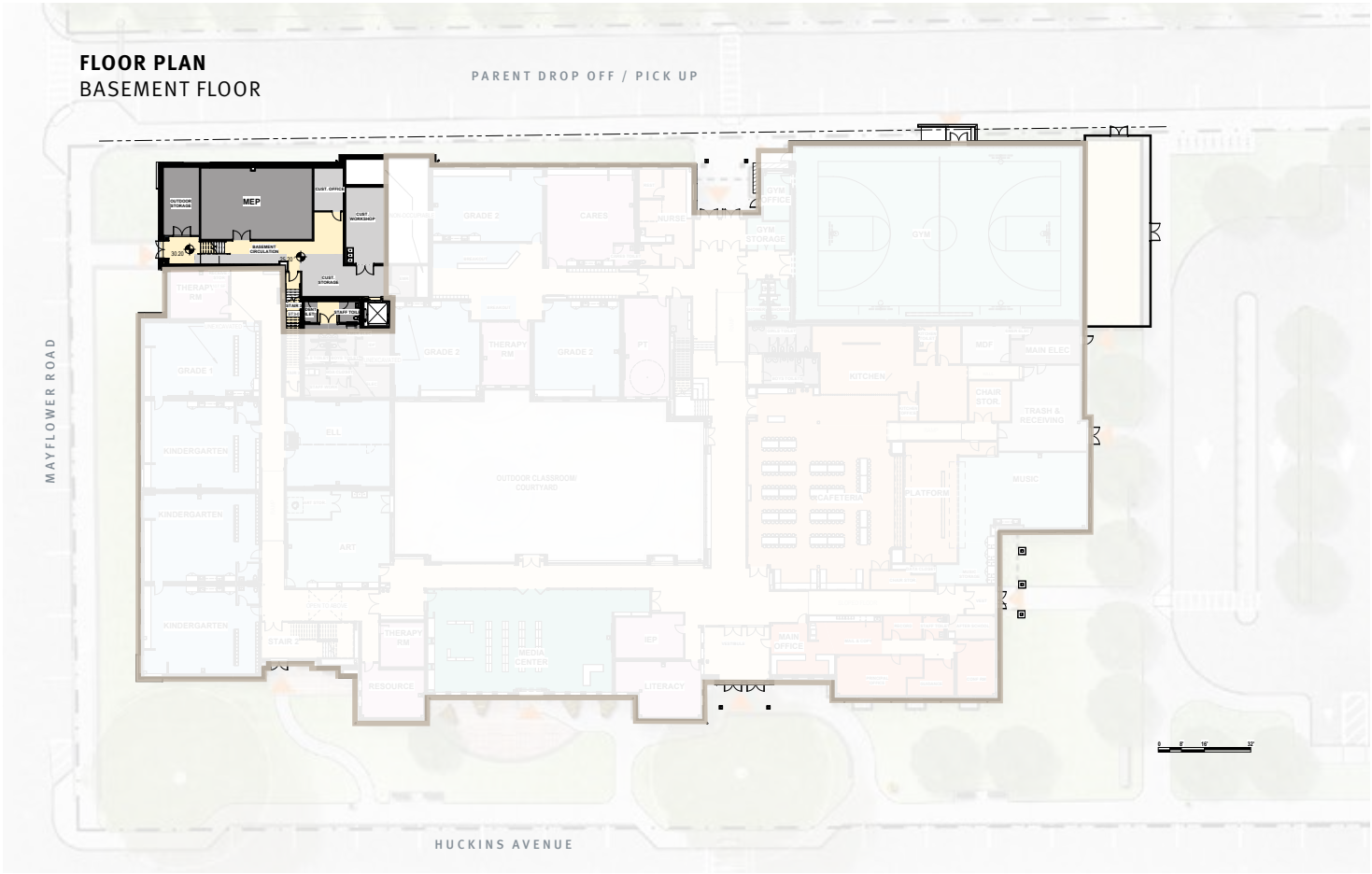
- Therapy Rooms: These dedicated spaces provide a quiet, supportive environment for students requiring specialized interventions.
- Breakout Spaces: Designed for small group instruction or individual learning, these areas enhance educational flexibility and promote personalized support.

This thoughtful design approach underscores the school's commitment to creating an environment where every student can thrive academically, socially, and emotionally, making the Squantum School a model for modern, inclusive education.

FLOOR PLAN
FIRST FLOOR

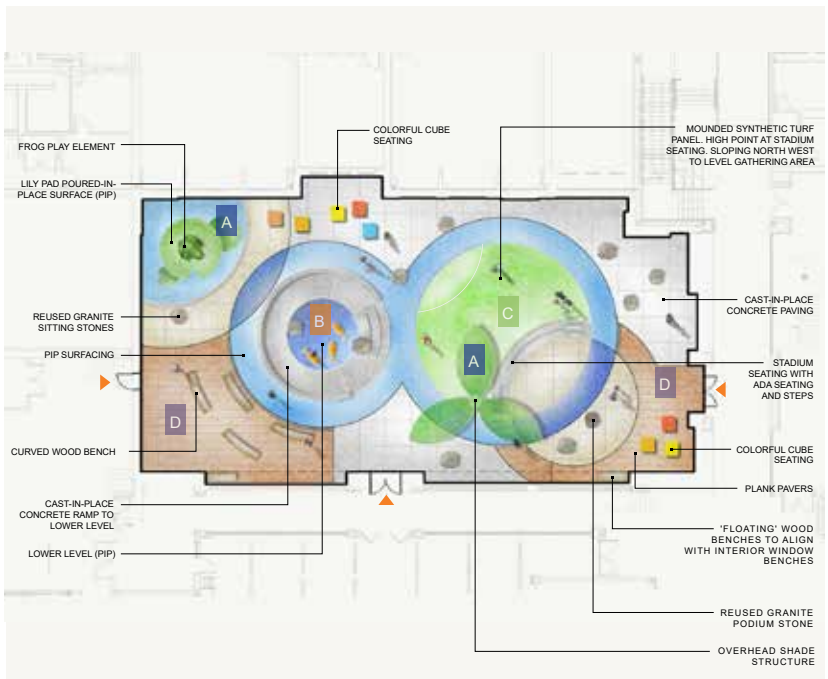
FLOOR PLAN
SECOND FLOOR

FLOOR PLAN
BASEMENT FLOOR



A SHADE | IMAGINATION

B SUNKEN AREA



C SLOPED TERRAIN

D DECK PLATFORMS

terrain landscape architecture

SQUANTUM ELEMENTARY SCHOOL | COURTYARD CONCEPT

N.T.S. ILLUSTRATIVE IMAGERY PREPARED FOR TEAM COORDINATION . NOT FOR CONSTRUCTION

NORTH

Squantum . Massachusetts
Design Development
September 2024

Structural

A SUBSTRUCTURE

A10 FOUNDATIONS

The building substructure will consist of reinforced concrete walls and column pilasters constructed along the perimeter of the building and supported on continuous strip footings, interior isolated spread footings under interior steel columns, and first floor concrete slab-on-grade. Basement walls are not designed to withstand backfilling without bracing. The first-floor will have a mix of concrete slab-on-grade, and concrete on steel deck over the partial basement. In the 1919 building, the existing stone foundation wall of the brick façade will remain. The rest of the substructure of the 1919 building, and later wings, will be demolished. All concrete to have a 25% Global Warming Potential reduction from the current NRMA baseline at the time of construction, as weighted by use in the project.

A1010 STANDARD FOUNDATIONS

EXTERIOR FOUNDATIONS

The perimeter foundation walls will be 18" thick to 26" thick, including an 8" thick shelf, over continuous strip footings 2'-6" wide and 14" thick. At locations with low exterior grade, wider retaining wall footing will be specified. The bottom of the strip footing will be 4'-0" minimum below finished grade. The footings will be stepped as required to accommodate sloping grade where required. A new 12" thick concrete frost wall will be constructed on the inside face of all the existing 1919 building's to-remain stone foundation walls with an L-shaped wall footing.

ELEVATOR PIT

Elevator pit construction will consist of a 12" thick, reinforced concrete walls and an 24" thick reinforced concrete foundation mat, with an integral sump pit. Waterstops will be provided at all construction and all exterior surfaces of the pit will be waterproofed. Elevator shafts will be 100% solid grouted, reinforced CMU masonry construction (8" thick).

INTERIOR CMU WALL FOUNDATIONS

The interior CMU walls will be constructed over concrete slab-on-grade thickened to 15"x2' wide along the walls.

COLUMN FOUNDATIONS

Perimeter steel columns will be supported over concrete pilasters which in turn are supported on concrete footings. The footing dimensions will vary from 4'-6"x4'-6" x15" to 9'-6"x9'-6"x2'-6". The top of the column footings will be flush with the top of the perimeter wall footings.

Interior steel columns will be supported over isolated concrete spread footings. The footing dimensions will vary from 5'-0"x5'-0" x18" to 9'-6"x9'-6"x2'-6". The top of the interior footings will be approximately 2'-0" from top of the concrete slab-on-grade.

A1030 SLABS ON- GRADE

The first floor slab will be concrete slab-on-grade of 5" thick. Slab-on-grade will be underlain by a heavy duty,

20 mil vapor barrier, such as Stego Wrap, a 4' wide strip of continuous 3" thick rigid insulation at the perimeter foundation wall and 12" of compacted sand and gravel, as noted in the preliminary geotechnical report. The 1919 building's existing first-floor framing will be demolished and the existing crawl space will be filled with structural fill. The new first floor will be primarily slab on grade, except over basement.

REINFORCEMENT

Slab-on-grade will be reinforced with welded wire fabric. Saw-cut control joints will be at column grids and a maximum of 15' in each direction. Under the interior CMU walls the slab will be thickened to 15".

RADON SYSTEM

Two underslab radon gas collection pits are required. The vapor barrier is to be sealed to the interior side of the perimeter foundation wall and the compacted sand and gravel is to be ASTM Size #5 Aggregate or Equivalent.

B SHELL

B10 SUPERSTRUCTURE

The primary superstructure will consist of structural steel girders and beams supporting composite metal deck floors and metal roof deck for the majority of the building. The gym is steel open web joists and columns supporting a steel roof deck. The existing 1919 building superstructure will be demolished except for the exterior brick façade. The demolished roof will be reframed with new wood roof trusses, steel beams, girders, columns, and metal roof deck. The existing bricked façade will be tied back to the new superstructure and the slab on grade. As an alternate, the Media Center roof will be a wood roof deck. An expansion joint will be provided between the reframed existing 1919 building and the new addition on all sides. A double firewall separates the gymnasium from the remainder of the building, with an expansion in the middle of the two firewalls.

COLUMNS

Typical columns will be wide flange steel sections or rectangular steel tube (HSS) at exposed to view locations in the gym and cafeteria. At exposed-to-view locations, steel columns are to be classified as Architecturally Exposed Structural Steel (A.E.S.S.) category 3.

LATERAL FORCE RESISTING SYSTEM

Lateral forces will typically be resisted by steel bracing and moment connections. Brace members will be HSS members square or rectangular in sections. Reinforced CMU masonry shear walls contribute to lateral force resistance at the gymnasium. Concrete grade beams will tie the foundations at braced frame locations.

B1010 FLOOR CONSTRUCTION

FLOOR STRUCTURAL FRAME

Framing of elevated floor structure will consist of steel columns, steel girders, and steel beams. The typical girders will be steel wide flange sections (W-shapes) that span approximately 25' to 38'. See Schematic Drawings. Typical steel beams will be W-shapes spanning approximately 30' to 40' at 8' to 10' spacing.

FLOOR DECKS AND SLABS

The second floor slab will consist of 3.5” thick normal-weight concrete over 3” deep galvanized composite steel deck (6.5” total thickness). A minimum of one row of stud shear connectors, 3/4 inch in diameter and 5” long, will be welded over the top of each supporting beam at an interval of not more than one foot.

B1020 ROOF CONSTRUCTION

ROOF STRUCTURAL FRAME

Columns supporting the floor structure will extend to the roof level. Framing of roof structure will include steel girders, beam, and steel open web joists. The typical girders will be steel W-shapes that span approximately 25’ to 38’. Typical steel beams will be W-shapes spanning approximately 30’ to 40’ at 8’ to 10’ spacing. Framing for the roof over gymnasium will be 42” deep steel open web joists spanning 60’sloped at 1/4” per foot for drainage. Roof drainage will typically be provided by pitching the steel framing to low points located along the perimeter of the roof for steep sloped areas. Low slope roof areas, expect for the gym, will be drained via tapered insulation. A portion of the 1919 building rood will be reframed with glulam trusses.

ROOF DECKS

Typical roofs will be constructed of 3” deep 18 gage galvanized steel roof decks.

ACOUSTIC ROOF DECK

At the gymnasium the deck will be Type “N-cellular” acoustic deck with NRC rating of 0.9 or better.

ENABLE PACKAGE:

SUBSTRUCTURE: The substructure will consist of reinforced concrete walls supported on continuous strip footings constructed along the perimeter of the added structure for the site enabling. The perimeter foundation walls will be 8” thick over continuous strip footings 2’-6” wide and 12” thick. The first floor slab will be 5” thick concrete slab-on-grade underlain by a heavy duty, 20 mil vapor barrier, such as Stego Wrap, a 4’ wide strip of 3” thick rigid insulation at the perimeter foundation wall and 12” of compacted sand and gravel, as noted in the preliminary geotechnical report.

SUPERSTRUCTURE: The superstructure of the temporary boiler room and the temporary connector between the 1971 building and the temporary modular building will consist of a wood-framed roof supported on wood stud walls. The roof will be double 2x12 rafters spaced at 24” OC and topped with ¾” thick plywood sheathing. The wall system will consist of conventional 6” stud walls. All walls will include one sheet of 1/2” thick plywood sheathing.

The existing connector between the 1949 and 1971 buildings will be closed with a new non-load-bearing wood stud wall. The existing wood beam/joist will be relocated at the closed end of the existing connector. A steel beam and column will replace the existing window frame. The window opening will be filled with a wood stud wall.

Squantum Elementary School
50 Huckins Avenue, Quincy, MA
100% Design Development Narrative
December 20, 2024

Green International Affiliates, Inc.
100 Ames Pond Drive, Suite 200 Tewksbury, MA 01876
T: (978) 923-0400 | www.greenintl.com

Project Description

This project involves the renovation of and addition to the existing Squantum Elementary School building, located at 50 Huckins Avenue. The proposed project positions the school on the western half of the property, accompanied by a parking lot with 52 spaces to the east. The parking lot includes four (4) accessible spaces and six (6) electric vehicle (EV) spaces, of which, one EV space is accessible. In addition, the Winslow Avenue paper street will be realigned to function as a parent drive lane with 21 parallel parking spaces, Mayflower Road and Huckins Avenue will be widened along the school property to add on-street parking, and the existing playground will be expanded for school use. Outdoor classrooms will be provided in a secured courtyard located at the center of the school, and an underground geothermal well field will be constructed in the City owned parkland north of the school. Building and parking lot reconfiguration associated with this option will require reconstruction of nearly all site utility infrastructure. This option will locate the MEP room in the northwest corner of the building in the basement near Mayflower Road. During construction, the parkland may be used for construction lay down and temporary staff parking.

Enabling Phase

The enabling phase of this project consists of two phases. Phase one deals with early site work, including road widening of Huckins Avenue and Mayflower Road, installation of duct banks and undergrounding of utility poles along Hunkins Avenue and Mayflower Road (by National Grid and City), installation of a temporary transformer to feed the 1971 building wing and the proposed temporary modular classrooms, site preparation and utility installation to accommodate the temporary modular classrooms, selective demolition to disconnect the 1971 building wing from the 1945 building, and site preparation for the installation of the geothermal well field.

Phase two primarily involves installation of the modular classrooms for temporary use, demolition of the 1919 and 1945 buildings, installation of a permanent transformer (1971 building wing and modulars will be switched over to this transformer once live), removal of the temporary transformer installed during phase one, and the installation of temporary boilers to feed the 1971 building wing.

Service utilities that will be installed during phase one for the temporary modular classroom include a 2” copper domestic water service, a 6” cement lined ductile iron fire protection service (both of these water services will connect to an existing 8” cast iron water main located in Standish Road), a 6” PVC sanitary sewer service (heat-traced) that connects to an existing sewer manhole located in Standish Road, and drainage pipe that will convey roof runoff to the new closed drainage system that was installed in Winslow Road.

Demolition Phase

The demolition phase of this project involves installation of erosion control practices, cutting and capping existing gas mains from the building exterior as part of the demolition of the 1919 and 1945 buildings, demolition of the 1971 building wing, removal of the temporary modular classrooms, and site preparation for the remaining site and utility work covered in the Main Package phase.

Green International Affiliates, Inc.
100 Ames Pond Drive, Suite 200 Tewksbury, MA 01876
T: (978) 923-0400 | www.greenintl.com

Stormwater Management System

Existing Conditions

The existing site is pitched from east to west, where Standish Road is a high point and Mayflower Road is a low point. The existing site drains to a series of catch basins located on-site, which are connected via a closed drainage system. This system outlets to an existing catch basin in Mayflower Road, which is part of the City's public drainage system. Stormwater runoff from the southern section of Standish Road (near Huckins Avenue) is captured by two public catch basins in Standish Road. These two catch basins connect to the closed drainage system on-site. The on-site drainage system is comprised of 10-inch and 12-inch VCP drainpipes.

As part of the preliminary stormwater assessment, the existing site was modeled to account for different types of land cover, site topography, hydrologic soil groups, and drainage patterns. This information was inputted to a stormwater model, along with local rainfall data, and was used to determine the peak runoff flow rates and volume leaving the site, for various design storms. This same methodology was employed for the project site under proposed conditions.

Proposed Conditions

This project involves reconfiguration of the building and parking lot on-site and will require considerable grading changes across the lot. These modifications will necessitate the removal of all existing on-site drainage infrastructure, and the installation of a new stormwater collection and management system.

Roughly two-thirds of the site will be occupied by the new building footprint, which will be positioned on the lower portion of the property. The staff parking lot is located on the east side of the site at a higher elevation. The proposed construction of Winslow Road begins at a high point near Standish Road and ends at a low point on Mayflower Road. Winslow Road is being considered as off-site area for the preliminary stormwater assessment as part of the school project. The City has plans to construct a closed drainage system in Winslow Road that will capture and convey runoff generated from the road. Coordination with the City will be required to ensure the City's drainage system is sized and designed accordingly to accommodate the drainage design for the school project.

In post-development conditions, the amount of impervious area on-site will increase significantly, which will increase the amount of stormwater runoff generated on-site. To account for this increase, two (2) stormwater Best Management Practices (BMPs) will be required on-site to provide stormwater treatment and mitigation of peak flow rates and runoff volume. Due to limited available space on-site, these BMPs will be subsurface infiltration systems consisting of plastic chambers and crushed stone.

One of the BMPs will be located underneath the staff parking lot to collect and mitigate runoff generated on paved areas in the eastern part of the site, as well as the entire school roof. This BMP will outlet to a new drainage structure in Winslow Road that is being proposed as part of the City's planned drainage improvements. This drainage structure will convey stormwater to the west and ultimately tie into a proposed manhole in Mayflower Road (also proposed as part of the City's planned improvements).

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In the staff parking lot, a series of deep sump, hooded catch basins are being proposed to collect runoff from the parking lot. Drainage pipes will convey flow from the catch basins to proposed drainage manhole structures, which will ultimately discharge to the subsurface infiltration system being proposed below the staff parking lot.

The second, smaller BMP will be located closer to Mayflower Road, positioned between the west side of the school building and a proposed retaining wall. This system will receive runoff from paved walkways and sidewalks on the south and west sides of the school, as well as the proposed outdoor classroom. To capture runoff from these areas, a closed drainage system is proposed consisting of yard drains positioned at low points, connected by drainage pipe. The outdoor classroom will be graded to provide pitch away from all building entrances, with a low point near the center of the courtyard where an inlet will be located to drain the area. The drain line exiting this inlet structure will need to run below the building foundation in order to connect to the proposed BMP near Mayflower Road. This BMP will outlet to a new drainage manhole in Mayflower Road that is being proposed as part of the City's planned drainage improvements.

Each BMP will be equipped with an outlet control structure designed to regulate discharge rates to the City's drainage system, and to help meet water quality volume and recharge volume requirements. In addition, each BMP will be equipped with an isolator row designed to improve sediment pre-treatment, pollutant-removal, and system maintenance.

Design Standards
The proposed stormwater improvements are designed to meet the ten Massachusetts State Stormwater Standards as a new development project. In addition, the proposed design will meet the City of Quincy's stormwater management regulations for 90% TSS removal, 60% Total Phosphorus (TP) removal, and 1-inch water quality volume. The proposed closed drainage system is being developed using TR-55 and NOAA Atlas-14 rainfall data to size the pipe network and subsurface infiltration BMPs. The BMPs will be designed to mitigated up to the 100-year storm event on-site.

Soils
Based on the Natural Resources Conservation Service (NRCS) Soil Survey, soils throughout the project site consist primarily of Canton-Urban land complex and sandy Udorthents, which are both categorized as Hydrologic Soil Group A. This group of soils tend to have a high infiltration rate when thoroughly wet, a low runoff potential, and consist mainly of deep, well drained to excessively drained sands or gravelly sands.

Based on the NRCS Soil Survey and the results contained in the Geotechnical Report for this site, it is presumed that subsurface conditions on the project site are suitable for stormwater infiltration to the groundwater table. It is presumed that the bottom depth of a subsurface BMP will fall within the sand and gravel layer identified in the boring logs. In addition, based on boring logs contained in the Geotechnical Report, it appears that adequate separation can be provided from the bottom of a subsurface BMP to the estimated seasonal high ground water (ESHGW) elevation.

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Site Access & Parking

Vehicular site access will be provided through the newly constructed Winslow Road. The alignment of Winslow Road will run straight across the property from east to west, with access being provided through the existing driveway on Standish Road (east), and a new curb cut on Mayflower Road (west). Additional site access will be provided through two (2) new curb cuts on Standish Road, between Huckins Avenue and Winslow Road. One curb cut will function as a one-way entrance to the new staff parking lot, and the other will act as a one-way means of egress. The staff lot will contain 52 standard parking spaces, six (6) EV spaces, and four (4) accessible spaces. Drop off locations for vans and buses will circulate around the parking lot and will be located adjacent to the east school entrance. Additional parallel parking is provided along Mayflower Road (9 spaces), Huckins Avenue (17 spaces), and Winslow Road (21 spaces).

Sewer

Municipal sewer services the existing school. Based on record documents and the survey plan developed by Feldman Geospatial, an existing 8" VCP (vitrified clay pipe) sanitary sewer main runs through the middle Huckins Avenue, Mayflower Road, Standish Road, and Park Avenue. This gravity sewer main varies in age, ranging from 1929 to 1945. The City has planned worked to check CCTV records for these sewer mains to determine condition, and if concerns are identified, the sewer mains may be lined. It is assumed that the locations of existing sewer mains and sewer manholes will remain consistent throughout the duration of this project.

Record plans show four (4) sanitary sewer services for the existing school, all of which exit the south side of the building and connect to the municipal sewer system in Huckins Avenue. The service lines exit the school in different locations, including a service at the 1918 classroom building, a service at the 1946 classroom building, and two (2) services at the 1971 classroom building addition. Three (3) services are shown connecting directly to the 8" VCP sewer main, while the last service (furthest east) connects to a sewer manhole in Huckins Avenue. These services are aged and have served their useful life. The existing sanitary sewer services that ran to the existing building will be abandoned or removed.

As part of this project, there will be two (2) proposed sanitary sewer services for the new school building. One service is a 4" PVC pipe that will exit the south face of the school and discharges to an exterior grease trap, which will be installed between the school building and Huckins Avenue, and designed to treat kitchen waste before connecting to the existing 8" VCP sewer main in Huckins Ave via a chimney connection. The second sewer service is a 6" PVC pipe that will exit the west side of school building and connect to existing sewer system in Mayflower Road via a proposed manhole. Refer to the narrative provided by the Plumbing Engineer for a description of the recommended sewer piping size within the building footprint.

Since the population of the school is not expected to grow significantly, it is assumed the municipal sewer system capacity is sufficient for proposed conditions. If this assumption changes, and the number of students and staff is anticipated to increase, further investigation will be required to determine if the municipal sewer system has adequate capacity for the additional sewage flows.

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Water

Municipal water services the existing school. Based on record documents and the survey plan developed by Feldman Geospatial, there is an existing 8" CI (cast iron) water main that runs through Huckins Avenue, Mayflower Road, Standish Road, and Winslow Road (paper road). According to record plans, there are three (3) water services at the front of the building that connect to the municipal system in Huckins Avenue.

The main domestic water service is a 4" pipe (material outside of building unknown) located in the 1971 building addition. The water meter for this service appears to be 2" in size. Record plans show a second water service connecting to the 1971 building addition; however, it appears this line was abandoned. The third water service is a 2-½" pipe connecting to the 1918 classroom building. Usage of this service is unknown and needs to be confirmed. The school is not equipped with an automatic sprinkler system.

No fire hydrants are present on the school property. There is an existing hydrant near the corner of Huckins Avenue and Mayflower Road, and a second hydrant across from the school parking lot on Standish Road. The existing water services will be replaced, and a new dedicated fire protection service will be installed from the water main along Winslow. In addition, flow tests will be required to ensure the existing water system in Huckins Avenue can provide adequate water pressure and flow for the school's proposed domestic and fire protection needs. Refer to the narrative provided by the Plumbing Engineer for a description of the recommended water service sizes.

Geothermal Wells

In the southwest corner of the parkland, a new closed loop geothermal wellfield will be installed, consisting of 40 wells, to serve the building HVAC system and domestic hot water heating system. Supply and return piping will be routed between the building's mechanical room and the geothermal well field, consisting of 3" HDPE pipe that runs below Winslow Road. Refer to the narrative and plans provided by the Mechanical Engineer for a additional description of the geothermal wellfield design specifics.

Electric

The school building is planned to be all-electric, eliminating the need for gas services. The proposed improvements include an emergency diesel generator located in a sound attenuated enclosure near the staff parking lot. Refer to the narrative provided by the Electrical Engineer for a summary of improvements related to the proposed electrical system for the school.

Environmental Impacts & Permitting

The site is located in an urban residential area in the Squantum Peninsula of Quincy. The school is not located directly adjacent to any environmentally sensitive areas. The site is not located within a 100-year Flood Zone according to the FEMA Flood Map 25021C0067F. The project site is not located within any areas designated as an Estimated Habitat of Rare Wildlife and a Priority Habitat of Rare Species by the Natural Heritage & Endangered Species Program (NHESP). Land disturbance is anticipated to be greater than an acre and would

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require a local Stormwater Management Permit. In addition, any new drainage connections proposed to the municipal system would require a local Drain Permit.

LEED

Further analysis will be required to confirm if the site is eligible for points relating to the 'Rainwater Management' credit under Sustainable Sites Credit and 'Electric Vehicles' under Location and Transportation Credit.

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G SITEWORK

G10 SITE PREPARATION

Site Earthwork to include the renovation and addition to the existing building and limited portions of the landscape to develop new parking lot, roadways, sidewalks, terraces, play areas, and landscaped areas.

Clearing and grubbing of sections of existing lawn to develop the expanded playground adjacent to existing playground.

Removal of existing trees as agreed upon by the arborist.

Tree Protection and Removal Plan to include the temporary tree protection barriers implemented on all trees to remain and trees to be cleared, grubbed, and removed completely from the site.

Preparing and re-seeding of the relocated ball field in the existing park.

Refer *to Civil Engineer section G1010 for the location of existing site elements, utilities, and pavements to be removed completely from the site as indicated on the Site Preparation plans.*

Refer to Civil Engineer section G1070 for earthwork cut and fill calculations and proposed grading of roads, parking areas, and curbs.

G20 SITE IMPROVEMENTS

G2010 Roadways

G2010.10 Roadway and Parking Lot Pavement

Refer to Civil Engineer section G2010 for bituminous concrete/asphalt paving along roadways and driveways.

Refer to Civil Engineer section G2020 for bituminous concrete/asphalt paving at parking lots.

G2010.20 Roadway Curbs

Refer to Civil Engineer section G2010 for granite or precast curbs along roadways and driveways.

Refer to Civil Engineer section G2020 for granite or precast curbs in parking lots.

G2030 Pedestrian Plazas and Walkways

G2030.10 Pedestrian Pavement

Sidewalks are proposed at the perimeter of the building along and extending from Winslow Road, Mayflower Road, Standish Road, and Huckins Avenue, along the parking lot roadway loop, and at the drop-off area as shown on the site plans.

Crosswalks are located along Huckins Avenue, including in front of the entry plaza. They are also located in centrally at Winslow Road from the school to the athletic fields northeast of the building. Crosswalks will bring pedestrians along Standish Road and Mayflower Road, traveling south and north. All crosswalks will have pedestrian curb ramps and detectable warning panels at each end.

Sidewalks and walkways shall be 6-inch thick, cast-in-place Portland cement with welded wire mesh steel reinforcements on an 8-inch gravel base.

Sidewalks and walkways shall have varied scoring patterns, tooled edges, and a medium broom set finish, perpendicular to the lane of travel.

G2030.10 Pedestrian Pavement Curbs and Gutters

Cast-in-place concrete landscape curbs; 6-inch reveal minimum are proposed within walkway areas as shown on the site plans.

Cast-in-place concrete landscape curbs; flush to pavement is proposed in between site bituminous concrete/asphalt flexible paving, planting beds and as a retaining edge around poured-in-place play surface areas and synthetic lawn within the courtyard, as shown on the site plans.

G2030.30 Exterior Steps and Ramps

Within the central courtyard of the building, there are two cast-in-place concrete amphitheater style steps with architectural finish and slab footer stepped within the courtyard space, primarily intended as seating. There are cast-in-place sloped walkways adjacent to provide ADA accessibility down into spaces. ADA compliant stainless-steel tubing handrails are provided along the stairs and amphitheater steps.

Cast-in-place ADA compliant accessible ramps with architectural finish, guide curb/cheek wall with frost footer, are located at the corner of Huckins Avenue and Mayflower Road to include ADA compliant stainless-steel tubing handrails fastened to the building facade. A second ramp is provided for ADA accessibility into the new play area adjacent to the existing north of Winslow Road. ADA compliant stainless-steel tubing handrails shall flank each side.

G2030.70 Plaza and Walkway Lighting

Refer to the Electrical section G4050 for site lighting for safety and egress.

G2050 Recreational and Playfield Areas

G2050.30 Recreational Areas

Poured-in-place resilient rubber surfacing (PIP) meeting ASTM standards with flush cast-in-place concrete curbs/edges; PIP depths as specified by play equipment fall heights and play surfacing manufacturers. Layout to be determined by the Owner, Architect, and within the limits indicated on the plans.

At the new proposed hardscape play area at Winslow Road, surfacing shall be bituminous concrete/asphalt with white line stripes for (2) four-square markings, and (2) Hopscotch markings, and one obstacle course, as indicated on the plans.

In the building's outdoor courtyard space, surfacing will include sea-themed Poured-in-Place patterning and colors, synthetic turf with shock attenuation pad, concrete unit pavers installed on bituminous setting bed and cast-in place concrete (pedestrian). Some areas of cast-in-place concrete shall include a color additive, as indicated on plans. Allow for salvaged granite ornamental seats, cast-in-place concrete seat walls, modular block seating (movable), straight backless benches (surface mounted), curved backless benches (surface mounted), a Frog Climber play element, and single post, perforated galvanized steel, shade element shaped as an "Oversized Leaf".

Refer to Civil Engineering section G3030 for underdrain connections at poured-in-place resilient rubber surfacing and synthetic turf play areas.

G2050.50 Playfield Areas

The upper lawn area hosts a relocated ball field with a new chain link backstop and two team benches. Its outfield, designated for ball sports, shall be prepared with an "outfield ballfield seed mix". The infield shall be prepared with a skinned infield mix. The remaining portions of the lawn shall be treated with a non-irrigated "general lawn seed mix".

Refer to Civil Engineering section G3030 for underdrains at the playfield.

2060 Site Development

G2060.20 Fences and Gates

Adjacent to the existing playground protected to remain, shall be a 12" wide flush cast-in-place concrete wall with chain link fence embedded into its center (layout shown on plan). At the new entrance to the existing playground area, access into the playground is provided by a ten-foot-wide double swing gate, including a self-latching mechanism. The gate shall be set into a 12" wide, flush cast-in-place concrete fence strip.

Refer to G Building Sitework for Structural Engineering section drawings and details for 6-foot high fence panel footing requirements.

G2060.25 Site Furnishings

Site furniture shall include benches, block seating, litter receptacles, bicycle racks, bollards, and vehicular gates, as requested by the Owner or permitting authorities. Site Furnishings shall be made of recyclable content to achieve credits for LEED qualifications.

Allow for (9) bicycle racks; to be “U-shaped,” stainless steel, embedded into cast-in-place concrete surfacing.

Allow for (7) backed benches; to be metal, powder-coated, with wood slats and surface mounted to cast-in-place concrete bench pad.

Allow for (2) straight backless benches; to be metal, powder-coated, with wood slats and surface mounted to cast-in-place concrete bench pad.

Allow for (4) curved backless benches; to be metal, powder-coated, with wood slats and surface mounted to cast-in-place concrete bench pad.

Allow for (8) Vestre modular block benches; to be metal, powder-coated, with wood slats, freestanding on various paving surfaces, colors vary as shown per plan.

Allow for (4) Landscape Forms ‘Twig’ benches; to be reinforced cast stone, freestanding on various paving surfaces.

Allow for (5) litter receptacles; to be metal, powder-coated, with optional split litter and recycling bin capacity and surface mounted to cast-in-place concrete receptacle pad.

Allow for (11) relocated salvaged granite ornamental seats (existing onsite).

Allow for (13) salvaged granite ornamental bollards.

G2060.35 Flagpoles

Allow for (1) 35-foot-tall flagpole, aluminum, powder-coated with an ornamental ball top, spun collar, internal cam cleat, internal halyard, and ground set installation on an engineered concrete footing.

Refer to G Building Sitework for Structural Engineering section drawings and details for flagpole footing requirements.

G2060.60 Retaining Walls

Retaining walls that are 4-feet or less in height shall be prefabricated stone retaining wall and footing, i.e., Natural Stone Walls Solutions type product.

Allow for a 6-foot high prefabricated stone retaining wall and footing i.e., Natural Stone Walls Solutions type product located along the west perimeter of the site with a 42” minimum height metal guardrail, as well as a 4-foot high prefabricated stone retaining wall and footing i.e., Natural Stone Walls Solutions type product located around the landscape area of the existing tree at the front entrance of the school, enclosing the

raised planter bed area, as well as around a portion of the existing playground and expanded new play area adjacent to it.

Refer to G Building Sitework for Structural Engineering section drawings and details for all structural retaining walls that are at or greater than 4-feet in height.

Refer to Electrical section G4050 for recessed retaining wall lighting for safety and egress.

G2080.10 Planting Irrigation

Irrigation shall occur at the school building lawn areas along Huckins Avenue only.

Total square footage for sprinkler irrigation for the school building lawn area along Huckins Avenue is 15,750 square feet.

Domestic water shall be provided from the building as the primary water supply for irrigation. The cost of plumbing a separate building domestic service to the irrigation system shall be included by the general contractor, including:

Licensed Trade Project Plumbers Carrying Indoor Irrigation Work

Work must by carried to 10 feet outside building walls per Code

Sewer Abatement (Irrigation) Water Meter for Billing

Reduced Pressure Zone (RPZ) Backflow Preventer

Copper Pipe and Valves

Floor Drains

Winterization

Applying potable water judiciously requires the use of a “smart” irrigation controller that can calculate the correct amount of water to apply based on real time climate conditions (rain, temperature, soil moisture, etc.) and automatically adjust the running time, or suspend daily irrigation if moisture conditions are met, for each customized zone. Irrigation will only be applied to supplement rainfall, not serve as a substitute. Generally, irrigation is applied overnight in the early hours of the morning to prevent irrigation water from staying on plant leaves too long and to not interfere with general maintenance and site operation. Quick coupling valves at-grade will be in lockable valve boxes for various hand-watering and winterization practices. The irrigation system shall have a winterization port to force compressed air through the mainline and laterals in October to prevent pipes cracking from ice. A qualified irrigation service provider is recommended for annual maintenance and commissioning for optimal performance.

Internet-based controls will further enhance system management to notify the end-user of leaks, breaks, faults, and overall water use for commissioning. General Contractor shall provide ethernet data to irrigation controller and/or pump station for remote management and system push notifications, emails, and text alerts on flow sensing, automatic system shutdown with leaks and breaks, harvested water versus domestic water consumption, and weather advisories (incoming rain, temperatures, etc.).

General Contractor shall only subcontract qualified contractors with experience using these products:

Irrigation Controller

Baseline BaseStation3200 with BaseManager 2.0

Rain Bird ESP-LXD with IQ v4.0

Hunter ACC2 with Centralus

Two-Wire Based System (for Expandability)

Internet Based Controls

Contractor to Purchase Tablet and Stylus for Irrigation Management

PVC Mainline

Stainless Steel Rotor Sprinklers for Athletic Fields

Pressure Regulating Valves and Sprinklers

For electricity use the irrigation controller only requires a 120-Volt, 1-Phase, 20-Amp GFCI Supply. The controller shall be grounded to the building earth ground system. An internal transformer shall convert to 24-Volt AC for direct-burial valve wire in the field. Electrical Contractor shall provide power and conduit for irrigation from inside of building to landscape for irrigation contractor to begin work.

G2080.20 Turf and Grasses

Lawn areas shall be provided to complement the general plantings and the site. Seed mixes will be appropriate to use.

Allow for 6-inches of topsoil in all areas indicated to receive general lawn mix.

Allow for 12-inches of topsoil in all areas indicated to receive outfield athletic field mix.

Allow (79,508) square feet of general seeded lawn. General lawn seed shall be "**Non-Irrigated General Lawn Seed Mix**" as provided by Northeast Nursery or approved equal.

Allow (15,644) square feet of ball sport outfield seeded lawn. Ball sport outfield lawn seed shall be ""**Outfield Ballfield Seed Mix**" as provided by Northeast Nursery or approved equal.

G2080.30 Plants

Trees, shrubs, ornamental grass, and perennials shall be provided to complement the site and public areas. Allow for the installation of trees and shrubs as shown on the Plans.

Allow for a 2-inch maximum of hardwood mulch at all plant beds and tree rings within the lawn. Mulch shall be shredded, well-rotted, free of growth or germination inhibiting ingredients.

Allow for 12-inches of planting soil mix in all areas indicated to receive shrub, ornamental grass, and perennial plantings.

Allow for (44) deciduous shade trees. Parking lot and shade trees shall be single-stem, 2-inch to 3.5-inch caliper, B&B stock. All individual tree planting soil, nutritional amendments, and staking shall be included in the installation cost of the trees.

Allow for (30) Perennials; 15-inch to 18-inch height, 36-inch on-center spacing.

Allow (51) Perennials; 12-inch to 15-inch height, 24-inch on-center spacing.

Dead limbs, debris, root, and trunk suckers 8-feet below the existing tree canopy are to be removed.

Dead, volunteer, or noxious tree and shrub species shall be removed from the site completely, including stumps, before proposed planting activities occur.

Most of the plant material is to be native species per LEED certification.

G2080.80 Landscaping Activities

Provide topsoil in the plant bed areas and the turfgrass areas per the specified topsoil preparation and amendment additives. Assume that all topsoil will be imported from off-site sources.

The contractor shall provide maintenance of planting and turfgrass areas for a specified period and then guarantee the planting for one-year to ensure the health and establishment of all plant materials.

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HVAC SYSTEM

NARRATIVE REPORT

The following is the HVAC system narrative, which defines the scope of work and capacities of the HVAC system as well as the Basis of Design. The HVAC systems shall be designed and constructed for ***LEED for Schools v4*** where indicated on this narrative.

1. **CODES**

   All work installed under Division 230000 shall comply with the Commonwealth of Massachusetts Adopted Building Codes (IBC, IMC, IECC latest Adopted Editions with MA amendments), Massachusetts Municipal Stretch Energy Code 2023, and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. **DESIGN INTENT**

   The work of Division 230000 is described within the narrative report. The HVAC project scope of work shall consist of providing new HVAC equipment and systems as described here within. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

3. **BASIS OF DESIGN: (MASS CODE)**

   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 7 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 Air-conditioned areas (Administration, Nurses Office, Guidance, Cafeteria). 78-80 deg. F +/- 2 deg. F (55% RH) for partial Air-conditioned areas (Classrooms, Teacher Support, Gym). N

   Unoccupied temperature setback will be provided (55 deg. F heating (adj.), 85 deg. F cooling (adj.).

   Outside air shall be provided at the rate in accordance with ASHRAE Standard 62.1 and the International Mechanical Code (latest adopted editions) as a minimum. All occupied areas will be designed to maintain 800 PPM carbon dioxide maximum.

4. **HVAC SYSTEM Description – Geothermal Water Source Heat Pump Hot Water Heating and VAV Displacement System**

   A. General: Provide a Geothermal Wellfield serving a WSHP (Water Source Heat Pump HW Generator) for Perimeter HW Heating and VAV Energy Recovery Air Handling Units with WSHP w/ Displacement Ventilation

B. Ground Source Wellfield: A new closed loop geothermal wellfield shall be provided to serve the building HVAC system and domestic hot water heating system. The final number and depth of wells shall be determined during later design stages by a geothermal wellfield engineer based on site conditions and cost considerations. The well field is estimated to consist of forty four (44) 500 ft. deep 1-1/4" U-bend closed loop vertical wells that provide a capacity of approximately 2.5 to 3.0 tons and 7.5-9.0 gpm each, based on a peak cooling load of approximately 200 tons and peak heating load of approximately 125 tons. Each well should be 20-25 ft from each other, and a minimum of 10 feet from the building or other utility lines. Final quantity, depth and type of wells shall be determined by a ground-source well field engineer. The groundwater loop shall be provided with a pump set arranged in a primary-standby manner and each pump shall be equipped with VFDs or EC motors. The pumps shall distribute the ground water to rooftop units and water source hot water generators.

C. Ground source to Hot Water Heating Plant: Provide new electric high efficiency modular (non closed coupled) Ground water source to Hydronic Hot Water Heat Pump Generator units that shall be located indoors within the mechanical room. New hot water pumps sets shall be provided and arranged in a primary standby manner to distribute hot water to/from the heat pump units to the building terminal heating equipment via a new insulated hot water piping distribution loop. It is estimated that a total of (3) hot water heat pump generators, each with a nominal capacity of 50 tons, shall be provided to meet the terminal heating equipment load.

D. Terminal Heating Equipment: New insulated hot water piping shall be distributed from the plant to a combination of terminal hot water heating equipment. The majority of occupied classroom and office areas shall be provided with finned tube radiation heating (Renovation Areas) or radiant ceiling heating panels (Addition/New Construction). Entry areas and stairwells shall be provided with cabinet unit heaters. Utility rooms and storage areas with exterior exposures shall be provided with unit heaters. Corridors and areas with extensive exterior exposure areas shall be provided with fin tube radiation heating or radiant ceiling heating panels.

E. Ventilation Systems: Provide new indoor mounted and roof mounted air handling units as described below. The air handling units (AHUs) shall be equipped with supply and return/exhaust fans equipped with VFDs or EC motors, Ground water to Refrigerant heat exchanger and heat pump section, MERV-14 final filter, MERV-8 pre and exhaust filters, economizer control, recirculation air dampers, static pressure control, and demand control ventilation. There shall be separate AHUs as described below. The Classroom areas shall be served by multiple AHUs that shall be designed based on heating/cooling load exposures. Where possible the indoor AHUs units shall be connected to common outdoor air and exhaust air duct systems to minimize building envelope penetration.

AHU Quantities, zones and airflow capacities are as follows:

- AHU-1, 2 & 3 – Classrooms – Indoor mounted air handling units, with a combined capacity of 25,000 CFM, 100 tons heating and 106 tons cooling.
- AHU-4 – Media Center – Indoor mounted air handling unit with a capacity of 2,000 CFM, 9 tons heating and 9 tons cooling.
- AHU-5 – Cafeteria/Kitchen – Rooftop mounted air handling unit with a capacity of 6,500 CFM, 29 tons heating and 29 tons cooling.

- AHU-6 Gymnasium – Rooftop mounted air handling unit with a capacity of 7,000 CFM, 25 tons heating and 26 tons cooling.

- AHU-7 Admin/Music Classroom – Rooftop mounted air handling unit with a capacity of 3,500 CFM, 12 tons heating and 15 tons cooling.

- MAU-1 Kitchen (Make-Up Air) – Rooftop mounted makeup air unit with a capacity of 2,500 CFM and 10 ton heating.

F. The AHUs shall be designed to provide air conditioning or partial air conditioning (dehumidification) to the majority of building areas. The Administration, Media Center and Cafeterias areas shall be provided with “full” air conditioning to maintain 75 deg F on a design cooling day, whereas the Gym and Classroom and related Teacher support areas shall be designed for partial air conditioning to maintain a temperature of 78-80 deg F on a design cooling day.

G. It is proposed that building addition and new construction Classrooms and adjacent teacher support and circulation areas, Administration Areas, Cafeteria and Gym Areas are served by a displacement ventilation air system which consists of low wall supply displacement air diffusers and ceiling mounted return/exhaust air registers. Spaces within renovated portions of the existing building would be provided with over-head delivery ventilation systems in-lieu of displacement, as the renovation envelope improvements and the existing special availability may not support the use of a displacement system.

H. Code required exhaust for the majority of building areas, including toilet rooms, shall be provided through the AHUs.

I. Dedicated exhaust air fan systems shall be provided for Kitchen exhaust air (if provided) and Janitor’s closet areas.

J. New insulated galvanized sheetmetal ductwork shall be provided to connect the AHUs’ supply and return ductwork to each space. New VAV (variable air volume) terminal boxes with temperature and demand control ventilation shall be provided for each classroom, teacher support room and the office areas.

K. Attic Spaces:

Attic spaces shall be provided with exhaust fans tied to humidistats, which shall engage the associated exhaust fan as needed to maintain a maximum relative humidity of 60% RH. Hot water unit heaters shall also be provided in the attic mechanical spaces to maintain a minimum of 50°F for freeze protection.

L. Lobby, Corridor, and Entry Way Heating:

New hot water convectors, cabinet unit heaters, and fin tube radiation heating equipment shall be installed to provide heating to building entry way and stairwell areas. Corridors shall be ventilated from adjacent air handling unit systems. Main Corridor and Lobby areas shall be heated and dehumidified by the displacement ventilation systems. Hot water air curtains shall also be provided at the two doors to the outdoor courtyard, per code requirements.

M. Utility Areas:

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

The Main Electric Rooms, IDF rooms and elevator machine rooms will be air conditioned by ducted water source heat pump terminal units.

N. Domestic hot water heating systems shall be pre-heated by the building hot water heating loop and a ground source heat pump system shall be utilized to provide additional heating of DHW heating. The DHW storage tank heat exchangers and heat pumps shall be by Plumbing and a geothermal to DHW pre-heat heat exchanger shall be provided by HVAC.

O. A new direct digital automatic temperature control (ATC) and building energy management system (BMS) shall be provided. The new ATC/BMS system shall be web accessible, include energy metering, and shall be capable of being integrated into the City-wide energy management system.

P. Testing, Adjusting, Balancing & Commissioning:

All new HVAC systems shall be tested, adjusted, balanced and commissioned as art of the project scope.

Q. 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 (electric, water). The new DDC/ATC system shall be a BACNet open protocol system that is capable of being integrated into the City Wide Central energy management system.

5. **DEMOLITION:**

A. Demolish and remove all existing HVAC systems and equipment. Note that the City of Quincy has already demolished the underground fuel oil tank that previously served the steam heating plant, and shall therefore be excluded from the demolition scope for this project.

B. Blank off & seal all existing unit ventilator outdoor air intake grilles. The building the envelope shall be restored by others in each of these locations to maintain code-required thermal heat transfer resistance.

6. **TEMPORARY HEATING OF 1971 BUILDING SCOPE OF WORK:**

A. Hot Water Plant: A temporary or rental heating hot water electric boiler shall be provided to back feed the existing hot water heating system. The electric boiler size shall be approximately 350 KW and shall provide 200 deg F HWS when Outdoor air temperature is 0 deg F. A temporary prefabricated boiler enclosure shall be provided. Hot water pumps (primary & standby), expansion tank and air separator accessories, and boiler plant controls shall be provided.

B. Hot Water Piping: The existing 4" hot water supply and return piping should be valved and capped at an accessible location where the existing lines can be removed, and new temporary HWS&R lines can connect to the existing lines. Existing lines should be internally cleaned and flushed. Temporary insulated 4" size hot water supply and return piping shall be provided to connect the temporary or rental boil plant to the existing hot water supply lines. New and existing hot water lines should be filled and vented.

C. Testing & Balancing: Existing heating units shall be tested and balanced for proper hot water flow.

D. Electrical: Provided temporary electric power wiring for the temporary or rental boiler plant equipment (boilers, pumps, controls, etc.).

E. Temporary ATC Controls: Temporary heating and ventilation system controls shall be provided for the 1971 building.

7. **TESTING REQUIREMENTS:**

A. The Mechanical Contractor shall provide testing of the following systems with the Owner and Owner's Representative present:
- Heat pump chiller plant system
- Condenser (Ground-Source) water plant system
- Back up boiler plant
- Air handling unit systems including all rooftop units, indoor air handling systems and exhaust air systems
- Terminal heating and cooling devices
- Variable Refrigerant Flow and Ductless AC Systems
- Automatic temperature control and building energy management system

B. Testing reports shall be submitted to the Engineer for review and approval before providing to the Owner.

8. **OPERATION MANUALS AND MAINTENANCE MANUALS**

When the project is completed, the Mechanical Contractor shall provide operation and maintenance manuals to the owner.

9. **RECORD DRAWINGS AND CONTROL DOCUMENTS**

When the project is completed, an as-built set of drawings, showing all mechanical system requirements from contract and addendum items will be provided to the owner.

10. **COMMISSIONING**

The project shall be commissioned per the Commissioning Section of the specifications.

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PLUMBING SYSTEMS

NARRATIVE REPORT

The following is the Plumbing system narrative, which defines the scope of work and capacities of the Plumbing system as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for ***LEED v4*** where indicated on this narrative.

1. CODES

   A. All work installed under Section 220000 shall comply with the MA Building Code, MA Plumbing Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   A. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Plumbing work and all items incidental thereto, including commissioning and testing.

3. GENERAL

   A. The Plumbing Systems that will serve the new building are cold water, hot water, sanitary waste and vent system, grease waste system and storm drain system.

   B. The new building will be serviced by Municipal water and Municipal sewer system.

   C. All Plumbing in the building will conform to Accessibility Codes and to Water Conserving sections of the Plumbing Code.

4. PROJECT PHASING

   A. The 1971 Building shall remain during the construction of the new building. The 1971 building has a dedicated 4-inch domestic water service and 6-inch sanitary service that shall be maintained during the construction of the new building.

   B. Existing plumbing fixtures in the 1971 building shall remain. A plumbing variance for the quantity of toilet room plumbing fixtures will be sought from the State Plumbing Board.

   C. The project scope shall provide a new portable wash sink in the temporary cafeteria in the 1971 building.

   D. A new modular classroom building will be provided during construction. The new modular classroom building will be provided with a new 2-inch domestic water service supplied from the existing water main in Standish Road.

5. DRAINAGE SYSTEM

A. Soil, Waste, and Vent piping system is provided to connect to all fixtures and equipment. The system runs from 10 feet outside the building and terminates with stack vents through the roof.

B. A separate Grease Waste System starting with connection to an exterior concrete grease interceptor running through the kitchen and servery area fixtures and terminating with a vent terminal through the roof. The point of use grease interceptors are to be provided at designated kitchen fixtures. The grease interceptor is provided under Division 33 scope.

C. Storm Drainage system is provided to drain all roofs with roof drains piped through the building to a point 10 feet outside the building.

D. Drainage system piping will be service weight cast iron piping; hub and spigot with gaskets for below grade; no hub with gaskets, bands and clamps for above grade 2 in. and larger. Waste and vent piping 1-1/2 in. and smaller will be type 'L' copper.

6. WATER SYSTEM

A. A new 4-inch domestic water service from the municipal water system will be provided. A meter and backflow preventer, if required, will be provided.

B. Cold water distribution main is provided. Non-freeze wall hydrants with integral back flow preventers are provided along the exterior of the building.

C. Domestic hot water heating for Kitchen will be provided with a tank type electric water heater; 36 kW element with 250 gallons of storage. The system shall be equipped with a thermostatically controlled mixing device to control water temperature to the fixtures. A pump will re-circulate hot water from the piping system. The water temperature will be 120 deg. to serve general use fixtures.

D. Domestic hot water heating for bathroom lavatories classroom/staff sinks shall be provided with a tank type electric water heater; 9 kW element with 65 gallons of storage. The system shall be equipped with a thermostatically controlled mixing device to control water temperature to the fixtures. A pump will re-circulate hot water from the piping system. The water temperature will be 120 deg. to serve general use fixtures.

E. Water piping will be type 'L' copper with wrot copper sweat fittings, silver solder or press-fit system. All piping will be insulated with 1 in. thick high-density fiberglass.

7. FIXTURES ***LEED v4***

A. Furnish and install all fixtures, including supports, connections, fittings, and any incidentals to make a complete installation.

B. Fixtures shall bear the manufacturer's guaranteed label trademark indicating first quality. All acid resisting enameled ware shall bear the manufacturer's symbol signifying acid resisting material.

C. Vitreous china and acid resisting enameled fixtures, including stops, supplies and traps shall be of one manufacturer by Kohler, American Standard, or Eljer, or equal. Supports shall be Zurn, Smith, Josam, or equal. All fixtures shall be white. Faucets shall be Speakman, Chicago, or equal.

D. Fixtures shall be as scheduled on drawings.

1. Water Closet: High efficiency toilet, 1.28 gallon per flush, wall hung, vitreous china, siphon jet. Manually operated 1.28 gallon per flush-flush valve.

2. Urinal: High efficiency 0.13 gallon per flush urinal, wall hung, vitreous china. Manually operated 0.13 gallon per flush-flush valve.

3. Lavatory: Wall hung/countertop ADA lavatory with 0.35 GPM metering mixing faucet.

4. Sink: MAAB/ADA stainless steel countertop sink with gooseneck faucet and 0.5 GPM aerator.

5. Drinking Fountain: Barrier free hi-low wall mounted electric water cooler, stainless steel basin with bottle filling stations.

6. Janitor Sink: 24 x 24 x 10 Terrazo mop receptor Stern-Williams or equal.

8. DRAINS

A. Drains are cast iron, caulked outlets, nickaloy strainers, and in waterproofed areas and roofs shall have galvanized iron clamping rings with 6 lb. lead flashings to bond 9 in. in all directions. Drains shall be Smith, Zurn, Josam, or equal.

9. VALVES

A. Locate all valves so as to isolate all parts of the system. Shutoff valves 3 in. and smaller shall be ball valves, solder end or screwed, Apollo, or equal.

10. INSULATION

A. All water piping shall be insulated with snap-on fiberglass insulation Type ASJ-SSL, equal to Johns Manville Micro-Lok HP.

11. CLEANOUTS

A. Cleanouts shall be full size up to 4 in. threaded bronze plugs located as indicated on the drawings and/or where required in soil and waste pipes.

12. ACCESS DOORS

A. Furnish access doors for access to all concealed parts of the plumbing system that require accessibility. Coordinate types and locations with the Architect.

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FIRE PROTECTION SYSTEMS

NARRATIVE REPORT

The following is the Fire Protection system narrative, which defines the scope of work and capacities of the Fire Protection system, as well as, the Basis of Design.

1. CODES

   A. All work installed under Section 210000 shall comply with the MA Building Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   A. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Fire Protection work and all items incidental thereto, including commissioning and testing.

3. GENERAL

   A. In accordance with the provisions of the Massachusetts Building Code/Massachusetts General Law, the building must be protected with an automatic sprinkler system.

4. DESCRIPTION

   A. The new building will be served by a new 6-inch fire service, double check valve assembly, wet alarm valve complete with electric bell, and fire department connection meeting local thread standards.

   B. The system will be an automatic sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 s.f. as required by NFPA 13-2019.

   C. Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain.

   D. All areas of the building, including all finished and unfinished spaces, combustible concealed spaces, all electrical rooms and closets will be sprinklered. Automatic sprinklers shall be provided in the two mechanical room attics.

   E. All sprinkler heads will be quick response, pendent in hung ceiling areas and upright in unfinished areas.

5. PROJECT PHASING

   A. A new modular classroom building will be provided during construction. The new modular classroom building will be provided with an automatic sprinkler system.

   B. A new 6-fire service will be provided to the modular classroom from the existing water main in Standish Road.

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6. BASIS OF DESIGN

A. The mechanical rooms, kitchen, storage rooms and Attic are considered Ordinary Hazard Group 1. All other areas are considered light hazard.

B. Required Design Densities:

Light Hazard Areas = 0.10 GPM over 1,500 s.f.
Ordinary Hazard Group 1 = 0.15 GPM over 1,500 s.f.

C. Sprinkler spacing (max.):

Light Hazard Areas = 225 s.f.
Ordinary Hazard Areas = 130 s.f.

D. A flow test was performed by SJ Design Inc., on November 28, 2023, with the following results: 89 PSI static, 81 PSI residual, 1,348 GPM flow, 4,430 GPM flow at 20 PSI. A fire pump is not required.

7. DOUBLE CHECK VALVE ASSEMBLY

A. 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.

B. Double check valve detector assembly shall be of one of the following:

1. Watts Series 757-OSY
2. Wilkins 350A-OSY
3. Conbraco Series 4S-100
4. Or equal

8. PIPING

A. 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.

9. FITTINGS

A. Fittings on fire service piping, 2 in. and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings. Branch line fittings shall be welded or shall be Victaulic 920/920N 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.

10. JOINTS

A. 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.

11. SPRINKLERS

A. All sprinklers to be used on this project shall be Quick Response type.

B. 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.

C. Sprinklers shall be manufactured by Tyco, Victaulic, Viking, or equal.

D. Upright sprinkler heads in areas with no ceilings shall be Tyco Model "TY-FRB" Quick Response, upright natural brass finish heads. Include heavy duty sprinkler guards in all mechanical rooms and storage rooms.

E. Sidewall heads shall be Tyco Model "TY-FRB" Quick Response with white polyester head and escutcheon.

F. Pendent wet sprinkler heads shall be Tyco Model "TY-FRB" Quick Response recessed adjustable escutcheon, white polyester finish.

G. Concealed heads shall be Tyco Model "RFII" 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.

H. Use of flexible stainless-steel hose with fittings for fire protection service that connect sprinklers to branch lines in suspended ceilings is acceptable. Flexible hoses shall be UL/FM approved and shall comply with NFPA 13 standards. Hose assemblies shall be type 304 stainless steel with minimum 1-inch true-bore internal hose diameter. Ceiling bracket shall be galvanized steel and include multi-port style self-securing integrated snap-on clip ends that attach directly to the ceiling with tamper resistant screws.

ELECTRICAL SYSTEMS

NARRATIVE REPORT

The following is the Electrical Systems narrative, which defines the scope of work and capacities of the Power and Lighting System, as well as, the Basis of Design. The Electrical Systems shall be designed and constructed for ***LEED BD+C for Schools*** v4 where indicated on this narrative.

1. CODES

   All work installed under Section 260000 shall comply with the Massachusetts State Building Code and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   The work of Section 260000 is as described in this Narrative. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Electrical work and all items incidental thereto, including commissioning and testing.

3. SEQUENCE OF OPERATIONS AND INTERACTIONS

   A. Classroom and Corridor lighting will be controlled via local occupancy sensors.

   B. Automatic control of receptacles based on occupancy will be provided for at least 50% of the receptacles installed in private offices, open offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, classrooms, and individual workstations. Controlled receptacles will be marked per NEC 406.3 (E).

   C. Exterior lighting will be controlled by photocell “ON” and “scheduled” for “OFF” operation. The parking area lighting will be controlled by “zones” with dimmable capability via wireless.

   D. Emergency and Exit lighting will be run through life safety panels and will 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 the building is occupied.

4. DESCRIPTION OF THE SYSTEMS

   A. Utilities:

      1. The new building will be supplied with utility power from the utility company National Grid. The new service will be fed via underground primary duct bank to a pad mounted utility company owned liquid filled transformer.

      2. The service electrical transformer will be furnished, installed, owned and maintained by National Grid, and it will be located adjacent to the building as shown on the civil drawings. The transformer will be of the pad- mounted type with a primary voltage of 13.8 kV and a secondary voltage of 480Y/277 volts. The transformer will be sized by the utility company based on the load data provided by The Design team.

      3. Concrete pad and grounding grid for the pad-mounted transformer is provided by the Contractor per the National Grid standards.

4. Concrete encased duct bank of the two 4" PVC conduits will be provided by the Electrical Contractor for the primary feeder installation from a utility pole to the pad-mounted transformer. Pre-cast concrete manholes 5' x 5' will be provided by the Contractor to facilitate the primary cables field installation. The duct bank routing is shown on the civil drawings.

5. Utility company will provide a primary feeder cable from the utility manhole to the pad-mounted transformer via the new manhole and terminate the feeder cable on both ends.

6. Transformer secondary feeder of the copper conductors will be installed underground in the duct bank of four 4" PVC conduits from the pad-mounted transformer to the main electrical switchboard located in the main electrical room. The secondary feeder and terminations at the switchboard side will be provided by the Electrical Contractor and terminated at the transformer side by National Grid. The new service will be metered at the transformer secondary voltage.

7. National Grid metering CTs will be installed in a CT section of the switch board, the meter will be located at the direction of the utility company.

8. Telephone, Cable TV, and City Fiber will be fed underground into the building's Main Distribution Frame/Head End Room.

9. Copper conductors shall be utilized for all branch circuit and feeder wiring. Aluminum conductors will be allowed for feeders 100 amperes or over.

10. The building connected electrical load estimate is based on the preliminary building systems design:

Load Type	**KVA**
HVAC Loads (including AHU, Destratification Fans, DCU, Chiller, UH, VRF, Boilers, FCs, Pumps, RTUs, Exhaust Fans, DCU)	640 KVA
Elevator	31.7 KVA
Exterior Lighting	2.0 KVA
Interior Lighting	45 KVA
General Power	160 KVA
Kitchen	75 KVA
EV Charging	144 KVA
Plumbing/Fire Protection (Pumps, etc.)	150 KVA
Total Connected Load	**1,247.7 KVA**

B. Electrical Distribution System:

1. The service capacity will be sized for 1,600 Amperes with a 100% rated main breaker. The main buss will be sized at 2,000 Amperes and will have an available breaker space provision at the end of the switchboard to accommodate a future grid connected photovoltaic array. The switchboard will be furnished with a service entrance surge protection device (SPD) rated at 240 kA and a digital metering unit to monitor voltage, current, power factor, demand KW with a data communication port for interface with BMS. Main switchboard's short circuit rating will be rated for 65 KAIC.

2. New lighting and power panels will be provided to accommodate respective loads. The equipment will be located in dedicated rooms or closets.

C. Interior Lighting System:

1. Classroom lighting fixtures will consist of pendant mounted direct/indirect luminaries with LED lamps and electronic dimmable drivers. The fixtures will be pre-wired for continuous dimming control where natural daylight is available and for multi-level switching. Two daylight dimming zones will be provided in each classroom.

2. Office lighting fixtures will consist of recessed mounted direct LED luminaries and dimming drivers for continuous level dimming capability. Offices on the perimeter with windows will have daylight dimming controls similar to classrooms.

   In general, lighting power density will be 30% less than ASHRAE 90.1-2016. The power density reduction relates to ***LEED credit EAC2: Optimize Energy Performance.***

3. Lighting levels will be approximately 30 foot-candles in classrooms and offices. The daylight dimming foot-candle level will be in compliance with ***LEED Credit EQC6: Interior Lighting.***

4. Gymnasium lighting will be comprised of direct fixtures with LED source and electronic drivers. The fixtures will be provided with clear lens and protective wire guards. The light level will be designed for approximately 50 foot candles. Multi-level switching will be provided.

   Daylight dimming will be provided within daylight zone. Daylight dimming controls will be similar in operation to classrooms.

5. General corridor lighting will be comprised of recessed linear fixtures with LED source and electronic drivers. The Corridor light level will be designed for approximately 20 foot candles. Corridor lighting will be on scheduled source control and only “ON” during occupied hours. The Corridor lighting levels will be controlled by schedule, and occupancy sensors.

6. Kitchen and Servery lighting will consist of recessed 2’x2’ acrylic lensed gasketed troffers with aluminum frame doors with LED lamps and electronic drivers. Light levels will be approximately 50 foot candles.

7. Attic lighting shall be linear utility type with frosted lensing and finished housing. Fixtures shall be spaces approximately 12’ on center.” Low voltage lighting controls shall be provided at each entrance to the space or bottom of ladder and occupancy sensors shall be provided for complete coverage of the attic space.

8. Each area will be locally switched and designed for multi-level controls. Each Classroom, Office space, and Toilet room will have occupancy sensors to turn lights off when unoccupied. Manual switches will be provided in each space. Classrooms and offices will have manual dimming capacities.

9. Daylight dimming sensors will be installed in each room where natural light is available for continuous dimming of light fixtures.

10. Interior lighting illumination levels will meet the IES recommended values for applicable activity type, be in compliance with the IECC 2018 energy allowances and LEED for Schools control requirements.

PROPOSED ILLUMINATION LEVELS

Location	Average Illumination Levels
Classrooms	30 FC
Science Labs	40 FC
Offices, Conference Rooms, Library	30 FC
Kitchen	50 FC
Gymnasium	50 FC
Corridors	20 FC
Utility and Storage Rooms	20 FC

D. Emergency Lighting System

1. An exterior 350KW, 437.5KVA *(*diesel fired emergency generator with sound attenuated enclosure and base tank with alarms will be provided. An integral resistive load bank will be provided for generator testing under load. 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 Administration area lighting will be connected to the emergency generator.

2. The generator power system has been sized to support emergency (life safety), and optional standby building loads. The life safety branch of the emergency system will be provided with a manual transfer switch on the emergency line side of the transfer switch in compliance with NEC 700.3(F).

a. Emergency (life safety) Power Loads as required by the Code:
   - Emergency exit and egress lighting (interior and building exterior at the exits)
   - Fire alarm system

b. Standby Power Loads:
   - Heating system with associated heat pumps and controls
   - Telephone/ data closets and associated A/C equipment
   - Communication systems (telephone and public address systems)
   - Building DDC system control panels
   - Kitchen refrigeration equipment
   - Lighting and power in the nurse/medical area

   - Full backup of systems for areas of the building determined to be utilized as a shelter.

E. Site Lighting System: ***LEED Credit SSC6: Light Pollution Reduction***

1. The exterior lighting will be connected to the automatic lighting control system for photocell “ON” and timed “OFF” operation.

F. Metering:

1. Measurement devices shall be installed to monitor the electrical energy use for each of the following separately:

   a. Total electrical energy

   b. Sub-metering in accordance with ASHRAE 90.1 para. 8.4.3

2. Recording and Reporting:

   a. The electrical energy usage for all loads listed above shall be recorded a minimum of every 15 minutes and reported at least hourly, daily, monthly, and annually. The system shall be capable of maintaining all data collected for a minimum of 36 months.

G. Wiring Devices:

1. Each classroom will have a minimum of (2) duplex receptacles per teaching wall and (2) 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.

2. Office areas will generally have (1) duplex outlet per wall. At each workstation a double duplex receptacle will be provided.

3. Corridors will have a cleaning receptacle at approximately 25-40 foot intervals.

4. Exterior weatherproof receptacles with lockable enclosures will be installed at exterior doors.

5. A system of computer grade panelboards with double neutrals and surge protective devices will be provided for receptacle circuits.

6. All receptacles will be of the tamper resistant type.

H. Fire Alarm System: (Proprietary Notifier)

1. A fire alarm and detection system with mass notification will be provided with 60 hour battery back-up, and 15 minute of alarm. The system will be of the addressable type where each detection device will be identified at the control panel and remote annunciators by device type and location to facilitate search for origin of alarms. The notification system will be in conformance with NFPA 72 Chapter 24 emergency communications systems.

2. Smoke detectors will be provided in open areas, corridors, stairwells and other egress ways.

3. The sprinkler system will be supervised for water flow and tampering with valves.

4. Speaker/strobes with white and amber colored 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. Amber strobes will be initiated during a mass notification event in which a different district message will be played over the speakers

5. Manual pull stations will be provided at exit discharge doors.

I. Lightning Protection System:

1. A system of lightning protection will be provided. The system will be installed in compliance with the provisions of the latest "Code for Protection Against Lightning" for buildings as adopted by the National Fire Protection Association and the Underwriters' Laboratories, Inc. for UL Master Label System.

2. The lightning protection equipment will include air terminals, conductors, conduits, fasteners, connectors, ground rods, etc.

3. The lightning protection system will be installed for the new facility.

J. Uninterruptible Power Supply (UPS)

1. A 24 KW, three phase centralized UPS system will be provided with seven minutes of battery back-up.

2. 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 and communication systems during a prolonged power outage.

3. The UPS system will also be connected to the stand-by generator.

K. Level 2 AC Dual Electric Vehicle Charging Equipment. (EVSE)

1. Conduit provisions will be provided to 10% of parking spaces for future EV charging stations which includes distribution equipment and wiring to within 6' of future charger.

L. Renewable Energy System Provisions:

1. Electrical provisions will be made for a ballasted roof mounted renewable energy system consisting of a grid connected photovoltaic PV system intended to reduce the facilities demand for power.

M. Two-Way Communications System:

1. A Two-Way Communications System will be provided at the elevator lobbies that do not have grade access. Distribution Antennae System (DAS):

2. A public safety radio distributed antenna system (DAS) which consists of bi-directional amplifiers (BDA), donor antennas, coverage antennas, coax cable, coax connectors, splitters, combiners, and couplers. These devices will be used as part of a system for in-building public safety 2-way radio system communication.

5. TESTING REQUIREMENTS

A. The Electrical Contractor shall provide testing of the following systems with the Owner and Owner's Representative present:

1. Lighting and power panels for correct phase balance.

2. Emergency generator system.

3. Lighting control system (interior and exterior).

4. Fire alarm system.

5. Two-way communication system.

6. Distributed Antennae system.

B. Testing reports shall be submitted to the Engineer for review and approval before providing them to the Owner.

6. PHASING

A. Services to the existing 1970's building shall be maintained during construction and power to temporary modular building shall be provided refer to enabling drawings E.E001, E.E100, E.E200, and E.E300 for additional information.

7. OPERATION MANUALS AND MAINTENANCE MANUALS

When the project is completed, the Electrical Contractor shall provide operation and maintenance manuals to the Owner.

8. RECORD DRAWINGS AND CONTROL DOCUMENTS

When the project is completed, an as-built set of drawings, showing all lighting and power requirements from contract and addendum items, will be provided to the Owner.

9. COMMISSIONING

The project shall be commissioned per Commissioning Section of the specifications.

Squantum Elementary School
Quincy, MA
J#630 044 00.00
L#86620/Page 1/ December 12, 2024

TECHNOLOGY SYSTEMS

NARRATIVE REPORT

The following is the Technology System narrative, which defines the scope of work and capacities of the Communications system infrastructure as well as the Basis of Design.

1. CODES

   A. All work installed under Section 270000 shall comply with the Massachusetts Building Code and all local, county, and federal codes, laws, statues, and authorities having jurisdiction.

2. DESIGN INTENT

   A. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Technology work and all items incidental thereto, including commissioning and testing.

3. TECHNOLOGY

   A. 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. The telephone infrastructure will accommodate VOIP based voice systems.

   B. Each classroom will have 2 data outlets for student computers. Two data, one voice with video and audio connections to an LCD monitor will be provided at teacher's station with interconnectivity to a interactive LCD touch screen monitor. A wall phone 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 and consist of (2) CAT6A cables.

   C. Classroom Sound reinforcement systems/assistive listening system will be provided in each classroom, Media Center, SPED classrooms (CARES and Learning Center), Art Room, Music Room, and ELL Room that will consist of a wireless receiver, handheld microphone, pendant microphone with lanyard, student group speaker wireless pod, and an in-ceiling speaker/amplifier.

   D. An IPTV video on demand system equal to Media Master will be provided. IPTV decoders will be provided in each classroom to facilitate the distribution of the media content.

   E. A central paging system will be provided and integrated with the telephone system. (Proprietary Telecor)

   F. A wireless GPS/LAN based master clock system will be provided with 120V wireless remote clocks that act as transceivers. (Proprietary Telecor)

G. The Main Distribution Frame (MDF) will contain all core network switching and IP voice switch. Intermediate Distribution Frames (IDFs) will serve each floor/wing of the school. A fiber optic backbone will be provided from each IDF to MDF. The backbone will be designed for 10 Gbps Ethernet.

H. Two-way communication call boxes will be provided adjacent to each elevator that is above or below grade level. The base station will be located at a control point on the first floor.

I. Each classroom shall be provided with an ultra short throw interactive projector.

4. TESTING REQUIREMENTS

A. The Technology Contractor shall provide testing of the following systems with the Owner and Owner's Representative present:

- Telephone and data cabling
- Fiber optic backbone cabling
- Paging system
- Wireless clock system
- A/V wiring for classrooms

B. Testing reports shall be submitted to the Engineer for review and approval before providing to the Owner.

5. PHASING

A. A new temp overhead communication line will be brought into the 1970's building and routed to a new Communication closet. New Data wiring will be run to each room as required for network connectivity as well as new wireless access locations that will provide WIFI throughout the existing buildign and the modulars. Refer to enabling drawing E.E300 for additional information.

6. OPERATION MANUALS AND MAINTENANCE MANUALS:

A. When the project is completed, the Technology Contractor shall provide operation and maintenance manuals to the Owner.

7. RECORD DRAWINGS AND CONTROL DOCUMENTS:

A. When the project is completed, an as-built set of drawings, showing all tel/data requirements from contract and addendum items, will be provided to the Owner.

8. COMMISSIONING

A. The project shall be commissioned per Section 019113 of the specifications.

Building Code Analysis

An updated code compliance report was completed on the Design Development documents by Code Red Consultants. The following include reports for the Main Package and Enabling Package.

Fire Protection/Life Safety
Code Report
Design Development

Project:
Squantum School
50 Huckins Ave.
Qunicy, MA 02171

12/20/2024

Prepared for:
Arrowstreet
10 Post Office Square
Suite 700N

Prepared by:
Matthew Nicastro

Reviewed by:
Kevin N. Lynch, P.E.

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1. Introduction

Arrowstreet has retained Code Red Consultants to provide fire protection, life safety, and accessibility code consulting services for the Squantum Elementary School project in Quincy, MA. The existing Squantum Elementary School is 1-story in height and was originally constructed in 1919, with additions constructed in 1949 and 1970. A portion of the existing building is proposed to be used to support classroom functions in a temporary condition while the new building is constructed. The code compliance approach specific to the construction of the new Squantum School building is provided under separate cover.

The scope of work for the project includes the construction of a two-story classroom building on the same site as the existing elementary school. The proposed building contains classrooms, a cafeteria, a media center, a gymnasium, and a central courtyard. Portions of the existing building to remain include the basement and a portion of the original 1919 building. Based on the size of the building and intended construction type, the structure consists of two separate buildings separated by a fire wall. Figure 1 includes a diagram outlining the location of the proposed fire wall at Level 1, which separates the gymnasium from the rest of the structure.

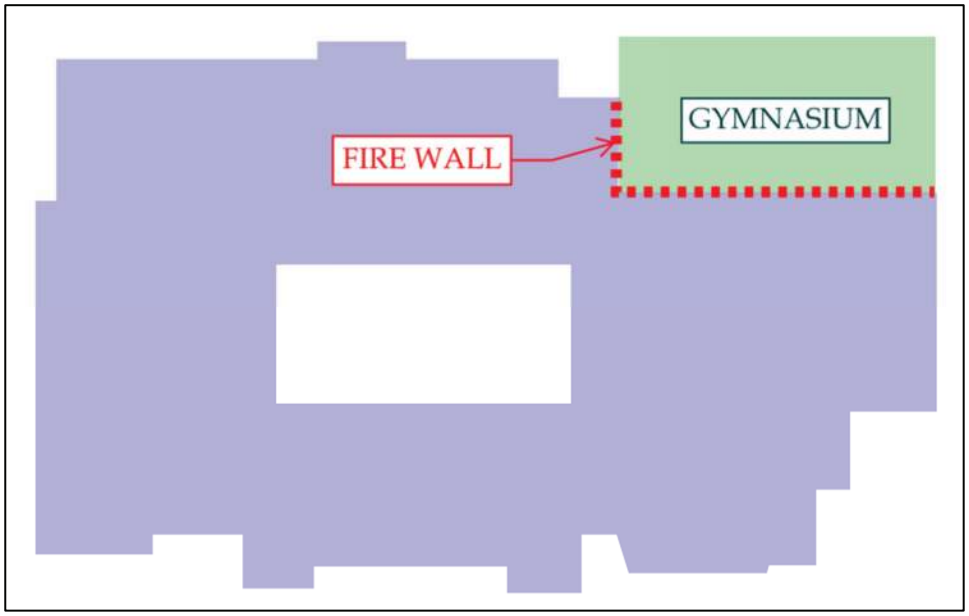

FIGURE 1: PRELIMINARY LEVEL 1 PROPOSED LAYOUT

This report addresses the key features of these codes and standards. The primary intent of this document is to (1) summarize our understanding of the major fire protection and life safety approach for the proposed work, (2) demonstrate building, fire and life safety code compliance to the Authorities Having Jurisdiction, and (3) serve as a record document for the building owner.

2. Applicable Codes

The major codes to which the project is being designed are identified below. Codes of record generally vest with the date of building permit application for a project, with the exception of the Plumbing Code, Electrical Code, and Elevator Code which vest with their respective installation permit applications.

Building	780 CMR – Massachusetts State Building Code 10th Edition, which is an amended version of the 2021 International Building Code (IBC).
	780 CMR 34.00 – Massachusetts State Existing Building Code, which is an amended version of the 2021 International Existing Building Code (IEBC)
Fire	527 CMR 1.00 - Massachusetts Comprehensive Fire Safety Code, which is an amended version of the 2021 Edition of NFPA 1, Uniform Fire Code
Accessibility	521 CMR – Massachusetts Architectural Access Board (MAAB) Rules and Regulations
	2010 ADA Standards for Accessible Design
Electrical	527 CMR 12.00 - Massachusetts Electrical Code, which is an amended version of the 2023 Edition of NFPA 70, National Electrical Code
Mechanical	2021 International Mechanical Code (IMC) as amended by 780 CMR 28.00.
Plumbing	248 CMR 10.00 – Uniform State Plumbing Code, Updated 12/08/2023
Energy	225 CMR 23.00, Massachusetts Commercial Stretch Energy Code
	225 CMR 23.00 Appendix CC, Municipal Opt-In Specialized Energy Code
Elevator	524 CMR – Massachusetts Board of Elevator Regulations, which is an amended version of the 2013 ANSI A17.1, Safety Code for Elevators and Escalators
Other	National Fire Protection Association (NFPA) Standards, as referenced by the above codes, including the following: - 2021 NFPA 10: *Standard for Portable Fire Extinguishers* - 2019 NFPA 13: *Standard for the Installation of Sprinkler Systems* - 2019 NFPA 72: *National Fire Alarm and Signaling Code*

3. Fire Protection / Life Safety Code Analysis

The following details the overall code compliance approach for the new building.

3.1 Use and Occupancy Classifications

3.1.1 Primary Occupancies

The proposed use of the building includes elementary education, including classrooms and assembly spaces to be used by students during normal hours. Assembly spaces in the building are proposed to be used after hours for occupants other than students. Therefore, the proposed building contains the following primary occupancies (780 CMR 302.1):

TABLE 1: PRIMARY OCCUPANCY CLASSIFICATIONS

Description	780 CMR Classification
Cafeteria (off-hours use)	Group A-2, Assembly
Gymnasium (off-hours use)	Group A-3, Assembly
Classrooms, Associated Assembly & Administrative Spaces	Group E, Educational

The building is designed as a separated, mixed use (780 CMR 508.4). Even though a separated, mixed-use approach is being used, no separations are required between the primary occupancies in the building per 780 CMR Table 508.4 (Groups A and E).

3.1.2 Accessory Occupancies

Accessory occupancies are limited to less than 10% of the floor area of the story in which they are located (780 CMR 508.2.3). No separation is required between accessory occupancies and the primary unless required by other sections of this report (780 CMR 508.2.4).

3.2 Building Construction and Separations

3.2.1 Construction Classification

The building is proposed to be constructed with Type IIB unprotected, noncombustible construction throughout. The gymnasium and the remainder of the proposed school are separated by a fire wall as outlined in Section 3.2.3 of this Report. Buildings separated by a fire wall are permitted to be considered separate buildings for the purposes of evaluating height and area limitations (780 CMR 503.1).

Based on the separated occupancy approach outlined in Section 3.2.2 of this Report and the proposed building being fully sprinkler-protected, the construction types of both portions of the building are permitted to be Type IIB.

Interior building elements are permitted to be of any noncombustible material permitted by 780 CMR. Portions of the roof are proposed to be constructed with wood timber framing.

Heavy timber complying with 780 CMR 2304.11 is permitted for roof construction in Type II buildings (780 CMR 601 Footnote c).

3.2.2 Building Height and Area

The proposed classroom building is two stories in height with a basement. The gymnasium building is a single story. The proposed classroom building has a maximum footprint of approximately 44,500 square feet and the gymnasium building is approximately 6,000 square feet. The aggregate area of the classroom building is approximately 78,700 gross square feet.

The following table outlines the height and area limitations for Type IIB buildings containing Group E and Group A occupancies that are sprinklered throughout. A frontage increase of 60% is also applied in accordance with 780 CMR 506.3 based on the proposed site.

TABLE 2: ALLOWABLE BUILDING HEIGHT AND AREA (TYPE IIB)

Use Group	Number of Stories Permitted	Maximum Building Height (ft)	Maximum Building Area (sf)
Group A-2	3	75	34,186
Group A-3	3	75	34,186
Group E	3	75	52,178

The sum of the ratios on the First Floor of the classroom building is not permitted to exceed 1. The following table outlines compliance based on the areas of the proposed occupancies on the floor.

TABLE 3: SUM OF THE RATIOS CALCULATION - CLASSROOM BUILDING

Use Group	Allowable Area (sf)	Actual Area (sf)	Ratio
Use Group A-3	34,186	4,250	0.12
Use Group E	52,178	40,250	0.77
		Total:	0.89 < 1

Both portions of the proposed building are less than the maximum number of stories, height in ft., and areas limitations respective of Type IIB buildings containing Groups A and E occupancies.

3.2.3 Fire Wall

A double fire wall is proposed to be provided separating the gymnasium from the remainder of the classroom building. The double fire wall consists of two, 1-hour rated fire walls, with one structurally tied to each building (NFPA 221, 4.6). Where non-egress pedestrian passage is proposed through the fire wall, an opening protective (door, shutter, etc.) is required to be provided in each wall (NFPA 221, 6.10.3 & A.5.8.4).

Openings

The aggregate width of openings at any floor level in the fire wall is not permitted to exceed 25 percent of the length of the wall (780 CMR 706.8).

Horizontal Continuity

Fire walls are required to be continuous from exterior wall to exterior wall and extend at least 18 inches beyond the exterior surface of the exterior walls. Fire walls are permitted to terminate at the interior face of the exterior walls where exterior sheathing, siding, or other exterior finishes are composed of noncombustible or limited combustible construction that extends at least 48 inches on both sides of the fire wall (780 CMR 706.5).

Vertical Continuity

Where the height of the proposed roof creates a stepped building condition with respective to adjacent roofs, a fire wall is required to be designed to continue at least 30 inches above the lower roof with the taller exterior wall having a 1-hour fire resistance rating with 45-minute protected openings for a height of 15 feet above the lower roof (780 CMR 706.6.1). As an alternative, the roof of the lower building is permitted to be 1-hour rated with no openings for 10 feet from the fire wall intersection (780 CMR 706.6.1 Exception).

Where the proposed roof and existing roofs are at the same elevation, the fire wall is permitted to terminate at the underside of noncombustible roof sheathing, deck or slabs where both buildings are provided with not less than a Class B roof covering (780 CMR 706.6 Exception 3).

3.2.4 Fire Resistance Rating of Building Elements

Table 4 indicates the minimum fire-resistance ratings required for Type IIB construction (780 CMR 601).

TABLE 4: FIRE-RESISTANCE RATING OF BUILDING ELEMENTS

Building Element	**Fire Resistance Rating Type IIB**
Primary structural frame	0
Exterior bearing walls	0
Interior bearing walls	0
Nonbearing exterior walls	See Section 3.3
Nonbearing Interior walls	0
Floor construction and secondary members	0
Roof construction and secondary members	0

Fire rated shafts, fire barriers, and horizontal assemblies are required to be supported by structure affording the required fire-resistance rating of the supported element (780 CMR 707.5.1).

3.3 Exterior Walls

3.3.1 Nonbearing Exterior Walls

The following table indicates the fire-resistance ratings required for the nonbearing exterior walls based on fire separation distance (780 CMR Table 705.5).

TABLE 5: FIRE RESISTANCE RATING FOR NONBEARING EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE

Construction Type	Fire Separation Distance	Fire Resistance Rating
Type IIB	Less than 10 feet	1 Hour
	10 feet or greater	0 Hour

3.3.2 Exterior Wall Openings

The following table indicates the maximum area of unprotected exterior wall openings based on fire separation distance (780 CMR Table 705.8).

TABLE 6: ALLOWABLE EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE

Fire Separation Distance	Allowable Area
	Type IIB
0 to less than 3 feet	Not Permitted
3 feet to less than 5 feet	15%
5 feet to less than 10 feet	25%
10 feet or greater	No Limit

At least 10 ft. of fire separation distance is provided around the perimeter of the proposed new building in the final, permanent condition, allowing nonrated exterior walls with unlimited openings.

3.3.3 Exit Stair Exposure

Where nonrated walls or unprotected openings enclose the exterior of exit stairways/ exit passageways and the walls are exposed to other parts of the building at an angle of less than 180 degrees, the building exterior walls and openings within 10 feet horizontally of a nonrated wall or unprotected opening are required to have a fire-resistance rating of not less than 1-hour with 45-minute opening protection. The construction is required to extend vertically from the ground to a point 10 feet above the topmost landing of the stairway or the roof line, whichever is lower (780 CMR 1023.7).

3.4 Interior Walls and Partitions

3.4.1 Fire/Smoke Resistive Assemblies

Table 7 identifies the interior walls and partitions which are required to be composed of fire/smoke resistive assemblies.

TABLE 7: FIRE RESISTANCE RATING REQUIREMENTS

Type of Assembly	Construction	Code Reference
Group A and Group E Occupancy Separation	No fire rating required between occupancies	780 CMR Table 508.4
Corridors Serving All Occupancies	No fire rating required	780 CMR 1020.2
Fire Walls Between Type II Buildings with Group A and Group E Occupancies	2-hour fire wall	780 CMR 706.4(a)
Dry Transformer Room > 112.5 kVA	1-hour fire barrier	NFPA 70, 450.21(B)
Elevator Machine Room / Controls Room	1-hour fire barrier	780 CMR 3005.4
Furnace room where any equipment is > 400,000 BTU per hour input	Wall capable of resisting the passage of smoke [1]	780 CMR 509.4.2
Boiler room where the largest piece of equipment is > 15 psi and 10 hp	Wall capable of resisting the passage of smoke [1]	780 CMR 509.4.2
Shafts connecting 3 stories or less	1-hour fire barrier	780 CMR 713.4

1. Wall is required to extend from the top of the foundation or floor assembly below to the underside of a fire-resistance rated floor/roof assembly or to the underside of the floor or roof sheathing, deck, or slab above.

All supporting construction for fire-rated assemblies is required to be supported by structure that affords the same required fire resistance rating (780 CMR 707.5.1).

3.4.2 Identification

Where there is an accessible concealed floor, floor-ceiling or attic space - fire walls, fire partitions, fire barriers, smoke barriers and smoke partitions, or any other wall required to have protected openings or penetrations are permanently identified with signs/stenciling within the concealed space. Identification is required to:

- Be located within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the wall or partition.
- Include lettering not less than 3 inches in height with a minimum 3/8-inch stroke in a contrasting color incorporating the suggested wording "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS".

3.4.3 Doors and Opening Protectives

Doors, fire shutters, and their corresponding components are required to have fire-resistance ratings and meet the required testing standards as specified in the following table. All doors and fire shutters required to be fire-resistance-rated are required to be designed, installed, and labeled in accordance with NFPA 80 (780 CMR 716.1):

TABLE 8: DOOR AND FIRE SHUTTER REQUIREMENTS

Wall Type	Required Wall Rating	Minimum Fire Door Rating	Performance Criteria [1]	Code Reference
Fire barriers & Fire Walls	2 hours	1.5 hours	NFPA 252 or UL 10C/ NFPA 252 or UL 10B	780 CMR 716.1
	1 hour	3/4 hour		
Fire barriers enclosing 1-hour shafts	1-hour	1-hour		
Wall capable of resisting the passage of smoke	No rating	No rating	No air transfer openings, max 3/4" undercut [2]	780 CMR 509.4.2

1. All doors are self- or automatic closing and provided with an active latch bolt that will secure the door when it is closed (780 CMR 716.2.6.1). Where fire doors in horizontal exits are located in a cross-corridor condition, they are required to be automatic-closing by activation of a smoke detector installed in accordance with 780 CMR 716.2.6.6 (780 CMR 1026.3).
2. Unless protected by smoke damper.

3.4.4 Penetrations

Penetration of fire-resistance-rated walls and horizontal assemblies that are not protected with dampers or a shaft are required to comply with this section. Ducts and air transfer openings that are protected by dampers are required to comply with Section 3.4.5 of this Report.

Through and membrane penetrations of fire-resistance-rated walls and fire-resistance-rated horizontal assemblies are required to be protected by an approved penetration firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (780 CMR 714.4 & 714.5). Penetrations of fire-resistance-rated walls are required to have an F rating of not less than the required fire-resistance rating of the wall penetrated (780 CMR 714.4.1). Penetrations of fire-resistance rated horizontal assemblies are required to have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated (780 CMR 714.5.1.2).

3.4.5 Ducts and Air Transfer Openings

Fire and smoke dampers are required where ducts and air transfer openings penetrate walls as specified in 780 CMR. Where dampers are installed, they are required to be listed and bear the label of an approved testing agency (780 CMR 717.3.1). Fire dampers are required to be tested in accordance with UL 555 and smoke dampers are required to be tested in accordance with UL 555S. Combination fire/smoke dampers are required to comply with both test standards.

Fire dampers in the proposed building are required to be rated for 1.5 hours (780 CMR 717.3.2.1). Smoke damper leakage ratings are required to be Class I or II. Elevated temperature ratings are not permitted to be less than 250°F (780 CMR 717.3.2.2). Combination fire/smoke dampers are require to comply with both rating requirements (780 CMR 717.3.2.3). Refer to 780 CMR 717.3.3 for required damper actuation methods.

Fire, smoke, and fire/smoke dampers are required to be provided with an approved means of access that permits inspection and maintenance of the damper and its operating parts (780 CMR 717.4). Access points are required to have permanent labels with letters that are

not less than ½ inch in height that reads "FIRE/SMOKE DAMPER, SMOKE DAMPER, or FIRE DAMPER".

3.5 Vertical Openings

Vertical openings within the proposed building include enclosed exit stairs, an elevator connecting the Basement through Level 2, and an open exit access stair connecting Levels 1 and 2.

3.5.1 Unenclosed Vertical Openings

The proposed open stair connecting Levels 1 and 2 is designed as a two story opening. Two story openings are required to comply with 780 CMR 712.1.9, which requires that the opening:

- Does not connect more than two stories.
- Does not penetrate a horizontal assembly that separates fire areas or smoke barrier separating smoke compartments.
- Is not concealed within the construction of a wall or a floor/ceiling assembly.
- Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

Exit access stairways that serve or atmospherically communicate between only two adjacent stories are permitted to be unenclosed, provided that such interconnected stories are not open to other stories (780 CMR 1019.3 (Exception 1)).

3.5.2 Shaft Enclosures

New shaft enclosures are required to be fire-resistance rated in accordance with Table 7. Shafts that do not extend to the bottom of the building are required to comply with one of the following (780 CMR 713.11):

- Be enclosed at the lowest level with construction of the same fire-resistance rating as the lowest floor through which the shaft passes, but not less than the rating required for the shaft enclosure.
- Terminate in a room have a use related to the purpose of the shaft. The room is required to be separated from the remainder of the building by a fire-resistance rating at least equal to the protection required for the shaft enclosure.
- Be protected by fire dampers installed at the lowest floor level within the shaft enclosure.

A shaft enclosure that does not extend to the underside of the roof sheathing, deck or slab is required to be enclosed at the top with construction of the same fire-resistance rating as the topmost floor penetrated by the shaft, but not less than the fire-resistance rating required for the shaft enclosure (780 CMR 713.12).

3.6 Interior Finishes

3.6.1 Wall and Ceiling Finishes

All interior wall and ceiling finish ratings are required to be classified in accordance with ASTM E 84 or UL 723 (780 CMR 803.1.2). The flame spread and smoke-developed indexes are not permitted to be greater than that specified in the following table based on the occupancy classifications and location.

TABLE 9: INTERIOR WALL & CEILING FINISH REQUIREMENTS [1]

Occupancy Classification	Exit Enclosures	Corridors, Exit Access Stairways/Ramps	Rooms and Enclosed Spaces
A-2 & A-3	B	B	C
E	B	C	C

1. Interior finishes are grouped in the following classes: Class A – flame spread index 0-25, Class B – flame spread index 26-75, Class C – flame spread index 76-200. All classes are required to have a smoke-developed index that does not exceed 450.

3.6.2 Interior Floor Finish

In all areas, interior floor covering materials are required to comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR Part 1630) (780 CMR 804.4.1). Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers are not subject to compliance with the "pill test" (780 CMR 804.1 Exception).

3.6.3 Upholstered Furniture

527 CMR 1.00 requires that new upholstered furniture be resistant to smoldering ignition as evaluated by one of the following methods (527 CMR 12.6.2.1):

- NFPA 260 testing (requirements for Class I)
- NFPA 261 testing (char length not exceeding 1-1/2 inches)
- California Technical Bulletin (TB) 117-2013, *Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture*

3.7 Fire Protection Systems

3.7.1 Automatic Sprinkler Systems

The proposed building is required to be provided with an automatic sprinkler system installed in accordance with NFPA 13 (780 CMR 903.2).

3.7.2 Standpipe Systems

The proposed building is required to be provided with a Class I standpipe if the floor of Level 2 is located more than 30 feet above the lowest level of fire protection access (780 CMR 905.5.3.1 Exception 1).

The system is required to be installed in accordance with NFPA 14 (780 CMR 905.2).

3.7.3 Fire Department Connections

Fire department connections are required to be provided for the building in locations approved by the fire department. The location and access of the fire department connection is required to be approved by the fire chief (780 CMR 912.2).

A clear working space free of all obstructions of 36 inches in width, by 36 inches in depth, by 78 inches in height is required in front of the fire department connections (780 CMR 912.4.2).

3.7.4 Fire Extinguishers

Portable fire extinguishers are required in all occupancies within the building and are required to be selected and installed in accordance with this section and NFPA 10 (780 CMR 906.1). Fire extinguishers are required to be installed in the following locations (780 CMR 906.1):

- Within 30 feet of commercial cooking equipment.
- In areas where flammable or combustible liquids are stored, used, or dispensed.
- Special hazard areas, including laboratories, computer rooms and generator rooms, where required by the fire official.
- The maximum travel distance to an extinguisher for Class A fire hazards (ordinary combustibles) does not exceed 75 feet. The maximum travel distance to an extinguisher for Class B fire hazards (flammable and combustible liquids) does not exceed 50 feet (780 CMR 906.3).

3.8 Emergency Systems

3.8.1 Fire Alarm and Detection Systems

The building is required to be provided with a fire alarm system throughout consisting of an automatic smoke detection system and an emergency voice/alarm communication system in accordance with 780 CMR 907.5.2.2, since the proposed Group E occupant load of the building exceeds 100 (780 CMR 907.2.3).

The fire alarm and detection system serving the building is required to activate the occupant notification system by manual initiation, automatic detection, and sprinkler extinguishment operation in accordance with NFPA 72.

3.8.2 Emergency Responder Radio Coverage

Emergency responder radio coverage is required for the building in accordance with 780 CMR Section 918 unless the fire code official determines the radio coverage system is not needed or where approved by the building official and the fire official to be a wired communication system in accordance with section 907.2.13.2 instead.

3.8.3 Standby/Emergency Power Systems

Standby and emergency power systems are required to be installed in accordance with 780 CMR, 527 CMR 12.00, NFPA 110, and NFPA 111.

A standby power system is required to be provided for the following building features (780 CMR 2702.2):

- Emergency responder radio coverage systems.
- Emergency voice/alarm communication systems.

An emergency power system is required to be provided for the following building features (780 CMR 2702.2):

- Exit signage in accordance with 780 CMR Section 1013.6.3.
- Means of egress illumination in accordance with 780 CMR Section 1008.3.
- Automatic fire detection systems.
- Fire alarm systems.

3.9 Means of Egress

Means of egress throughout the building are required to comply with 780 CMR Chapter 10.

3.9.1 Occupant Load

The number of occupants is required to be calculated at the rate of one occupant per unit of area as prescribed in Table 8 (780 CMR 1004.5). The occupant load is permitted to be increased from the calculated occupant load established for the given use where all other requirements of 780 CMR are met (780 CMR 1004.5.1).

TABLE 10: OCCUPANT LOAD FACTORS

Function of Space	Occupant Load Factor (occ/ft²)
Assembly (Tables & Chairs)	15 net
Classrooms	20 net
Locker Rooms, Fitness Rooms, Library Reading Rooms, Vocational Spaces	50 gross
Business / Office	150 gross
Kitchen	200 gross
Support/MEP	300 gross

Refer to the project life safety plans for detailed occupant load calculations at each Level.

3.9.2 Egress Width Factors

The required egress capacity for the means of egress components is based on the following capacity factors (780 CMR 1005.3.1 Exception 1 & 1005.3.2 Exception 1), since the proposed building is fully sprinkler protected, and the fire alarm system includes emergency voice/alarm communication capabilities.

TABLE 11: EGRESS WIDTH FACTORS

Stairways (inches of width per person)	All Other Components (inches of width per person)
0.2	0.15

Refer to the project life safety plans for egress capacity calculations at each Level.

3.9.3 Number of Exits

The number of exits required from every story is not permitted to be less than that specified in Table 12 (780 CMR 1006.3.3).

TABLE 12: MINIMUM NUMBER OF EXITS REQUIRED

Occupant Load	Number of Exits Required
1 – 500	2
501 – 1,000	3
> 1,000	4

Level 1 is provided with multiple exits directly to the exterior of the building. Level 2 is served by one enclosed exit stair, which discharges directly to the exterior of the building, and one exit access stair to Level 1. The occupant load of Level 2 is limited to 500 occupants.

3.9.4 Number of Exits from Spaces

Two exits or exit access doorways are required to be provided from any space where one of Two exits or exit access doorways are also required to be provided from any space where the occupant load or common path of travel distances in the following table are exceeded (780 CMR 1006.2.1):

TABLE 13: SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

Occupancy	Maximum Occupant Load	Maximum Common Path of Travel Distance
A-2, A-3, E	49	75 feet

The following should also be considered:

- Where a room contains switchgear and control panels exceeding 6 feet in width, an exit is required to be provided at each end of the equipment unless (1) the location permits a continuous and unobstructed way of exit travel, or (2) where the depth of the working space is twice that required by NFPA 70 Table 110.34(A) (NFPA 70, 110.33(A)(1)).
- Where equipment rated 800 A or more that contains overcurrent devices, switching devices, or control devices is installed in a room and there are personnel doors intended for entrance to and egress from the working space less than 25 feet from the nearest edge of the working space, the doors are required to swing in the direction of egress and equipped with listed panic hardware (NFPA 70, 110.26(C)(3)).
- Two exit access doorways are required in boiler, incinerator, and furnace rooms where the area is over 500 square feet and any fuel-fired equipment exceeds 400,000 British thermal unit input capacity (780 CMR 1006.2.2.1).
- Machinery rooms larger than 1,000 sf are required to have at least two exits or exit access doorways. Where two exit access doorways are required, one such doorway is permitted to be served by a fixed ladder or an alternating tread device. Exist access doorways are required to be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room. Exit and exit access doorways are required to swing in the direction of egress travel and are required to be

equipped with panic hardware. Exist and exit access doorways are required to be tight fitting and self-closing (780 CMR 1006.2.2.2).

Where two exits or exit access doorways are required from any new portion of the exit access as outlined above, the exit doors or exit access doorways are required to be placed a distance apart equal to not less than 1/3 of the length of the maximum overall diagonal dimension of the building or area served (780 CMR 1007.1.1 Exception 2).

3.9.5 Exit Discharge

Exits are required to discharge directly to the exterior, except where permitted otherwise per 780 CMR 1028.2. The enclosed exit stair serving Level 2 discharges directly to the exterior at Level 1.

3.9.6 Accessible Means of Egress

Accessible means of egress are required to be provided in accordance with 780 CMR 1009.

Accessible means of egress are required to be provided from all accessible spaces within each structure. Where more than one means of egress is required from any accessible space, the space is required to be serviced by not less than two accessible means of egress (780 CMR 1009.1).

A two-way communication system is required to be provided at the elevator landing in accordance with 780 CMR 1009.8 on each accessible floor that is one or more story above or below the story of exit discharge (780 CMR 1009.8).

3.9.7 Travel Distances

Means of egress are required to be arranged in accordance with the maximum values specified in Table 14 (780 CMR 1006.2.1, 1017.2, 1020.5).

TABLE 14: MEANS OF EGRESS EXIT ARRANGEMENT

Occupancy	Maximum Exit Access Travel Distance	Maximum Common Path of Egress Travel	Maximum Dead End Corridor Length [1]
A-2 & A-3	250 feet	75 feet	20 feet
E	250 feet	75 feet	50 feet

1. Dead end corridors are not limited in length where the length of the dead-end corridor is less than 2.5 times the width.

3.9.8 Corridors

The width of corridors are not permitted to be less than that specified in the table below, but will not be less than that required for the occupant load served based on the egress factors in Table 11 of this report (780 CMR 1020.3).

TABLE 15: CORRIDOR WIDTHS

Occupancy	Minimum Width
Access to and utilization of MEP equipment	24 inches
With a required occupancy capacity < 50 people	36 inches
Serving Group E Occupancies > 99 people	72 inches
Any areas not listed above	44 inches

3.9.9 Doors

Doors are required to comply with 780 CMR Section 1010. Major requirements include:

- Width: Doors are required to be a minimum of 32 inches in clear width (780 CMR 1010.1.1).
- Landings: Level landings are required to be provided on each side of the door (780 CMR 1010.1.4 & 1010.1.5).
- Panic Hardware: Doors that serve more than 49 assembly occupants are required to have panic hardware if the doors latch or lock (780 CMR 1010.2.9). Panic hardware is required to be provided along the entire path of travel, including the exit discharge.
- Door Swing: Egress doors are required to be of the pivoted or side-swinging type and are required to swing in the direction of egress travel where serving an occupant load of 50 or more persons (780 CMR 1010.1.2).
- Locking: Except as specifically permitted by 780 CMR Section 1010.2, doors are required to be readily operable in the direction of egress travel.
- Doors in Series: Space between two doors in series is required to be a minimum of 48 inches plus the width of the door swinging into the space. Doors in series are required to swing either in the same direction or away from the space between the doors (780 CMR 1010.1.7).

3.9.10 Means of Egress Locking

Doors within the building are proposed to be equipped with locks to limit access to portions of the school. Except as specifically permitted by 780 CMR Section 1010.2, doors are required to be readily operable in the direction of egress travel.

An exterior terrace space is provided on Level 2 of the proposed building. Doors serving exterior spaces requiring egress through the building, such as roof decks and terraces, are permitted to be equipped with an approved locking device installed and operated in accordance with 780 CMR 1010.2.4(8). The following are required to be provided:

- The maximum occupant load is required to be posted where required by 780 CMR 1004.9, permanently affixed to the inside of the building and in a conspicuous space near all exit access doorways.
- A weatherproof telephone or two-way communication system is required to be provided adjacent to not less than one required exit access door on the exterior side.
- The egress door locking device is required to be readily distinguishable as locked and be key operated.
- A clear window or glazed door opening not less than 5 square feet in areas is required at each exit access door.

- A readily visible, durable sign is required to be posted on the interior side on or adjacent to each locked required exit access door serving to the exterior stating: "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTOOR AREA IS OCCUPIED"
- The occupant load of the occupied exterior is not permitted to exceed 300 occupants.

3.9.11 Stairways

Stairs are required to have sufficient width to accommodate the calculated occupant load using the factors in Table 11 of this Report but are not permitted to be less than 44 inches wide (780 CMR 1011.2). Where stairs serve an occupant load of less than 50 people, they are permitted to be a minimum of 36 inches in width (780 CMR 1011.2 Exception 1).

Stair riser heights are required to be 7" maximum and 4" minimum, and stair tread depths are required to be 11" minimum (780 CMR 1011.5.2).

3.9.12 Guards

Guards are required to be provided where open-sided walking surfaces are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side (780 CMR 1015.2).

3.9.13 Main Exit

Every building, room, or space used for assembly purposes with an occupant load of greater than 300 is required to be provided with a main entrance/exit (780 CMR 1030.2). The main exit is required to be of a width that accommodates one half of the total occupant load, but such capacity must not be less than the total required capacity of all means of egress leading to the exit. In assembly occupancies where there is no well-defined main entrance/exit, exits are permitted to be distributed around the perimeter of the building, provided that the total exit width furnishes not less than 100 percent of the width needed to accommodate the permitted occupant load.

3.9.14 Evacuation Maps

A suitably designed evacuation map placard, approved by the building official, is required to be provided on all floors of the building.

A minimum of one evacuation map is required per floor, with an additional map provided in all rooms used as a place of assembly. Said placard is required to be securely fastened to the building in a readily visible place, showing exiting paths from the floor (780 CMR 111.5.2).

3.9.15 Exit Signage

Exit and exit access doors are required to be marked by an approved exit sign readily visible from any direction of egress travel (780 CMR 1013.1). The path of egress travel to exits and within exits is required to be marked by readily visible exit signs to clearly indicate the

direction of egress travel where the exit or path of travel is not immediately visible. Exit signs within corridors and exit passageways are required to be placed such that no point is more than 100 feet or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign. Exit signs are not required in the following locations:

- In rooms or areas that require only one exit or exit access.
- Main exterior exit doors that are obviously and clearly identifiable as exits where approved by the building official.

3.9.16 Egress Illumination

The means of egress, including the exit discharge, is required to be illuminated at all times the building served by the means of egress is occupied (780 CMR 1008.1). Generally, the illumination level is not permitted to be less than 1 foot-candle at the walking surface. Stairways are required to be illuminated at a minimum of 10 foot-candles when stair is in use (780 CMR 1008.2).

In the event of power supply failure, an emergency electrical system is required to automatically illuminate all of the following areas (780 CMR 1008.3):

- Aisles and unenclosed egress stairways in rooms and spaces that require two or more means of egress.
- Corridors, interior exit stairways, and exit passageways.
- Interior exit access stairways and ramps
- Exterior egress components at other than the level of exit discharge until exit discharge is accomplished.
- Exterior landings for exit discharge doorways.

The emergency power system is required to provide power for a duration of not less than 90 minutes and is required to consist of storage batteries, unit equipment, or an on-site generator (780 CMR 1008.3.4). The initial illumination is required to be an average of 1 foot-candle and a minimum at any point of 0.1 foot-candle measured along the path of egress at the floor level. Illumination levels are permitted to decline to 0.6 foot-candle average and a minimum of 0.06 foot-candle at the end of the emergency lighting time duration (780 CMR 1008.3.5).

3.10 Fire Department Access

Fire department access roads are required at the property and the design of the access roads are required to comply with the following:

- Have an unobstructed width of not less than 20 feet and a vertical clearance of not less than 13 feet 6 inches (527 CMR 1.00, 18.2.3.5.1.1).
- Have a minimum inside turning radius of at least 25 feet unless otherwise required by the fire official (527 CMR 1.00, 18.2.3.5.3.1)
- Any portion of an exterior wall of the first story of the building is not more than 250 feet from the access road via an approved route around the building, based on the building being fully sprinkler protection in accordance with NFPA 13 (527 CMR 1.00, 18.2.3.2.2.1).
- Extend to within 50 feet of at least one exterior door that can be opened from the outside and provided access to the interior of the building (527 CMR 1.00, 18.2.3.2.1).

- Have a gradient that does not exceed 10% (527 CMR 1.00, 18.2.3.5.6.1).
- Dead-ends in excess of 150 feet in length are provided with approved provisions for the fire apparatus to turn around (527 CMR 1.00, 18.2.3.5.4).
- Be capable of supporting the imposed loads of fire apparatus and provided with an all-weather driving surface (527 CMR 1.00, 18.2.2.1.1).
- When connecting to roadways, the curb cut is required to extend at least 2 feet beyond each edge of the fire lane (527 CMR 1.00, 18.2.3.5.3.3).
- Angle of approach and department for access roads are not permitted to exceed 1-foot drop within 20 feet or limits established by the AHJ based on employed apparatus (527 CMR 1.00, 18.2.3.5.6.2).
- When connecting to roadways, the curb cut is required to extend at least 2 feet beyond each edge of the fire lane (527 CMR 1.00, 18.2.3.5.3.3).
- Angle of approach and department for access roads are not permitted to exceed 1-foot drop within 20 feet or limits established by the AHJ based on employed apparatus (527 CMR 1.00, 18.2.3.5.6.2).

3.11 Accessibility

The entire building is required to be designed in accordance with 521 CMR and the requirements of the 2010 Americans with Disabilities Act Accessibility Guidelines (ADA).

3.12 Plumbing Fixtures

248 CMR 10.00, *Uniform State Plumbing Code*, regulates the minimum number of plumbing fixtures. The requirements set forth in 248 CMR 10.10(15) Table 1 apply to plumbing system installation, alteration, or extension projects where a plumbing permit is required. The minimum number of plumbing fixtures are based upon the use and occupancy classification of the building or space and the population as established by the authority having jurisdiction. The following table outlines the required plumbing fixture factors for occupancies in the building.

TABLE 16: PLUMBING FIXTURE FACTORS

Use Group	Toilets		Urinals	Lavatories Each Sex	
	Female	Male		Female	Male
Elementary Students	≤100: 1 per 25 >100: add 1 per 50	≤100: 1 per 25 >100: add 1 per 50	50% max. substitution	1 per 25	
Elementary School Staff	1 per 20	1 per 25	33% max. substitution	1 per 20	
Gathering / Hall	≤200: 1 per 25 201 – 500: 1 per 50 >500: add 1 per 100	≤200: 1 per 50 201 – 500: 1 per 100 >500: add 1 per 100	50% max. substitution	1 per 50	

The following tables detail the maximum number of occupants supported by the proposed plumbing fixtures during normal school hours, and events outside of normal operation hours.

TABLE 17: PLUMBING FXITURE CALCULATIONS - NORMAL HOURS (LEVELS 1-2)

Classification	Max. Number of Occupants	Water Closets		Male Urinals*	Lavatories		Drinking Water Stations	Mop Sink
		Female	Male		Female	Male		
K-12 School (Student)	380	5.80	5.80	2.90	7.60	7.60	1 per Each Set of Restrooms	1 per Floor
Total		5.80	5.80	2.90	7.60	7.60	-	2.00
Total Required Fixtures		**6**	**6**	**2**	**8**	**8**	**-**	**2**
Total Provided Fixtures		**13**	**11**	**2**	**8**	**8**	**4**	**3**
K-12 School (Staff)	80	2.00	1.60	0.53	2.00	2.00	N/A	1 per Floor
Total		2.00	1.60	0.53	2.00	2.00	-	2.00
Total Required Fixtures		**2**	**2**	**0**	**2**	**2**	**-**	**2**
Total Provided Fixtures		**3**	**3**	**0**	**3**	**3**	**4**	**3**

* Of the required 6 male water closets up to 2 are permitted to be substituted with urinals for student restrooms.

TABLE 18: PLUMBING FIXTURE CALCULATIONS - AFTER HOURS (LEVEL 1)

Classification	Max. Number of Occupants	Water Closets		Male Urinals*	Lavatories		Drinking Water Stations	Mop Sink
		Female	Male		Female	Male		
Meeting Hall	200	4.00	2.00	2.00	2.00	2.00	1 per Each Set of Restrooms	1 per Floor
Total		4.00	2.00	2.00	2.00	2.00	-	1.00
Total Required Fixtures		**4**	**2**	**2**	**2**	**2**	**-**	**1**
Total Provided Fixtures		**4**	**2**	**2**	**2**	**2**	**3**	**1**

* Of the required 4 male water closets up to 2 are permitted to be substituted with urinals.

Fire Protection/Life Safety
Chapter 34 Code Report
Construction Documents

Project:
Squantum School Enabling Package
50 Huckins Avenue
Quincy MA, 02171

12/20/2024

Prepared for:
Arrowstreet
10 Post Office Square
Suite 700N

Prepared by:
Matthew Nicastro

Reviewed by:
Kevin N. Lynch, P.E.

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1. Introduction

Arrowstreet has retained Code Red Consultants to provide fire protection, life safety, and accessibility code consulting services for the Quincy Squantum Elementary School Enabling project in Quincy, MA. This document describes the overall code compliance approach for the Enabling Project. The code compliance approach specific to the construction of the new Squantum School building is provided under separate cover.

1.1 Existing Building Description

The existing Squantum Elementary School building located at 50 Huckins Avenue in Quincy, MA is 1-story in height with a basement and has a footprint of 45,000 square feet. The building was originally constructed in 1919, with additions constructed in 1945 and 1971. No building separations were observed between the original building and additions, and as such, they are considered a single building from a code perspective. The original building and 1945 additions currently consist of classrooms and a gymnasium with a stage. The 1971 building contains a large library space surrounded by additional classrooms and offices. The school currently contains classrooms for Kindergarten through Grade 5 students.

FIGURE 1: EXISTING SITE OVERVIEW

The original building and 1945 additions are being demolished and replaced with a new, 2-story elementary school building. During construction, the 1971 building is intended to remain occupied to continue school operations. Table 1 summaries existing building information specific to the 1971 Building.

TABLE 1: 1971 EXISTING BUILDING SUMMARY

Use and Occupancy	Primary Use(s): Group E, Educational: Classrooms, Cafeteria, Multipurpose Space
Height & Area	1 story above grade Footprint area: 19,700 sf
Construction Type	The existing building consists of a mix of CMU block interior walls and unprotected, noncombustible structural framing. Structural elements and roof construction were observed to consist of wood.
Fire Protection Systems	The building is not protected with an automatic sprinkler system.
Fire Alarm System	The building is equipped with a fire alarm and detection system consisting of the following components: Visual & audible notification, smoke detection, heat detection and manual pull stations.
Exit Signage and Emergency Lighting	Emergency lighting and illuminated exit signs were observed to be provided in the building. However, some non-illuminated exit signs were also observed.

1.2 Project Overview

The existing site currently consists of a single building, including the 1919/1945 Building and 1971 Building illustrated in Figure 2. As part of the construction of the new Squantum School building, the 1919/1945 building is being demolished entirely. During construction of the new school, the 1971 building remains occupied to support ongoing school operations. Alterations are taking place throughout the existing 1971 building to provide new classrooms and a cafeteria in place of existing multipurpose and library spaces. A new modular classroom building is also being constructed to provide additional classroom space during this temporary condition throughout the construction of the new Squantum School. The 1971 building and modular classroom building are separated by a pedestrian walkway connection and are considered separate buildings from a code perspective.

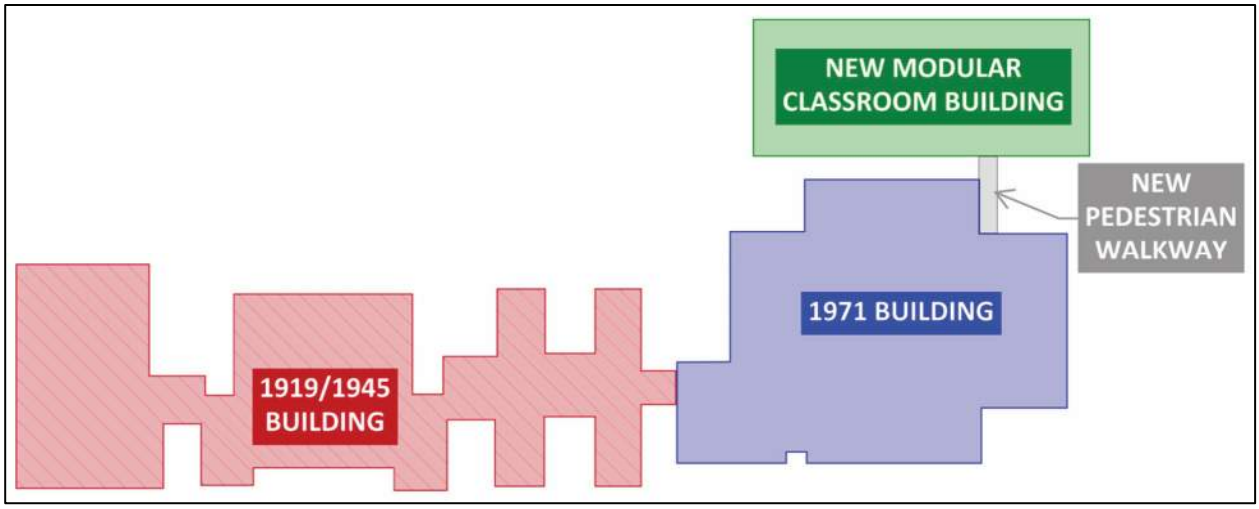


FIGURE 2: SITE DIAGRAM

2. Applicable Codes

The major codes to which the project is being designed are identified below. Based on the proposed schedule, it is anticipated that the 10th Edition of 780 CMR will be applicable to the project. Although the amendments for the 10th Edition are not finalized, the proposed, draft amendments have been incorporated into this Report. Codes of record generally vest with the date of building permit application for a project, with the exception of the Plumbing Code, Electrical Code, and Elevator Code which vest with their respective installation permit applications.

Building	780 CMR – Massachusetts State Building Code 10th Edition, which is an amended version of the 2021 International Building Code (IBC). 780 CMR 34.00, which is an amended version of the 2021 International Existing Building Code (IEBC), herein referred to as the MEBC.
Fire	527 CMR 1.00 - Massachusetts Comprehensive Fire Safety Code, which is an amended version of the 2021 Edition of NFPA 1, Fire Code
Accessibility	521 CMR – Massachusetts Architectural Access Board (MAAB) Rules and Regulations 2010 ADA Standards for Accessible Design
Electrical	527 CMR 12.00 - Massachusetts Electrical Code, which is an amended version of the 2023 Edition of NFPA 70, National Electrical Code
Mechanical	2021 International Mechanical Code (IMC) as amended by 780 CMR 28.00.
Plumbing	248 CMR 10.00 – Uniform State Plumbing Code
Energy	225 CMR 23.00, Massachusetts Commercial Stretch Energy Code 225 CMR 23.00 Appendix CC, Municipal Opt-In Specialized Energy Code [1]
Other	National Fire Protection Association (NFPA) Standards, as referenced by the above codes, including the following: - 2021 NFPA 10: *Standard for Portable Fire Extinguishers* - 2019 NFPA 13: *Standard for the Installation of Sprinkler Systems* - 2019 NFPA 72: *National Fire Alarm and Signaling Code*

This report addresses the key features of these codes and standards. The primary intent of this document is to (1) summarize our understanding of the major fire protection and life safety approach for the proposed work, (2) demonstrate building, fire and life safety code compliance to the Authorities Having Jurisdiction, and (3) serve as a record document for the building owner.

[1] The Municipal Opt-In Specialized Energy Code is not applicable to existing buildings (225 CMR 23.00 CC101.4).

3.

3. Existing Building Scoping Requirements

3.1 General Requirements

Portions of an existing building undergoing repair, alteration, addition, or a change of occupancy are subject to the requirements of the MEBC. In general, existing materials and conditions can remain provided they were installed in accordance with the code at the time of original installation and are not deemed a condition by an authority having jurisdiction (AHJ). All new work in existing buildings is required to comply with the materials and methods in accordance with 780 CMR, or the applicable code for new construction unless otherwise specified by the MEBC (MEBC 302.4). Alterations to an existing building or portion thereof are not permitted to reduce the level of safety currently provided within the building unless portion altered complies with the requirements of 780 CMR for new construction (MEBC 701.2).

Where compliance with the requirements of the code for new construction is impractical due to construction difficulties or regulatory conflicts, compliance alternatives may be approved by the building official. Any compliance alternatives being sought are required to be identified on the submittal documents (MEBC 104.12).

3.2 Code Compliance Method & Classification of Work

The MEBC has 3 different compliance methods that can be used to evaluate a project:

- Prescriptive Method (MEBC Chapter 5)
- Work Area Method (MEBC Chapters 6-12)
- Performance Method (MEBC Chapter 13)

The requirements and design implications from the **Work Area Method** have been documented in this report (MEBC 301.3.2). The scope of work throughout the 1971 building includes the reconfiguration of select spaces throughout the interior, alterations to exterior walls, and alterations to existing systems to maintain coverage. Therefore, the proposed project is classified as a **Level 2 Alteration** and subject to compliance with MEBC Chapters 7 and 8 (MEBC 603.2). No change of occupancy is proposed as part of the project.

The new pedestrian walkway and modular classroom building are subject to 780 CMR.

4. Fire Protection / Life Safety Code Analysis

The following details the overall code compliance approach for the project.

4.1 Use and Occupancy Classifications

4.1.1 Primary Occupancies

The existing 1971 Building consists of classrooms and a library / gathering space, classified as **Group E, Educational**. The proposed project includes renovations to classrooms and a conversion of the library space in the 1971 building to a cafeteria and multipurpose gathering room. The renovated spaces are proposed to be used only for school functions, and as such the Group E classification is maintained as part of the project.

The modular classroom building contains classrooms and a small staff room, classified as **Group E, Educational**.

4.2 Building Construction

4.2.1 Construction Classification

The 1971 building and new modular classroom building are connected by a pedestrian walkway constructed in accordance with Section 4.2.3 of this report, resulting in each classified as a separate building. The existing 1971 Building is constructed of CMU block interior walls and unprotected, noncombustible structure. Structural elements and roof construction were observed to consist of wood. The construction type of the building defaults to **Type IIIB** construction due to the combustible structure.

The modular classroom building is permitted to be classified as **Type VB** construction based on the proposed height and area, as outlined in Section 4.2.2.

4.2.2 Height and Area

The existing structure is being demolished in its entirety, with the exception to the 1971 building. The 1971 building remaining intact will be 1 story in height with a 19,700 sf footprint area. Table 2 outlines the height and area limitations applicable to the 1971 building.

TABLE 2: NEW CONSTRUCTION AREA LIMITATIONS – TYPE IIIB (NONSPRINKLERED)

Use Group	Allowable Number of Stories	Allowable Height	Allowable Footprint Area [1]
E	2 stories	55 ft	21,184 ft²

1. Increases applied based on 47% open frontage (22% increase).

The 1971 Building complies with the limitations of 780 CMR for a Type IIIB building that is not provided with sprinkler coverage.

The modular classroom building is sprinklered throughout, 1 story in height and has a 10,500 sf footprint area. The modular classroom building is permitted to be Type VB construction since the height and area do not exceed the limitations outlined in Table 3.

TABLE 3: NEW CONSTRUCTION AREA LIMITATIONS – TYPE VB (SPRINKLERED)

Use Group	Allowable Number of Stories	Allowable Height	Allowable Footprint Area
E	2 stories	60 ft	38,000 ft²

4.2.3 Fire Resistance Rating of Building Elements

Any new or altered structural members are required to minimally maintain the construction type of the 1971 building (MEBC 701.2 & 801.4). Table 4 indicates the minimum fire-resistance ratings required for the 1971 building (Type IIIB) and the modular classroom building (Type VB) (780 CMR 601).

TABLE 4: FIRE-RESISTANCE RATING OF BUILDING ELEMENTS

Building Element	Fire Resistance Rating Type IIIB (1971 Building)	Fire Resistance Rating Type VB (Modular Classroom Building)
Primary structural frame	0 hour	0 hour
Exterior bearing walls	2 hour	0 hour
Interior bearing walls	0 hour	0 hour
Nonbearing exterior walls	See Section 4.3	
Nonbearing Interior walls	0 hour	0 hour
Floor construction and secondary members	0 hour	0 hour
Roof construction and secondary members	0 hour	0 hour

4.2.4 Building Separation – Pedestrian Walkway

A pedestrian walkway is proposed to separate the 1971 building and the modular classroom building. Buildings separated by a pedestrian walkway in accordance with 780 CMR 3104 are permitted to be classified as separate structures from a code perspective (780 CMR 3104.2). The pedestrian walkway does not contribute to the building area or number of stories/ height of connected buildings (780 CMR 3104.1).

The pedestrian walkway is permitted to be of combustible construction the connected buildings are of combustible construction (780 CMR 3104.3). The pedestrian walkway is required to be separated from both buildings with 2-hour fire barriers and 90 min. rated fire doors. The protection is required to extend along the exterior walls in every direction for a minimum of 10 feet (780 CMR 3104.5.1). Any openings within this 10-foot distance at the exterior walls are required to be protected with a ¾-hr fire resistance rating (780 CMR 3104.5.1.2).

4.3 Exterior Walls

New exterior walls are required to comply with the requirements of 780 CMR. Where existing exterior walls are altered, existing openings are enlarged, or new openings are created, compliance with 780 CMR is also required (MEBC 801.4).

The rating and opening limitations for nonbearing exterior walls are based on the fire separation distance for each wall. Fire separation distance is defined as the distance measured from the building face to the closest interior lot line, the centerline of a street, alley, or public way, or to an imaginary lot line between two buildings (780 CMR 202). The distance is required to be measured at right angles from the face of the wall.

The following table indicates the fire-resistance ratings and opening limitations required for the nonbearing exterior walls based on fire separation distance for the existing 1971 Building (780 CMR 705.5 & 705.8).

TABLE 5: EXTERIOR WALL FIRE RATING AND OPENING LIMITATIONS (TYPE IIIB, NONSPRINKLERED)

Fire Separation Distance (ft)	Fire Resistance Rating [1]	Allowable Open Area
0 ≤ X < 3	1 Hour	Not Permitted
3 ≤ X < 5	1 Hour	Not Permitted
5 ≤ X < 10	1 Hour	10%
10 ≤ X < 15	1 Hour	15%
15 ≤ X < 20	1 Hour	25%
20 ≤ X < 25	1 Hour	45%
25 ≤ X < 30	1 Hour	70%
X ≥ 30	0 Hours	No Limit

1. Bearing exterior walls are required to be 2-hour rated.

The following table indicates the fire-resistance ratings and opening limitations required for the nonbearing exterior walls based on fire separation distance for the modular building (780 CMR 705.5 & 705.8).

TABLE 6: EXTERIOR WALL FIRE RATING AND OPENING LIMITATIONS (TYPE VB, SPRINKLERED)

Fire Separation Distance (ft)	Fire Resistance Rating	Allowable Open Area
0 ≤ X < 3	1 Hour	Not Permitted
3 ≤ X < 5	1 Hour	15%
5 ≤ X < 10	1 Hour	25%
X ≥ 10	0 Hours	No Limit

The Modular classroom building is proposed to be constructed such that the South façade of the new building is located 17 feet from the North façade of the 1971 Building. An imaginary lot line is permitted to be arranged between the two buildings to determine the fire separation distance of each.

Currently, the proposed lot line is located such that the modular classroom building is provided with 5 feet of fire separation distance. As such, the exterior wall is required to be 1-hour fire resistance rated and is limited to 15% openings.

The remaining 12 feet of fire separation distance is allocated to the existing 1971 Building. The North façade of the 1971 Building is required to be confirmed to provide a 1-hour fire separation. Openings in the exterior wall are limited to 15% of the wall area.

A temporary boiler enclosure is proposed to be constructed to the south of the 1971 building to support the temporary facilities until the new school building is constructed. The fire separation distance between the boiler enclosure and 1971 building is also required to be evaluated to determine necessary fire resistance ratings of exterior walls and allowable openings.

4.4 Interior Walls and Partitions

4.4.1 Fire/Smoke Resistive Assemblies

Table 7 identifies the interior walls and partitions which are required to be composed of fire/smoke resistive assemblies.

TABLE 7: FIRE RESISTANCE RATING REQUIREMENTS

Type of Assembly	Construction	Code Reference
Corridors in Nonsprinklered Buildings (Group E)	1-hour fire barrier	780 CMR 1020.2
Corridors in sprinklered buildings (Group E)	No rating required	
Pedestrian Walkway Connection	2-hour fire barrier	780 CMR 3104.5

4.4.2 Doors and Opening Protectives

New doors, fire shutters, and their corresponding components are required to have fire-resistance ratings and meet the required testing standards as specified in Table 8. All doors and fire shutters required to be fire-resistance-rated are required to be designed, installed, and labeled in accordance with NFPA 80 (780 CMR 716.1).

TABLE 8: DOOR AND FIRE SHUTTER REQUIREMENTS

Wall Type	Required Wall Rating	Minimum Fire Door Rating	Performance Criteria[1]	Code Reference
Fire barriers	2 hours	1.5 hours	NFPA 252 or UL 10C	780 CMR 716.1
	1 hour	3/4 hour		

1. All doors are required to be self- or automatic closing and provided with an active latch bolt that will secure the door when it is closed (780 CMR 716.2.6).

4.4.3 Penetrations

New penetrations of fire-resistance-rated walls and horizontal assemblies that are not protected with dampers or a shaft are required to comply with this section. Ducts and air transfer openings that are protected by dampers are required to comply with Section 4.4.4 of this report.

Through and membrane penetrations of fire-resistance-rated walls are required to comply with the following (780 CMR 714.4.1):

- Penetrations are installed as tested in an approved fire-resistance-rated assembly (780 CMR 714.4.1.1); or
- Penetrations are protected by an approved penetration firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water and will have an F rating of not less than the required fire-resistance rating of the wall penetrated (780 CMR 714.4.1.2); or
- Membrane penetrations by electrical boxes are permitted without an approved firestop system when protected in accordance with 780 CMR Section 714.4.2.

4.4.4 Ducts and Air Transfer Openings

Where new dampers are installed, they are required to be listed and bear the label of an approved testing agency (780 CMR 717.3.1). Fire dampers are required to be tested in accordance with UL 555 and smoke dampers are required to be tested in accordance with UL 555S. Combination fire/smoke dampers are required to comply with both test standards.

New fire dampers within both buildings are required to be rated for 1.5 hours (780 CMR 717.3.2.1). Smoke damper leakage ratings are required to be Class I or II. Elevated

temperature ratings are not permitted to be less than 250°F (780 CMR 717.3.2.2). Combination fire/smoke dampers are required to comply with both rating requirements (780 CMR 717.3.2.3). Refer to 780 CMR 717.3.3 for required damper actuation methods.

Fire dampers are required to be provided with an approved means of access that permits inspection and maintenance of the damper and its operating parts (780 CMR 717.4). Access points are required to have permanent labels with letters that are not less than ½ inch in height that reads "FIRE/SMOKE DAMPER, SMOKE DAMPER, or FIRE DAMPER".

4.5 Interior Finishes

4.5.1 Wall and Ceiling Finishes

All existing interior finishes within the work area and exits/ corridors serving the work area are required to comply with the code for new construction (MEBC 802.4). Interior finishes throughout the modular classroom building are required to comply with 780 CMR.

Table 9 outlines the new construction interior wall and ceiling finish requirements (780 CMR Table 803.13). The flame spread and smoke-developed indexes are not permitted to be greater than that specified in the table below based on the occupancy classifications and level of sprinkler protection in the building.

TABLE 9: INTERIOR WALL & CEILING FINISH REQUIREMENTS

Occupancy Classification	Exit Enclosures	Corridors, Exit Access Stairways/Ramps	Rooms and Enclosed Spaces
E (Nonsprinklered)	B	C	C
E (Sprinklered)	A	B	C

Interior finishes are grouped in the following classes: Class A – flame spread index 0-25, Class B – flame spread index 26-75, Class C – flame spread index 76-200. All classes are required to have a smoke-developed index that does not exceed 450.

4.5.2 Interior Floor Finish

In all areas, interior floor covering materials are required to comply with the requirements of the DOC FF-1 "pill test" (CPSC 16 CFR Part 1630) (780 CMR 804.4.1). In the nonsprinklered 1971 Building, interior floor finishes in corridors are required to have a minimum Class II critical radiant flux (780 CMR 804.4.2). Floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers are not subject to compliance with the "pill test" (780 CMR 804.1 Exception).

4.5.3 Upholstered Furniture

Upholstered furniture introduced in the building is required to be resistance to a cigarette ignition in accordance with one of the following (527 CMR 12.6.3.1):

- Components of the upholstered furniture meets the requirements of Class I when tested in accordance with NFPA 260.
- Composites of the upholstered furniture has a char length not exceeding 1.5" when tested in accordance with NFPA 261.

- Upholstered furniture meets the requirements of California Technical Bulletin 117-2013.

4.6 Fire Protection Systems

4.6.1 Automatic Sprinkler Systems

The new modular classroom building is provided with an automatic sprinkler system throughout since the footprint area exceeds 7,500 square feet (MGL Ch. 148 Section 26G).

MEBC

The 1971 Building is not protected by an automatic sprinkler system. Level 2 Alterations require sprinkler protection for Group E work areas that have exits or corridors "shared by more than one tenant" **or** that have exits or corridors serving an occupant load greater than 30, and then where **both** of the following conditions are met (MEBC 803.2.2):

1. The work area is required to be provided with sprinkler protection as applicable for new construction; **and**
2. The work area exceeds 50% of the floor area.

The work area has exits and corridors serving an occupant load greater than 30, but the proposed work area does not exceed 50% of the floor area. Since the work area does not exceed 50% of the floor area, sprinkler coverage is not required per MEBC 803.2.2.

Massachusetts General Law Ch. 148 Sec. 26G

Massachusetts General Law Ch. 148 Sec. 26G requires every building or structure, including major alterations thereto, which totals more than 7,500 gross square feet, to be protected throughout with an automatic sprinkler system. The law does not implicitly define what constitutes a 'major alteration.' An advisory document published by the Sprinkler Appeals Board in 2009 expands upon the application of this MGL to existing buildings, i.e. what should constitute 'major alterations.' This document summarizes that an existing building is required to be protected with sprinklers where all of the following four conditions are satisfied:

1. Building gross square footage is more than 7,500 sf;
2. Sufficient water and water pressure exist to serve the system;
3. The nature of work to the building is considered as "major", including any one or more of the following:
    a. The demolition or reconstruction of existing ceilings or installation of suspended ceilings;
    b. The removal and/or installation of sub flooring, not merely the installation or replacement of carpeting or finished flooring;
    c. The demolition and/or reconstruction or repositioning or walls or stairways or doors; or
    d. The removal or relocation of a significant portion of the building's HVAC, plumbing, or electrical systems involving the penetration of walls, floors, or ceilings.

4. The scope of work is proportional to the cost/benefit of sprinkler installation. To evaluate whether this is satisfied, the advisory document lists either of the following as thresholds for requiring sprinkler protection (evaluated over a 5-year period):
    a. Work affects 33% or more of the total gross square footage; or
    b. Total cost of the work (excluding cost to install a sprinkler system) is equal to or greater than 33% of the assessed value of the building, as of the date of permit application.

Both Item 3 and one of the subparts of Item 4 must met in order for sprinklers to be required. While Item 3 is met based on the proposed scope of work, the project is not anticipated to meet Item 4a nor 4b. The work area for the project is less than 33% of the building area (6,318 sf/19,700 sf = 32.1%). The building has an assessed value of $11,200,900. The threshold value necessitating sprinkler coverage based on the advisory is $3,696,297, and the cost of work to the 1971 building des not exceed this value. **Therefore, per MGL 26G, the proposed work to the 1971 Building does not trigger requirements for an automatic sprinkler system in the building. This approach is being reviewed with the local fire marshal.**

4.6.2 Standpipe Systems

The 1971 building is not provided with a standpipe system, and is not required to be provided with one as part of the project (MEBC 803.3).

The new modular classroom building is not required to be provided with a standpipe system either since the building is one story in height and does not have a floor level located 30 feet above or below the lowest level of fire department vehicle access (780 CMR 905.3).

4.6.3 Fire Extinguishers

Portable fire extinguishers are required throughout both buildings and are required to be selected and installed in accordance with NFPA 10 (780 CMR 906.1). Coverage is required to comply with NFPA 10, including the following locations:

- Within 30 feet of commercial cooking equipment.
- The maximum travel distance to an extinguisher for Class A fire hazards (ordinary combustibles) must not exceed 75 feet. The maximum travel distance to an extinguisher for Class B fire hazards (flammable and combustible liquids) does not exceed 50 feet (780 CMR 906.3).

4.7 Emergency Systems

4.7.1 Fire Alarm and Detection Systems

The 1971 building is equipped with a fire alarm and detection system consisting of notification appliances, smoke/heat detection, and manual pull stations at exits. Coverage of the existing fire alarm system is required to be maintained in accordance with NFPA 72.

The new modular classroom building is required to be provided with a fire alarm system equipped with emergency voice/alarm capabilities, which activates upon waterflow from

the automatic sprinkler system (780 CMR 907.2 & 907.2.3). The new fire alarm system is required to be designed and installed in accordance with NFPA 72.

Classrooms are required to be provided with carbon monoxide detection where any of the following conditions exist (780 CMR 915.1.1):

- Classrooms containing permanently installed fuel-burning appliances.
- Classrooms served by fuel-burning, forced-air furnaces.
- In buildings that contain fuel burning appliances unless (1) there are no communicating openings between the fuel-burning appliance and the classroom or (2) carbon monoxide detection is provided in the room containing the fuel burning appliances.

All new fire alarm devices and any modifications to the existing fire alarm system are required to meet new construction requirements of NFPA 72 (2019 Edition) and 527 CMR 1.00 relative to their installation.

4.7.2 Standby/Emergency Power Systems

Regardless of the scope of work, alterations to the existing standby/ emergency power supply are not permitted to reduce the level of safety currently provided within the building unless the portion altered complies with the requirements of 780 CMR for new construction (MEBC 701.2).

The emergency power system is required for the following building features (780 CMR 2702.2):

- Exit signage in accordance with 780 CMR Section 1013.6.3
- Means of egress illumination in accordance with 780 CMR Section 1008.3
- Fire alarm systems including automatic fire detection systems if applicable
- Emergency voice/alarm communication system

The standby power system is required for the following building features (780 CMR 2702.2):

- Emergency Responder Radio Coverage System

The emergency power system is required to be installed in accordance with 780 CMR, 527 CMR 12.00, NFPA 110, and NFPA 111. The source of emergency power is permitted to be provided by an on-site emergency generator or from battery backup.

4.8 Means of Egress

The new modular classroom building is required to be provided with means of egress in accordance with 780 CMR.

Existing means of egress within the 1971 Building that have been maintained as originally designed and constructed, are permitted to remain unless deemed hazardous by the building official (780 CMR 102.6.4). Alterations to the existing means of egress are required to comply with the code for new construction (MEBC 801.4).

4.8.1 Occupant Load

The number of occupants is computed at the rate of one occupant per unit of area as prescribed in Table 8 (780 CMR 1004.5). The occupant load is permitted to be increased from the calculated occupant load established for the given use where all other requirements of 780 CMR are met (780 CMR 1004.5.1).

TABLE 10: OCCUPANT LOAD FACTORS

Function of Space	Occupant Load Factor (occ/ft²)
Assembly (Tables & Chairs)	15 net
Classrooms	20 net
Business	100 gross
Support/MEP	300 gross

Refer to the Temporary Code Approach Plans (Sheet E.G0.04) for detailed occupant load calculations.

4.8.2 Egress Width Factors

The required egress capacity for the means of egress components serving each building is based on the following capacity factors (780 CMR 1005.3.1 & 1005.3.2).

TABLE 11: EGRESS WIDTH FACTORS

Stairways (inches of width per person)	All Other Components (inches of width per person)
0.3	0.2

1. The factors for buildings provided with sprinkler coverage throughout and equipped with an emergency/ voice alarm communication system are 0.2" per person for stairways and 0.15"per person for all other components.

Refer to the Temporary Code Approach Plans (Sheet E.G0.04) for detailed egress capacity calculations.

4.8.3 Number of Exits

The number of exits required from every story is not permitted to be less than that specified in Table 12 (780 CMR 1006.3.3).

TABLE 12: MINIMUM NUMBER OF EXITS REQUIRED

Occupant Load	Number of Exits Required
1 – 500	2
501 – 1,000	3
> 1,000	4

The modular classroom building is provided with two exits. Three exits to the exterior are serve the 1971 Building.

4.8.4 Number of Exits from Spaces

Two exits or exit access doorways are required to be provided from any space where the occupant load or common path of travel listed in the following table are exceeded (780 CMR 1006.2.1):

TABLE 13: SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

Occupancy	Maximum Occupant Load	Maximum Common Path of Travel Distance
E	49	75 feet

In buildings protected throughout with an automatic sprinkler system, where two exits or exit access doorways are required from any portion of the exit access, the exit doors or exit access doorways are required to be placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the building or area served (780 CMR 1007.1.1 Exception 2). Where a sprinkler system is not provided, the means of egress are required to be separated by a distance not less than one-half of the length of the maximum overall diagonal dimension of the space served (780 CMR 1007.1.1).

4.8.5 Accessible Means of Egress

Accessible means of egress are not required in existing buildings (780 CMR 1009.1(1)).

The Modular classroom building is required to be provided with accessible means of egress in accordance with 780 CMR 1009. Where more than one means of egress is required from any accessible space, the space is required to be serviced by not less than two accessible means of egress (780 CMR 1009.1). The accessible means of egress is required to be continuous to a public way (780 CMR 1009.2).

4.8.6 Exit Access Travel Distances

Exit access travel distances are not permitted to exceed the maximum values specified in the following table (780 CMR 1017.2).

TABLE 14: EXIT ACCESS TRAVEL DISTANCES

Occupancy	Maximum Exit Access Travel Distance
Group E (Nonsprinklered)	200 feet
Group E (Sprinklered)	250 feet

4.8.7 Corridors

The widths of corridors are required to be sized in accordance with the table below, but not less than that required for the occupant load served based on the egress factors listed in Section 4.8.2 of this Report (780 CMR 1020.3).

TABLE 15: CORRIDOR WIDTHS

Occupancy	Minimum Width
Access to and utilization of MEP equipment	24 inches
With a required occupancy capacity < 50 people	36 inches
Serving Group E Occupancies > 99 people	72 inches
Any areas not listed above	44 inches

Dead end corridors in the 1971 Building are not permitted to exceed 35 feet in length (MEBC 804.7). Dead end corridors with the Modular classroom building are permitted to be up to 50 feet in length (780 CMR 1020.5).

4.8.8 Doors

New doors are required to comply with 780 CMR Section 1010. Major requirements include:

- Width**:** Doors are required to be a minimum of 32 inches in clear width (780 CMR 1010.1.1).
- Landings: Level landings are required to be provided on each side of the door (780 CMR 1010.1.4 & 1010.1.5).
- Door Swing: Egress doors are required to be of the pivoted or side-swinging type and are required to swing in the direction of egress travel where serving an occupant load of 50 or more persons (780 CMR 1010.1).
- Doors in Series: The space between two doors in series is required to be a minimum of 48 inches plus the width of the door swinging into the space. Doors in series are required to swing either in the same direction or away from the space between the doors (780 CMR 1010.1.7).
- Panic Hardware: Doors serving Group A spaces with an occupant load of 50 or more are required to be provided with panic hardware (780 CMR 1010.2.9).

4.8.9 Stairways

The proposed project includes the construction of exterior stairways as part of the means of egress from the building. Stairways are required to be constructed in accordance with 780 CMR Section 1011. Major requirements include:

- Sufficient width to accommodate the calculated occupant load, but not less than 44" (780 CMR 1011.2)
- Minimum headroom of 80" (780 CMR, 1011.3)
- Maximum 7" riser height (780 CMR 1011.5.2)
- Minimum 11" riser depth (780 CMR 1011.5.2)
- Compliant landings at the top and bottom of runs (780 CMR 1011.6)
- Maximum 12-foot vertical rise between landings (780 CMR 1011.8)
- Handrails within 30" of required egress width (780 CMR 1011.11 & 1014.6)

4.8.10 Exit Signage

Exit and exit access doors are required to be marked by an approved exit sign readily visible from any direction of egress travel (780 CMR 1013.1). The path of egress travel to exits and within exits is required to be marked by readily visible exit signs to clearly indicate the direction of egress travel where the exit or path of travel is not immediately visible. Exit

signs within corridors are required to be placed such that no point is more than 100 feet or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign. Exit signs are not required in the following locations:

- In rooms or areas that require only one exit or exit access.
- Main exterior exit doors that are obviously and clearly identifiable as exits where approved by the building official.

Exit signs at exterior exit discharge doors are required to include the International Symbol of Accessibility if such exits serve as an accessible means of egress (521 CMR 41.1.3).

4.8.11 Egress Illumination

The means of egress, including the exit discharge, are required to be illuminated at all times the building served by the means of egress is occupied (780 CMR 1008.2). The illumination level is not permitted to be less than 1 footcandle (11 lux) at the walking surface (780 CMR 1008.2.1).

In the event of power supply failure, an emergency electrical system is required to automatically illuminate all of the following areas (780 CMR 1008.3):

- Corridors
- Exterior landings at exit discharge doors
- Electrical equipment rooms
- Public restrooms with an area greater than 300 sf.

The emergency power system is required to provide power for a duration of not less than 90 minutes and is required to consist of storage batteries, unit equipment, or an on-site generator (780 CMR 1008.3.4). The initial illumination is required to be an average of 1 foot-candle and a minimum at any point of 0.1 foot-candle measured along the path of egress at the floor level. Illumination levels are permitted to decline to 0.6 foot-candle average and a minimum of 0.06 foot-candle at the end of the emergency lighting time duration (780 CMR 1008.3.5).

4.9 Accessibility

4.9.1 521 CMR Application

The requirements of 521 CMR are limited to buildings or portions thereof that are open to the public. Employee-only spaces are exempt from these requirements.

521 CMR Section 3.3 contains the following scoping requirements for projects in existing buildings. The costs referred to in the scoping requirements below are cumulative for **all projects to the building within a rolling 36-month period**:

- If the work is less than $100,000, then only the work being performed is required to comply with 521 CMR.
- If the work costs more than $100,000 but is less than 30%of the full and fair cash value of the building then in addition to the working being performed, the following accessible features are also required to be provided in the building:
    - Accessible entrance

  - Accessible toilet room
  - Accessible drinking fountain
  - Accessible public telephone (if provided)
- Note that if all work occurring the building is limited solely to mechanical, electrical, plumbing, or fire protection systems, and the abatement of hazardous materials, then the $100,000 threshold is increased to $500,000 (521 CMR 3.3.1b, Exception b).
- If the work costs more than 30% of the full and fair cash value of the building, then all public portions of the building are subject to the requirements of 521 CMR.

Based on the City of Quincy's assessment database, the existing building has an assessed building value of $7,387,500. The Massachusetts Department of Revenue has assigned Quincy a 2024 assessment ratio of 0.95. Where only a portion of a building is subject to 521 CMR, the full and fair cash value is required to be prorated by the ration of the square footage of that portion to the square footage of the whole building (521 CMR 3.7). The area of the 1971 portion of the existing building is 19,692 sf and the aggregate are of the existing building is 45,000 sf. The prorated assessed value of the 1971 portion of the building based on square footage is $4,901,513. Therefore, 30% of the full and fair cash value of the 1971 building is $5,159,488/ 0.95 x 30% = $ 1,547,846. The cost of work throughout the 1971 building does not exceed this value. Therefore, compliance with 521 CMR is not required throughout the existing building.

The 1971 Building is proposed to be provided with a new accessible entrance. An accessible route is provided to the new accessible restrooms within the Modular classroom building. Accessible drinking fountains are also proposed to be provided.

The proposed new Modular classroom building is required to comply with 521 CMR throughout (521 CMR 3.2).

4.9.2 ADA Application

Although not enforced by any authority having jurisdiction on the project, the requirements of the 2010 Americans with Disabilities Act Accessibility Guidelines (ADA) are applicable and enforced through civil litigation only.

ADA requires that altered portions of an existing building be readily accessible to and usable by individuals with disabilities to the maximum extent feasible (ADAAG 36.402(a)(1)).

Alterations to primary function areas should be made such that the level of accessibility, including the path of travel to the space, is made accessible to the maximum extent feasible. When determining if the upgrade is feasible, the ADA requirements state that the upgrade to the path of travel is disproportionate to the project when the cost to perform the work exceeds 20% of the cost of the alteration to the primary function area (ADA 35.151(a)(4)). Primary function areas are not limited to public uses areas and may include lobbies, offices, meeting rooms, etc. In choosing which accessible elements to provide if the cost is disproportionate, priority should be given to those elements that will provide the greatest access, in the following order:

- An accessible entrance
- An accessible route to the altered area

- At least one accessible restroom for each sex or a single unisex restroom
- Accessible drinking fountains
- Accessible telephones

4.10 Plumbing Fixtures

248 CMR 10.00, *Uniform State Plumbing Code*, regulates the minimum number of plumbing fixtures. The requirements set forth in 248 CMR 10.10(15) Table 1 apply to plumbing system installation, alteration, or extension projects where a plumbing permit is required. The minimum number of plumbing fixtures are based upon the use and occupancy classification of the building or space and the population as established by the authority having jurisdiction. The following factors are applicable for the building:

TABLE 16: PLUMBING FIXTURE FACTORS – EDUCATIONAL FACILITY

Use Group	Toilets		Urinals	Lavatories	Drinking Fountains	Service Sink
	F	M		Per Sex		
Staff	1 per 20	1 per 25	33% substitution	1 per 20	N/A	1 per floor
Student (K-12)	< 100: 1 per 25 > 100: 1 per 50	< 100: 1 per 25 > 100: 1 per 50	50% Substitution	1 per 50	1 per restroom set	1 per floor

The existing plumbing counts within the 1971 Building and the plumbing counts within the new Modular classroom building are required to be evaluated as part of the project.

4.10.1 Plumbing Fixture Analysis

The 1971 Building is currently provided with the following fixtures:

Boys:	**Girls:**	**Staff:**
Water Closet: 2	Water Closet: 5	Water Closet: 2
Lavatory: 2	Lavatory: 4	Lavatory: 2
Urinal: 3		

The existing fixtures provided in the 1971 Building support 200 students, and 20 staff. Additional fixtures are proposed to be provided within the Modular classroom building to support the student program load within the space.

Sustainability Requirements

The Squantum School project represents a forward-thinking approach to sustainable building design, showcasing modern strategies to achieve a Net Zero Energy (NZE) standard, with a focus on Passive House Certification. Here are the key highlights:

Net Zero Energy Goals

- The school adheres to a City Council directive from March 2022 for an all-electric NZE build, relying on the Specialized Net Zero Energy Code.
- Passive House benchmarks will ensure energy efficiency in terms of heating, cooling, energy source, and airtightness.

Passive House Co-Requisites

The design includes advanced features to meet certification:

- Glazing comfort and condensation risk mitigation
- Thermal bridge-free construction
- Radon mitigation
- EV charging readiness
- Indoor air quality
- Solar ready roof
- Energy Star appliances.
- The City will utilize a Power Purchase Agreement (PPA) to install solar PV panels on the roof, providing renewable energy to offset the school's annual consumption.

HVAC and Energy Systems

- The planned HVAC system, developed in collaboration with stakeholders like David Scott (City Mechanical Engineer), utilizes a Geothermal System with an EUI < 25.
- Geothermal Design:
- HVAC system designed to reduce operational complexity and allows off-season maintenance of heating and cooling systems.

Building Envelope

- High-performance design to lower mechanical loads:
  - » Triple-glazed windows with low U-values.
  - » Thermally broken aluminum windows are preferred; fiberglass alternatives evaluated based on U-value requirements.
  - » Opaque assembly targets for R-values (thermal performance) aim to minimize thermal bridging effects.

Financial and Life-cycle Considerations

- Life-cycle Cost Analysis (LCCA) submitted with the schematic design accounts for:
  - » Solar savings and revenue.
  - » GSHP system performance.
  - » Cash flow analysis relative to project financing.

This holistic approach ensures the Squantum School meets stringent energy efficiency and sustainability goals.

Material Selection and Environmental Impact

The Squantum School's focus on sustainability extends beyond energy efficiency to encompass the careful selection of materials and strategies that promote a healthy and environmentally friendly building. Here are the key aspects:

- Linoleum Flooring Over Vinyl:
  - » Vinyl Avoidance: Selected to eliminate the negative environmental and health impacts of vinyl, such as:
  - » Toxic manufacturing processes.
  - » Pollution during disposal.
  - » Health risks from endocrine disruptors, asthma-gens, and carcinogens.
  - » Linoleum provides a durable, low-impact alternative that aligns with sustainability goals.

- Material Vetting Process:
  - » All materials undergo review through a dedicated database to ensure compliance with material health standards.
  - » Materials are evaluated for health hazards using Health Product Declarations (HPDs) or similar reporting systems.
  - » Volatile Organic Compound (VOC) Reporting ensures materials do not off-gas and compromise indoor air quality.
- Natural Daylighting Integration:
  - » The building layout includes a courtyard that introduces natural light into central areas, enhancing the extent of the usable perimeter for daylighting.
  - » This improves indoor visibility, reduces reliance on artificial lighting, and promotes occupant well-being.
- Displacement Ventilation System:
  - » Offers superior indoor air quality (IAQ), quieter operation, and enhanced thermal comfort compared to traditional overhead mixing systems.

Site Vulnerability Assessment

The Project Team has assessed the climate risks for the site using the Resilient Massachusetts Action Team (RMAT) Climate Resilience Design Standards Tool. The analysis found that the site is not at risk from coastal flooding, sea level rise, storm surge, or riverine flooding. However, the site does face risks related to high winds, extreme precipitation, urban flash flooding, and high heat.

Regarding urban flooding from extreme precipitation, the tool identified this as a relevant risk due to historical flooding near the site, increased impervious surfaces (currently between 10% and 50%), and projected maximum daily rainfall exceeding 10 inches over the 50-year project lifespan. The RMAT tool recommends designing for a 50-year storm event with a 2070 planning horizon, suggesting a 24-hour total precipitation depth of 9.7 inches. In comparison, the current design mitigates a 100-year storm event with a planning horizon based on current conditions, with a precipitation depth of 8.8 inches.

The RMAT's guidance is general and should not be used as final design requirements without further engineering analysis. However, the project's design will improve peak runoff rates substantially compared to pre-construction conditions, particularly within the site's catchment area.

To address urban flooding risks, the City has completed significant stormwater infrastructure upgrades this past summer, including the installation of an 18-inch stormwater pipe along Winslow Road to an outfall in Dorchester Bay. This new infrastructure is mitigating local flooding, with a larger catchment area that goes beyond the project's footprint. Additionally, the project includes the installation of multiple exterior trench drains, graded slopes away from entrance doors, and redundancy measures inside with multiple basement drains. If future stormwater capacity is needed, the school property could incorporate on-grade bioswales or rain gardens, or additional subsurface systems could be added uphill from the school's most vulnerable areas.

These measures collectively aim to reduce the potential impacts of urban flooding, offering both immediate and future resilience to extreme precipitation events.

Extreme heat has been identified as a relevant risk for the project site, primarily due to projected increases in the number of days above 90°F (over 30 additional days within the project’s lifespan), the low existing tree canopy (less than 10%), tree removal for construction, and increased impervious surface area. The site’s location, more than 100 feet from a body of water, further intensifies the heat vulnerability. Recognizing these factors, the City has designated the site as a resiliency hub to serve nearby Environmental Justice populations, including its role as a local cooling center.

Climate Data and Standards:

- RMAT Tool Recommendations: The tool suggests using the 90th percentile climate data on a 2070 planning horizon for design considerations. However, it acknowledges that its guidance is intended for planning discussions and does not replace detailed engineering analyses, regulatory requirements, or cost-benefit studies.
- Current Code Compliance: Mechanical systems are currently designed to meet present-day weather data, with the assumption that 0.4% of annual hours will exceed 91°F/74°F WB (wet bulb temperature).
- Future Projections:
  - » By 2030: A 3.6°F increase in average temperature and 10 additional days over 90°F.
  - » By 2050: A 5.4°F increase in average temperature and 17 additional days over 90°F.
  - » Note: While the metric of days over 90°F is used, it does not account for partial-day exceedances or hours exceeding this threshold, which may impact actual cooling system efficiency.

Mechanical System Considerations:

- The planned equipment is designed to handle current climate conditions.
- Equipment has an expected lifespan of 25–30 years, coinciding with the period between the 2030 and 2050 projected climate changes. By the time replacement is needed, updated codes (e.g., ASHRAE standards) will reflect current climate conditions, enabling selection of higher-efficiency equipment suited for future weather extremes.
- Future accessibility for equipment removal and replacement has been accommodated with double doors at necessary locations.

Heat Mitigation Strategies:

To address the urban heat island effect and reduce site vulnerability:

- High Albedo Roofing: Reflective materials will reduce heat absorption on the building.
- Vegetation and Landscaping: Incorporation of vegetation to offset tree removal and enhance cooling.
- Cool Hardscape Materials: Use of light-colored, heat-reflective materials in paved areas.

These measures, combined with periodic equipment updates in response to evolving climate conditions, aim to mitigate extreme heat risks while maintaining the site's critical role as a resiliency hub for the surrounding community.

The district has chosen to pursue the LEED BD+C Schools rating system for this project, aligning with the City of Quincy's status as a Stretch Code community and its commitment to energy efficiency and sustainability.

Compliance with the 2023 Green Schools Policy:

The updated 2023 Green Schools Policy offers incentives for districts to enhance the energy efficiency and sustainability of new construction and major renovation projects. This project aims to maximize these incentives by pursuing the following:

1. 3% Reimbursement for Energy Efficiency:
   - The project will meet the minimum energy efficiency requirements of the Massachusetts Department of Energy Resources' (DOER) "Opt-in Specialized" energy code, which sets high standards for energy performance and sustainability.
2. 1% Reimbursement for Indoor Air Quality:
   - The project is targeting at least:
     - » 5 of 7 points in the LEED Indoor Air Quality category, or
     - » 8 of 10 points in the NE-CHPS Indoor Air Quality category.

By achieving these goals, the project aims to qualify for an additional 4% reimbursement while delivering

a high-performing, sustainable, and healthy educational environment.

Incorporating LEED BD+C Schools and the Specialized Energy Code aligns with the district's and City of Quincy's broader commitment to sustainable development, energy efficiency, and environmental stewardship, ensuring a state-of-the-art facility that serves both current and future generations effectively.

The Squantum School project is registered with Passive House Institute U.S. to facilitate project questions and review. The first round of PHIUS staff review for the project was completed in October upon completion of 60% Design Development WUFI model. The Project Team is working towards updates for the next 100% Design Development WUFI model.

LEED Registration Confirmation & Scorecard

The current applicable LEED rating system is LEED v4 Building Design and Construction: Schools. Points from LEED v4.1 will be substituted as relevant to the project. For a LEED BD+C Schools Silver design, a project must satisfy all prerequisites and earn a minimum of 50 points of 110 points. The LEED Schools rating system is appropriate for buildings made up of core and ancillary learning spaces on K-12 school grounds.

Optimize Energy Performance

The Massachusetts Department of Energy Resources (DOER) approved an update to the Stretch Energy Code which took affect July 1, 2023. This updated code included new thresholds. As Quincy is a Stretch Code Community, the project will meet the new updated Stretch Energy code as a required baseline. In addition, the project will comply with the Massachusetts Opt-in Specialized Code through the All-electric Path for an additional 3% reimbursement. In March 2022 the Quincy City Council issued a resolution that the project should consider a Net Zero build out. The preferred option is anticipated to be designed as a net zero design. Refer to the Energy Code Summary sheets in the Schematic Design Drawing Set for more information on energy code compliance paths and designed R values.

Energy Code Compliance Update – Passive House Pathway

As part of the Massachusetts Energy Code, the project is required to follow either the Passive House or TEDI (Thermal Energy Demand Intensity) modeling pathway. The team has chosen the Passive House pathway and recently completed the first of two Design Development (DD) WUFI models. A final update to the WUFI model is planned at 100% DD.

Initial Passive House WUFI Model Findings:

The results indicate that additional insulation is necessary to meet Passive House requirements. The design team is currently evaluating the following adjustments:

- Wall Insulation: Increase by 2" at locations currently planned for 4” (this excludes the gymnasium walls)
- Under Slab Insulation: increase from 3” to 4” below the slab
- Roof Insulation: Increase cellulose spray insulation from 7.5" to 10" at sloped roof areas
- Windows: Use fiberglass windows in lieu of aluminum windows

Impact on Gross Square Footage (GSF):

The additional 2” of wall insulation results in a GSF increase of approximately 257 square feet. Despite this increase, the project remains compliant, staying below the 1.5 allowed grossing factor. Refer to the Space Summary in Section 6A.3.2 for details.

Drawing Sheet G1.00 Program Plans reflects the increase GSF. Drawings and specifications for the 60% CD submission will reflect this increase.

For WUFI Model Summary, refer to Appendix "B. Passive House Initial WUFI Model Summary" on page 413.

RECEIPT

Invoice # : 91822563
Order # : 13160401
Invoice Date : Dec 10, 2024

Green Business Certification Inc.
2101 L Street NW,
Washington, D.C. 20037
1-800-795-1746
202-828-1145
www.gbci.org/contact

Paid By:
Katherin Bubriski
10 Post Office Square
BOSTON
MA 02109 US
bubriski@arrowstreet.com

Paid To:
Green Business Certification Inc.
PO Box 822964
Philadelphia, PA 19182-2964

Payment Method	Payment Date
Credit Card: XXXX XXXX XXXX1372	Dec 10, 2024

Project ID: 1000211684
Project Name: Squantum School
USGBC Member Company : Arrowstreet

Item Description	Quantity	List Price/Unit	Promo Code Discount	Amount
LEED for Schools Registration	1	$ 1,350.00	($ 0.00)	$ 1,350.00
			Shipping/Handling	$ 0.00
			Sales Tax	
			Total Paid	**$ 1,350.00**

Thank you for your payment.
Please keep this receipt for your records.

LEED v4/4.1 for BD+C: Schools

Project Checklist

all credits will follow v4.1 criteria unless otherwise noted

Project Name: Squantum School
Date: 12/20/2024
Prepared By: Arrowstreet

Y	?	N			
1			Credit 1	Integrative Process	1

7		8	Location and Transportation		15
		NA	Credit 1	LEED for Neighborhood Development Location	15
1			Credit 2	Sensitive Land Protection	1
		2	Credit 3	High Priority Site	2
2		3	Credit 4	Surrounding Density and Diverse Uses	5
2		2	Credit 5	Access to Quality Transit	4
		1	Credit 6	Bicycle Facilities	1
1			Credit 7	Reduced Parking Footprint	1
1			Credit 8	Electric Vehicles	1

5	3	4	Sustainable Sites		12
Y			Prereq 1	Construction Activity Pollution Prevention	Required
Y			Prereq 2	Environmental Site Assessment	Required
1			Credit 1	Site Assessment	1
		2	Credit 2	Protect or Restore Habitat	2
		1	Credit 3	Open Space	1
3			Credit 4	Rainwater Management	3
	2		Credit 5	Heat Island Reduction	2
	1		Credit 6	Light Pollution Reduction	1
		1	Credit 7	Site Master Plan	1
1			Credit 8	Joint Use of Facilities	1

8	1	3	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
1	1		Credit 1	Outdoor Water Use Reduction	2
4		3	Credit 2	Indoor Water Use Reduction	7
2			Credit 3	Cooling Tower Water Use	2
1			Credit 4	Water Metering	1

20	9	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			Credit 1	Enhanced Commissioning	6
12	4		Credit 2	v4 Optimize Energy Performance	16
1			Credit 3	Advanced Energy Metering	1
1	1		Credit 4	Grid Harmonization	2
	3	2	Credit 5	Renewable Energy	5
	1		Credit 6	Enhanced Refrigerant Management	1

7	1	5	Materials and Resources		13
Y			Prereq 1	Storage and Collection of Recyclables	Required
Y			Prereq 2	Construction and Demolition Waste Management Planning	Required
1	1	3	Credit 1	Building Life-Cycle Impact Reduction	5
1		1	Credit 2	Building Product Disclosure and Optimization - Environmental Product Declarations	2
1		1	Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
2			Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit 5	Construction and Demolition Waste Management	2

10	3	3	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
2			Credit 1	Enhanced Indoor Air Quality Strategies	2
2	1		Credit 2	Low-Emitting Materials	3
1			Credit 3	Construction Indoor Air Quality Management Plan	1
2			Credit 4	Indoor Air Quality Assessment	2
		1	Credit 5	Thermal Comfort	1
1		1	Credit 6	Interior Lighting	2
1	1	1	Credit 7	Daylight	3
	1		Credit 8	Quality Views	1
1			Credit 9	Acoustic Performance	1

6			Innovation		6
1			Credit 1.1	Exemplary Performance: EPDs	1
1			Credit 1.2	Pilot Credit: Assessment and Planning for Resilience (IPpc98)	1
1			Credit 1.3	Innovation: Design for Active Occupants	1
1			Credit 1.4	Exemplary Performance: HPDs	1
1			Credit 1.5	Innovation: Green Building Education	1
1			Credit 2	LEED Accredited Professional	1

3	1		Regional Priority		4
1			Credit 1	Regional Priority: Optimize Energy Performance 8pts	1
1			Credit 2	Regional Priority: Rainwater Management 2pts	1
1			Credit 3	Regional Priority: Intdoor Water Use Reduction 4pts	1
	1		Credit 4	Regional Priority: Building Life-cycle Impact Reduction 2 pts	1

67	18	25	TOTALS	Possible Points:	110

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

Proprietary Items

The following proprietary items are under consideration and have been discussed with the Working Group and with the City of Quincy Pubic Buildings Commissioner and Director of Facilities:

- Fire Alarm – Notifier Addressable Fire Alarm System
- Door Hardware - Cylinder: SARGENT Degree Series Door Cylinders
- Interactive Short Throw Projectors - Epson Power Lite Ultra Short-Throw Laser Projector
- Access Control - Brivo Access Control System
- Wireless Access Points - Sonicwall Wireless Access Points
- Video Surveillance - Genetec Video Surveillance
- Network Switches - Cisco Network Switches

- Vertical Folding Partition - Skyfold Zenith by Dormakaba
- Exterior Terracotta Shingle Siding - NeXclad Terracotta Shingle Siding by Ludowici

In accordance with the requirements of MSBA Module 6 – Detailed Design, a final list identifying all proposed proprietary items with an affidavit which shall indicate that an elected body of the district (school committee, city or town council, or selectmen, but not ad-hoc building committee) has been presented with proposals for proprietary requirements approval action, has had an opportunity to investigate, or to require staff or consultant investigation upon each item so proposed, and has majority voted in an open public session that it is in the public interest to do so along with a certified copy of the elected body vote will be provided to MSBA no later than the 90% Construction Document submittal.

December 19, 2024

Kathryn Logan, Purchasing Agent
City of Quincy
1305 Hancock Street
Quincy, MA 02169

Re: Squantum School, Proprietary Specifications

Dear Kathryn,

The MSBA requires that the Squantum School project provide a list of proprietary items in accordance with M.G.L. c.30, §39M, to be included in the project specifications. To comply, the district's elected body must vote in an open session to approve the use of proprietary items. In 2017, when working on the South~West Middle School project, Solicitor Timmins clarified that under the City of Quincy's charter (modified Plan A form of Government), the Mayor and their designees (Department Heads) constitute the elected body. At that time the School Building Committee voted on the use of proprietary specifications and submitted the justification for their use to your office. This letter summarizes the presentation made to the Squantum School Building Committee on June 21, 2024, a copy of the certified meeting notes are attached which affirm the Building Committees vote.

Proprietary Products Squantum School
M.G.L. c.30, §39M(b) requires that proprietary specifications for public construction projects, including buildings, shall only be used "... for sound reasons in the public interest stated in writing in the public records of the awarding authority...such writing to be prepared after reasonable investigation." A governmental body must document the reasons and provide them in writing to anyone making a written request for the information.

The governmental body therefore has the responsibility for ensuring that a reasonable investigation is conducted before proprietary specifications can be used in an invitation for bids (IFB) for a public construction project.

Proprietary specifications, while permitted by Massachusetts construction law, may be used only after careful consideration and proper documentation that the use is justified by sound reasons in the public interest.

There are cases where, after a reasonable investigation, a governmental body concludes that only one acceptable brand of product exists, or that technology has advanced so rapidly that fewer than three brands or manufacturers of a particular material are available in the commercial marketplace.

The new Squantum School will be the fifth new school construction project in Quincy in the last twelve years. Quincy desire is to ensure seamless integration and communication among all public buildings, including school buildings citywide. The Design Team has worked closely with City department heads to identify the products, technology, devices, and systems necessary to achieve this goal. After thorough

consideration and investigation, the seven products and systems listed below have been identified as proprietary specifications for the new Squantum School project for the reasons outlined herein.

Fire Alarm – Notifier Addressable Fire Alarm System
The City of Quincy currently has a uniform standard across all of their properties for fire alarm systems that are provided by Notifier. The fire department has selected this system to ensure continuity of existing and future performance and maintenance standards. The City has spent numerous hours training support personnel and staff on equipment operation and maintenance requirements. The fire alarm Maintenance Department maintains a current stock of repair parts for these systems to ensure continuous uninterrupted operation of the systems. The brand Notifier is widely distributed and can be provided by many local vendors. The City selected this system after reviewing many other brands, Notifier is a system that is a non-proprietary open protocol programming so that many vendors are able to service the equipment. It is the City's belief, for the reasons outlined above, it is in the City of Quincy's best interest to require Notifier fire alarm system equipment be written as a proprietary specification.

Door Hardware - Cylinder: SARGENT Degree Series Door Cylinders
SARGENT Manufacturing Company door hardware for cylinders will be bid as a proprietary specification for the following reasons:

The City of Quincy has determined that certain products should be selected for their unique characteristics and particular project suitability to insure continuity of existing and future performance and maintenance standards. Sargent Degree Series door cylinders have been established as a standard throughout the Quincy Public Schools system, and the City of Quincy school facilities department is familiar with their operation and repair. The School District Maintenance Department maintains a current stock of repair parts for these door cylinders. After investigating other door hardware cylinders by different manufacturers, the City of Quincy has elected to accept SARGENT Degree Series door cylinders as proprietary specifications for the Squantum School project. It is the School Building Committee's belief, for the reasons outlined above, that it is in the City of Quincy's best interest to require the door hardware cylinder devices be written as a proprietary specification.

Interactive Short Throw Projectors - Epson Power Lite Ultra Short-Throw Laser Projector
The school department has selected a single manufacturer and model for all schools within the City of Quincy. The Epson was selected as the standard model after several demonstrations by different manufacturers. The standardization of the interactive projectors provides a uniform aesthetic and interactivity solution throughout the city. The City has spent numerous hours training support personnel and staff on equipment operation and maintenance requirements of the Epson interactive projectors. Learning aids, educational resources and spare parts are currently implemented throughout the school district to support the Epson platform.

Wireless Access Points - Sonicwall Wireless Access Points
Multiple public buildings within the City of Quincy are currently using Sonicwall wireless access points. These devices control all wireless network communications and must integrate with all other networking components.

The City of Quincy and the Quincy Public School Department has selected the Sonicwall brand of wireless technology as the wireless solution for wireless networks deployed within the school district. By doing this, the City and the School Department are able to train the staff on a single vendor's platform and able to stock the minimum amount of spare parts required to keep disruption to a minimum.

After careful consideration of other manufacturers wireless access points and the compatibility of integration with existing network components, the City has selected Sonicwall as the wireless vendor of choice for its ease of management, single focus on wireless solutions, longevity in the wireless industry, its use in educational settings and its price point compared to the competition.

It is the City's belief, for the reasons outlined above, it is in the City of Quincy's best interest to require the Sonicwall wireless access points be written as a proprietary specification.

Network Switches - Cisco Network Switches
The City of Quincy has standardized the entire school district with Cisco network switches for the following reasons:

The City of Quincy selected Cisco as the Switching solution for new switches deployed within the school district. By doing this, the City and the School Department are able to train their staff on a single vendor's platform and able to stock the minimum amount of spare parts to keep disruption to a minimum. Cisco also provides a lifetime warranty on all Cisco network equipment, which protects the City's investment.

It is the City of Quincy's belief, for the reasons outlined above, it is in the City of Quincy's best interest to require the network switching and routers be written as a proprietary specification.

Vertical Folding Partition at Platform and Music Room - Skyfold Zenith by Dormakaba
The Skyfold Zenith vertical folding partition has been selected as the standard for the Platform and Music Room due to its exceptional acoustic performance, meeting the required minimum STC sound transmission rating. After thorough review, we have determined that no other equivalent products are available that meet the project's strict sound and space-saving requirements. The selection of Skyfold Zenith will ensure long-term performance and consistency with the project's overall design objectives.

Terracotta Shingle Siding - NeXclad by Ludowici
NeXclad terracotta siding by Ludowici has been chosen for its unique shingle-style design and superior durability. This product offers the aesthetic and functional qualities necessary to meet the project's design intent. Currently, there are no equivalent products available for U.S. distribution that match the performance and style of NeXclad. The inclusion of this product will provide a uniform and reliable solution for the terracotta siding needs of the project.

It is the City's belief, for the reasons outlined above, it is in the City of Quincy's best interest to require Brivo Access Control be written as a proprietary specification.

Sincerely,

Brian Laroche
Project Director

CC: Kevin Mulvey, Superintendent of Schools
Paul Hines, Commissioner of Public Buildings, City of Quincy
Larry Spang, Arrowstreet

Exterior & Interior Materials and Finishes

Exterior Materials

The design of the new Squantum School emphasizes blending seamlessly into its coastal neighborhood context while maintaining a residential scale and architectural language. The approach respects the existing 1919 building without replicating its original architecture or adopting an overly modern style.

MATERIALS
Materials that compliment existing masonry, traditional residential facade treatments, but in different applications (orientation, scale, color)

EXTERIOR DESIGN STUDIES

This guiding concept has remained consistent throughout the Feasibility Study and Schematic Design phases. Material selection played a crucial role in aligning the new structure with the contextual architecture. Durable and cost-effective masonry materials were chosen for their traditional civic character. At the same time, shingled surfaces were prioritized to reflect the residential and historical qualities integral to the neighborhood. To strike a balance between durability, low maintenance, and the desired aesthetic, the Design Team proposed using terracotta shingles. These shingles provide the texture and historical appearance of traditional materials while ensuring enhanced durability and minimal upkeep.

Metal panel accents were incorporated strategically to highlight key entrances. This modern element enhances visibility and creates a clear distinction for entry points without overpowering the overall design.

Preserving the most significant portion of the 1919 building facing Huckins Avenue was a key priority. Restoration efforts include replicating the original slate tile roof, which honors the building's historical character. The restoration of windows to match the original 1919 design, along with meticulous attention to the woodwork details at the roof overhangs, underscores the commitment to maintaining the building's heritage. Additionally, the City and Design Team prioritized restoring and replicating the Chef Squanto Medallion and other cast stone features at the original 1919 main entrance.

Through thoughtful material selection, careful restoration, and a balanced design approach, the new Squantum School achieves harmony between past and present, honoring its historical context while addressing contemporary needs.

View of Front Entrance and 1919 Building

View of East Entrance, Bus Drop Off and Parking Lot

View of the Corner of Huckins Avenue and Mayflower Road.

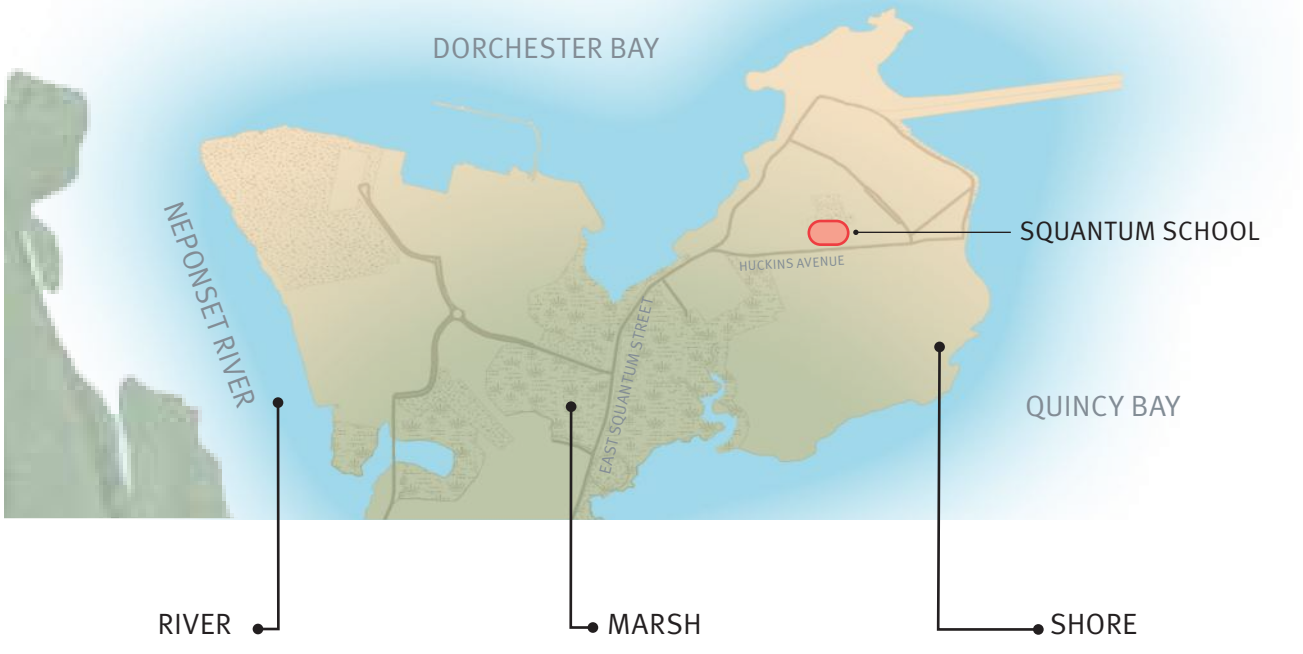
Interior Design Color Theory

The materials and textures selected for Squantum School celebrate the rich history and ecological diversity of the peninsula. River, Marsh and Shore create the ecosystems that provide a sense of place and belonging to students and teachers. These ecosystems also provide a deeper connection to learning outside the classroom. This exploration of the natural world will be reflected in the colors and textures of chosen materials throughout the school as indicated below.

The chosen accent colors are bright and intended to evoke those found in surrounding nature. Grade level colors will also create a sense of identity for the students as they mature and progress through Squantum School. There will be accent colors for each classroom that are represented in accent paint and accent flooring, as well as the finish of the window seat and built-in book shelves found in each room. These pops of color will be grounded in warm earthy wood tones as seen in typical casework and the typical flooring in both classroom and classroom corridors.

In specialty spaces, the textures of the natural world will be celebrated in addition to the rich color palette. These textures will be seen in the Main Street flooring, Media Center carpet and durable tile wainscot intended for corridors. The accent colors will correspond to the cool blues and greens seen in the waterways of Squantum. The textures of these materials will evoke the pebbles in the river, swaying marsh grasses and undulations of beach sand.

Specialty ceilings, either wood or wood look, will draw the eye to special and important areas of the design, such as the Media Center and Cafetorium. Lighting will be largely architectural, creating a feeling of natural brightness. The approach to lighting design will create a positive learning environment for students, especially those with extra sensory considerations.



Color Palette Introduction

The colors and textures of materials at Squantum School are inspired by the Neponset River, Squantum Marshes and Quincy Bay Shore. The vibrant palette of these natural habitats will assist in wayfinding and place-making throughout the school. The palette also creates a strong connection between the interior and exterior, further emphasized by the strong connection between indoor and outdoor spaces architecturally.

Classrooms and corridors will contain bright and cheerful colors selected to energize and inspire the students. The hue assigned to each grade level will be interspersed with contrasting colors to celebrate the diversity within the student population. Grade level colors will assist with wayfinding, creating a unique identity for each.

Typical materials are grounding in their neutrality and will be seen throughout classrooms and corridors as a unifying element. These warm tones evoke blonde wood and warm sand, celebrating the textures of the natural world.

Additionally each grade level will be assigned an animal to act as a mascot. The selected animal and textures of a given eco-system will be represented by graphics found in the classrooms as well as in the break-out spaces and adjacent corridors of each neighborhood.

KINDERGARTEN NEIGHBORHOOD River + Fish

FIRST GRADE NEIGHBORHOOD River + Amphibians

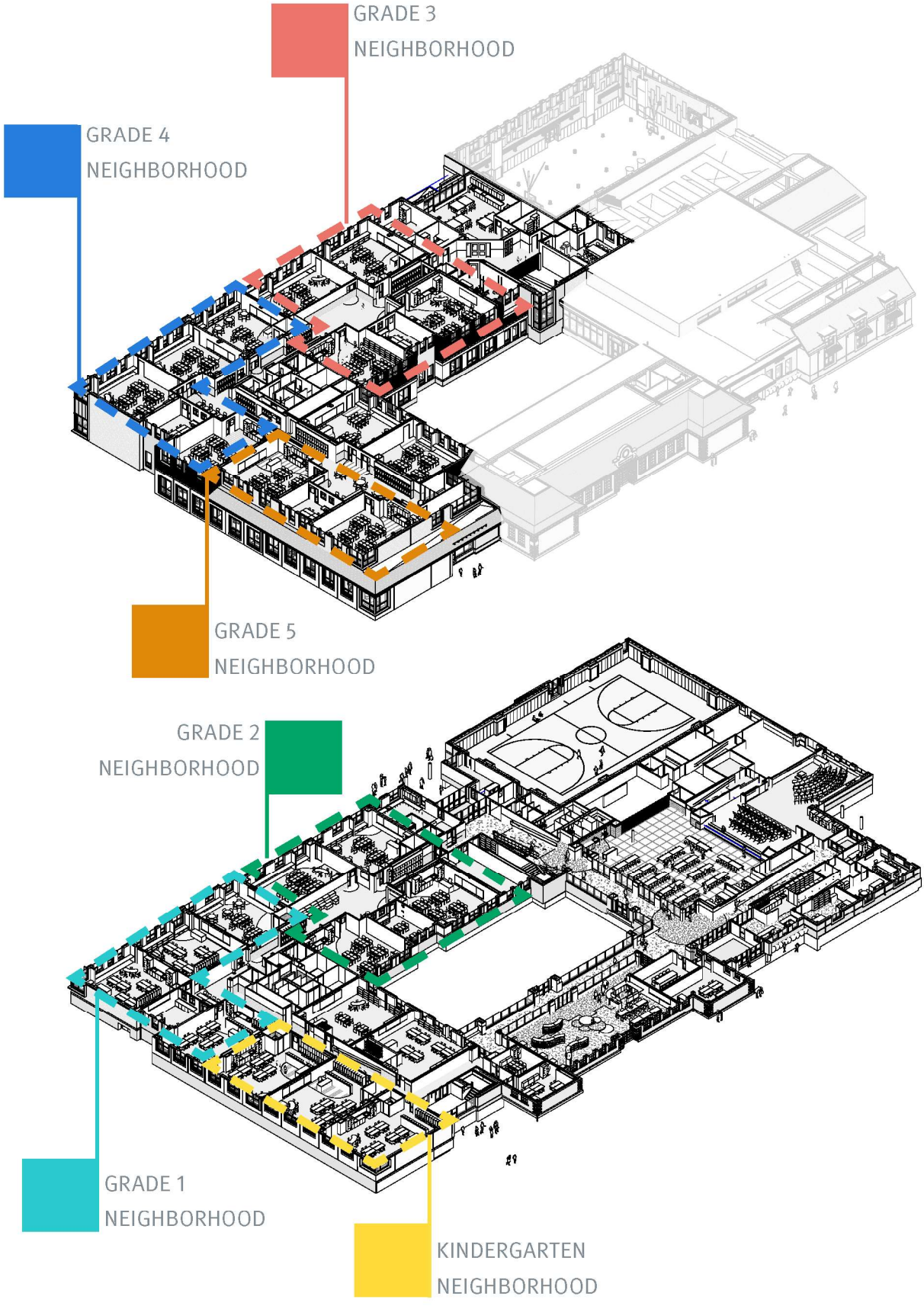
SECOND GRADE NEIGHBORHOOD Estuary + Birds

GRADE THREE NEIGHBORHOOD Estuary + Reptiles

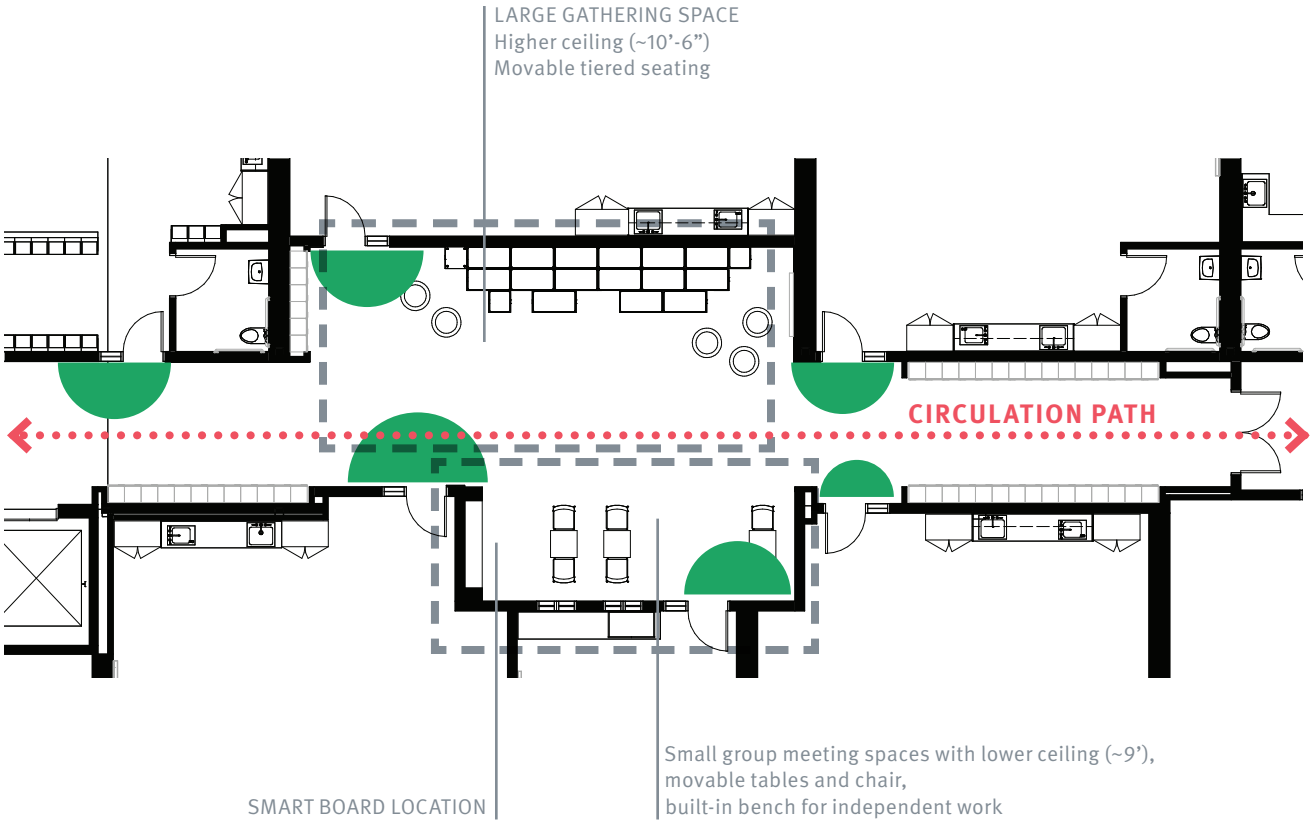
GRADE FOUR NEIGHBORHOOD Ocean Shore + Crustaceans

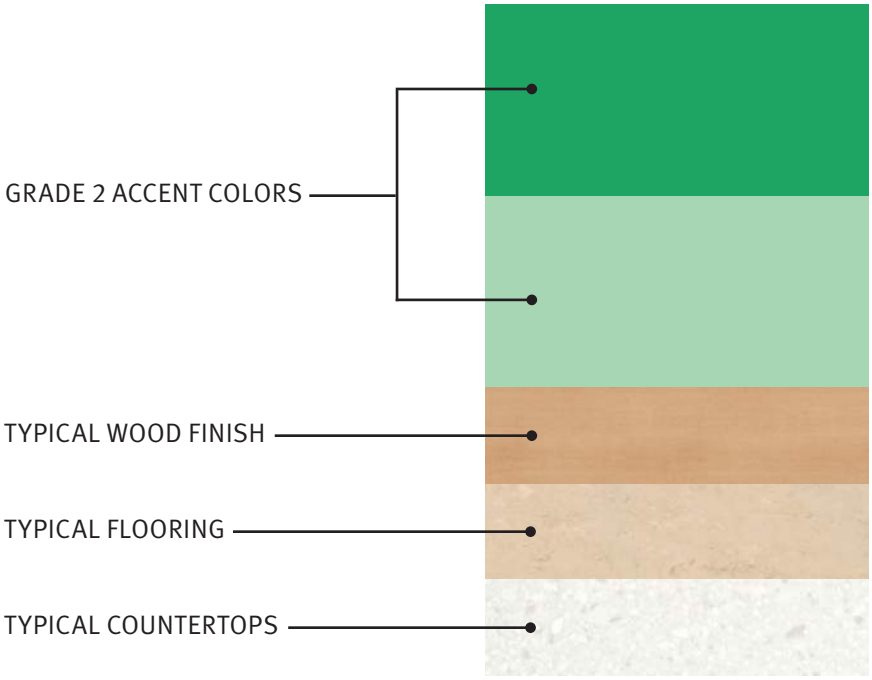
GRADE FIVE NEIGHBORHOOD Ocean Shore + Aquatic Mammals

Color Blocking Diagram



Grade 2 Case Study





Structural Calculations

Refer to the follow pages for Structural Calculations.

SQUANTUM SCHOOL
STRUCTURAL CALCULATIONS
MSBA 100% DD

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LIM CONSULTANTS, INC.
DECEMBER 12, 2024

Lim Consultants				
	Client:	MSBA	**Page #**	2/20
	Project:	Squantum School	**Job No.**	3038
	Subject:	Design Criteria	**Date**	11/22/2024
			Calc'd By	SS
			Chk'd By	CY

Location: Quincy, MA
Bld Use: Elementary School - Educational Group E
Risk Category: IV
Governing Building Code: 1. International Building Code - 2021
2. Massachusetts State Building Code 780 CMR 10th Edition

Design Factors:

P_g, (Ground Snow Load)	=	40 PSF
P_f', (Minimum Flat Roof Snow Load)	=	30 PSF
V (wind speed)	=	135 MPH
Ss (seismic , if applicable)	=	0.245 g
S1 (seismic , if applicable)	=	0.062 g

TABLE 1604.11
SNOW LOADS, WIND SPEEDS, AND SEISMIC PARAMETERS

	SNOW LOADS		BASIC WIND SPEED, V[4] (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELERATION
City/Town	Ground Snow Load, P_g (psf)/ Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Provincetown	25	25	118	127	135	140	0.181	0.053	
Quincy	40	30	111	121	130	135	0.245	0.062	
Randolph	35	30	112	122	130	135	0.233	0.061	

Importance Factor:

Table 1.5-2 Importance Factors by Risk Category of Buildings and Other Structures for Snow, Ice, and Earthquake Loads[a]

Risk Category from Table 1.5-1	Snow Importance Factor, I_s	Ice Importance Factor—Thickness, I_i	Ice Importance Factor—Wind, I_w	Seismic Importance Factor, I_e
I	0.80	0.80	1.00	1.00
II	1.00	1.00	1.00	1.00
III	1.10	1.25	1.00	1.25
IV	1.20	1.25	1.00	1.50

[a]The component importance factor, I_p, applicable to earthquake loads, is not included in this table because it is dependent on the importance of the individual component rather than that of the building as a whole, or its occupancy. Refer to Section 13.1.3.

Risk Cat:	Is	Ii	Iw	Ie
IV	1.2	1.25	1	1.5

Lim Consultants				
	Client:	MSBA	**Page #**	3/20
	Project:	Squantum School	**Job No.**	3038
	Subject:	Design Loads	**Date**	11/22/2024
			Calc'd By	SS
			Chk'd By	CY

Live Load:

Classrooms	=	40	psf
Corridor above first floor	=	80	psf
First Floor Corridors	=	100	psf
Partition wall load	=	15	psf

Snow Loads:

EXPOSURE FACTOR (C_e)	=	1
THERMAL FACTOR (C_t)	=	1
IMPORTANCE FACTOR (I_s)	=	1.2
FLAT ROOF (P_f = 0.7*Ce*Ct*Is*Pg)	=	33.6 PSF
DESIGN SNOW LOAD	=	33.6 PSF

Component And Cladding Wind Loads:

COMPONENTS AND CLADDING WIND LOAD (ULTIMATE LOADS; MULTIPLY BY .6 TO OBTAIN ASD LOADS)

RISK CATEGORY:	IV
BASIC WIND SPEED (MPH):	135
EXPOSURE:	C
HEIGHT (FT):	30
EFFECTIVE WIND AREA:	≤10 SF
Kzt:	1

	ZONE	LOAD CASE 1 (PSF)	LOAD CASE 2 (PSF)
ROOF	1	-98.5	53.7
	2e	-98.5	53.7
	2n	-108.4	53.7
	2r	-98.5	53.7
	3e	-133.0	53.7
	3r	-108.4	53.7
WALLS	4	-63.6	58.7
	5	-78.6	58.7

LOAD CASE: wind 10th ed

ASCE 7-16
Exposure: C
Basic Wind Speed (mph): 135.0
Apply Directionality Factor, Kd = 0.85
Use Topography Factor, Kzt: 1.00
Ground Elevation Factor, Ke: 1.00
Use Calculated Frequency for X-Dir.
Use Calculated Frequency for Y-Dir.
Gust Factor for Flexible Structures, G: Use Calculated G for X-Dir.
Gust Factor for Flexible Structures, G: Use Calculated G for Y-Dir.
Damping Ratio for Flexible Structures= 0.01
Mean Roof Height in X-Dir. (ft): Top Story Height + Parapet = 49.50
Mean Roof Height in Y-Dir. (ft): Top Story Height + Parapet = 49.50
Ground Level for X-Dir.: Base
Ground Level for Y-Dir.: Base

WIND PRESSURES:

X-Direction: Natural Frequency = 0.021 Structure is Flexible
Y-Direction: Natural Frequency = 0.033 Structure is Flexible
CpWindward = 0.80
qLeeward (qh X-Dir.) = 43.28 psf
qLeeward (qh Y-Dir.) = 43.28 psf
GCpn (Parapet): Windward = 1.50 Leeward = -1.00

X-Direction:

Height (ft)	Kz	Kzt	qz (psf)	Gust Factor G	CpLeeward	Pressure (psf)
49.50	1.091	1.000	43.285	2.392	-0.474	131.948
49.50	1.091	1.000	43.285	2.392	-0.474	131.948
48.00	1.084	1.000	43.005	2.327	-0.319	112.212
48.00	1.084	1.000	43.005	2.327	-0.319	112.212
41.00	1.049	1.000	41.602	2.327	-0.319	109.599
33.00	1.002	1.000	39.743	2.313	-0.369	110.502
33.00	1.002	1.000	39.743	2.313	-0.369	110.502
15.00	0.849	1.000	33.665	2.313	-0.369	99.253
0.00	0.849	1.000	33.665	2.313	-0.369	99.253

Y-Direction:

Height (ft)	Kz	Kzt	qz (psf)	Gust Factor G	CpLeeward	Pressure (psf)
49.50	1.091	1.000	43.285	2.426	-0.500	136.538
49.50	1.091	1.000	43.285	2.426	-0.500	136.538
48.00	1.084	1.000	43.005	2.329	-0.500	130.528

48.00	1.084	1.000	43.005	2.329	-0.500	130.528
41.00	1.049	1.000	41.602	2.329	-0.500	127.913
33.00	1.002	1.000	39.743	2.308	-0.500	123.342
33.00	1.002	1.000	39.743	2.308	-0.500	123.342
15.00	0.849	1.000	33.665	2.308	-0.500	112.118
0.00	0.849	1.000	33.665	2.308	-0.500	112.118

Windward and Leeward Wind Pressures for Semirigid Diaphragms:

Story	Diaph. #	Windward Pressure (psf)		Leeward Pressure (psf)	
		X	Y	X	Y
Roof	1	80.070	80.125	32.142	50.403
Higher flat roof	1	77.457	77.509	32.142	50.403
2nd	1	73.549	73.388	36.953	49.955

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_1_X

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	4.98	0.00	116.23	171.44
Gable Roof	2	49.50	10.50	0.00	52.91	84.52
Roof	1	48.00	51.15	0.00	293.35	169.39
Roof	2	48.00	132.92	0.00	135.17	119.19
Higher flat roof	1	41.00	44.31	0.00	265.46	80.29
2nd	1	33.00	133.34	0.00	152.35	34.42
2nd	2	33.00	393.28	0.00	178.92	101.15
First	1	15.00	139.40	0.00	70.48	153.90

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	51.146	0.000
Higher flat roof	1	44.307	0.000
2nd	1	148.702	0.000
		244.15	0.00

APPLIED STORY FORCES

Type: Wind_ASCE716_1_X

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	15.48	0.00

Roof	48.00	184.07	0.00
Higher flat roof	41.00	44.31	0.00
2nd	33.00	526.62	0.00
First	15.00	139.40	0.00
		909.88	0.00

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_1_Y

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	0.00	18.59	116.23	171.44
Gable Roof	2	49.50	0.00	7.17	52.91	84.52
Roof	1	48.00	0.00	97.27	293.51	169.39
Roof	2	48.00	0.00	232.51	127.24	113.32
Higher flat roof	1	41.00	0.00	51.32	259.48	80.29
2nd	1	33.00	0.00	344.46	152.34	31.65
2nd	2	33.00	0.00	838.74	186.87	104.77
First	1	15.00	0.00	178.46	70.48	153.90

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	0.000	97.273
Higher flat roof	1	0.000	51.323
2nd	1	0.000	344.462
		0.00	493.06

APPLIED STORY FORCES

Type: Wind_ASCE716_1_Y

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	0.00	25.76
Roof	48.00	0.00	329.79
Higher flat roof	41.00	0.00	51.32
2nd	33.00	0.00	1183.20
First	15.00	0.00	178.46
		0.00	1768.53

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_2_X+E

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	3.74	0.00	116.23	192.76
Gable Roof	2	49.50	7.87	0.00	52.91	123.71
Roof	1	48.00	38.36	0.00	293.35	172.59
Roof	2	48.00	99.69	0.00	135.17	151.27
Higher flat roof	1	41.00	33.23	0.00	265.46	83.08
2nd	1	33.00	100.01	0.00	152.35	37.57
2nd	2	33.00	294.96	0.00	178.92	125.18
First	1	15.00	104.55	0.00	70.48	163.51

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	38.359	0.000
Higher flat roof	1	33.230	0.000
2nd	1	108.421	0.000
		180.01	0.00

APPLIED STORY FORCES

Type: Wind_ASCE716_2_X+E

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	11.61	0.00
Roof	48.00	138.05	0.00
Higher flat roof	41.00	33.23	0.00
2nd	33.00	394.97	0.00
First	15.00	104.55	0.00
		682.41	0.00

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_2_X-E

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	3.74	0.00	116.23	150.11
Gable Roof	2	49.50	7.87	0.00	52.91	45.34
Roof	1	48.00	38.36	0.00	293.35	166.19

Roof	2	48.00	99.69	0.00	135.17	87.11
Higher flat roof	1	41.00	33.23	0.00	265.46	77.50
2nd	1	33.00	100.01	0.00	152.35	31.27
2nd	2	33.00	294.96	0.00	178.92	77.11
First	1	15.00	104.55	0.00	70.48	144.29

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	38.359	0.000
Higher flat roof	1	33.230	0.000
2nd	1	114.631	0.000
		186.22	0.00

APPLIED STORY FORCES

Type: Wind_ASCE716_2_X-E

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	11.61	0.00
Roof	48.00	138.05	0.00
Higher flat roof	41.00	33.23	0.00
2nd	33.00	394.97	0.00
First	15.00	104.55	0.00
		682.41	0.00

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_2_Y+E

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	0.00	13.94	137.84	171.44
Gable Roof	2	49.50	0.00	5.38	62.57	84.52
Roof	1	48.00	0.00	72.96	298.54	169.39
Roof	2	48.00	0.00	174.38	157.12	113.32
Higher flat roof	1	41.00	0.00	38.49	263.33	80.29
2nd	1	33.00	0.00	258.35	158.24	31.65
2nd	2	33.00	0.00	629.06	234.00	104.77
First	1	15.00	0.00	133.84	75.92	153.90

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	0.000	72.946
Higher flat roof	1	0.000	38.492
2nd	1	0.000	258.346
		0.00	369.78

APPLIED STORY FORCES

Type: Wind_ASCE716_2_Y+E

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	0.00	19.32
Roof	48.00	0.00	247.34
Higher flat roof	41.00	0.00	38.49
2nd	33.00	0.00	887.40
First	15.00	0.00	133.84
		0.00	1326.40

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_2_Y-E

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	0.00	13.94	94.62	171.44
Gable Roof	2	49.50	0.00	5.38	43.25	84.52
Roof	1	48.00	0.00	72.96	288.48	169.39
Roof	2	48.00	0.00	174.38	97.36	113.32
Higher flat roof	1	41.00	0.00	38.49	255.62	80.29
2nd	1	33.00	0.00	258.35	146.45	31.65
2nd	2	33.00	0.00	629.06	139.73	104.77
First	1	15.00	0.00	133.84	65.05	153.90

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	0.000	72.964
Higher flat roof	1	0.000	38.492
2nd	1	0.000	258.346

		0.00	369.80

APPLIED STORY FORCES

Type: Wind_ASCE716_2_Y-E

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	0.00	19.32
Roof	48.00	0.00	247.34
Higher flat roof	41.00	0.00	38.49
2nd	33.00	0.00	887.40
First	15.00	0.00	133.84
		0.00	1326.40

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_3_X+Y

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	3.74	13.94	116.23	171.44
Gable Roof	2	49.50	7.87	5.38	52.91	84.52
Roof	1	48.00	38.36	72.96	293.51	169.39
Roof	2	48.00	99.69	174.38	127.24	119.19
Higher flat roof	1	41.00	33.23	38.49	259.48	80.29
2nd	1	33.00	100.01	258.35	152.34	34.42
2nd	2	33.00	294.96	629.06	186.87	101.15
First	1	15.00	104.55	133.84	70.48	153.90

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	38.359	72.955
Higher flat roof	1	33.230	38.492
2nd	1	111.526	258.346
		183.12	369.79

APPLIED STORY FORCES

Type: Wind_ASCE716_3_X+Y

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	11.61	19.32

Roof	48.00	138.05	247.34
Higher flat roof	41.00	33.23	38.49
2nd	33.00	394.97	887.40
First	15.00	104.55	133.84
		682.41	1326.40

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_3_X-Y

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	3.74	-13.94	116.23	171.44
Gable Roof	2	49.50	7.87	-5.38	52.91	84.52
Roof	1	48.00	38.36	-72.96	293.51	169.39
Roof	2	48.00	99.69	-174.38	127.24	119.19
Higher flat roof	1	41.00	33.23	-38.49	259.48	80.29
2nd	1	33.00	100.01	-258.35	152.34	34.42
2nd	2	33.00	294.96	-629.06	186.87	101.15
First	1	15.00	104.55	-133.84	70.48	153.90

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	38.359	-72.955
Higher flat roof	1	33.230	-38.492
2nd	1	111.526	-258.346
		183.12	-369.79

APPLIED STORY FORCES

Type: Wind_ASCE716_3_X-Y

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	11.61	-19.32
Roof	48.00	138.05	-247.34
Higher flat roof	41.00	33.23	-38.49
2nd	33.00	394.97	-887.40
First	15.00	104.55	-133.84
		682.41	-1326.40

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_4_X+Y_CW

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	2.80	10.46	94.62	192.76
Gable Roof	2	49.50	5.91	4.04	43.25	123.71
Roof	1	48.00	28.77	54.72	288.48	172.59
Roof	2	48.00	74.77	130.79	97.36	151.27
Higher flat roof	1	41.00	24.92	28.87	255.62	83.08
2nd	1	33.00	75.00	193.76	146.45	37.57
2nd	2	33.00	221.22	471.79	139.73	125.18
First	1	15.00	78.41	100.38	65.05	163.51

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	28.769	54.723
Higher flat roof	1	24.923	28.869
2nd	1	81.316	193.760
		135.01	277.35

APPLIED STORY FORCES

Type: Wind_ASCE716_4_X+Y_CW

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	8.71	14.49
Roof	48.00	103.54	185.50
Higher flat roof	41.00	24.92	28.87
2nd	33.00	296.23	665.55
First	15.00	78.41	100.38
		511.81	994.80

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_4_X+Y_CCW

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	2.80	10.46	137.84	150.11
Gable Roof	2	49.50	5.91	4.04	62.57	45.34
Roof	1	48.00	28.77	54.72	298.54	166.19

Roof	2	48.00	74.77	130.79	157.12	87.11
Higher flat roof	1	41.00	24.92	28.87	263.33	77.50
2nd	1	33.00	75.00	193.76	158.24	31.27
2nd	2	33.00	221.22	471.79	234.00	77.11
First	1	15.00	78.41	100.38	75.92	144.29

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	28.769	54.710
Higher flat roof	1	24.923	28.869
2nd	1	85.973	193.760
		139.67	277.34

APPLIED STORY FORCES

Type: Wind_ASCE716_4_X+Y_CCW

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	8.71	14.49
Roof	48.00	103.54	185.50
Higher flat roof	41.00	24.92	28.87
2nd	33.00	296.23	665.55
First	15.00	78.41	100.38
		511.81	994.80

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_4_X-Y_CW

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	2.80	-10.46	137.84	192.76
Gable Roof	2	49.50	5.91	-4.04	62.57	123.71
Roof	1	48.00	28.77	-54.72	298.54	172.59
Roof	2	48.00	74.77	-130.79	157.12	151.27
Higher flat roof	1	41.00	24.92	-28.87	263.33	83.08
2nd	1	33.00	75.00	-193.76	158.24	37.57
2nd	2	33.00	221.22	-471.79	234.00	125.18
First	1	15.00	78.41	-100.38	75.92	163.51

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx kips	Sum Fy kips
Roof	1	28.769	-54.710
Higher flat roof	1	24.923	-28.869
2nd	1	81.316	-193.760
		135.01	-277.34

APPLIED STORY FORCES

Type: Wind_ASCE716_4_X-Y_CW

Level	Ht ft	Fx kips	Fy kips
Gable Roof	49.50	8.71	-14.49
Roof	48.00	103.54	-185.50
Higher flat roof	41.00	24.92	-28.87
2nd	33.00	296.23	-665.55
First	15.00	78.41	-100.38
		511.81	-994.80

APPLIED DIAPHRAGM FORCES

Type: Wind_ASCE716_4_X-Y_CCW

Level	Diaph.#	Ht ft	Fx kips	Fy kips	X ft	Y ft
Gable Roof	1	49.50	2.80	-10.46	94.62	150.11
Gable Roof	2	49.50	5.91	-4.04	43.25	45.34
Roof	1	48.00	28.77	-54.72	288.48	166.19
Roof	2	48.00	74.77	-130.79	97.36	87.11
Higher flat roof	1	41.00	24.92	-28.87	255.62	77.50
2nd	1	33.00	75.00	-193.76	146.45	31.27
2nd	2	33.00	221.22	-471.79	139.73	77.11
First	1	15.00	78.41	-100.38	65.05	144.29

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx kips	Sum Fy kips
Roof	1	28.769	-54.723
Higher flat roof	1	24.923	-28.869
2nd	1	85.973	-193.760

		139.67	-277.35

APPLIED STORY FORCES

Type: Wind_ASCE716_4_X-Y_CCW

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	8.71	-14.49
Roof	48.00	103.54	-185.50
Higher flat roof	41.00	24.92	-28.87
2nd	33.00	296.23	-665.55
First	15.00	78.41	-100.38
		511.81	-994.80

LOAD CASE: Seismic 10th ed

Seismic ASCE 7-16 Equivalent Lateral Force

Site Class: C Importance Factor: 1.50 Ss: 0.245 g S1: 0.062 g TL: 6.00 s

Fa: 1.200 Fv: 1.700 SDs: 0.196 g SD1: 0.070 g

Occupancy Category: IV Seismic Design Category: C

Provisions for: Force

Ground Level: Base

Dir	Eccent	R	Ta Equation	Building Period-T
X	+ And -	3.00	Std,Ct=0.020,x=0.75	Calculated
Y	+ And -	3.00	Std,Ct=0.020,x=0.75	Calculated

Dir	Ta	Cu	T	T-used	Cs Eq12.8-2	Cs(max) Eq12.8-3	Cs(min) Eq12.8-5	Cs-used	k
X	0.373	1.700	47.785	0.635	0.098	0.055	0.013	0.055	1.067

Dir	Ta	Cu	T	T-used	Cs Eq12.8-2	Cs(max) Eq12.8-3	Cs(min) Eq12.8-5	Cs-used	k
Y	0.373	1.700	30.034	0.635	0.098	0.055	0.013	0.055	1.067

Total Building Weight (kips) = 7420.61

APPLIED DIAPHRAGM FORCES

Type: EQ_ASCE716_X_+E_F

Level	Diaph.#	Ht ft	Fx kips	Fy kips	X ft	Y ft
Gable Roof	1	49.50	19.55	0.00	122.28	174.51
Gable Roof	2	49.50	14.74	0.00	48.94	80.23
Roof	1	48.00	16.92	0.00	293.01	172.44
Roof	2	48.00	118.73	0.00	112.35	140.59
Higher flat roof	1	41.00	14.44	0.00	231.77	95.49
2nd	1	33.00	12.38	0.00	161.53	45.05
2nd	2	33.00	192.66	0.00	140.01	132.01
First	1	15.00	21.48	0.00	80.20	165.04

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx kips	Sum Fy kips
Roof	1	16.917	0.000
Higher flat roof	1	14.439	0.000
2nd	1	12.378	0.000
		43.73	0.00

APPLIED STORY FORCES

Type: EQ_ASCE716_X_+E_F

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	34.29	0.00
Roof	48.00	135.64	0.00
Higher flat roof	41.00	14.44	0.00
2nd	33.00	205.03	0.00
First	15.00	21.48	0.00
		410.89	0.00

APPLIED DIAPHRAGM FORCES

Type: EQ_ASCE716_X_-E_F

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	19.55	0.00	122.28	169.21
Gable Roof	2	49.50	14.74	0.00	48.94	69.07
Roof	1	48.00	16.92	0.00	293.01	166.33
Roof	2	48.00	118.73	0.00	112.35	123.60
Higher flat roof	1	41.00	14.44	0.00	231.77	90.13
2nd	1	33.00	12.38	0.00	161.53	39.06
2nd	2	33.00	192.66	0.00	140.01	112.82
First	1	15.00	21.48	0.00	80.20	156.70

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	16.917	0.000
Higher flat roof	1	14.439	0.000
2nd	1	12.378	0.000
		43.73	0.00

APPLIED STORY FORCES

Type: EQ_ASCE716_X_-E_F

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	34.29	0.00
Roof	48.00	135.64	0.00
Higher flat roof	41.00	14.44	0.00

2nd	33.00	205.03	0.00
First	15.00	21.48	0.00
		410.89	0.00

APPLIED DIAPHRAGM FORCES

Type: EQ_ASCE716_Y_+E_F

Level	Diaph.#	Ht	Fx	Fy	X	Y
		ft	kips	kips	ft	ft
Gable Roof	1	49.50	0.00	19.55	131.49	171.86
Gable Roof	2	49.50	0.00	14.74	52.50	74.65
Roof	1	48.00	0.00	16.92	298.05	169.39
Roof	2	48.00	0.00	118.73	124.16	132.10
Higher flat roof	1	41.00	0.00	14.44	235.65	92.81
2nd	1	33.00	0.00	12.38	167.44	42.06
2nd	2	33.00	0.00	192.66	156.49	122.42
First	1	15.00	0.00	21.48	84.94	160.87

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx	Sum Fy
		kips	kips
Roof	1	0.000	16.917
Higher flat roof	1	0.000	14.439
2nd	1	0.000	12.378
		0.00	43.73

APPLIED STORY FORCES

Type: EQ_ASCE716_Y_+E_F

Level	Ht	Fx	Fy
	ft	kips	kips
Gable Roof	49.50	0.00	34.29
Roof	48.00	0.00	135.64
Higher flat roof	41.00	0.00	14.44
2nd	33.00	0.00	205.03
First	15.00	0.00	21.48
		0.00	410.89

APPLIED DIAPHRAGM FORCES

Type: EQ_ASCE716_Y_-E_F

Loads and Applied Forces

Level	Diaph.#	Ht ft	Fx kips	Fy kips	X ft	Y ft
Gable Roof	1	49.50	0.00	19.55	113.07	171.86
Gable Roof	2	49.50	0.00	14.74	45.39	74.65
Roof	1	48.00	0.00	16.92	287.96	169.39
Roof	2	48.00	0.00	118.73	100.53	132.10
Higher flat roof	1	41.00	0.00	14.44	227.88	92.81
2nd	1	33.00	0.00	12.38	155.63	42.06
2nd	2	33.00	0.00	192.66	123.54	122.42
First	1	15.00	0.00	21.48	75.47	160.87

Applied Loads for Pseudo-Flexible or Semirigid Diaphragms:

Story	Diaph #	Sum Fx kips	Sum Fy kips
Roof	1	0.000	16.917
Higher flat roof	1	0.000	14.439
2nd	1	0.000	12.378
		0.00	43.73

APPLIED STORY FORCES

Type: EQ_ASCE716_Y_-E_F

Level	Ht ft	Fx kips	Fy kips
Gable Roof	49.50	0.00	34.29
Roof	48.00	0.00	135.64
Higher flat roof	41.00	0.00	14.44
2nd	33.00	0.00	205.03
First	15.00	0.00	21.48
		0.00	410.89

LOAD MULTIPLIERS FOR ECCENTRIC LOADING ON SEMIRIGID DIAPHRAGM:SEISMIC AND RESPONSE SPECTRA LOAD CASES

Story : Roof Diaph. #: 1

Loading Direction	Top Region	Bottom Region	Left Region	Right Region
+X	1.19	0.81	---	---
-X	0.81	1.19	---	---
+Y	---	---	0.80	1.19
-Y	---	---	1.20	0.81

Story : Higher flat roof Diaph. #: 1

Loading Direction	Top Region	Bottom Region	Left Region	Right Region
+X	2.91	0.24	---	---
-X	2.22	0.52	---	---
+Y	---	---	8.53	0.19
-Y	---	---	10.55	-0.03

Story : 2nd Diaph. #: 1

Loading Direction	Top Region	Bottom Region	Left Region	Right Region
+X	2.02	0.37	---	---
-X	1.44	0.73	---	---
+Y	---	---	0.56	1.60
-Y	---	---	0.92	1.11

Structural Peer Review

PCA360 has engaged a structural engineer for the structural peer review to occurring during 90% Construction Documents. Refer to RSV Structural Proposal on the following pages.

RSV ASSOCIATES
CONSULTING ENGINEERS
10 MAZZEO DRIVE, SUITE 201-G,RANDOLPH,MA02368*PHONE (781)963-5786

October 23, 2024

PCA360
75 Second Ave, Suite 305
Needham, MA 02494

Att: Casey Hochheimer:

RE : Squantum School
Quincy, MA
Independent Structural Engineer Review

Dear Mr.Hochheimer:

Attached please find a copy of proposal for performing structural peer review services for the above referenced project, copy of qualifications and partial list of similar projects for which structural peer review were provided.

Please call if you have any questions.

Yours truly,

Victor Verma, P.E., Principal
RSV ASSOCIATES

CC : VV/DW

RSV ASSOCIATES
CONSULTING ENGINEERS
10 MAZZEO DRIVE, SUITE 201-G,RANDOLPH,MA02368*PHONE (781)963-5786

October 23, 2024

Casey Hochheimer
75 Second Ave, Suite 305
Needham, MA 02494

RE: Squantum School
Quincy, MA
Independent Structural Engineer Review

Dear Mr. Hochheimer:

We are pleased to provide the following proposal for structural peer review services for the above referenced project as per the Commonwealth of Massachusetts State Building 10th Edition, Section 780 CMR 105.9. We understand the scope of work to include the following:

1. Peer review will be conducted by a MA registered profession engineer with structural design training and experience on similar to John R. Pierce School building.

2. Review design criteria and assumptions used in design.

3. Review whether the Design Loads (Gravity and Lateral) used are in agreement with Governing Building Code.

4. Check if the organization of the structure is conceptually correct including structural load path.

5. Review Geotechnical report and its implementations in foundation design.

6. Review basic assumptions used for distributing the Lateral loads to main Lateral Resistance Systems.

7. Perform independent calculations for a typical bay, to investigate beams, columns, reinforced concrete walls, braced frames, foundations design and other major structural members.

8. Meet with the structural Engineer of Record, as may be required in performance of the review.

RSV ASSOCIATES
CONSULTING ENGINEERS
10 MAZZEO DRIVE, SUITE 201-G,RANDOLPH,MA02368*PHONE (781)963-5786

Our fee for the scope described in items 1 thru 8 be a lump sum of $ 1,800.00 included in the lump sum are project – related travel, postage delivery services, reproduction, printing charges, resolving all the issues with structural engineer of record and writing a detail report after peer review is completed.

Should the term of this be acceptable, to you please return a signed copy formally authorizing to proceed with the work.

Yours truly,

Victor Verma, P.E., Principal
RSV ASSOCIATES

_____
PCA 360

CC : VV/DW

RSV ASSOCIATES
CONSULTING ENGINEERS
10 MAZZEO DRIVE, SUITE 201-G,RANDOLPH,MA02368*PHONE (781)963-5786*FAX (781)843-3752

Victor Verma

Professional Education	B.S.C.E	Kansas State University
	M.S.C.E.	University of Michigan

Professional Registration: Massachusetts, New York

Professional Membership: American Institute of Steel Construction, Boston Society of Civil Engineers

Professional Experience

July 1996 to Present
RSV Associates.
Randolph, MA.
Working as structural consultant on new and renovation projects, office buildings, schools, condos, feasibility studies, field evaluation, reports, value engineering.

March 1995 to July 1996
Summer Schein Arch. / Engineers
Cambridge, MA.
Job Title : Structural Engineer
Responsibilities involve conceptual design, final design of retail shopping center, schools & retail stores modification of exiting foundation for additional loads, coordinated all work with architect's, checked structural shop drawings, cooling tower support, written field inspection report.

April 1993 to March 1995
Worked as independent structural consultants on Retail stores, schools, commercial buildings, design framing & foundation, peer review , taken field inspection trips, designed single span bridges, foundation for signs, sheet piling design, renovation of existing building.

Nov 1989 to Jan. 1993
Badgers Engineers
Cambridge, MA.
Job Title: Structural Engineer
Responsibilities involve design of industrial buildings, building & water treatment plants, mat design on piles, moment & braced frames analysis & design, structural framing, machine foundation design, checked design & shop drawings.

April 1984 to Nov. 1989
Macdonald Assoc.
Braintree, MA.
Job Title : Structural Engineer
Responsibilities include conceptual design, final design for mid high rise commercial buildings, schools, apartments ,masonry walls design for lateral loads, flat slab analysis & design, composite beams design, resolved all field related problems.

June 1975 to April 1984.
Stone & Webster Engineering Corp.
Boston, MA.
Job Title : Structural Engineer
Responsibilities involve design of structural framing for various buildings in nuclear power Plants, checked steel & concrete shop drawings, truss bracing design, column base plates design, resolved field related problems.

PARTIAL LIST OF PROJECTS FOR WHICH STRUCTUAL PEER REVIEW SERVICES WERE PROVIDED

1. Pawtucket Regional School, West Newbury, MA
2. South High Community School , Worcester, MA
3. Hildreth Elementary School, Harvard, MA
4. Minutemen Regional Voc Tech School, Lexington, MA
5. Hingham Middle School, Hingham, MA
6. Wahconah Regional High School, Dalton, MA

Energy Model Calculations

An updated ASHRAE energy model was conducted for the Design Development Report estimating preliminary energy performance.

The new school is seeking an EUI of 25 or less. The project is working National Grid and MassSave Incentive Program for a Net Zero Energy Path 1. This iteration of the energy model is reporting slighting above EUI 25, but it is expected to improve as we conduct an update model at the completion of 100% DD and at 60% CD.

Squantum School

60% Design Development Energy Analysis Report

Prepared for
Arrowstreet Architecture & Design
10 Post Office Square, Suite 700N
Boston, MA 02109

Prepared by
Thornton Tomasetti
101 Arch St., Suite 1600
Boston, MA 02110

Nov 14, 2024

Thornton Tomasetti

TABLE OF CONTENTS

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02	Assumptions	4
03	Energy Modeling Results	5
04	Discussion & Conclusion	6
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Appendix B: Schedules		14

01 EXECUTIVE SUMMARY

Squantum School is a new two-story school with 80,821 SF gross floor area located in Quincy, MA. The building's primary program includes classrooms, offices and conference rooms; assembly spaces such as library, media center, cafeteria, and gym; and supporting spaces such as corridor, storage, and mechanical rooms. For reference purposes, the 3D model of the project is shown in Figure 1.

The project is targeting to meet an energy use intensity (EUI) of 25 kBtu/sf-year for Mass Save Path 1.

Thornton Tomasetti (TT) performed whole building energy analysis to assess the proposed design performance. The analysis was completed based on the 60% Design Development (DD) floor plans and Revit model issued on June 21th 2024, from Arrowstreet, and HVAC progress set issued on Oct 9th 2024, from GGD.

The goals of this energy analysis are as follows:

- Evaluate the energy performance of the 60% DD design
- Meet Mass Save Path 1 EUI target of 25 kBtu/sf-yr

Based on the 60%DD energy analysis, the results show the followings:

- The Mass Save Path 1 has an EUI target of 25 kBtu/sf-yr and **the proposed design has an EUI of 25.1 kBtu/sf-yr**. The project is within the acceptable range to meet the Mass Save Path 1 target of 25 EUI.

Note:

The annual energy consumption is not a prediction of actual proposed design after construction. Actual energy will differ from these calculations due to variations such as occupancy, building operation and maintenance, weather, changes in energy rates, etc.

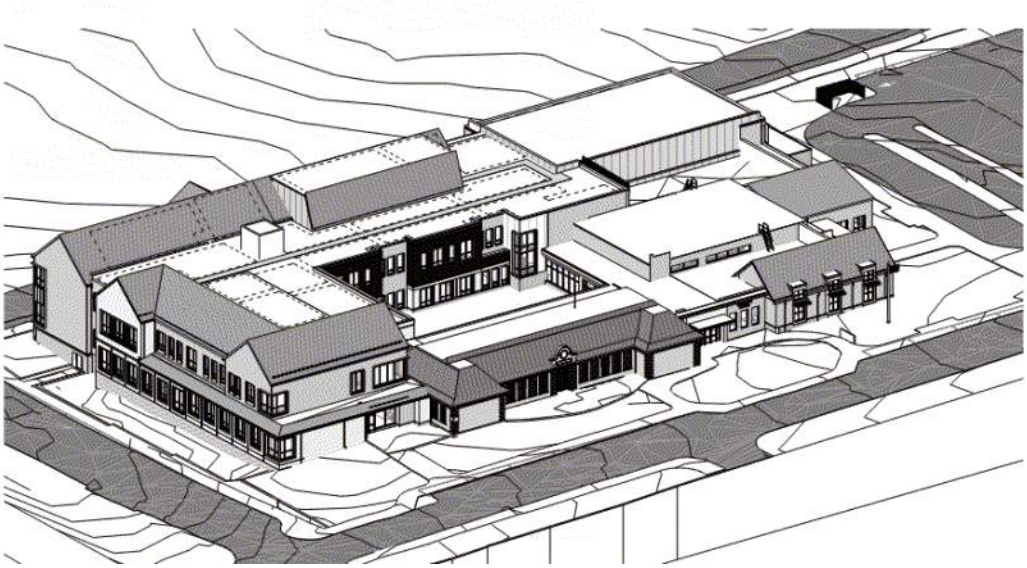


Fig 1. Axon - Southwest (from Arrowstreet)

02 ASSUMPTIONS

The following provides a summary of the assumptions in the energy analysis. More details of input assumptions are provided in Appendix A and Appendix B at the end of this report.

Schedule of Operation

	School Year	Summer
Admin	7am-4pm weekdays	8am-4pm 4days/week
Classroom	8am-3pm M,T,TH,FR; 8am-12pm Wed	8am-1pm 4 days/week, first floor only
STE, Music	8am-3pm M,T,TH,FR; 8am-12pm Wed After school: 3pm-6pm; Wed 12pm-6pm	8am-1pm 4 days/week, first floor only
Custodial	6:30am-10pm weekdays	6:30am-6pm weekdays
Cafeteria	7am-4pm weekdays After school: 3pm-6pm; Wed 12pm-6pm	8am-1pm 4 days/week
Kitchen	7am-4pm weekdays	Closed
Gym	8am-6pm 5 days/week+6pm-9pm, 2days/week	8am-1pm 4 days/week+6pm-8pm, 2days/week

Note all of the spaces close during the vacation weeks following the school calendar.

Envelope

A high performance envelope can reduce heating and cooling loads, providing a comfortable interior environment for occupants. The proposed design consists of a well-insulated envelope, including R-11 exterior wall, R-42 and R-60 roof, triple-pane glazing with thermally-broken framing, a window-to-wall ratio (WWR) of 21.2%, and low infiltration level at 0.15 cfm/sf@75 Pa.

Internal Gains

The occupancy and equipment were modeled with space-by-space method. A thorough equipment takeoff was conducted based on information provided by Arrowstreet. The equipment takeoff is summarized in the "Squantum School Plug Load Study" memo issued by TT on Nov 12, 2024. For interior lighting, the lighting power densities (LPDs) were calculated by the total wattages provided by Arrowstreet.

Mechanical Systems

In the proposed case, classrooms, media, admin, cafe and gym are served by 4-pipe VAV AHU with reheat. Air-to-water heat pumps are integrated in the AHUs as heating and cooling source. MDF and electric room are cooled by split cooling only system.

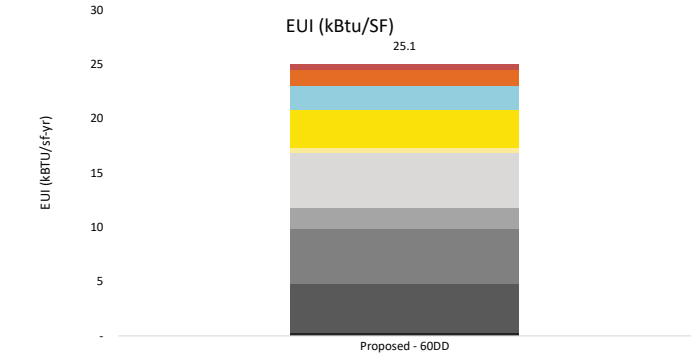
Utility Data

Electricity Flat Rate (per US Energy Information Administration Electricity Rate for Massachusetts)
0.21 ($/kWh)

03 ENERGY MODELING RESULTS

Energy Use Intensity (EUI) is a normalized metric that shows building's annual energy use per square-foot. The proposed case shows a site EUI of 25.1 kBtu/sf-yr. The EUI breakdown is shown as Figure 2. The proposed case energy Use intensity Breakdown are shown on this page in Figure 3.

Kitchen equipment, fan energy, and other equipment account for 20%, 20%, and 18% of total energy use, respectively, making them the three largest sources of energy consumption. Further improvements in equipment and fan could significantly reduce overall energy use.



DHW	0.5
Heating	1.5
Cooling	2.3
Int. Lights	3.4
Ext. Lights	0.5
Fans	5.0
Pumps	2.0
Kitchen Equiment	5.0
Equipment	4.6
Process/Elevator	0.3
Total	25.1

Fig 2. Annual Energy Use Intensity Breakdown

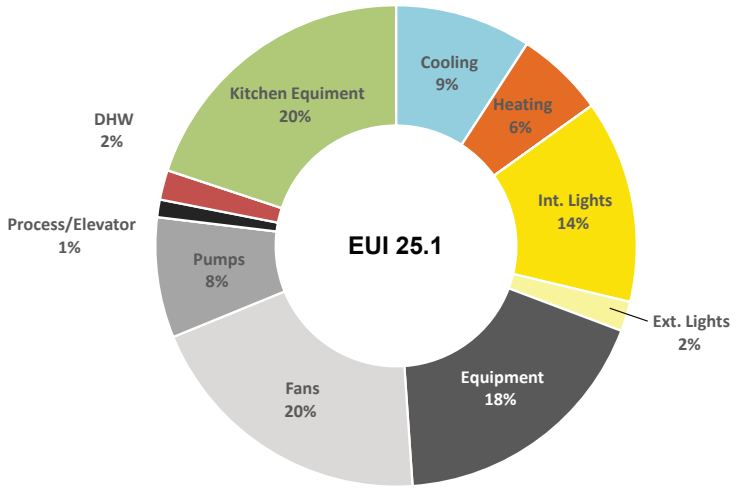


Fig 3. Proposed Case Energy Use Intensity Breakdown

04 DISCUSSION & CONCLUSION

The current design achieves an EUI of 25.1 kBtu/sf-yr, which is in the acceptable range to meet the Mass Save Path 1 EUI target of 25 kBtu/sf-yr.

Many inputs still require refinement as the design processes to CD phase, especially the wall derated U value, system efficiency and the fan power. Also elevator energy, exterior lighting, domestic hot water usage require further refinement in the next phase to ensure the accuracy of EUI.

APPENDIX A: ENERGY ANALYSIS INPUTS

General Information	
Weather File	Climate Zone: 5A USA_MA_Boston-Logan.Intl.AP.725090_TMY3
Utility Rates	Electricity: $0.21/kWh
Opaque Construction	**Proposed**
Roofs Construction	R-42/R-60 assembly
Walls Construction	Fully derated: R-11 assembly, U-0.071
Slab-on-Grade Construction	R-15 insulation to 24 inch depth around the perimeter (F-0.52)
Glazing Properties (Assembly)	Fixed windows: U-0.18, SHGC-0.23 Operable windows: U-0.22, SHGC-0.33 Curtainwall: U-0.2, SHGC-0.33 Glazed doors: U-0.49, SHGC-0.3
Fenestration	**Proposed**
Window to Wall Ratio	21.2%
Infiltration	**Proposed**
Infiltration rate	0.15 cfm/sf @75Pa
Lighting (W/sf)	**Proposed**
All spaces	0.5
Plug Loads (W/sf)	**Proposed**
Kitchen	37.4
All other	0.52
Occupancy (ppl/1000sf)	
Cafe	100.0
Classroom	25.0
Corridor/Stairs	0.0
Electric/MDF	0.0
Elevator	0.0
Gym	30.0
Kitchen	20.0
Music	35.0
Storage	2.0
Airflow	**Proposed**
All spaces	35,800 cfm in total

APPENDIX A: ENERGY ANALYSIS INPUTS

HVAC (Air-Side)	Proposed
HVAC Type 1	AHU-1 to AHU-3
Serving Location	Classrooms, Corridors, Stairwells
Cooling Source	Air-water heat pump, 5.27 COP
Heating Source	Air-water heat pump, 3.7 COP
Fan Power	Total: 1.5 W/cfm
Fan Control	Variable Speed
Energy Recovery	Winter sensible: 82.2%; Winter latent: 78.8%; Summer sensible: 80.7%, Summer latent: 77.1%
DCV	Yes
Economizer	FixedDryBulb70°F
Supply air temp	55-60°F
HVAC Type 2	AHU-4
Serving Location	Media Center
Heating Source	Air-water heat pump, 5.27 COP
Cooling Source	Air-water heat pump, 3.7 COP
Economizer	FixedDryBulb70°F
DCV	Yes
Energy Recovery	Winter sensible: 86%; Winter latent: 83.7%; Summer sensible: 84.7%, Summer latent: 82.3%
Fan Control	Variable speed
Fan Power	Total: 1.5 W/cfm
Supply air temp	55-60°F
HVAC Type 3	AHU-5
Serving Location	Cafe
Heating Source	Air-water heat pump, 5.27 COP
Cooling Source	Air-water heat pump, 3.7 COP
Economizer	FixedDryBulb70°F
DCV	Yes
Energy Recovery	Winter sensible: 84.5%; Winter latent: 81.8%; Summer sensible: 83.1%, Summer latent: 80.2%
Fan Control	Variable speed
Fan Power	Total: 1.5 W/cfm
Supply air temp	55-60°F

APPENDIX A: ENERGY ANALYSIS INPUTS

HVAC (Air-Side)	Proposed
HVAC Type 4	AHU-6
Serving Location	Gym
Heating Source	Air-water heat pump, 5.27 COP
Cooling Source	Air-water heat pump, 3.7 COP
Economizer	FixedDryBulb70°F
DCV	Yes
Energy Recovery	Winter sensible: 84.5%; Winter latent: 81.8%; Summer sensible: 83.1%, Summer latent: 80.2%
Fan Control	Variable speed
Fan Power	Total: 1.5 W/cfm
Supply air temp	55-60°F
HVAC Type 5	AHU-7
Serving Location	Admin/Music
Heating Source	Air-water heat pump, 5.27 COP
Cooling Source	Air-water heat pump, 3.7 COP
Economizer	FixedDryBulb70°F
DCV	Yes
Energy Recovery	N/A
Fan Control	Variable speed
Fan Power	Total: 1.5 W/cfm
Supply air temp	55-60°F
HVAC Type 6	4-pipe single-zone VAV MAU
Serving Location	Kitchen
Heating Source	Air-water heat pump, 5.27 COP
Cooling Source	Air-water heat pump, 3.7 COP
Economizer	FixedDryBulb70°F
DCV	Yes
Energy Recovery	N/A
Fan Control	Variable speed
Fan Power	1.5W/cfm
Supply air temp	55-60°F

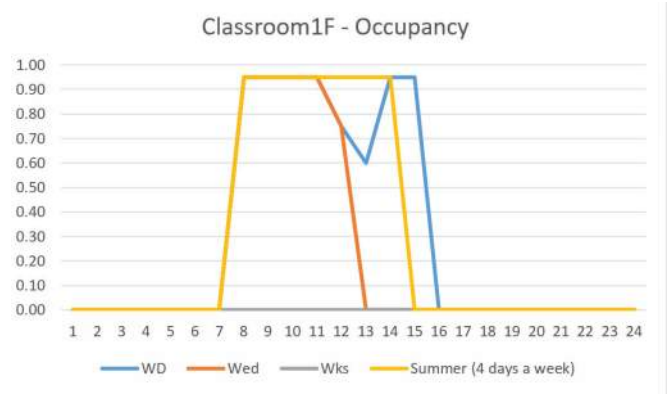
APPENDIX A: ENERGY ANALYSIS INPUTS

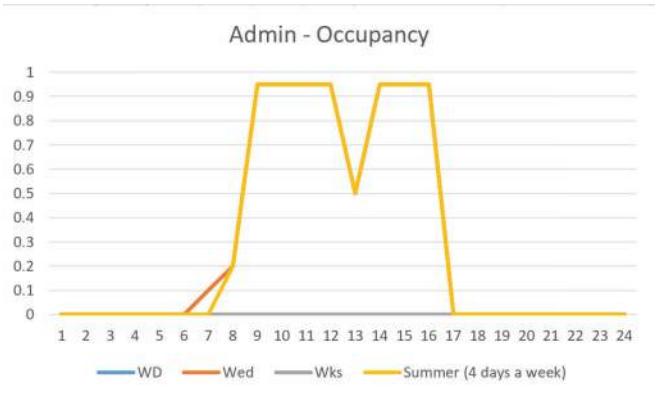
HVAC (Air-Side)	Proposed
HVAC Type 5	Split cooling only system
Serving Location	MDF&Electric rooms
Heating Source	N/A
Cooling Source	DX Cooling
Economizer	N/A
DCV	N/A
Energy Recovery	N/A
Fan Control	Constant speed
Fan Power	0.3 W/cfm
Supply air temp	55°F
HVAC (Water-Side)	**Proposed**
System Description	Air-to-water heat pump
Efficiency	Cooling: 5.27 COP; Heating: 3.7 COP
Chilled water supply temp	42°F
Hot water supply temp	130°F
Temp Reset	Chilled water: 42/54°F Hot water: 130/110°F
Pump Control	Variable speed

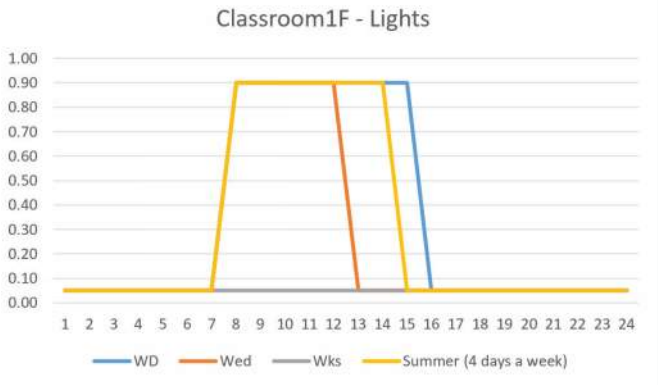
ENERGY MODEL DISCLAIMER

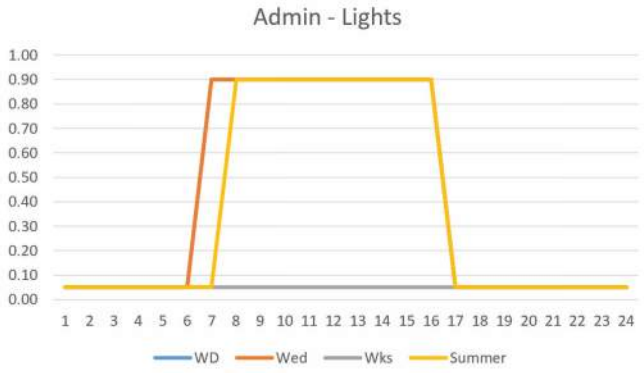
The results from the energy model must be used for comparative evaluations of energy optimization measures with the assumptions indicated in this report. The results should not be construed as an absolute prediction of future building energy use as usage schedules, weather patterns and system functions may change during operation.

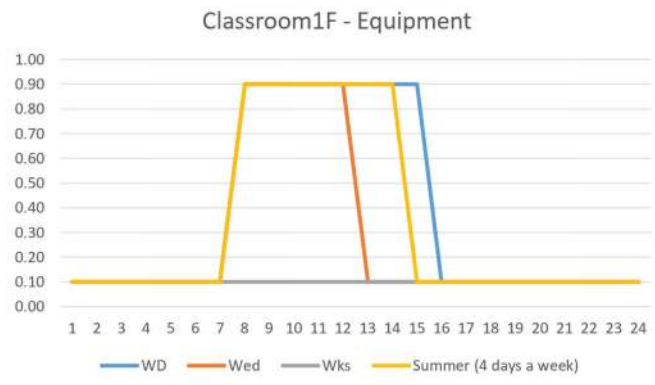
APPENDIX B: SCHEDULES

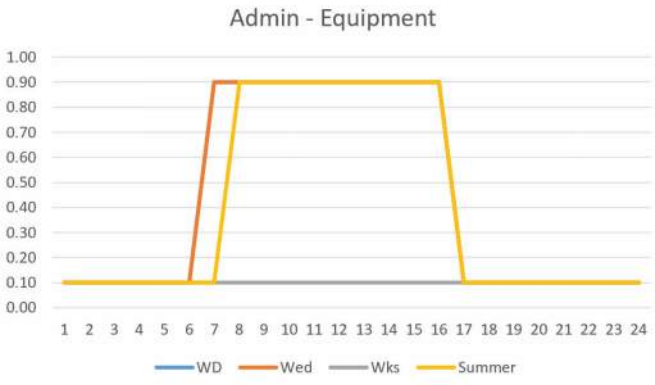












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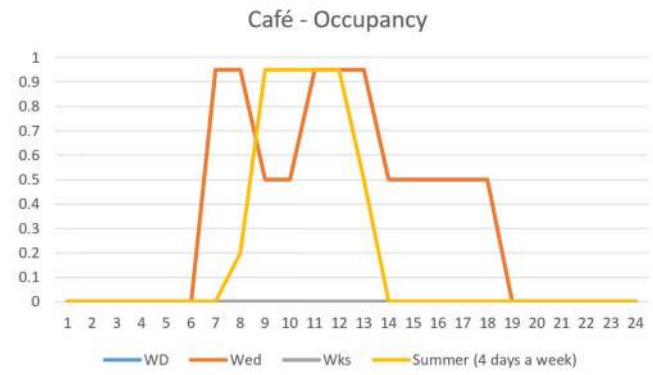

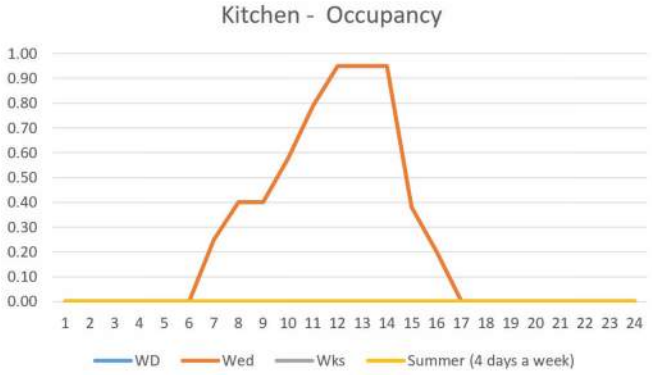

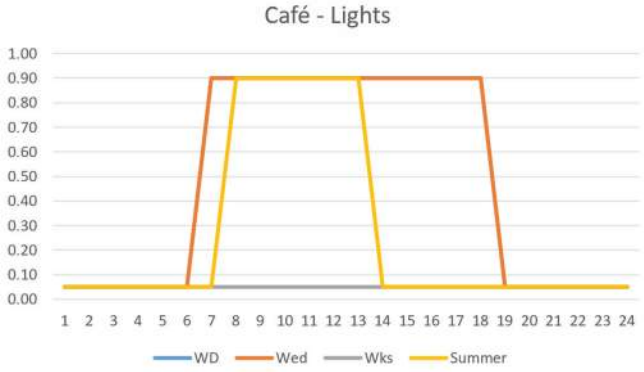

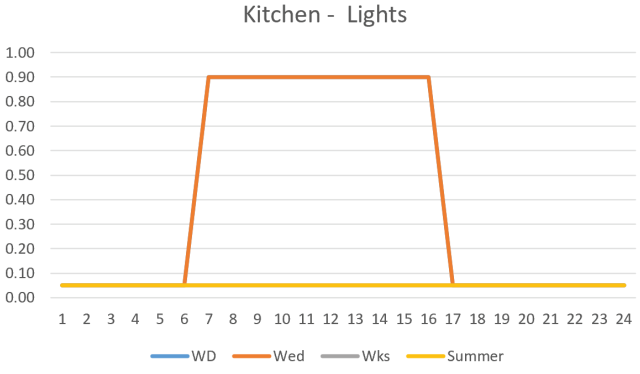

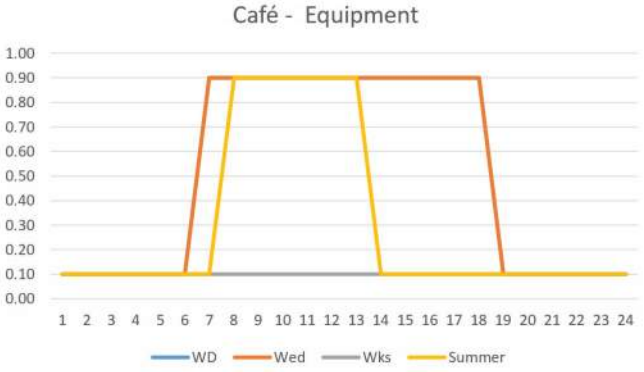

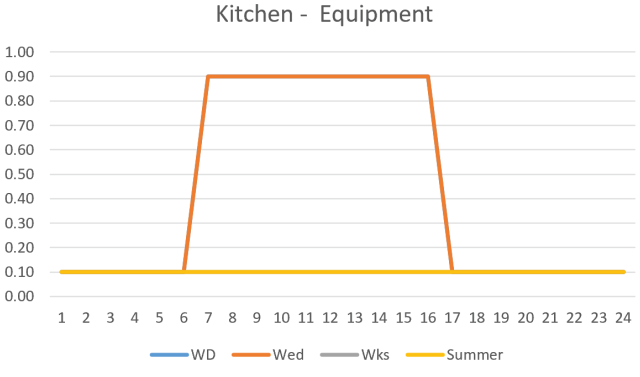

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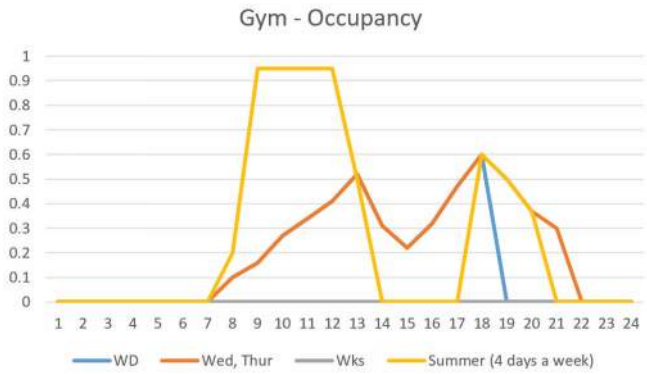

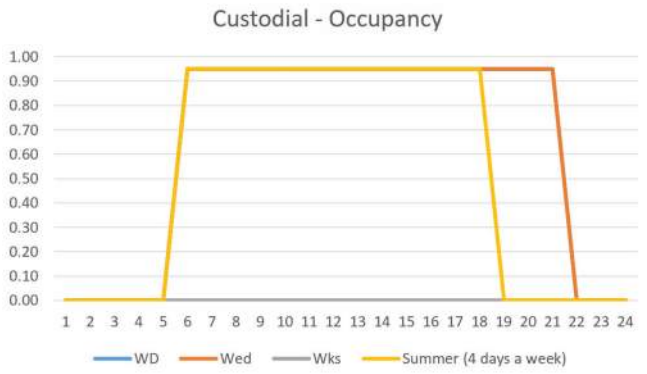

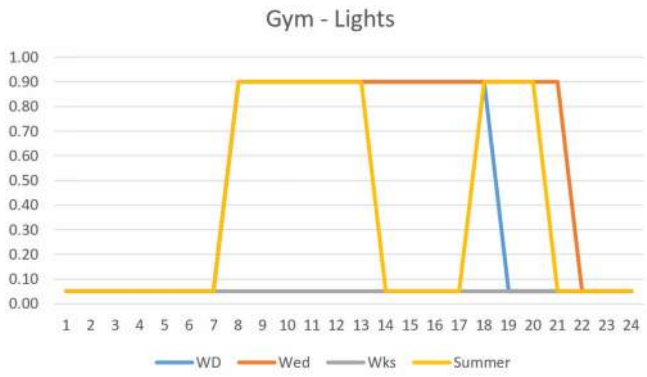

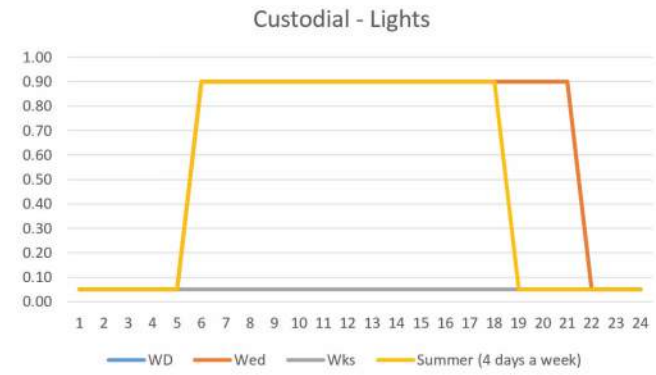

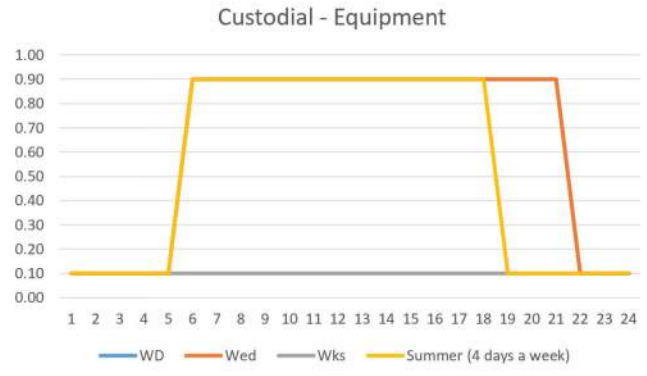

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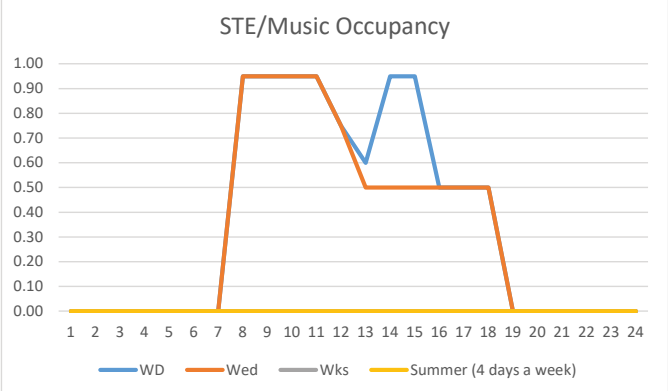

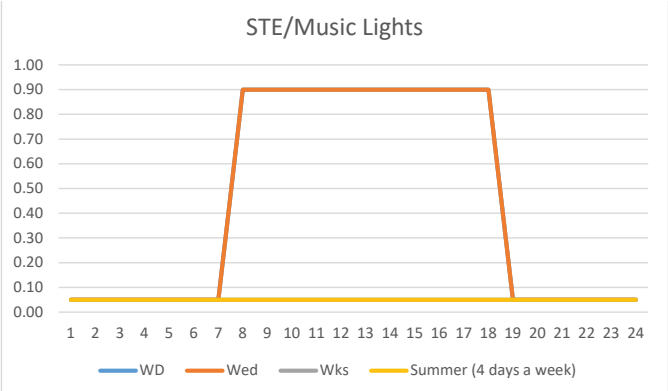

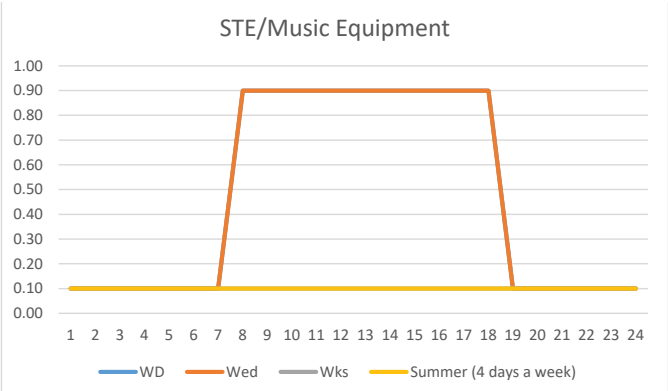

LCCA

The Life Cycle Cost Analysis titled "Economic Engineering Analysis" was performed during Schematic Design and submitted to MSBA with the Schematic Design Submission Resubmission dated August 29, 2024.

Heat Gain & Loss Calculations

Heating and cooling loads were calculated for each space. Refer to the following pages.

Zone Sizing Summary for AHU-1 Classrooms West

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name ..... **AHU-1 Classrooms West**
Equipment Class ..... **CW AHU**
Air System Type ..... **VAV**
Number of zones **20**
Floor Area ..... **17695.3** sqft
Location ..... **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**
Zone CFM Sizing ..... **Peak zone sensible load**
Space CFM Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/sqft	Reheat Coil Capacity (MBH)	Reheat Coil Water gpm @ 20.0 F	Zone Htg Unit Coil Capacity (MBH)	Zone Htg Unit Water gpm @ 20.0 F	Mixing Box Fan Airflow (CFM)
100D CIRCULATION (1)	730	83	0.53	0.7	0.07	11.3	1.13	0
129 THERAPY RM	355	84	0.89	0.7	0.07	3.4	0.34	0
130 STAFF WORK	100	20	0.61	0.2	0.02	0.3	0.03	0
130C BDA CLOSET	20	2	0.58	0.0	0.00	0.1	0.01	0
131 GRADE 1	695	390	0.64	3.4	0.34	7.0	0.70	0
132 ELL	595	396	0.53	3.4	0.34	5.9	0.59	0
133 KINDERGARTEN	755	415	0.58	3.6	0.36	7.1	0.71	0
134 ART	580	399	0.47	3.4	0.34	5.3	0.53	0
135 KINDERGARTEN	755	409	0.58	3.5	0.35	7.5	0.75	0
136 KINDERGARTEN	810	408	0.63	3.5	0.35	12.7	1.27	0
137 THERAPY RM	190	76	0.73	0.7	0.07	0.4	0.04	0
138 RESOURCE	350	84	0.87	0.7	0.07	5.5	0.55	0
200B BREAKOUT (1)	350	109	0.19	0.9	0.09	3.9	0.39	0
220 STAFF WORK	110	23	0.51	0.2	0.02	0.4	0.05	0
221 GRADE 4	780	387	0.74	3.3	0.33	7.0	0.70	0
222 LEARNING CENTER	750	383	0.68	3.3	0.33	6.5	0.65	0
223 GRADE 5	780	383	0.76	3.3	0.33	6.3	0.63	0
224 GRADE 5	730	385	0.70	3.3	0.33	7.6	0.76	0
225 THERAPY RM	440	84	1.09	0.7	0.07	3.6	0.36	0
227 GRADE 5	810	387	0.77	3.3	0.33	9.4	0.94	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
100D CIRCULATION (1)	21.2	September 14:00	13.6	1381.9
129 THERAPY RM	11.1	June 17:00	4.2	400.6
130 STAFF WORK	2.8	August 17:00	0.3	164.8
130C BDA CLOSET	0.4	July 19:00	0.1	34.8
131 GRADE 1	20.4	July 17:00	8.7	1081.9
132 ELL	17.6	August 9:00	7.3	1130.2
133 KINDERGARTEN	21.7	July 17:00	8.7	1294.4
134 ART	15.7	July 9:00	6.6	1244.7
135 KINDERGARTEN	21.4	July 17:00	9.2	1300.3
136 KINDERGARTEN	23.9	August 16:00	15.7	1290.3
137 THERAPY RM	5.5	August 17:00	0.4	259.3
138 RESOURCE	10.7	August 17:00	6.9	401.6
200B BREAKOUT (1)	6.3	July 18:00	4.6	1814.8
220 STAFF WORK	3.0	July 18:00	0.6	214.6
221 GRADE 4	24.2	August 16:00	8.7	1056.6
222 LEARNING CENTER	23.6	August 9:00	8.0	1095.5
223 GRADE 5	24.3	August 16:00	7.8	1025.2

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
224 GRADE 5	23.1	August 9:00	9.5	1042.8
225 THERAPY RM	14.6	June 17:00	4.5	404.8
227 GRADE 5	25.2	August 16:00	11.7	1056.3

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
100D CIRCULATION (1)						
100D CIRCULATION (1)	21.2	September 14:00	1310	13.6	1381.9	0.95
129 THERAPY RM						
129 THERAPY RM	11.1	June 17:00	683	4.2	400.6	1.71
130 STAFF WORK						
130 STAFF WORK	2.8	August 17:00	175	0.3	164.8	1.06
130C BDA CLOSET						
130C BDA CLOSET	0.4	July 19:00	27	0.1	34.8	0.78
131 GRADE 1						
131 GRADE 1	20.4	July 17:00	1262	8.7	1081.9	1.17
132 ELL						
132 ELL	17.6	August 9:00	1089	7.3	1130.2	0.96
133 KINDERGARTEN						
133 KINDERGARTEN	21.7	July 17:00	1340	8.7	1294.4	1.03
134 ART						
134 ART	15.0	July 9:00	925	6.4	1074.3	0.86
134A ART STORAGE	0.7	August 16:00	42	0.2	170.4	0.25
135 KINDERGARTEN						
135 KINDERGARTEN	21.2	July 17:00	1309	9.0	1238.8	1.06
135A TOILET	0.2	August 18:00	15	0.1	61.5	0.24
136 KINDERGARTEN						
136 KINDERGARTEN	23.6	August 16:00	1459	15.6	1230.4	1.19
136A TOILET	0.2	August 18:00	15	0.1	59.8	0.25
137 THERAPY RM						
137 THERAPY RM	5.5	August 17:00	340	0.4	259.3	1.31
138 RESOURCE						
138 RESOURCE	10.7	August 17:00	660	6.9	401.6	1.64
200B BREAKOUT (1)						
200B BREAKOUT (1)	4.6	July 18:00	287	3.3	1346.4	0.21
200D BREAKOUT	0.9	July 18:00	54	0.6	248.2	0.22
200E BREAKOUT	0.5	August 17:00	29	0.4	126.2	0.23
200F BREAKOUT	0.3	July 19:00	20	0.2	93.9	0.21
220 STAFF WORK						
220 STAFF WORK	3.0	July 18:00	182	0.6	214.6	0.85
221 GRADE 4						
221 GRADE 4	24.2	August 16:00	1493	8.7	1056.6	1.41
222 LEARNING CENTER						
222 LEARNING CENTER	22.8	August 9:00	1408	7.8	1026.2	1.37
222A TOILET	0.9	July 17:00	54	0.2	69.2	0.78
223 GRADE 5						
223 GRADE 5	24.3	August 16:00	1499	7.8	1025.2	1.46
224 GRADE 5						
224 GRADE 5	23.1	August 9:00	1425	9.5	1042.8	1.37
225 THERAPY RM						
225 THERAPY RM	14.6	June 17:00	900	4.5	404.8	2.22
227 GRADE 5						
227 GRADE 5	25.2	August 16:00	1557	11.7	1056.3	1.47

Zone Sizing Summary for AHU-1 Classrooms West

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024

Prepared by: GGD Consulting Engineers 8:19 AM

Zone Sizing Summary for AHU-2 Classrooms North (Level 1)

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name **AHU-2 Classrooms North (Level 1)**
Equipment Class **CW AHU**
Air System Type **VAV**
Number of zones **13**
Floor Area **12262.5** sqft
Location **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months **Jan to Dec**
Sizing Data **User-Modified**
Zone CFM Sizing **Peak zone sensible load**
Space CFM Sizing **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/sqft	Reheat Coil Capacity (MBH)	Reheat Coil Water gpm @ 20.0 F	Zone Htg Unit Coil Capacity (MBH)	Zone Htg Unit Water gpm @ 20.0 F	Mixing Box Fan Airflow (CFM)
100D CIRCULATION	600	146	0.21	1.3	0.13	7.3	0.73	0
114 PT	340	190	0.58	1.6	0.16	3.5	0.35	0
115C GYM OFFICE	110	21	0.59	0.2	0.02	3.0	0.30	0
116 GRADE 2	630	383	0.61	3.3	0.33	6.6	0.66	0
117 NURSE	265	56	0.46	0.5	0.05	6.4	0.64	0
117B REST	65	11	0.68	0.1	0.01	1.5	0.15	0
118 THERAPY RM	350	84	0.86	0.7	0.07	3.2	0.32	0
119 CARES	525	387	0.47	3.3	0.33	6.8	0.68	0
120 GRADE 2	665	385	0.64	3.3	0.33	6.6	0.66	0
121 GRADE 2	510	384	0.49	3.3	0.33	7.2	0.72	0
123 LEARNING CENTER	540	383	0.49	3.3	0.33	6.6	0.66	0
125 GRADE 1	585	392	0.53	3.4	0.34	5.5	0.55	0
127 GRADE 1	690	392	0.63	3.4	0.34	8.7	0.87	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
100D CIRCULATION	13.7	August 15:00	7.7	2892.1
114 PT	10.3	October 13:00	4.4	584.4
115C GYM OFFICE	3.2	July 15:00	3.7	187.3
116 GRADE 2	19.1	October 13:00	8.1	1027.5
117 NURSE	7.2	July 15:00	5.9	576.0
117B REST	1.8	June 18:00	1.8	95.9
118 THERAPY RM	11.0	October 13:00	4.0	406.5
119 CARES	14.4	June 18:00	8.3	1125.8
120 GRADE 2	21.2	October 12:00	8.2	1044.8
121 GRADE 2	14.2	June 18:00	8.9	1033.3
123 LEARNING CENTER	15.3	June 18:00	8.0	1093.2
125 GRADE 1	17.7	June 18:00	6.6	1096.2
127 GRADE 1	21.6	July 16:00	10.6	1099.5

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
100D CIRCULATION						
100D CIRCULATION	2.5	August 14:00	152	3.6	145.1	1.05
100D CIRCULATION	6.0	July 18:00	373	2.5	1769.4	0.21
100F TOILET VESTIBULE	0.2	July 19:00	12	0.1	61.3	0.19
100G BREAKOUT	1.0	July 19:00	64	0.5	338.5	0.19
100H BREAKOUT	0.6	August 15:00	39	0.3	176.0	0.22
122 STAFF TOILET	0.9	July 19:00	55	0.1	65.4	0.85
124A BOYS TOILET	1.9	July 18:00	117	0.2	136.2	0.86
124B GIRLS TOILET	0.5	August 17:00	30	0.3	139.4	0.22
126 STUDENT TOILET	0.2	August 18:00	15	0.1	60.9	0.25
114 PT						
114 PT	10.3	October 13:00	633	4.4	584.4	1.08
115C GYM OFFICE						
115C GYM OFFICE	3.2	July 15:00	198	3.7	187.3	1.06
116 GRADE 2						
116 GRADE 2	19.1	October 13:00	1179	8.1	1027.5	1.15
117 NURSE						
117 NURSE	7.0	July 15:00	431	5.8	511.0	0.84
117A NURSE TOILET	0.2	July 18:00	13	0.1	65.0	0.19
117B REST						
117B REST	1.8	June 18:00	114	1.8	95.9	1.19
118 THERAPY RM						
118 THERAPY RM	11.0	October 13:00	681	4.0	406.5	1.67
119 CARES						
119 CARES	14.2	June 18:00	876	8.2	1055.1	0.83
119A CARES TOILET	0.2	July 18:00	15	0.1	70.8	0.21
120 GRADE 2						
120 GRADE 2	21.2	October 12:00	1310	8.2	1044.8	1.25
121 GRADE 2						
121 GRADE 2	14.2	June 18:00	876	8.9	1033.3	0.85
123 LEARNING CENTER						
123 LEARNING CENTER	15.1	June 18:00	929	7.9	1023.9	0.91
123A TOILET	0.2	July 18:00	15	0.1	69.3	0.21
125 GRADE 1						
125 GRADE 1	17.7	June 18:00	1093	6.6	1096.2	1.00
127 GRADE 1						
127 GRADE 1	21.6	July 16:00	1335	10.6	1099.5	1.21

Zone Sizing Summary for AHU-3 Classrooms North (Level 2)

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name: **AHU-3 Classrooms North (Level 2)**
Equipment Class: **CW AHU**
Air System Type: **VAV**
Number of zones: **19**
Floor Area: **18477.7** sqft
Location: **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months: **Jan to Dec**
Sizing Data: **User-Modified**
Zone CFM Sizing: **Peak zone sensible load**
Space CFM Sizing: **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/sqft	Reheat Coil Capacity (MBH)	Reheat Coil Water gpm @ 20.0 F	Zone Htg Unit Coil Capacity (MBH)	Zone Htg Unit Water gpm @ 20.0 F	Mixing Box Fan Airflow (CFM)
100 CIRCULATION	480	140	0.15	1.2	0.12	8.5	0.85	0
200 CORRIDOR (2)	125	38	0.18	0.3	0.03	1.5	0.15	0
200B BREAKOUT	615	152	0.20	1.3	0.13	6.6	0.66	0
201 STAFF LUNCH & WORK	320	90	0.55	0.8	0.08	2.6	0.27	0
201A MOTHER'S ROOM	80	19	0.55	0.2	0.02	1.2	0.12	0
203 GUIDANCE	90	25	0.55	0.2	0.02	0.3	0.03	0
204 STE	760	629	0.58	5.4	0.54	9.1	0.91	0
205 PSYCH	85	20	0.52	0.2	0.02	0.3	0.03	0
206 RESOURCE	405	86	0.95	0.7	0.07	3.1	0.31	0
207 THERAPIST OFFICE	280	57	0.53	0.5	0.05	3.8	0.38	0
208 GRADE 3	775	383	0.76	3.3	0.33	6.8	0.68	0
209 CARES	560	387	0.50	3.3	0.33	6.6	0.66	0
210 THERAPY RM	355	84	0.89	0.7	0.07	3.0	0.30	0
211 GRADE 3	540	385	0.52	3.3	0.33	6.8	0.68	0
212 GRADE 3	785	382	0.77	3.3	0.33	6.6	0.66	0
213 LEARNING CENTER	555	384	0.51	3.3	0.33	6.7	0.67	0
215 GRADE 4	535	384	0.52	3.3	0.33	6.3	0.63	0
217 GRADE 4	655	388	0.61	3.4	0.34	9.6	0.96	0
219 THERAPY RM	350	84	0.86	0.7	0.07	3.2	0.32	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
100 CIRCULATION	8.0	August 19:00	10.9	3191.6
200 CORRIDOR (2)	2.0	July 18:00	1.7	697.7
200B BREAKOUT	11.4	July 18:00	7.6	3059.2
201 STAFF LUNCH & WORK	8.6	July 18:00	3.4	586.8
201A MOTHER'S ROOM	2.2	July 17:00	1.5	144.7
203 GUIDANCE	2.4	July 18:00	0.4	163.0
204 STE	21.8	July 15:00	11.3	1305.1
205 PSYCH	2.1	July 17:00	0.4	163.3
206 RESOURCE	12.9	November 12:00	3.8	428.1
207 THERAPIST OFFICE	7.4	June 18:00	4.8	527.8
208 GRADE 3	23.9	October 12:00	8.4	1026.1
209 CARES	14.9	June 18:00	8.1	1127.6
210 THERAPY RM	11.4	November 12:00	3.8	400.7
211 GRADE 3	14.6	June 18:00	8.5	1039.8
212 GRADE 3	24.7	October 12:00	8.1	1018.6
213 LEARNING CENTER	14.9	June 18:00	8.2	1095.8
215 GRADE 4	14.6	June 18:00	7.8	1029.3
217 GRADE 4	19.2	July 16:00	11.9	1067.0
219 THERAPY RM	11.3	June 17:00	3.9	405.5

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
100 CIRCULATION						
100 CIRCULATION	1.7	August 18:00	102	5.5	732.9	0.14
100 CIRCULATION (3)	1.8	August 22:00	105	1.3	472.6	0.22
100 CIRCULATION (4)	1.7	July 19:00	102	1.2	762.7	0.13
111 BOYS TOILETS	0.4	July 19:00	23	0.3	213.3	0.11
112 CUST	0.3	August 17:00	17	0.2	117.9	0.14
113 GIRLS TOILET	0.6	July 19:00	35	0.4	242.0	0.14
115A GYM VEST	0.2	July 19:00	15	0.2	162.1	0.09
115B GYM STORAGE	0.5	July 18:00	31	1.3	176.4	0.18
115D SHOWER	0.4	July 19:00	24	0.2	128.1	0.19
115E SHOWER	0.3	July 19:00	17	0.2	117.7	0.15
146 HALL	0.2	July 20:00	10	0.1	65.9	0.15
200 CORRIDOR (2)						
200 CORRIDOR	1.8	July 18:00	112	1.6	631.1	0.18
202 STAFF TOILET	0.2	July 19:00	13	0.1	66.7	0.19
200B BREAKOUT						
200B BREAKOUT	6.1	July 18:00	352	4.8	1983.0	0.18
200C BREAKOUT	0.6	July 18:00	32	0.5	178.7	0.18
200G BREAKOUT	0.4	July 19:00	24	0.3	129.3	0.18
200H BREAKOUT	0.6	August 16:00	34	0.5	182.9	0.19
214 STUDENT TOILET	0.5	July 19:00	27	0.2	62.8	0.42
216A TOILET VESTIBULE	0.1	July 19:00	6	0.1	58.1	0.10
216B GIRLS TOILETS	0.4	July 19:00	24	0.4	163.0	0.15
216C BOYS TOILET	1.2	July 18:00	68	0.5	172.0	0.39
216D CUST.	1.5	July 18:00	86	0.2	67.6	1.27
218 STAFF TOILET	0.2	July 19:00	10	0.1	61.8	0.17
201 STAFF LUNCH & WORK						
201 STAFF LUNCH & WORK	8.6	July 18:00	498	3.4	586.8	0.85
201A MOTHER'S ROOM						
201A MOTHER'S ROOM	2.2	July 17:00	126	1.5	144.7	0.87
203 GUIDANCE						
203 GUIDANCE	2.4	July 18:00	138	0.4	163.0	0.85
204 STE						
204 STE	21.0	July 15:00	1216	10.4	1170.5	1.04
204A SITE STORAGE	0.8	July 15:00	48	0.8	134.6	0.36
205 PSYCH						
205 PSYCH	2.1	July 17:00	122	0.4	163.3	0.75
206 RESOURCE						
206 RESOURCE	12.9	November 12:00	749	3.8	428.1	1.75
207 THERAPIST OFFICE						
207 THERAPIST OFFICE	7.4	June 18:00	430	4.8	527.8	0.81
208 GRADE 3						
208 GRADE 3	23.9	October 12:00	1384	8.4	1026.1	1.35
209 CARES						
209 CARES	14.7	June 18:00	848	7.9	1060.0	0.80
209A TOILET	0.2	July 18:00	14	0.2	67.7	0.20
210 THERAPY RM						
210 THERAPY RM	11.4	November 12:00	662	3.8	400.7	1.65
211 GRADE 3						
211 GRADE 3	14.6	June 18:00	847	8.5	1039.8	0.81
212 GRADE 3						
212 GRADE 3	24.7	October 12:00	1427	8.1	1018.6	1.40
213 LEARNING CENTER						
213 LEARNING CENTER	14.7	June 18:00	850	8.1	1032.5	0.82

Zone Sizing Summary for AHU-3 Classrooms North (Level 2)

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024

Prepared by: GGD Consulting Engineers 8:19 AM

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
213A TOILET	0.2	July 18:00	13	0.1	63.3	0.20
215 GRADE 4						
215 GRADE 4	14.6	June 18:00	845	7.8	1029.3	0.82
217 GRADE 4						
217 GRADE 4	19.2	July 16:00	1113	11.9	1067.0	1.04
219 THERAPY RM						
219 THERAPY RM	11.3	June 17:00	653	3.9	405.5	1.61

Zone Sizing Summary for AHU-4 Media Center

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name ..... **AHU-4 Media Center**
Equipment Class ..... **CW AHU**
Air System Type ..... **VAV**
Number of zones **1**
Floor Area ..... **2444.4** sqft
Location ..... **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**
Zone CFM Sizing ..... **Peak zone sensible load**
Space CFM Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/sqft	Reheat Coil Capacity (MBH)	Reheat Coil Water gpm @ 20.0 F	Zone Htg Unit Coil Capacity (MBH)	Zone Htg Unit Water gpm @ 20.0 F	Mixing Box Fan Airflow (CFM)
101 MEDIA CENTER	1880	518	0.77	4.5	0.45	13.9	1.39	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
101 MEDIA CENTER	49.7	October 13:00	17.0	2444.4

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
101 MEDIA CENTER						
101 MEDIA CENTER	49.7	October 13:00	3838	17.0	2444.4	1.57

Zone Sizing Summary for AHU-5 Cafeteria / Kitchen

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name ..... **AHU-5 Cafeteria / Kitchen**
Equipment Class ..... **CW AHU**
Air System Type ..... **VAV**
Number of zones **8**
Floor Area ..... **8000.6** sqft
Location ..... **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**
Zone CFM Sizing ..... **Peak zone sensible load**
Space CFM Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/sqft	Reheat Coil Capacity (MBH)	Reheat Coil Water gpm @ 20.0 F	Zone Htg Unit Coil Capacity (MBH)	Zone Htg Unit Water gpm @ 20.0 F	Mixing Box Fan Airflow (CFM)
100 CIRCULATION (CAF)	685	44	0.94	0.4	0.04	10.5	1.05	0
107 PLATFORM	755	388	0.85	3.4	0.34	1.3	0.13	0
108 CAFETERIA	2960	2082	0.83	18.0	1.80	16.1	1.61	0
108B HALL	140	28	0.30	0.2	0.02	0.7	0.07	0
108C KITCHEN	1315	213	0.95	0.9	0.09	2.0	0.20	0
108D KITCHEN OFFICE	60	19	0.91	0.2	0.02	0.1	0.01	0
108F HALL	80	6	0.80	0.1	0.01	0.2	0.02	0
110 TRASH & RECIEVING	335	125	0.42	1.1	0.11	4.4	0.44	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
100 CIRCULATION (CAF)	20.4	June 17:00	12.7	728.8
107 PLATFORM	20.9	July 18:00	1.3	889.9
108 CAFETERIA	84.2	August 17:00	19.5	3576.2
108B HALL	2.0	July 18:00	0.8	465.3
108C KITCHEN	36.5	July 18:00	9.7	1379.3
108D KITCHEN OFFICE	1.6	July 19:00	0.1	66.0
108F HALL	2.5	July 18:00	0.2	100.6
110 TRASH & RECIEVING	7.4	July 16:00	5.6	794.6

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
100 CIRCULATION (CAF)						
100 CIRCULATION	20.4	June 17:00	1573	12.7	728.8	2.16
107 PLATFORM						
107 PLATFORM	20.8	July 18:00	1603	1.3	861.3	1.86
107A DATA CLOSET	0.1	August 20:00	10	0.1	28.5	0.37
108 CAFETERIA						
108 CAF HALL	2.1	July 18:00	164	0.8	469.9	0.35
108 CAFETERIA	77.2	August 17:00	5959	18.0	2726.4	2.19
108 CAFETERIA (1)	4.2	July 18:00	324	0.3	219.5	1.48
108A CHAIR STORAGE	0.7	August 19:00	53	0.4	160.3	0.33
108B HALL						
108B HALL	1.2	July 18:00	90	0.4	253.8	0.36
109 CHAIR STORAGE	0.8	July 18:00	64	0.3	211.5	0.30
108C KITCHEN						
108C KITCHEN	33.9	July 18:00	2615	9.3	1148.7	2.28
108E KITCHEN TOILET	0.4	July 19:00	28	0.1	71.7	0.38
108G KITCHEN STORAGE	2.2	July 18:00	167	0.2	120.3	1.39
108H VEST	0.1	July 20:00	10	0.1	38.7	0.26
108D KITCHEN OFFICE						
108D KITCHEN OFFICE	1.6	July 19:00	120	0.1	66.0	1.83
108F HALL						
108F HALL	2.5	July 18:00	196	0.2	100.6	1.95
110 TRASH & RECIEVING						
110 TRASH & RECIEVING	7.4	July 16:00	571	5.6	794.6	0.72

Zone Sizing Summary for AHU-6 Gym

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name ..... **AHU-6 Gym**
Equipment Class ..... **CW AHU**
Air System Type ..... **VAV**
Number of zones **1**
Floor Area ..... **6178.6** sqft
Location ..... **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**
Zone CFM Sizing ..... **Peak zone sensible load**
Space CFM Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/sqft	Reheat Coil Capacity (MBH)	Reheat Coil Water gpm @ 20.0 F	Zone Htg Unit Coil Capacity (MBH)	Zone Htg Unit Water gpm @ 20.0 F	Mixing Box Fan Airflow (CFM)
115 GYM	3000	3000	0.49	52.8	5.28	66.6	6.66	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
115 GYM	244.2	July 15:00	81.3	6178.6

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
115 GYM						
115 GYM	244.2	July 15:00	15079	81.3	6178.6	2.44

Zone Sizing Summary for AHU-7 Admin Area

(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name ..... **AHU-7 Admin Area**
Equipment Class ..... **CW AHU**
Air System Type ..... **VAV**
Number of zones **13**
Floor Area ..... **7165.9** sqft
Location ..... **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**
Zone CFM Sizing ..... **Peak zone sensible load**
Space CFM Sizing ..... **Individual peak space loads**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/sqft	Reheat Coil Capacity (MBH)	Reheat Coil Water gpm @ 20.0 F	Zone Htg Unit Coil Capacity (MBH)	Zone Htg Unit Water gpm @ 20.0 F	Mixing Box Fan Airflow (CFM)
100 CIRCULATION (MEDIA CENTER)	245	93	0.16	0.8	0.08	23.2	2.32	0
100 CIRCULATION ADMIN AREA	650	66	0.59	0.6	0.06	1.8	0.18	0
102 IEP	230	83	0.59	0.7	0.07	0.5	0.05	0
103 LITERACY	375	189	0.66	1.6	0.16	6.8	0.68	0
104 MAIN OFFICE	310	39	0.98	0.3	0.03	3.7	0.37	0
104A MAIL & COPY	255	3	0.72	0.0	0.00	0.5	0.05	0
104B HALL	55	9	0.25	0.1	0.01	0.3	0.03	0
104C PRINCIPAL OFFICE	305	45	0.73	0.4	0.04	4.0	0.40	0
104D RECORD	65	12	0.57	0.1	0.01	0.2	0.02	0
104F GUIDANCE	190	21	1.00	0.2	0.02	2.3	0.23	0
104G CONF RM	245	33	0.83	0.3	0.03	4.8	0.48	0
105 AFTER SCHOOL	95	19	0.63	0.2	0.02	1.3	0.13	0
106 MUSIC	1045	652	0.69	5.6	0.56	12.4	1.24	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
100 CIRCULATION (MEDIA CENTER)	15.6	July 14:00	27.9	1544.4
100 CIRCULATION ADMIN AREA	4.0	July 18:00	1.9	1100.7
102 IEP	5.7	August 16:00	0.5	387.2
103 LITERACY	9.9	August 10:00	8.4	571.0
104 MAIN OFFICE	8.6	October 13:00	4.5	315.2
104A MAIL & COPY	6.2	August 16:00	0.5	356.4
104B HALL	0.8	September 14:00	0.3	217.6
104C PRINCIPAL OFFICE	7.7	September 13:00	4.9	415.1
104D RECORD	1.4	July 18:00	0.2	113.6
104F GUIDANCE	5.2	October 13:00	2.8	190.8
104G CONF RM	6.9	September 10:00	5.8	296.5
105 AFTER SCHOOL	2.5	July 9:00	1.7	150.5
106 MUSIC	29.4	August 10:00	15.3	1506.9

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
100 CIRCULATION (MEDIA CENTER)						
100 CIRCULATION	15.6	July 14:00	1203	27.9	1544.4	0.78
100 CIRCULATION ADMIN AREA						
100 CIRCULATION (2)	4.0	July 18:00	650	1.9	1100.7	0.59
102 IEP						
102 IEP	5.7	August 16:00	443	0.5	387.2	1.15
103 LITERACY						
103 LITERACY	9.9	August 10:00	765	8.4	571.0	1.34
104 MAIN OFFICE						
104 MAIN OFFICE	8.6	October 13:00	663	4.5	315.2	2.10
104A MAIL & COPY						
104A MAIL & COPY	6.2	August 16:00	480	0.5	356.4	1.35
104B HALL						
104B HALL	0.6	September 14:00	49	0.2	151.6	0.32
104E STAFF TOILET	0.2	July 18:00	17	0.1	65.9	0.26
104C PRINCIPAL OFFICE						
104C PRINCIPAL OFFICE	7.7	September 13:00	597	4.9	415.1	1.44
104D RECORD						
104D RECORD	1.4	July 18:00	109	0.2	113.6	0.96
104F GUIDANCE						
104F GUIDANCE	5.2	October 13:00	398	2.8	190.8	2.09
104G CONF RM						
104G CONF RM	6.9	September 10:00	535	5.8	296.5	1.81
105 AFTER SCHOOL						
105 AFTER SCHOOL	2.5	July 9:00	195	1.7	150.5	1.30
106 MUSIC						
106 MUSIC	28.0	August 10:00	2162	12.4	1192.9	1.81
106A MUSIC STORAGE	1.7	July 17:00	128	2.9	313.9	0.41

Zone Sizing Summary for UH
(In Alternative: Squantum ES)

Project: Squantum ES 12/05/2024
Prepared by: GGD Consulting Engineers 8:19 AM

Air System Information

Air System Name ..... **UH**
Equipment Class ..... **TERM**
Air System Type **2P-FC**

Number of zones **18**
Floor Area ..... **5015.3** sqft
Location ..... **Boston Logan Intl, MA, USA**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **Calculated**

Zone CFM Sizing ..... **Sum of space airflow rates**
Space CFM Sizing ..... **Individual peak space loads**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (F)	Coil Leaving DB / WB (F)	Water Flow @ 10.0 F (gpm)	Time of Peak Coil Load	Zone CFM/sqft
000 BASEMENT CIRCULATION	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.29
001 RECIEVE / STORAGE	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.06
002 OUTDOOR STORAGE	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.06
003 MEP	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.15
004 CUST. WORKSHOP	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.23
005 CUST. OFFICE	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.15
006 EMR	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.26
100A VESTIBULE	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.08
100B VEST	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.08
100C VESTIBULE	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.16
110A MAIN ELEC	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.32
110B MDF	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.03
110C EMR ELEC	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.11
124C EMER ELEC	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.27
130A ELEC	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.02
130B IDF	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.05
220A ELEC	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.06
unnamed space (7)	0.0	0.0	0.0 / -3.1	0.0 / -3.1	0.00	-	0.26

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (F)	Htg Coil Water Flow @20.0 F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
000 BASEMENT CIRCULATION	7.1	71.8 / 100.8	0.71	226	0.017	0.013	47
001 RECIEVE / STORAGE	0.0	0.0 / 0.0	0.00	9	0.001	0.000	9
002 OUTDOOR STORAGE	0.0	70.2 / 70.5	0.00	19	0.001	0.001	19
003 MEP	4.5	70.2 / 97.8	0.45	151	0.011	0.009	0
004 CUST. WORKSHOP	1.2	70.2 / 81.4	0.12	100	0.007	0.006	100
005 CUST. OFFICE	0.7	70.2 / 98.7	0.07	21	0.002	0.001	19
006 EMR	1.1	70.2 / 106.8	0.11	28	0.002	0.002	0
100A VESTIBULE	4.4	60.2 / 197.7	0.44	30	0.002	0.002	0
100B VEST	1.5	56.4 / 196.0	0.15	10	0.001	0.001	0
100C VESTIBULE	3.7	60.2 / 166.1	0.37	32	0.002	0.002	0
110A MAIN ELEC	6.5	70.2 / 125.8	0.65	108	0.008	0.006	0
110B MDF	0.8	55.3 / 155.0	0.08	7	0.001	0.000	0
110C EMR ELEC	0.2	63.5 / 111.8	0.02	3	0.000	0.000	0
124C EMER ELEC	0.1	48.7 / 68.5	0.01	3	0.000	0.000	0
130A ELEC	0.4	48.4 / 148.1	0.04	3	0.000	0.000	0
130B IDF	0.7	51.9 / 151.6	0.07	6	0.000	0.000	0
220A ELEC	0.7	53.0 / 152.7	0.07	7	0.001	0.000	0
unnamed space (7)	2.5	70.2 / 97.0	0.25	85	0.006	0.005	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (sqft)
000 BASEMENT CIRCULATION	0.0	January 0:00	5.6	791.1
001 RECIEVE / STORAGE	0.0	January 0:00	0.0	141.8
002 OUTDOOR STORAGE	0.0	January 0:00	0.0	318.8
003 MEP	0.0	January 0:00	4.1	1004.6
004 CUST. WORKSHOP	0.0	January 0:00	1.1	444.3
005 CUST. OFFICE	0.0	January 0:00	0.6	145.8
006 EMR	0.0	January 0:00	0.7	104.5
100A VESTIBULE	0.0	January 13:00	1.1	390.8
100B VEST	0.0	April 9:00	0.4	121.1
100C VESTIBULE	0.0	June 10:00	1.2	198.9
110A MAIN ELEC	0.0	August 18:00	2.9	334.1
110B MDF	0.0	January 0:00	0.2	233.7
110C EMR ELEC	0.0	January 0:00	0.0	26.1
124C EMER ELEC	0.0	January 0:00	0.0	11.1
130A ELEC	0.0	January 0:00	0.1	159.6
130B IDF	0.0	January 0:00	0.2	136.6
220A ELEC	0.0	January 0:00	0.2	121.8
unnamed space (7)	0.0	January 0:00	2.3	330.7

Space Loads and Airflows

Zone Name / Space Name	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (sqft)	Space CFM/sqft
000 BASEMENT CIRCULATION						
000 BASEMENT CIRCULATION	0.0	January 0:00	226	5.6	791.1	0.29
001 RECIEVE / STORAGE						
001 RECIEVE / STORAGE	0.0	January 0:00	9	0.0	141.8	0.06
002 OUTDOOR STORAGE						
002 OUTDOOR STORAGE	0.0	January 0:00	19	0.0	318.8	0.06
003 MEP						
003 MEP	0.0	January 0:00	151	4.1	1004.6	0.15
004 CUST. WORKSHOP						
004 CUST. WORKSHOP	0.0	January 0:00	100	1.1	444.3	0.23
005 CUST. OFFICE						
005 CUST. OFFICE	0.0	January 0:00	21	0.6	145.8	0.15
006 EMR						
006 EMR	0.0	January 0:00	28	0.7	104.5	0.26
100A VESTIBULE						
100A VESTIBULE	0.0	January 13:00	30	1.1	390.8	0.08
100B VEST						
100B VEST	0.0	April 9:00	10	0.4	121.1	0.08
100C VESTIBULE						
100C VESTIBULE	0.0	June 10:00	32	1.2	198.9	0.16
110A MAIN ELEC						
110A MAIN ELEC	0.0	August 18:00	108	2.9	334.1	0.32
110B MDF						
110B MDF	0.0	January 0:00	7	0.2	233.7	0.03
110C EMR ELEC						
110C EMR ELEC	0.0	January 0:00	3	0.0	26.1	0.11
124C EMER ELEC						
124C EMER ELEC	0.0	January 0:00	3	0.0	11.1	0.27
130A ELEC						
130A ELEC	0.0	January 0:00	3	0.1	159.6	0.02
130B IDF						
130B IDF	0.0	January 0:00	6	0.2	136.6	0.05
220A ELEC						
220A ELEC	0.0	January 0:00	7	0.2	121.8	0.06
unnamed space (7)						
unnamed space (7)	0.0	January 0:00	85	2.3	330.7	0.26

Electrical Load

The building connected electrical load estimates based on preliminary building design:

Load Type	KVA
HVAC Loads (including AHU, Destratification Fans, DCU, Chiller, UH, VRF, Boilers, FCs, Pumps, RTUs, Exhaust Fans, DCU)	640 KVA
Elevator	31.7 KVA
Exterior Lighting	2.0 KVA
Interior Lighting	45 KVA
General Power	160 KVA
Kitchen	75 KVA
EV Charging	144 KVA
Plumbing/Fire Protection (Pumps, etc.)	150 KVA
Total Connected Load	**1,247.7 KVA**

Facility & Maintenance Requirements

As a member of the Squantum School Project Working Group, Walter McDonald, Director of Building Maintenance for Quincy Public Buildings, have been an active participant in the development of the project since Feasibility Study. Additionally, David Scott, Quincy Public Building Mechanical Engineer, have been engaged since Feasibility Study and has provide valuable input on the proposed HVAC system for the project.

The following have been reviewed with the Quincy Public Buildings and Quincy Public Schools:

- HVAC Systems
- Lighting Controls
- Building Maintenance System
- Site Design and Materials
- Building Exterior Design and Materials
- Building Interior Design and Materials
- Custodial Spaces including Workshop and Outdoor Storage Room
- Mechanical and Electrical Rooms
- MDF and IDF Rooms
- Roof Access

Mr. McDonald and Mr. Scott will continue to be consulted on the facility and maintenance requirements throughout the Detailed Design phases of the project. Training hours and scheduling have been discussed and will continue to be discussed and scheduled accordingly through Detailed Design phase and Construction phase.

Quality Control Narratives

At the completion of each project milestone, Arrowstreet conducts an independent internal QA review led by a separate Arrowstreet architect or engineer. This includes:

- Constructibility Review: Assessing the design for feasibility and practical implementation on-site.
- Interdisciplinary Coordination: Ensuring alignment across architectural, mechanical, electrical, and other disciplines.

Arrowstreet's QA review focuses on critical project elements, including:

- Ceiling Clearances: Ensuring adequate space for systems and equipment.
- Mechanical Room and Shaft Sizes: Confirming compliance with spatial and functional requirements.
- Drawing and Specification Coordination: Verifying clarity and consistency in project documentation.
- Filed Sub-Bid Work: Ensuring proper classification and documentation for bid packages.
- Scheduling: Aligning construction phasing with the project timeline.
- Equipment and Power Coordination: Confirming the proper coordination and placement of systems.
- Integration of New and Existing Construction: Coordinating transitions and connections.
- Construction Phasing: Addressing sequencing and site logistics to minimize disruption.

By following these QA/QC practices, Arrowstreet ensures the delivery of a well-coordinated and high-quality project that meets all stakeholder expectations and regulatory standards.

6A.3.2 Space Summary

Updated Space Summary

The Design Development Space Summary aligns with the Design Drawings and generally complies with the room quantities, sizes and types of spaces submitted in the Schematic Design Submission with very minor changes to room net square feet due to overall programming refinement. Room adjacencies have remained the same from SD to DD submission.

The current design has maintained the overall design responses to the final educational program and no changes were made to the educational program. The DD Space Summary can be found on the following pages.

The Designer certifies the Design Development Space Summary is in compliance as agreed upon in the Project Scope and Budget Agreement, with exception to the minor changes described.

Confirming Grossing Factor

The Designer confirms that the grossing factor allowed according to MSBA Guidelines is in alignment with the Design Drawings, and does not exceed 1.5 grossing factor. There a slight increase to the project's total Gross Square Feet (GSF) from the Schematic Design Report, 79,801 GSF to 80,058 GSF. As explained in Sustainability Requirements of this report, the added 257 SF was a result of additional 2" insulation required to meet the Massachusetts Energy Code.

Comparison of Current Design w/ Final Education Program

There are some minor Net Square Feet (NSF) variations between the Schematic Design submission to the Design Development submission. These variations are described as follows:

Core Academic Spaces

A slight increase of total NSF for the Core Academic Spaces, from 21,400 to 21,559 NSF. Maintains

conformity with MSBA minimum and maximum size range requirements. Two sinks within each classroom is being provided.

The NSF changes are as follows:

- (3) Kindergarten Classrooms decreased from 3,600 to 3,591 NSF.
- (3) Grade 1 Classrooms increased from 3,000 NSF to 3,023 NSF
- (12) General Classrooms increased from 11,400 to 11,483 NSF
- No change to STE Room, remained at 1,080 NSF, and meets MSBA minimum size.
- No change to STE Storage, remained at 120 NSF, and meets MSBA minimum size.
- (2) ELL Classrooms increased from 1,000 to 1,062 NSF
- No Changes to the (4) Breakout Spaces, remained at 1,200 NSF

Special Education

A slight increase of total NSF for the Special Education Spaces, from 9,805 to 9,842 NSF. Maintains conformity with MSBA minimum and maximum size range requirements. Two sinks within each classroom is being provided.

The NSF changes are as follows:

- (2) CARES Classrooms increased from 1,900 to 1,917 NSF
- (3) Learning Centers decreased from 2,900 to 2,850 NSF
- (5) SPED Toilet Rooms decreased from 300 to 268 NSF
- (2) Resource Rooms increased from 735 to 753 NSF
- Literacy Room increased from 500 to 513 NSF
- Psychologist Office decreased from 200 to 173 NSF
- (6) Therapy Rooms increased from 1,980 to 2,019 NSF
- PT Room increased from 540 to 544 NSF
- IEP Room decreased from 350 to 341 NSF
- Therapist Office Suite increased from 400 to 464 NSF

Art and Music

A slight increase of total NSF for Art and Music, from 2,575 to 2,595 NSF.

The NSF changes are as follows:

- Art Room increased from 1,000 to 1,017 NSF
- Art Storage increased from 150 to 153 NSF
- No change to Music Room, remained at 1,200 NSF
- No change to Music Storage, remained at 225 NSF

Health and Physical Education

A slight decrease of total NSF for the Health and Physical Education Spaces, from 6,500 to 6,483 NSF.

The NSF changes are as follows:

- Gymnasium decreased from 6,000 to 5,994 NSF and therefore just under MSBA guidelines for gymnasium size.
- Gym Office increased from 150 to 152 NSF
- Gym Storage increased from 150 to 151 NSF
- (2) Shower Rooms decreased from 200 to 186 NSF

Media Center

A slight increase of total NSF for the Media Center, from 2,361 to 2,387 NSF.

Dining and Foodservice

A slight increase of total NSF for the Dining and Foodservice, from 6,057 to 6,060 NSF.

The NSF changes are as follows:

- Cafeteria increased from 2,850 to 2,871 NSF

- No change to the Stage, remained at 1,000 NSF
- (2) Tables/Chair Storage increased from 327 to 347 NSF
- Kitchen decreased from 1,680 to 1,642 NSF
- No change Staff Lunchroom, remained at 200 NSF

Medical

A slight increase of total NSF for the Medical, from 510 to 594 NSF.

The NSF changes are as follows:

- Nurse's Office plus Resting Area increased from 450 to 539 NSF
- Medical Toilet decreased from 60 to 55 NSF

Administration and Guidance

A slight decrease of total NSF for Administration and Guidance, from 2,095 to 2,082 NSF.

The NSF changes are as follows:

- General Office, Toilet & Principal Secretary decreased from 465 to 413 NSF
- Teachers' Mail, Time Room, Copy Room increased from 250 to 316 NSF
- Principal's Office decreased from 375 to 290 NSF
- Conference Room increased from 255 to 262 NSF
- (2) Guidance Office (Districted opted for no Guidance Storage) increased from 300 to 362 NSF
- Teacher Workroom decreased from 340 to 321 NSF

Summary of Variances in the Space Summary

Room Type	Schematic Design Report Total NSF	Design Development Report Total NSF
Core Academic Spaces	21,400	21,559
Special Education	9,805	9,842
Art & Music	2,575	2,595
Health & Physical Education	6,500	6,483
Media Center	2,361	2,387
Dining & Foodservice	6,057	6,060
Medical	510	594
Administration & Guidance	2,095	2,082
Custodial & Maintenance	1,980	1,979
Other	240	250
TOTAL NSF	**53,523**	**53,831**
TOTAL GSF	79,801	80,058
Grossing Factor (GFA / NFA)	1.49	1.49

Custodial and Maintenance

A slight decrease of total NSF for Custodial and Maintenance, from 1,980 to 1,979 NSF.

The NSF changes are as follows:

- No change to Custodial Office, remains at 150 NSF
- Custodian Workshop decreased from 375 to 373 NSF
- No change to Custodian Storage, remained 385 NSF
- Trash/Recycling & Receiving/General Storage increased from 627 to 753 NSF
- Store Room decreased from 253 to 113 NSF
- Network/Telcom Room increased from 200 to 206 NSF

Other

A slight increase of total NSF for Other Spaces, from 240 to 250 NSF.

The NSF changes are as follows:

- After-school Office increased from 120 to 129 NSF
- Mother's Room increased from 121 to 120 NSF

DESE Approval of Special Education Spaces

An updated DESE package is being submitted at Design Development Submission for their review and approval to address the minor changes noted due to refinement of the building detailed design. Location and adjacencies of the Special Education spaces have not changed from Schematic Design to current Design Development Drawings. The following outlines the changes in Net Square Feet for the Special Education.

An overall slight increase of total NSF for the Special Education Spaces, from 9,805 to 9,842 NSF.

The NSF changes are as follows:

- (2) CARES Classrooms increased from 1,900 to 1,917 NSF
- (3) Learning Centers decreased from 2,900 to 2,850 NSF
- (5) SPED Toilet Rooms decreased from 300 to 268 NSF
- (2) Resource Rooms increased from 735 to 753 NSF
- Literacy Room increased from 500 to 513 NSF
- Psychologist Office decreased from 200 to 173 NSF
- (6) Therapy Rooms increased from 1,980 to 2,019 NSF
- PT Room increased from 540 to 544 NSF
- IEP Room decreased from 350 to 341 NSF
- Therapist Office Suite increased from 400 to 464 NSF

Included on the following page, a copy of the most recent letter from DESE approving the SPED spaces from the Schematic Design Submission.

DESE approved Public Day Education spaces: Not applicable for this project.

DESE approved Chapter 74 spaces: Not applicable for this project.

dese Department of Elementary and Secondary Education
Russell D. Johnston | Acting Commissioner

July 29, 2024

Mike McGurl
Director of Capital Planning
Massachusetts School Building Authority
40 Broad Street, Suite 500
Boston, MA 02109

Dear Director McGurl:

We have reviewed the documentation that was submitted by the Quincy Public Schools on July 2, 2024 for the construction project at the Squantum School. We have done so in accordance with M.G.L. chapter 70B, section 6(6), which instructs us to certify "...that adequate provisions have been made in the school project for children with disabilities, as defined in section 1 of chapter 71B...".

We are satisfied with the district's proposal and believe their special education plan will provide the community with an opportunity to serve its special education students well. The Massachusetts Department of Elementary and Secondary Education certifies that this school project has been planned and designed to adequately provide appropriate space to serve the programs and school populations referenced in M.G.L. chapter 70B, section 6(6) noted above.

Sincerely,

Matthew J. Deninger
DESE designee on the MSBA Board of Directors

Cc: Vani Rastogi-Kelly, Director, Public School Monitoring, DESE
Amy Paulin, Assistant Director, Public School Monitoring, DESE
Andrew MacKenzie, Supervisor, Public School Monitoring, DESE
Katie DeCristofaro, Capital Program Manager, MSBA
Christina Forde, Project Manager, MSBA
Carley Belfield, Project Coordinator, MSBA
Elena Seiti, Senior Project Coordinator, MSBA
Allison Sullivan, Senior Project Coordinator, MSBA

Proposed Space Summary - Elementary School

Date: 12/20/2024 Design Development Submittal

Quincy Squantum School		EXISTING CONDITIONS			PROPOSED PROGRAM									VARIATION TO MSBA GUIDELINES			MSBA GUIDELINES (DO NOT MODIFY) (Refer to Educational Facility Planning for additional information)			
					EXISTING TO REMAIN / RENOVATED			NEW CONSTRUCTION			TOTAL									
	ROOM TYPE	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	COMMENTS
CORE ACADEMIC				**15,785**			**0**			**21,559**			**21,559**			**3,459**			**18,100**	STE Guidelines Policy
(List rooms of different sizes separately)																				
1.1	Kindergarten Classroom with Toilet	894	3	2,682			0	1,197	3	3,591	1,197	3	3,591	-3	-1	-1,209	1,200	4	4,800	1,100 NSF (minimum size) - 1,300 NSF (maximum size); Minimum of (2) sinks required per Kindergarten Classroom
1.2	General Classroom (Grades 1-6) *Applied to Grades 2-5*	843	15	12,645			0	957	12	11,483	957	12	11,483	7	-2	-1,817	950	14	13,300	900 NSF (minimum size) - 1,000 NSF (maximum size); Minimum of (2) sinks required per General Classroom
1.3	Science, Technology, Engineering (STE) Room (Grades 3-6) (if applicable)			0			0	1,080	1	1,080	1,080	1	1,080	0	1	1,080	1,080	0	-	1,080 NSF (minimum size); Refer to the 2018 STE Guidelines for additional information.
1.4	STE Storage Room (if applicable)			0			0	120	1	120	120	1	120	0	1	120	120	0	-	Minimum of (1) 120 NSF STE Storage Room required per STE Room; Refer to the 2018 STE Guidelines for additional information.
1.5	General Classroom (Grade 1)			0			0	1,008	3	3,023	1,008	3	3,023	1,008	3	3,023				
1.6	Breakouts - Grades - 2-5			0			0	300	4	1,200	300	4	1,200	300	4	1,200				
1.7	ELL	458	1	458			0	531	2	1,062	531	2	1,062	531	2	1,062				
SPECIAL EDUCATION				**4,556**			**1,448**			**8,394**			**9,842**			**5,312**			**4,530**	Special Education spaces require DESE review and approval.
(List rooms of different sizes separately)																				
2.1	Self-Contained SPED - CARES	636	2	1,272			0	959	2	1,917	959	2	1,917	9	-1	-933	950	3	2,850	900 NSF (minimum size) - 1,300 NSF; equal to the size of the proposed General Classrooms that serve the same student population.
2.2	Self-Contained SPED - Toilet Room			0			0	54	5	268	54	5	268	-6	2	88	60	3	180	
2.3	Resource Room	326	2	652	360	1	360	393	1	393	753	2	753	253	0	-247	500	2	1,000	1/2 size of a General Classroom
	Small Group Room/ Reading	140	1	140			0							-500	-1	-500	500	1	500	1/2 size of a General Classroom
2.4	Self-Contained SPED - Learning Center	708	3	2,124			0			0	0	0	0	0	0	0				
2.5	Self-Contained SPED - Learning Center							950	3	2,850	950	3	2,850	950	3	2,850				
2.6	Literacy			0	513	1	513			0	513	1	513	513	1	513				
2.7	Psychologist	92	1	92			0	173	1	173	173	1	173	173	1	173				
2.8	Therapy Rooms (OT / Reading / Speech / BCBA / Other Services)	92	3	276	234	1	234	357	5	1,785	591	6	2,019	591	6	2,019				
2.9	PT						0	544	1	544	544	1	544	544	1	544				
2.1	IEP Conference Room			0	341	1	341			0	341	1	341	341	1	341				
2.1	Therapist Office Suite (4 people at a time) For Staff: BCBA, SLP & Speech, Music Therapist, OT, Reading (OG)			0			0	464	1	464	464	1	464	464	1	464				
	Public Day Education Spaces (List rooms separately below)																			
	Not Applicable to this project			0			0			0	0	0	0	0	0	0				
	Collaborative Program Spaces (List rooms separately below)																			
	Not Applicable to this project			0			0			0	0	0	0	0	0	0				
ART & MUSIC				**0**			**0**			**2,595**			**2,595**			**20**			**2,575**	
3.1	Art Classroom (25 seats)	0	0	0			0	1,017	1	1,017	1,017	1	1,017	17	0	17	1,000	1	1,000	Assumed schedule: 2 times per week per student
3.2	Art Workroom with Storage and Kiln			0			0	153	1	153	153	1	153	3	0	3	150	1	150	
3.3	Music Classroom / Large Group (25-50 seats)			0			0	1,200	1	1,200	1,200	1	1,200	0	0	0	1,200	1	1,200	Assumed schedule: 2 times per week per student
3.4	Music ~~Practice / Ensemble~~ Storage	0	0	0			0	225	1	225	225	1	225	150	-2	0	75	3	225	
HEALTH & PHYSICAL EDUCATION				**4,271**			**0**			**6,483**			**6,483**			**183**			**6,300**	Excess Physical Education Spaces Policy
4.1	Gymnasium	4,022	1	4,022			0	5,994	1	5,994	5,994	1	5,994	-6	0	-6	6,000	1	6,000	
4.2	Gym Storeroom			0			0	152	1	152	152	1	152	2	0	2	150	1	150	
4.3	Health Instructor's Office with Shower and Toilet	249	1	249			0	151	1	151	151	1	151	1	0	1	150	1	150	
4.4	Showers (for Resiliency Shelter Use)			0			0	93	2	186	93	2	186	93	2	186				

Proposed Space Summary - Elementary School

Date: 12/20/2024 Design Development Submittal

Quincy Squantum School	EXISTING CONDITIONS			PROPOSED PROGRAM: EXISTING TO REMAIN / RENOVATED			PROPOSED PROGRAM: NEW CONSTRUCTION			PROPOSED PROGRAM: TOTAL			VARIATION TO MSBA GUIDELINES			MSBA GUIDELINES (DO NOT MODIFY) (Refer to Educational Facility Planning for additional information)			
ROOM TYPE	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	COMMENTS
MEDIA CENTER			**2,593**			**2,387**			**0**			**2,387**			**7**			**2,380**	
5.1 Media Center / Reading Room	2,304	1	2,304	2,387	1	2,387			0	2,387	1	2,387	7	0	7	2,380	1	2,380	
Computer Lab	289	1	289			0			0	0	0	0	0	0	0				
DINING & FOOD SERVICE			**1,172**			**0**			**6,060**			**6,060**			**3**			**6,057**	
6.1 Cafeteria / Dining	0	0	0			0	2,871	1	2,871	2,871	1	2,871	21	0	21	2,850	1	2,850	Based on 2 lunch seatings - 15 NSF per seat
6.2 Stage	939	1	939			0	1,000	1	1,000	1,000	1	1,000	0	0	0	1,000	1	1,000	
6.3 Chair / Table / Equipment Storage	0	0	0			0	178	1	178	178	1	178	-149	0	-149	327	1	327	
Chair / Table / Equipment Storage							169	1	169	169	1	169	169	1	169				
6.4 Kitchen	233	1	233			0	1,447	1	1,447	1,447	1	1,447	-233	0	-233	1,680	1	1,680	1,600 NSF for first 300 students + 1 NSF per additional student
Kitchen Office							49	1	49	49	1	49	49	1	49				
Kitchen Dry Stor.							101	1	101	101	1	101	101	1	101				
Kitchen Toilet							45	1	45	45	1	45	45	1	45				
Staff Lunch Room	0	0	0			0	200	1	200	200	1	200	0	0	0	200	1	200	20 NSF per student
MEDICAL			**169**			**0**			**594**			**594**			**84**			**510**	
7.1 Medical Suite Toilet			0			0	55	1	55	55	1	55	-5	0	-5	60	1	60	
7.2 Nurses' Office / Waiting Room	169	1	169			0	458	1	458	458	1	458	208	0	208	250	1	250	
7.3 Examination Room / Resting			0			0	81	1	81	81	1	81	-19	-1	-119	100	2	200	
ADMINISTRATION & GUIDANCE			**1,526**			**0**			**2,082**			**2,082**			**-13**			**2,095**	
8.1 General Office / Waiting Room with Toilet	256	1	256			0	413	1	413	413	1	413	73	0	73	340	1	340	
8.2 Teachers' Mail and Time Room	52	1	52			0	316	1	316	316	1	316	216	0	216	100	1	100	
Copy Room/Duplicating Room - *Part of Mail & Time Room*			0			0			0	0	0	0	-150	-1	-150	150	1	150	
8.4 Records Room			0			0	118	1	118	118	1	118	8	0	8	110	1	110	
8.5 Principal's Office with Conference Area	198	1	198			0	290	1	290	290	1	290	-85	0	-85	375	1	375	
Principal's Secretary / Waiting - *Part of Main Office*			0			0		0	0	0	0	0	-125	-1	-125	125	1	125	
Assistant Principal's Office			0			0			0	0	0	0	-120	0	0	120	0	-	
8.7 Supervisory / Spare Office			0			0		0	0	0	0	0	-120	-1	-120	120	1	120	
8.8 Conference Room			0			0	262	1	262	262	1	262	12	0	12	250	1	250	
8.9 Guidance Office	307	1	307			0	150	1	150	150	1	150	0	0	0	150	1	150	
Guidance Office							212	1	212	212	1	212	212	1	212				
Guidance Storeroom	21	1	21			0			0	0	0	0	-35	-1	-35	35	1	35	
8.10 Teachers' Work Room	692	1	692			0	321	1	321	321	1	321	-19	0	-19	340	1	340	
CUSTODIAL & MAINTENANCE			**446**			**0**			**1,980**			**1,980**			**0**			**1,980**	
9.1 Custodian's Office	247	1	247			0	150	1	150	150	1	150	0	0	0	150	1	150	
9.2 Custodian's Workshop			0			0	373	1	373	373	1	373	-2	0	-2	375	1	375	
9.3 Custodian's Storage	162	1	162			0	385	1	385	385	1	385	10	0	10	375	1	375	
9.4 Recycling Room / Trash			0			0	753	1	753	753	1	753	353	0	353	400	1	400	
9.5 Receiving and General Supply - *Part of Trash Room Above*			0			0			0	0	0	0	-227	-1	-227	227	1	227	
9.6 Storeroom	37	1	37			0	113	1	113	113	1	113	-140	0	-140	253	1	253	
9.7 Network / Telecom Room			0			0	206	1	206	206	1	206	6	0	6	200	1	200	

Proposed Space Summary - Elementary School

Date: 12/20/2024 Design Development Submittal

Quincy Squantum School	EXISTING CONDITIONS			PROPOSED PROGRAM									VARIATION TO MSBA GUIDELINES			MSBA GUIDELINES (DO NOT MODIFY) (Refer to Educational Facility Planning for additional information)			
				EXISTING TO REMAIN / RENOVATED			NEW CONSTRUCTION			TOTAL									
ROOM TYPE	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	ROOM NFA[1]	# OF ROOMS	AREA TOTALS	COMMENTS
OTHER			**0**			**0**			**250**			**250**			**250**			**0**	
(List rooms separately below)																			
Pre-Kindergarten Classroom with Toilet (if applicable)			0			0			0	0	0	0	-1,200	0	0	1,200	0	-	1,100 NSF (minimum size) - 1,300 NSF (maximum size)
10.1 Extended Day Program Office/Storage			0			0	129	1	129	129	1	129	129	1	129				
~~Outdoor Equipment Storage~~			~~0~~			~~0~~			~~0~~	~~0~~	~~0~~	~~0~~	0	0	0				
10.2 Mothers Room							121	1	121	121	1	121	121	1	121				
Total Building Net Floor Area (NFA)			**30,518**			**3,835**			**49,997**			**53,832**			**9,305**			**44,527**	**Total Building Net Floor Area (NFA)**
Proposed Student Capacity / Enrollment																# of Grades	6	**380**	**Total Enrollment (Enter Design Enrollment)**
																K	1	**63**	Kindergarten Enrollment
																Grade 1	1	**127**	Lower Elementary School Enrollment (Grades 1-2)
																Grade 2	1	**190**	Upper Elementary School Enrollment (Grades 3-6)
																Grade 3	1		
																Grade 4	1		
																Grade 5	1		
																Grade 6	0		
NON-PROGRAMMED SPACES				% of GFA		**1,139**	% of GFA		**25,087**	% of GFA		**26,226**							Complete this category with Schematic Design Submittal
Other Occupied Rooms (List rooms separately below)																			
Outdoor Equipment Storage				-	0.0%			0.4%	295	-	0.4%	295							
To be filled out in SD				-	0.0%		-	0.0%		-	0.0%	0							
To be filled out in SD				-	0.0%		-	0.0%		-	0.0%	0							
To be filled out in SD				-	0.0%		-	0.0%		-	0.0%	0							
To be filled out in SD				-	0.0%		-	0.0%		-	0.0%	0							
Unoccupied MEP / FP Spaces				-	0.0%		-	2.4%	1,802	-	2.3%	1,802							
Unoccupied Closets, Supply Rooms, and Storage Rooms				-	0.0%		-	0.7%	556	-	0.7%	556							
Toilet Rooms				-	0.0%		-	1.6%	1,173	-	1.5%	1,173							
Circulation (corridors, stairs, ramps and elevators)				-	0.0%		-	18.0%	13,527	-	16.9%	13,527							
Remaining[3]				-	22.9%	**1,139**	-	10.3%	**7,734**	-	11.1%	**8,873**							
Total Building Gross Floor Area (GFA)[2]			**45,043**			**4,974**			**75,084**			**80,058**			**15,205**			**64,853**	**Total Building Gross Floor Area (GFA)[2]**
Grossing Factor (GFA / NFA)			**1.48**			**1.30**			**1.50**			**1.49**			**0.03**			**1.46**	**Grossing Factor (GFA / NFA)**
Total Building + Unfinished Below Grade Spaces			58,323																

[1] **Individual Room Net Floor Area (NFA)** Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)** Includes the entire building gross square footage measured from the outside face of exterior walls.

[3] **Remaining** Includes exterior walls, interior partitions, chases, and other areas not listed above. Do not calculate this area, it is assumed to equal the difference between the Total Building Gross Floor Area and area not accounted for above.

Architect Certification

I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architecture Firm: Arrowstreet Inc.

Name of Principal Architect: Laurence Spang

Signature of Principal Architect:

Date: December 20, 2024

6A.3.3 Project Approvals

DESE Special Education

DESE Special Education: The Design Team is submitting an updated DESE Package for approval. For the reasons described in detail in the previous Section 6A.3.2.

Mass. Historic Commission

As noted in SD Submission, all historical approvals that may have been required have been addressed. The Massachusetts Historical Commission (MHC) responded to the project's Project Notification Form (PNF) that no adverse affects were found and no further action is required. The project gave the local Quincy Historic Commission an overview of the project in March 2024. The Commission does not require any formal approval.

Construction Manager at Risk Approval

The Squantum School project has been approved for Construction Manager at Risk from the Office of Inspector General in July 2025. A Request for Proposals (RFP) to qualify Construction Managers in August 2025. Seven highly qualified firms submitted and were interviewed by the CM Selection Committee. The Committee ranked the firms based on experience, approach to the project and overall qualifications, and selected Lee Kennedy Company for CM for the project.

State Site Permits

The MSBA's State Site Permit Tracking Worksheet was completed and submitted in the Schematic Design Resubmission dated August 29, 2024. No changes to the status of requirements for permits and no new action are required the project. Refer to the State Site Permit Tracking Worksheet on the following page.

State Plumbing Board

The State Plumbing Board approved and in effect the new Massachusetts Plumbing Code. No approvals required through the state board.

MA Environmental Policy Act

Environmental Notification Form is not required for this project.

Environmental Impact Report is not required for this project.

MA Dept. of Environmental Protection

Not required or applicable to the project.

MA Dept. of Transportation

Not required or applicable to the project.

MA Dept. of Public Health

Not required or applicable to the project.

Environmental Protection Agency

NPDES

The Project Team is planning to for file for National Pollutants Discharge Elimination System (NPDES) Notice of Intent (NOI) for the purpose of possible dewatering needs during the drilling and installation of the geothermal wells. Anticipated to begin the filing in January for well-field installation work in early spring 2025.

Massachusetts Access Board

No approvals required through MAAB.

National Grid Electric

The Project Team has submitted necessary work orders with National Grid for anticipated work required for the Squantum School Temporary Conditions and for the Permanent Condition for the new Squantum School.

Quincy Inspectional Services

The Project Team has met with the Rob Conlon - Director of Quincy Building Department, Jim Anderson - Chief Inspector, Alan Guan - Plan Examiner, Jim Cross - Plumbing Inspector, Cheung Tsang - City Engineer, and Brent Campbell for Fire Alarm and Fire Protection review. The Project Team will continue to schedule meetings with the City of Quincy Officials for project updates and reviews prior to submission for Building Permit.

Quincy Zoning Board of Appeals

No approvals required for this project.

Date:	7/31/2024
District:	Quincy
Project Name:	Squantum School
MSBA Project ID:	202002430095

SITE PERMIT	REQUIREMENTS	FILING DATE	EXPECTED RESPONSE DATE	TRIGGER - YES/NO	AGENCY COMMENTS/SUGGESTED ACTIONS	DESIGNER RESPONSES
CONCOM	NOI	MM/DD/YYYY	MM/DD/YYYY	N/A		No conditions exist to give jurisdiction
MHC	PNF	12/26/2023	2/1/2024	YES	No adverse impact, no action required	No further action required
MA-DOT	PNF with MHC	12/26/2023	MM/DD/YYYY	N/A		No MassDOT jurisdiction near site
MA-DEP	NOI	MM/DD/YYYY	MM/DD/YYYY	N/A		No wetlands, water resources, aquifers, or other priority resources exist at the site to give jurisdiction
NHESP	NOI	MM/DD/YYYY	MM/DD/YYYY	N/A		NHESP database indicates the site does not contain Estimated or Priority Habitats of Rare Species
MEPA	PNF with MHC	12/26/2023	MM/DD/YYYY	N/A	No response from MEPA to PNF filed with MHC. See attached email clarifying EJ population alone does not trigger requirements.	No thresholds other than adjacency to EJ population triggered. This alone does not trigger an ENF.

Instructions to complete the permit tracking table:

1. Enter the date the PNF/NOI was filed.
2. Enter the date when the response is expected.
3. If a response is received from CONCOM/MHC/MA-DOT/MA-DEP/NHESP/MEPA, mention 'YES' in the 'trigger' column. Summarize the proposed/requested/mandated action by the agencies in a few words and corresponding Designer responses in the appropriate column. Please include the full response as an attachment with this submittal for MSBA's reference.
4. If there is no response by the expected response date, mention 'NO' in the 'trigger' column.
5. Indicate “Not Applicable” (where appropriate) in the "trigger" column and describe why each item is not applicable.
6. Describe the status of the following approvals. Any status updates/concerns/notes can be mentioned in the 'Designer Responses' column.
7. Make sure to attach the sheet with every submittal for the project to track any changes.
8. Provide the status of any other state or federal approval not listed above (the following list is not a comprehensive itemization of required state approvals; other requirements may apply, and some items listed below may not be applicable to this project).
9. Provide a copy of the PNF, NOI, appropriate application forms and/or approval letters where applicable.

Architect and Engineer Certification

By signing this certification, I hereby certify that all of the information provided in this "Permit Tracking Table" is true, complete and accurate to the best of my knowledge and belief.

Name of Architecture Firm: Arrowstreet Inc.

Name of Architect: Laurence S. Spang, AIA

Signature of Architect:

Date: 1 August 2024

By signing this certification, I hereby certify that all of the information provided in this "Permit Tracking Table" is true, complete and accurate to the best of my knowledge and belief.

Name of Engineering Firm: Ransom Consulting, LLC, a Pinchin Company

Name of Engineer: Nancy E. Marshall

Signature of Engineer: Nancy Marshall Digitally signed by Nancy Marshall Date: 2024.08.01 17:23:50 -04'00'

Date:

Use this MEPA guideline checklist to check any aspects that apply to the project, to understand if an ENF/EIR, or any additional review from MEPA may be required.

MEPA Trigger	(a) ENF and Mandatory EIR. (Triggered by any of the items in this column)		(b) ENF and Other MEPA Review if the Secretary So Requires. (Triggered by any of the items in this column)		
DGA/ ENVIRONMENTAL JUSTICE PROTOCOLS	1. If your site has an Environmental Justice population within a 1-mile DGA (Designated Geographical Area) while the project DOES NOT (a) exceed any Air threshold at 301 CMR 11.03(8) OR; (b) generate 150 or more New ADT(Average Daily Traffic) of diesel vehicle traffic over a duration of 1 year (excluding public transit trips) 2. If your site has an Environmental Justice population within a 5-mile DGA (Designated Geographical Area) while the project (a) exceeds any Air threshold at 301 CMR 11.03(8) OR; (b) generates 150 or more New ADT(Average Daily Traffic) of diesel vehicle traffic over a duration of 1 year (excluding public transit trips)	☐ ☐ ☐ ☐	None		Two EJ populations are located within 1 mile of the Project Area: (1) Minority and (2) Minority and English Isolation. However, this alone does not a trigger an ENF and mandatory EIR if not other MEPA Thresholds are exceeded . See email from Jennifer Hughes, Deputy Director at MEPA. N/A - 5 mile threshold does not apply as no new or modified Stationary Source and Less than 150 new ADT of diesel traffic
LAND	1. Direct alteration of 50 or more acres of land, unless the Project is consistent with an approved conservation farm plan or forest cutting plan or other similar generally accepted agricultural or forestry practices. 2. Creation of ten or more acres of impervious area.	☐ ☐	1. Direct alteration of 25 or more acres of land, unless the Project is consistent with an approved conservation farm plan or forest cutting plan or other similar generally accepted agricultural or forestry practices. 2. Creation of five or more acres of impervious area. 3. Disposition or change in use of land or an interest in land subject to Article 97 of the Amendments to the Constitution of the Commonwealth, unless the Secretary waives or 4. Conversion of land in active agricultural use to nonagricultural use, provided the land includes soils classified as prime, state-important or unique by the United States 5. Release of an interest in land held for conservation, preservation or agricultural or watershed preservation purposes, unless the Secretary waives or modifies the replacement 6. Approval in accordance with M.G.L. c. 121A of a New urban redevelopment project or a fundamental change in an approved urban redevelopment project, provided that the 7. Approval in accordance with M.G.L. c. 121B of a New urban renewal plan or a major modification of an existing urban renewal plan.	☐ ☐ ☐ ☐ ☐ ☐ ☐	N/A - Project is less than 5 acres. No change in land use
STATE-LISTED SPECIES UNDER M.G.L. c. 131A (Massachusetts Endangered Species Act).	None		1. Alteration of designated significant habitat. 2. Greater than two acres of disturbance of designated priority habitat, as defined in 321 CMR 10.02, that results in a take of a state-listed endangered or threatened species or species of special concern.	☐ ☐	N/A - No significant or priority habitat
WETLANDS, WATERWAYS AND TIDELANDS.	1. Provided that a Permit is required: (a) alteration of one or more acres of salt marsh or bordering vegetating wetlands; or (b) alteration of ten or more acres of any other wetlands. 2. Alteration requiring a variance in accordance with the Wetlands Protection Act. 3. Construction of a New dam. 4. Structural alteration of an existing dam that causes an Expansion of 20% or any decrease in impoundment Capacity. 5. Provided that a Chapter 91 License is required, New non-water dependent use or Expansion of an existing non-water dependent structure, provided the use or structure occupies one or more acres of waterways or tidelands.	☐ ☐ ☐ ☐ ☐ ☐	1. Provided that a Permit is required: (a) alteration of coastal dune, barrier beach or coastal bank; (b) alteration of 500 or more linear feet of bank along a fish run or inland bank; (c) alteration of 1,000 or more sf of salt marsh or outstanding resource waters; (d) alteration of 5,000 or more sf of bordering or isolated vegetated wetlands; (e) New fill or structure or Expansion of existing fill or structure, except a pile- supported structure, in a velocity zone or regulatory floodway; or (f) alteration of ½ or more acres of any other wetlands. 2. Construction of a New roadway or bridge providing access to a barrier beach or a New utility line providing service to a structure on a barrier beach. 3. Dredging of 10,000 or more cy of material.	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	N/A - No wetlands, waterways, or tidelands on site

			4. Disposal of 10,000 or more cy of dredged material, unless at a designated in-water disposal site. 5. Provided that a Chapter 91 License is required, New or existing unlicensed non-water dependent use of waterways or tidelands, unless the Project is an overhead utility line, a 6. Construction, reconstruction or Expansion of an existing solid fill structure of 1,000 or more sf base area or of a pile-supported or bottom-anchored structure of 2,000 or more sf base area, except a seasonal, pile-held or bottom-anchored float, provided the structure occupies flowed tidelands or other waterways.		
WATER	1. New withdrawal or Expansion in withdrawal of: (a) 2,500,000 or more gpd from a surface water source; or (b) 1,500,000 or more gpd from a groundwater source. 2. New interbasin transfer of water of 1,000,000 or more gpd or any amount determined significant by the Water Resources Commission. 3. Construction of one or more New water mains ten or more miles in length. 4. Provided that the Project is undertaken by an Agency, New water service to a municipality or water district across a municipal boundary through New or existing		1. New withdrawal or Expansion in withdrawal of 100,000 or more gpd from a water source that requires New construction for the withdrawal. 2. New withdrawal or Expansion in withdrawal of 500,000 or more gpd from a water supply system above the lesser of current system-wide authorized withdrawal volume or three- 3. Construction of one or more New water mains five or more miles in length. 4. Construction of a New drinking water treatment plant with a Capacity of 1,000,000 or more gpd. 5. Expansion of an existing drinking water treatment plant by the greater of 1,000,000 gpd or 10% of existing Capacity. 6. Alteration requiring a variance in accordance with the Watershed Protection Act, unless the Project consists solely of one single family dwelling. 7. Non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities.		N/A - No significant increase in water needs anticipated. Similar student population to existing.
WASTEWATER	1. Construction of a New wastewater treatment and/or disposal facility with a Capacity of 2,500,000 or more gpd. 2. New interbasin transfer of wastewater of 1,000,000 or more gpd or any amount determined significant by the Water Resource Commission. 3. Construction of one or more New sewer mains ten or more miles in length. 4. Provided that the Project is undertaken by an Agency, New sewer service to a municipality or sewer district across a municipal boundary through New or existing 5. New discharge or Expansion in discharge of any amount of sewage, industrial waste water or untreated stormwater directly to an outstanding resource water. 6. New Capacity or Expansion in Capacity for storage, treatment, processing, combustion or disposal of 150 or more wet tpd of sewage sludge, sludge ash, grit, screenings, or other		1. Construction of a New wastewater treatment and/or disposal facility with a Capacity of 100,000 or more gpd. 2. Expansion of an existing wastewater treatment and/or disposal facility by the greater of 100,000 gpd or 10% of existing Capacity. 3. Construction of one or more New sewer mains: (a) that will result in an Expansion in the flow to a wastewater treatment and/or disposal facility by 10% of existing Capacity; or (b) five or more miles in length. 4. New discharge or Expansion in discharge: (a) to a sewer system of 100,000 or more gpd of sewage, industrial waste water or untreated stormwater; (b) to a surface water of: i. 100,000 or more gpd of sewage; ii. 20,000 or more gpd of industrial waste water; or iii. any amount of sewage, industrial waste water or untreated stormwater requiring a variance from applicable water quality regulations; or (c) to groundwater of: i. 10,000 or more gpd of sewage within an area, zone or district established, delineated or identified as necessary or appropriate to protect a public drinking water ii. 50,000 or more gpd of sewage within any other area; iii. 20,000 or more gpd of industrial waste water; or iv. any amount of sewage, industrial waste water or untreated stormwater requiring approval by the Department of Environmental Protection of a variance from Title 5 of 5. New Capacity or Expansion in Capacity for: (a) combustion or disposal of any amount of sewage sludge, sludge ash, grit, screenings, or other sewage sludge residual materials; or (b) storage, treatment, or processing of 50 or more wet tpd of sewage sludge or sewage		N/A - No significant increase in sewer needs anticipated. Similar student population to existing.
TRANSPORTATION.	1. Unless the Project consists solely of an internal or on-site roadway or is located entirely on the site of a non-roadway Project: (a) construction of a New roadway two or more miles in length; or (b) widening of an existing roadway by one or more travel lanes for two or more miles. 2. New interchange on a completed limited access highway.		1. Unless the Project consists solely of an internal or on-site roadway or is located entirely on the site of a non-roadway Project: (a) construction of a New roadway one-quarter or more miles in length; or (b) widening of an existing roadway by four or more feet for one-half or more miles, excluding widening to add bicycle or pedestrian accommodations. 2. Construction, widening or maintenance of a roadway or its right-of-way that will:		N/A - new roadway is less than 1/4 mile. Road widening is less than 1/2 mile. Less than 5 trees in

	3. Construction of a New airport. 4. Construction of a New runway or terminal at an existing airport. 5. Construction of a New rail or rapid transit line along a New, unused or abandoned right-of-way for transportation of passengers or freight (not including sidings, spurs or other 6. Generation of 3,000 or more New adt on roadways providing access to a single location. 7. Construction of 1,000 or more New parking spaces at a single location.	☐ ☐ ☐ ☐ ☐	(a) alter the bank or terrain located ten more feet from the existing roadway for one- half or more miles, unless necessary to install a structure or equipment; (b) cut five or more living public shade trees of 14 or more inches in diameter at breast height; or (c) eliminate 300 or more feet of stone wall. 3. Expansion of an existing runway at an airport. 4. Construction of a New taxiway at an airport. 5. Expansion of an existing taxiway at Logan Airport. 6. Expansion of an existing terminal at Logan Airport by 100,000 or more sf. 7. Expansion of an existing terminal at any other airport by 25,000 or more sf. 8. Construction of New or Expansion of existing air cargo buildings at an airport by 100,000 or more sf. 9. Conversion of a military airport to a non-military airport. 10. Construction of a New rail or rapid transit line for transportation of passengers or freight. 11. Discontinuation of passenger or freight service along a rail or rapid transit line. 12. Abandonment of a substantially intact rail or rapid transit right-of-way. 13. Generation of 2,000 or more New adt on roadways providing access to a single location. 14. Generation of 1,000 or more New adt on roadways providing access to a single location and construction of 150 or more New parking spaces at a single location. 15. Construction of 300 or more New parking spaces at a single location.	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	N/A - Less than 100 new parking spaces
ENERGY.	1. Construction of a New electric generating facility with a Capacity of 100 or more MW. 2. Expansion of an existing electric generating facility by 100 or more MW. 3. Construction of a New fuel pipeline ten or more miles in length. 4. Construction of electric transmission lines with a Capacity of 230 or more kv, provided the transmission lines are five or more miles in length along New, unused or abandoned	☐ ☐ ☐ ☐	1. Construction of a New electric generating facility with a Capacity of 25 or more MW. 2. Expansion of an existing electric generating facility by 25 or more MW. 3. Construction of a New fuel pipeline five or more miles in length. 4. Construction of electric transmission lines with a Capacity of 69 or more kv, provided the transmission lines are one or more miles in length along New, unused or abandoned right	☐ ☐ ☐ ☐	N/A - Solar PPA is anticipated to have a capacity of ~500 kW DC (.5 MW)
AIR.	1. Construction of a New Stationary Source with federal potential emissions, after construction and the imposition of required controls, of: 250 tpy of any criteria air pollutant; 40 tpy of any HAP; 100 tpy of any combination of HAPs; or 100,000 tpy of GHGs based on CO2 Equivalent. 2. Modification of an existing Stationary Source with federal potential emissions that collectively will result, after construction and the imposition of required controls, of 75,000 tpy of GHGs based on CO2 Equivalent.	☐ ☐	1. Construction of a New Stationary Source with federal potential emissions, after construction and the imposition of required controls, of: 100 tpy of PM10, PM 2.5, CO, lead or SO2; 50 tpy of VOC or NOx; 10 tpy of any HAP; or 25 tpy of any combination of HAPs. 2. Modification of an existing Stationary Source resulting in a "significant net increase" in actual emissions, provided that the stationary source or facility is major for the pollutant. For purposes of this threshold, a "significant net increase" in actual emissions shall mean an increase in emissions of: 15 tpy of PM10; 10 tpy of PM 2.5; 100 tpy of CO; 40 tpy of SO2; 25 tpy of VOC or NOx; 0.6 tpy of lead.	☐ ☐	N/A - No boiler or other air polluting equipment in project
SOLID AND HAZARDOUS WASTE.	1. New Capacity or Expansion in Capacity of 150 or more tpd for storage, treatment, processing, combustion or disposal of solid waste, unless the Project is a transfer station, is an Expansion of an existing facility within a validly site assigned area for the proposed use, or is exempt from site assignment requirements.	☐	1. New Capacity or Expansion in Capacity for combustion or disposal of any quantity of solid waste, or storage, treatment or processing of 50 or more tpd of solid waste, unless the Project is exempt from site assignment requirements. 2. Provided that a Permit is required in accordance with M.G.L. c. 21D, New Capacity or Expansion in Capacity for the storage, recycling, treatment or disposal of hazardous waste.	☐ ☐	N/A - no increase in generation of solid or hazardous waste as part of this project is anticipated.
HISTORICAL AND ARCHAEOLOGICAL RESOURCES.	None		1. demolition of all or any exterior part of any Historic Structure listed in or located in any Historic District listed in the State Register of Historic Places or the Inventory of Historic and 2. destruction of all or any part of any Archaeological Site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the	☐ ☐	N/A per MHC response of no adverse impact
AREAS OF CRITICAL ENVIRONMENTAL CONCERN.	None		1. Any Project of ½ or more acres within a designated ACEC, unless the Project consists solely of one single family dwelling.	☐	N/A - Not within a designated ACEC
REGULATIONS.	None		Promulgation of New or revised regulations, of which a primary purpose is protecting against Damage to the Environment, that significantly reduce: 1. standards for environmental protection; .	☐	N/A - We don't promulgate regulations per project

			2.opportunities for public participation in permitting or other review processes; or	☐
			3. public access to information generated or provided in accordance with the regulations.	☐

Architect and Engineer Certification

By signing this certification, I hereby certify that all of the information provided in this "MEPA Trigger Checklist" is true, complete and accurate to the best of my knowledge and belief.

Arrowstreet Inc.

Name of Architecture Firm

Laurence S. Spang, AIA

Name of Architect

Signature of Architect

1 August 2024

Date

By signing this certification, I hereby certify that all of the information provided in this "MEPA Trigger Checklist" is true, complete and accurate to the best of my knowledge and belief.

Ransom Consulting, LLC, a Pinchin Company

Name of Engineering Firm

Nancy E. Marshall

Name of Engineer

Nancy Marshall Digitally signed by Nancy Marshall Date: 2024.08.01 17:24:32 -04'00'

Signature of Engineer

Date

6A.3.4
Cost Estimates

6A.3.4.A. Designer's Cost Estimate (Uniformat)

Refer to the Designer's Cost Estimate on the following page.

MSBA Project number: 202002430095

90% Design Development Cost Estimate

Squantum Elementary School

Quincy, MA

PM&C LLC
20 Downer Avenue, Suite 5
Hingham, MA 02043
(T) 781-740-8007

Prepared for:

Arrowstreet Architecture & Design

December 18, 2024
Reconciled

Squantum Elementary School
Quincy, MA
MSBA Project number: 202002430095

18-Dec-24

90% Design Development Cost Estimate

INTRODUCTION

This Design Development cost estimate was produced from drawings and specifications dated October 30, 2024 prepared by Arrowstreet Architecture & Design and their design team.

This estimate includes all direct construction costs, construction managers overhead and profit and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding under 149a of the Massachusetts General Laws to pre-qualified construction managers, and pre-qualified sub-contractors, open specifications for materials and manufacturers.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- All professional fees and insurance
- Building Permit costs
- Rock excavation
- Land acquisition, feasibility, and financing costs
- All Furnishings, Fixtures and Equipment
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items (e.g. draperies, furniture and equipment)
- Utility company back charges, including work required off-site

PM&C

Squantum Elementary School
Quincy, MA
MSBA Project number: 202002430095

18-Dec-24

90% Design Development Cost Estimate

MAIN CONSTRUCTION COST SUMMARY

		Gross Floor Area [1]	$/sf	Estimated Construction Cost
NEW CONSTRUCTION				
ENABLING RELEASE PACKAGE TEMPORARY MODULARS, SELECTIVE DEMOLITION AND ASSOCIATED SITEWORK				$2,354,441
EARLY RELEASE PACKAGE #1 GEOTHERMAL WELL FIELD INSTALLATION				$2,007,923
PHASE 1 DEMOLITION 1949 AND PARTIAL DEMo 1919 BUILDINGS AND ASSOCIATED HAZARDOUS MATERIAL ABATEMENT				$1,904,229
SITEWORK PHASE 1				$3,797,262
NEW SCHOOL		79,801	$621.49	$49,595,532
PHASE 2 BUILDING DEMOLITION AND ABATEMENT				$1,274,916
SITEWORK PHASE 2				$1,926,976
SUB-TOTAL		79,801	$787.73	$62,861,279
DESIGN AND PRICING CONTINGENCY	6.00%			$3,771,677
ESCALATION BUILDING	3.00%			$1,658,911
ESCALATION - PHASE 2	6.00%			$192,114
SUB-TOTAL				$68,483,981
SDI	1.4%			$479,388
GENERAL CONDITIONS				$4,522,229
GENERAL REQUIREMENTS				$3,072,266
TRADE CONTRACTOR BUSSING AND PARKING				By Owner
PHASING/ OT	0.5%			$382,789
INSURANCE	1	LS		$1,037,500
BONDS	1	LS		$551,578
PERMIT				WAIVED
SUB-TOTAL				$78,529,731
CM FEE	1.95%			$1,531,330
GMP CONTINGENCY	3.0%			$2,128,055
PRECONSTRUCTION				By Owner
TOTAL OF ALL CONSTRUCTION		79,801	$1,029.93	**$82,189,116**

[1] GSF Includes basement but not attic spaces

PMC - Project Management Cost

Squantum Elementary School 18-Dec-24
Quincy, MA
MSBA Project number: 202002430095

90% Design Development Cost Estimate

ALTERNATES (including markups)

Alt #1- Faux Slate Shingles Roof ILO Real Slate @ 1919 building	**($160,886)**
Alt #2 Faux Slate Roof on new roofs ILO Asphalt	**$1,582,338**
Alt #3- Aluminum Shingle Roof ILO Asphalt	**$809,676**
Alt #4- Segmented Retaining Walls	**($152,727)**
Alt #5- Lightning Prevention System ilo Lightning protection system	**$68,400**
Alt #6- T&G Roof Deck	**See Alt #19**
Alt #7- 2x2 ACT ILO GWB at Toilets 111 & 113	**($4,677)**
Alt #8- Linoleum ILO Terrazzo	**($213,976)**
Alt #9- Porcelain Floor Tile ILO Terrazzo	**($35,663)**
Alt #10- Linoleum ILO Porcelain Floor Tile at Café	**($122,653)**
Alt #11- FRP ILO tile at Kitchen only	Included in base
Alt #12- Porcelain Wall Tile ILO FRP at Toilet Rooms Only	**$54,538**
Alt #13- FRP ILO Wall Tile at Toilet Rm 111 and 113 Only	**($10,032)**
Alt #14- FRP ILO Wall Tile at Corridors	**($227,430)**
Alt #15- Metal Screen ILO brick wall	**($42,354)**
Alt #16- Add Irrigation	**$76,786**
Alt #17 - Fiberglass Windows (Manuf: Cascadia) ILO Aluminum Windows	**($46,865)**
Alt #18 - Fiberglass curtainwall (Manuf: Cascadia) ILO Aluminum Aluminum Curtainwall	**($44,802)**
Alt #19 - Roof Structure 1919	**TBD**
Alt #20 - Existing ballfield as is ILO new ballfield in new location	**($267,127)**
Alt #21- Terrazzo ILO porcelain floor tile in the Cafeteria	**$23,860**
Alt #22 - Carpet tile ILO of broadloom carpet at Media Center	**$4,732**
Alt #23 - Kalwall insulated panel fenestration at the Gym East Façade ILO of alum and glass curtainwall	**($21,774)**

PMC - Project Management Cost

PM&C

Squantum Elementary School 18-Dec-24
Quincy, MA
MSBA Project number: 202002430095

90% Design Development Cost Estimate

ALTERNATES (including markups)

Alt #24 - Add Alternate: Increase insulation	
a: 4" ILO 3" under slab on grade	**$119,591**
b: 6" ILO 4" continuous board insulation at EWA-2,3,4,5. Masonry ties increased from 4" to 6" ties.	**$475,436**
c: 10" ILO 7.5" of spray cellulose under the metal deck at ERA-2	**$131,862**
Alt #25a- Lighting Alternate	**OMIT**
Alt #25b- Lighting Alternate	**OMIT**
Alt #26- 30 Year roof warranty ILO 20 year warranty	**$32,965**
Alt #27- Impact resistant exterior glazing ILO standard rated windows. Triple glazing shall remain.	**$283,586**
Alt #28- Stage Lighting - Reduce scope to simplified light fixtures and controls	**($62,700)**
Alt #29- Mock-up; Insitu ILO stand alone mockup	**($91,200)**
Alt #30- Double glazed storefront w/ school guard glass ILO triple glazed	Included in base
Alt #31- Full glass double door ILO folding glass door at Media Center	**($11,400)**
Alt #32- Fire alarm control panel - reuse existing, relocated approx. 30' ILO new FA panel (Enabling)	**($11,400)**

PM&C

DESIGNER'S COST ESTIMATE SUMMARY IN CSI MASTERFORMAT

Squantum Elementary School
Quincy, MA

18-Dec-24

90% Design Development Cost Estimate

GFA 79,801

CONSTRUCTION COST SUMMARY IN CSI FORMAT

		Enabling		*Geothermal*		*Demo_Abate Phase 1*		*Site - Phase 1*		*NEW SCHOOL*		*Demo_Abate Phase 2*		*Site - Phase 2*		*TOTAL PROJECT*	
		Subtotal	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*
DIV. 2	**EXISTING CONDITIONS**		**$70,190**				**$1,465,954**						**$1,274,916**				**$2,811,060**
024400	Demolition	$70,190				$614,830						$426,040				$1,111,060	
021210	HAZ MAT Abatement					$851,124						$848,876				$1,700,000	
DIV. 31	**EARTHWORK**		**$583,897**		**$286,013**		**$438,275**		**$989,013**		**$1,570,460**				**$606,081**		**$4,473,739**
311000	Site Preparation & Clearing	$29,377		$185,299		$249,650		$27,000						$217,571		$708,897	
312000	Earthwork	$111,330		$72,504		$131,950		$792,013		$1,570,460				$366,510		$3,044,767	
312300	Earthwork - SOE	$395,050						$170,000								$565,050	
312500	Erosion Control	$48,140		$28,210		$56,675								$22,000		$155,025	
DIV. 33	**UTILITIES**		**$50,161**		**$1,501,125**				**$347,255**						**$571,585**		**$2,470,126**
331000	Water Distribution	$10,672						$34,860								$45,532	
332313	Geothermal			$1,501,125												$1,501,125	
333000	Sanitary Sewerage	$18,289						$49,335								$67,624	
334000	Storm Drainage Systems	$21,200						$263,060						$571,585		$855,845	
DIV. 32	**EXTERIOR IMPROVEMENTS**		**$44,145**		**$220,785**				**$1,590,983**						**$474,090**		**$2,330,003**
320000	Paving, curbing & Edging	$29,145		$220,785				$414,980						$312,315		$977,225	
323000	Site Improvements							$840,005						$73,365		$913,370	
328400	Irrigation							$29,833								$29,833	
329000	Landscaping	$15,000						$306,165						$88,410		$409,575	
DIV. 3	**CONCRETE**		**$264,779**						**$617,245**		**$2,844,950**				**$127,090**		**$3,854,064**
033000	Cast In Place Concrete	$264,779						$617,245		$2,844,950				$127,090		$3,854,064	
DIV. 4	**MASONRY**		**$22,875**						**$71,890**		**$2,454,796**						**$2,549,561**
042000	Unit Masonry	$22,875						$71,890		$2,454,796						$2,549,561	
DIV. 5	**METALS**		**$12,115**						**$25,725**		**$4,795,995**						**$4,833,835**
051200	Structural Steel Framing	$6,505								$4,104,055						$4,110,560	
055000	Metal Fabrications	$5,610						$25,725		$691,940						$723,275	
DIV. 6	**WOODS, PLASTICS & COMPOSITES**		**$42,754**								**$1,044,147**						**$1,086,901**
061000	Rough Carpentry	$26,754								$363,783						$390,537	
061753	Shop-Fabricated Wood Trusses									$209,630						$209,630	
062000	Finish Carpentry	$16,000								$373,750						$389,750	
066400	FRP									$96,984						$96,984	
DIV. 7	**THERMAL & MOISTURE PROTECTION**		**$123,164**								**$6,533,304**						**$6,656,468**
070001	Waterproofing, Dampproofing and Caulking	$19,104								$939,075						$958,179	
070002	Roofing	$34,060								$2,902,510						$2,936,570	
072160	Thermal break									$50,000						$50,000	
074200	Metal Wall and Soffit Panels	$70,000								$1,057,728						$1,127,728	
074250	Terracotta Shingles									$1,375,689						$1,375,689	
078100	Applied Fireproofing									$56,400						$56,400	
078400	Firestopping									$119,702						$119,702	
079500	Expansion Joints									$32,200						$32,200	
DIV. 8	**DOORS & WINDOWS**		**$51,550**								**$2,701,618**						**$2,753,168**
080001	Aluminum Windows									$870,640						$870,640	
080002	Glazing									$124,588						$124,588	
081113	Doors, Frames and Hardware	$51,050								$428,240						$479,290	
083100	Access Doors and Panels	$500								$10,000						$10,500	
083300	Overhead Doors									$67,000						$67,000	
084410	Glazed Aluminum Storefront									$295,680						$295,680	
084413	Glazed Aluminum Curtainwall									$895,630						$895,630	
084613	Fiberglass Windows																
086300	Metal Framed Skylights																
089000	Louvers and Vents									$9,840						$9,840	
DIV. 9	**FINISHES**		**$208,335**								**$8,390,762**						**$8,599,097**
090002	Tile									$386,708						$386,708	
090003	Acoustical Tile	$20,000								$580,205						$600,205	
090005	Resilient Flooring	$4,020								$630,609						$634,629	
090007	Painting	$14,395								$280,788						$295,183	
092900	GWB, Lath and Plastering	$91,920								$5,835,629						$5,927,549	
096466	Wood Athletic Flooring									$217,760						$217,760	
096620	Terrazzo									$232,388						$232,388	
096650	Epoxy Flooring									$87,490						$87,490	
096800	Carpet	$78,000								$24,639						$102,639	
098414	Acoustic Panels									$114,546						$114,546	

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Squantum Elementary School
Quincy, MA

18-Dec-24

90% Design Development Cost Estimate

GFA 79,801

CONSTRUCTION COST SUMMARY IN CSI FORMAT

		Enabling		*Geothermal*		*Demo_Abate Phase 1*		*Site - Phase 1*		*NEW SCHOOL*		*Demo_Abate Phase 2*		*Site - Phase 2*		*TOTAL PROJECT*	
		Subtotal	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*	*Subtotal*	*Total*
DIV 10	**SPECIALTIES**		**$15,462**								**$894,825**						**$910,287**
101100	Markerboards	$4,512								$84,544						$89,056	
101400	Signage	$4,450								$285,361						$289,811	
102113	Toilet Compartments									$33,100						$33,100	
102228	Folding Partition									$308,280						$308,280	
102813	Toilet Accessories									$36,600						$36,600	
104400	Fire Protection Specialties	$1,500								$11,500						$13,000	
104800	Wall Protection									$10,000						$10,000	
105113	Lockers	$5,000								$125,440						$130,440	
107113	Sun Control Devices																
DIV. 11	**EQUIPMENT**		**$10,000**								**$1,138,340**						**$1,148,340**
111300	Loading Dock Equipment																
114000	Foodservice Equipment	$10,000								$482,540						$492,540	
114500	Appliances									$20,000						$20,000	
115200	AV Equipment									$144,000						$144,000	
115213	Projection Screens									$40,000						$40,000	
116100	Theatre Equipment									$245,000						$245,000	
116623	Gymnasium Equipment									$110,800						$110,800	
119000	Miscellaneous Equipment									$96,000						$96,000	
DIV. 12	**FURNISHINGS**		**$45,000**								**$904,645**						**$949,645**
122400	Window Shades									$125,000						$125,000	
123000	Casework	$45,000								$759,570						$804,570	
124813	Entrance Floor Mats and Frames									$20,075						$20,075	
126100	Fixed Audience Seating																
126613	Telescoping Bleachers																
DIV. 13	**SPECIAL CONSTRUCTION**		**$5,000**								**$81,070**						**$86,070**
130000	Radon System	$5,000								$81,070						$86,070	
DIV. 14	**CONVEYING SYSTEMS**										**$270,000**						**$270,000**
142424	Elevators									$270,000						$270,000	
DIV. 21	**FIRE SUPPRESSION**		**$2,689**						**$10,871**		**$653,466**						**$667,026**
210000	Fire Suppression	$2,689						$10,871		$653,466						$667,026	
DIV.22	**PLUMBING**		**$10,000**								**$2,047,555**						**$2,057,555**
220000	Plumbing	$10,000								$2,047,555						$2,057,555	
DIV. 23	**HVAC**		**$261,270**								**$7,676,710**						**$7,937,980**
230000	HVAC	$261,270								$7,676,710						$7,937,980	
DIV.26	**ELECTRICAL**		**$531,055**						**$144,280**		**$5,592,889**				**$148,130**		**$6,416,354**
260000	Electrical	$531,055						$144,280		$5,592,889				$148,130		$6,416,354	
SUBTOTAL DIRECT (TRADE) COST			**$2,354,441**		**$2,007,923**		**$1,904,229**		**$3,797,262**		**$49,595,532**		**$1,274,916**		**$1,926,976**		**$62,861,279**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	ENABLING						
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
	033000 CONCRETE						
033000	Footing infill at existing 1971 Building; footing and fdn wall; dowel into existing structure	**3**	cy	1,500.00	4,500		
	Temporary Connector						
033000	Footings at Modular classrooms	**21**	ea	7,500.00	157,500		
	Strip Footings						
033000	Formwork	**120**	sf	20.00	2,400		
033000	Re-bar	**288**	lbs.	2.50	720		
033000	Concrete material	**6**	cy	171.00	1,026		
033000	Placing concrete, dowel to existing	**6**	cy	200.00	1,200		
033000	Foundation walls, 16"						
033000	Formwork	**540**	sf	22.00	11,880		
033000	Re-bar	**1,080**	lbs.	2.50	2,700		
033000	Concrete material	**7**	cy	171.00	1,197		
033000	Placing concrete, dowel to existing	**7**	cy	200.00	1,400		
033000	Form shelf	**60**	lf	12.00	720		
033000	Underpinning				NIC		
	070001 WATERPROOFING, DAMPPROOFING AND CAULKING						
070001	Dampproofing foundation wall and footing				NR		
	072100 THERMAL INSULATION						
033000	Insulation at foundation walls	**270**	sf	3.00	810		
	312000 EARTHWORK						
	Assumed below excavation is in clean fill						
	Strip Footings						
312000	Excavation	**93**	cy	25.00	2,325		
312000	Store on site	**93**	cy	12.00	1,116		
312000	Backfill with onsite material	**77**	cy	16.00	1,232		
312000	Perimeter drain				NIC		
312000	Dewatering for foundation work				NIC		
	SUBTOTAL					190,726	
	A1020 SPECIAL FOUNDATIONS						
	No Work in this section						
	SUBTOTAL						
	A1030 LOWEST FLOOR CONSTRUCTION						
	033000 CONCRETE						
	Temporary boiler @ Connector						
033000	Slab on grade, 5"	**520**	sf	25.00	13,000		
	072100 THERMAL INSULATION						
033000	Rigid insulation	**520**	sf	2.50	1,300		
	312000 EARTHWORK						
312000	Site prep allowance at new SOG	**780**	sf	5.00	3,900		
312000	*312000 SUPPORT OF EXCAVATION*						
312000	Compacted granular fill, 12"	**29**	cy	45.00	1,305		
	SUBTOTAL					19,505	
	TOTAL - FOUNDATIONS						**$210,231**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ENABLING							
	A20 BASEMENT CONSTRUCTION						
	A2010 BASEMENT EXCAVATION						
	No Work in this section						
	SUBTOTAL					-	
	A2020 BASEMENT WALLS						
	No Work in this section						
	SUBTOTAL					-	
	TOTAL - BASEMENT CONSTRUCTION						**$0**
	B10 SUPERSTRUCTURE						
	B1010 FLOOR CONSTRUCTION						
	051200 STRUCTURAL STEEL FRAMING						
051200	New HSS 4x4x3/8 columns and W14x22 and relocate existing wood beam to roof edge at existing 1971 building	**1,301**	lbs.	5.00	6,505		
	SUBTOTAL					6,505	
	B1020 ROOF CONSTRUCTION						
	061000 ROUGH CARPENTRY						
	Temporary boiler @ Connector						
061000	2x12 Floor joist framing with 3/4" APA Structural rated OSB sheathing, tie into existing structure	**520**	sf	40.00	20,800		
	SUBTOTAL					20,800	
	TOTAL - SUPERSTRUCTURE						**$27,305**
	B20 EXTERIOR CLOSURE	*1,400*	*sf*				
	B2010 EXTERIOR WALLS	*1,400*	*sf*				
	040001 MASONRY						
042000	EWA-2 Brick infill at existing 1971 building	**305**	sf	75.00	22,875		
	052000 MISC. METALS						
055000	Misc. metals at masonry	**305**	sf	2.00	610		
	070001 WATERPROOFING, DAMPPROOFING AND CAULKING						
070001	AVB	**1,400**	sf	10.00	14,000		
070001	AVB at door openings	**173**	lf	6.25	1,081		
070001	Miscellaneous sealants	**1,400**	sf	0.50	700		
	074210 WALL PANELS						
074200	EWA-1A Fiber cement lap siding	**1,400**	sf	50.00	70,000		
	092900 GYPSUM BOARD ASSEMBLIES						
092900	3 5/8" Metal stud	**1,400**	sf	11.00	15,400		
092900	GWB lining, 5/8", interior and exterior	**1,400**	sf	10.00	14,000		
092900	Mineral wool insulation at studs	**1,400**	sf	4.00	5,600		
092900	EWA-1B 2HR interior wall; metal stud, gwb lining x 4 layers, insulation	**188**	sf	35.00	6,580		
	101400 SIGNAGE						
101400	Signage (printed temp signage)	**2**	loc	1,500.00	3,000		
	SUBTOTAL					153,846	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ENABLING							
	B2020 WINDOWS						
	SUBTOTAL					-	
	B2030 EXTERIOR DOORS						
	081113 DOOR, FRAMES AND HARDWARE						
081113	Hollow metal door w/ upper lite, frame and hardware						
081113	Single	**4**	ea	3,000.00	12,000		
081113	Double	**5**	pr	5,000.00	25,000		
081113	Modify door as required for egress	**1**	ea	2,000.00	2,000		
081113	Modify front door for accessibility, egress and accessibility	**1**	ea	5,000.00	5,000		
	SUBTOTAL					44,000	
	TOTAL - EXTERIOR CLOSURE						**$197,846**
	B30 ROOFING						
	B3010 ROOF COVERINGS						
	070002 ROOFING AND FLASHING						
070002	ERA-T - Temporary PVC membrane roofing	**520**	sf	35.00	18,200		
070002	Patch roof at 1971 building and new exterior structure	**250**	sf	50.00	12,500		
070002	Miscellaneous Roofing						
070002	Roof edge	**60**	lf	30.00	1,800		
070002	Miscellaneous flashings and sealants at connection to existing	**520**	sf	3.00	1,560		
070002	SUBTOTAL					34,060	
	B3020 ROOF OPENINGS						
080001	No work assumed						
	SUBTOTAL					-	
	TOTAL - ROOFING						**$34,060**
	C10 INTERIOR CONSTRUCTION						
	C1010 PARTITIONS						
	015200 TRADE SUPPORT						
015200	Hoisting				w/GR's		
	040001 MASONRY						
042000	No work assumed						
	070001 WATERPROOFING, DAMPPROOFING AND CAULKING						
070001	Miscellaneous sealants at partitions	**1,800**	sf	0.65	1,170		
078400	Fire stopping				w/ trades		
	080002 GLASS AND GLAZING						
080002	No work assumed						
	081110 HOLLOW METAL DOOR FRAMES						
081113	No work assumed						
	092900 GYPSUM BOARD ASSEMBLIES						
092900	Rough blocking at partitions	**1,800**	gsf	6.00	10,800		
092900	S4 - 3-5/8" MS, 1 layer type X GWB o/s, insulation	**1,800**	sf	17.00	30,600		
092900	Extra two layers GWB for 2HR Connector wall	**894**	sf	10.00	8,940		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ENABLING							
	102200 OPERABLE PARTITIONS						
061000	Permanently close operable wall	**1**	ls	500.00	500		
	SUBTOTAL					52,010	
	C1020 INTERIOR DOORS						
	061000 ROUGH CARPENTRY						
061000	Wood blocking at openings	**51**	lf	4.00	204		
	070001 WATERPROOFING, DAMPPROOFING AND CAULKING						
070001	Backer rod & double sealant	**51**	lf	3.00	153		
	081110 HOLLOW METAL DOOR FRAMES						
081113	Hollow metal frames, single	**3**	ea	450.00	1,350		
	081400 WOOD DOORS						
081113	Wood door; full height narrow light	**3**	leaf	700.00	2,100		
	083110 ACCESS DOORS AND FRAMES						
083100	Access doors	**1**	ls	500.00	500		
	084110 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS						
080001	No work assumed						
	087100 DOOR HARDWARE						
081113	Hardware to doors	**3**	set	1,200.00	3,600		
	090007 PAINTING						
090007	Finish doors and frames	**3**	ea	190.00	570		
	SUBTOTAL					8,477	
	C1030 SPECIALTIES / MILLWORK						
	055000 MISCELLANEOUS METALS						
055000	Miscellaneous metals allowance	**1**	ls	5,000.00	5,000		
	061000 ROUGH CARPENTRY						
061000	Wood ramp and rails in new Connector	**150**	sf	35.00	5,250		
061000	Backer panels in electrical closets				NIC		
	064020 INTERIOR ARCHITECTURAL WOODWORK						
062000	Allowance for reception desk in Main office	**1**	ls	10,000.00	10,000		
062000	Allowance for temp man trap w/ window	**1**	ls	6,000.00	6,000		
	070001 WATERPROOFING, DAMPPROOFING AND CAULKING						
070001	Miscellaneous sealants throughout building	**1**	ls	2,000.00	2,000		
	080002 GLAZING						
	No work assumed						
	101100 VISUAL DISPLAY SURFACES						
101100	Marker board	**96**	sf	25.00	2,400		
101100	Tackboard	**96**	sf	22.00	2,112		
	101400 SIGNAGE						
101400	Room Signs	**3**	loc	150.00	450		
101400	Other signage/graphics	**1**	ls	1,000.00	1,000		
	102110 TOILET COMPARTMENTS						
	No work assumed						
	102800 TOILET ACCESSORIES						
	No work assumed						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ENABLING							
	104400 FIRE PROTECTION SPECIALTIES						
104400	Fire extinguisher cabinets allowance	**1**	ls	1,000.00	1,000		
104400	AED cabinets	**1**	ea	500.00	500		
	105000 LOCKERS						
105000	Existing wooden lockers and bookshelves relocated to space perimeter				By School		
105000	Relocated wooden shelves and lockers	**200**	lf	25.00	5,000		
	SUBTOTAL					40,712	
	TOTAL - INTERIOR CONSTRUCTION						**$101,199**
	C20 STAIRCASES						
	SUBTOTAL					-	
	TOTAL - STAIRCASES						**$0**
	C30 INTERIOR FINISHES						
	C3010 WALL FINISHES						
	064020 INTERIOR ARCHITECTURAL WOODWORK						
062000	No work assumed						
	066400 FRP PANELING						
066400	No work assumed						
	090002 TILE						
090002	No work assumed						
	090007 PAINTING						
090007	Paint to walls	**4,500**	sf	0.85	3,825		
090007	Allowance for misc. touchup	**1**	ls	5,000.00	5,000		
	098400 ACOUSTIC ROOM COMPONENTS						
090003	Allowance for acoustic treatment at multi purpose space	**1**	ls	10,000.00	10,000		
	SUBTOTAL					18,825	
	C3020 FLOOR FINISHES						
90002	*090002 TILE*						
090002	No work assumed						
	090005 RESILIENT FLOORS						
090005	Moisture mitigation				NR		
090005	Rubber base	**1,005**	lf	4.00	4,020		
	096560 WOOD FLOORING						
096560	No work assumed						
	096820 CARPETING						
096800	Skim coat gyp-crete floor for new finish	**6,500**	sf	5.00	32,500		
096800	Carpet tile	**6,500**	sf	7.00	45,500		
	SUBTOTAL					82,020	
	C3030 CEILING FINISHES						
	090003 ACOUSTICAL TILE						
090003	Remove, reinstall/ replace ceiling as required in 1971 building	**1**	ls	10,000.00	10,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ENABLING							
	090007 PAINTING						
090007	Misc. touchup	**1**	ls	5,000.00	5,000		
	092900 GYPSUM BOARD ASSEMBLIES						
092900	No work assumed						
	SUBTOTAL					15,000	
	TOTAL - INTERIOR FINISHES						**$115,845**
	D10 CONVEYING SYSTEMS						
	D1010 ELEVATOR						
	SUBTOTAL					-	
	TOTAL - CONVEYING SYSTEMS						**$0**
	D20 PLUMBING						
	D20 PLUMBING, GENERALLY						
220000	Misc. plumbing at temp hand sink and ice maker	**1**	ls	10,000.00	10,000		
	SUBTOTAL					10,000	
	TOTAL - PLUMBING						**$10,000**
	D30 HVAC						
	D30 HVAC, GENERALLY						
230000	Temp Boiler						
230000	Electric hot water boiler, 350 KW	**1**	ea	70,000.00	70,000		
230000	Expansion tank	**2**	ea	5,500.00	11,000		
230000	Air separator, 4"	**1**	ea	6,500.00	6,500		
230000	Pumps						
230000	Boiler pump	**1**	ea	8,500.00	8,500		
230000	Hot water circulating pump w/VFD	**2**	ea	14,000.00	28,000		
230000	Terminal Heating Equipment						
230000	Electric radiant panel (4ft)	**10**	ea	580.00	5,800		
230000	Unit heater - hydronic	**1**	ea	1,800.00	1,800		
230000	Piping						
230000	Hydronic Pipe						
230000	Hot water mains piping	**280**	lf	140.00	39,200		
230000	Connect to existing mains	**1**	ls	2,500.00	2,500		
230000	Valves and accessories	**1**	ls	7,500.00	7,500		
230000	Insulation						
230000	Piping insulation mains	**280**	lf	24.00	6,720		
230000	Controls (DDC)						
230000	Temporary boiler and pump controls	**1**	ls	50,000.00	50,000		
230000	Miscellaneous						
230000	System testing and flushing	**1**	ls	5,000.00	5,000		
230000	Misc. GC's, OH&P, Equipment Rental ... etc.	**1**	ls	15,000.00	15,000		
230000	Fees & permits	**1**	ls	3,750.00	3,750		
	SUBTOTAL					261,270	
	TOTAL - HVAC						**$261,270**
	D40 FIRE PROTECTION						
	SUBTOTAL					-	

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	ENABLING						
	TOTAL - FIRE PROTECTION						**$0**
	D50 ELECTRICAL						
260000	**D5010 ELECTRICAL SYSTEMS**						
260000	**Gear & Distribution**						
260000	Normal Power						
260000	Meter Sockets	**1**	ea	500.00	500		
260000	800A 277/480V distribution panelboard	**1**	ea	30,000.00	30,000		
260000	300KVA dry type transformer NEMA 3R	**1**	ea	25,450.00	25,450		
260000	1000A 120/208V distribution panelboard	**1**	ea	35,000.00	35,000		
260000	TVSS	**1**	ea	1,500.00	1,500		
260000	1000A feed AL	**20**	lf	397.51	7,950		
260000	600A feed AL	**20**	lf	195.27	3,905		
260000	Grounding & bonding	**1**	ls	1,500.00	1,500		
260000	Remove west half of building from the transformer	**1**	ls	25,000.00	25,000		
260000	Temp disconnect and associated work	**1**	ls	50,000.00	50,000		
260000	Connect temp modular classrooms				w/ Modular cost		
260000	Equipment Wiring						
260000	Temp boiler feed and connection	**1**	ls	20,000.00	20,000		
260000	Boiler pump feed and connection	**1**	ea	2,000.00	2,000		
260000	Hot water circulating pump w/VFD feed and connection	**2**	ea	1,200.00	2,400		
260000	Radiant panel feed & connection	**10**	ea	1,200.00	12,000		
260000	Unit heater feed, connection & safety switch	**1**	ea	1,500.00	1,500		
260000	DDC system power	**1**	ls	1,000.00	1,000		
260000	Temporary kitchen equipment 20A feed & connection	**5**	ea	1,000.00	5,000		
	SUBTOTAL					224,705	
	D5020 LIGHTING & POWER						
260000	Lighting & Branch Power						
260000	Remove and /or replace fixtures in renovated spaces at 1971 building	**4,000**	sf	6.50	26,000		
	SUBTOTAL					26,000	
	D5030 COMMUNICATION & SYSTEMS						
260000	Telecommunications						
260000	Temporary MDF: pull back 30 Cat6 cabling from existing MDF and terminate to new patch panel in temp MDF. Allow for additional scope to create temporary MDF.	**1**	ls	10,000.00	10,000		
260000	Fire Alarm						
260000	Temp heat detection	**4,000**	sf	1.00	4,000		
260000	Relocate vestibule devices, includes FA co service call	**1**	ls	5,000.00	5,000		
260000							
260000					7,500		
260000					6,000		
260000					2,200		
260000					6,000		
260000					19,200		
260000					4,500		
260000					3,300		
260000					1,200		
260000					900		
260000					5,000		
260000					300		
260000					1,400		
260000					10,350		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ENABLING							
260000	Rough-in						
260000	DJ Door junction box	**6**	ea	75.00	450		
260000	Device box with conduit stub	**60**	ea	170.00	10,200		
	SUBTOTAL					97,500	
	D5040 OTHER ELECTRICAL SYSTEMS						
260000	Common Work Results						
260000	Demo and make safe	**1**	ls	6,500.00	6,500		
260000	Coordination & BIM	**1**	ls	4,500.00	4,500		
260000	Permits & fees	**1**	ls	2,250.00	2,250		
	SUBTOTAL					13,250	
	TOTAL - ELECTRICAL						**$361,455**
	E10 EQUIPMENT						
	E10 EQUIPMENT, GENERALLY						
	114500 APPLIANCES						
114500	Assumed below						
114000	*114000 FOODSERVICE EQUIPMENT*	**1**	ls	10,000.00	10,000		
114000	Equipment, residential freezer/icemaker	**1**	ea	included in LS			
114000	Equipment, milk cooler	**1**	ea	included in LS			
114000	Equipment, refrigerator	**1**	ea	included in LS			
114000	Equipment, warming oven	**1**	ea	included in LS			
	SUBTOTAL					10,000	
	TOTAL - EQUIPMENT						**$10,000**
	E20 FURNISHINGS						
	E2010 FIXED FURNISHINGS						
	122100 WINDOW TREATMENT						
122400	No work assumed						
	123000 CASEWORK						
	Existing coffee tables by School				By City		
123000	Miscellaneous casework including cubbies in new classrooms - allowance	**3**	ea	15,000.00	45,000		
	SUBTOTAL					45,000	
	E2020 MOVABLE FURNISHINGS						
	All movable furnishings to be provided and installed by owner						
	SUBTOTAL					NIC	
	TOTAL - FURNISHINGS						**$45,000**
	F10 SPECIAL CONSTRUCTION						
	F10 SPECIAL CONSTRUCTION						
130000	Convex boxes for temp boiler and electric	**2**	ea	2,500.00	5,000		
130000	Modular classrooms; complete including utility connections and removal				NIC		
	SUBTOTAL					5,000	
	TOTAL - SPECIAL CONSTRUCTION						**$5,000**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	ENABLING						
	F20 SELECTIVE BUILDING DEMOLITION						
	F2010 BUILDING ELEMENTS DEMOLITION						
24400	**Selective Demolition at 1971 Building (Dwg E.AD2.01)**						
24400	E1 Demo/remove GWB partitions	**141**	lf	45.00	6,345		
24400	#2 Demo single doors	**6**	ea	150.00	900		
24400	E2,6&8; Demo/remove storefront/ egress doors	**6**	ea	300.00	1,800		
24400	#3 Demo/remove island cabinet and single	**11**	lf	25.00	275		
24400	E4 Demo/remove folding partitions	**144**	lf	30.00	4,320		
24400	E5 Demo/remove carpet	**9,000**	sf	2.50	22,500		
24400	E7 Remove existing window, prep for new window/ infills	**12**	ea	500.00	6,000		
24400	E13; Bulk demo of connector; included temp shoring	**335**	sf	30.00	10,050		
24400	Miscellaneous interior demolition	**9,000**	sf	2.00	18,000		
	SUBTOTAL					70,190	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
	SUBTOTAL					$0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						**$70,190**
	TOTAL - BUILDING ENABLING COST						**$1,449,401**
	G SITEWORK						
	G10 SITE PREPARATION & DEMOLITION						
	311000 GENERAL CONDITIONS						
311000	6' high site construction fence - west side	**1,628**	lf	40.00	w_Geothermal		
311000	6' high site construction fence with jersey barriers -huckins	**838**	lf	120.00	w_Geothermal		
311000	6' high site construction fence - east side	**876**	lf	40.00	w/GR's		
311000	6' high site construction fence double gate	**1**	loc	5,000.00	w/GR's		
311000	Site construction entrance and removal/restoration	**1**	loc	12,000.00	12,000		
311000	Site construction fence maintenance	**2,504**	lf	12.00	w/GR's		
311000	Mobilizations	**1**	ea	50,000.00	w/GR's		
311000	Construction offices area prep - allowance	**1**	ls	10,000.00	w_Geothermal		
311000	Temporary signs	**1**	ls	5,000.00	w/GR's		
311000	Engineering/layout	**1**	ls	15,000.00	w/GR's		
311000	As-builts	**1**	ls	5,000.00	w/GR's		
311000	Snow removal - allowance	**1**	ls	10,000.00	10,000		
311000	Winter condition - allowance	**1**	ls		Excluded		
311000		**1**	ls		Excluded		
311000	Police details	**1**	ls		Excluded		
311000	Temporary paving; 2" thick - parent drop off	*15,766*	*sf*				
311000	Cut and prep	**584**	cy	25.00	by_city		
311000	gravel base; 12" thick	**584**	cy	50.00	by_city		
311000	Binder pavement	**15,766**	sf	2.00	by_city		
311000	*311000 TEMP UTILITY DEMOLITION*						
311000	Demolish existing utility lines	**66**	lf	25.00	1,650		
	311000 ROADWAY WORK						
311000	Sawcut	**33**	lf	16.00	528		
311000	Remove pavement	**86**	sf	3.50	301		
311000	Temp pavement patching	**86**	sf	8.00	688		
311000	Steel plates	**1**	ls	2,500.00	2,500		
311000	Police details	**1**	dy	850.00	850		
311000	Permanent pavement patch	**86**	sf	10.00	860		
	312000 EROSION & SEDIMENT CONTROL						
312500	Silt fence/erosion control	**876**	lf	15.00	13,140		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		ENABLING						
547	312500	Street sweeping & dust control allowance	**1**	ls	25,000.00	25,000		
548	312500	Erosion Control monitoring & maintenance	**1**	ls	10,000.00	10,000		
549		SUBTOTAL					77,517	
550								
551	*312000*	*SITE EARTHWORK*						
552		Temporary classrooms	*10,550*	*sf*				
553	312000	Cut and prep	**391**	cy	25.00	9,775		
554	312000	gravel base; 12" thick	**391**	cy	50.00	19,550		
555	312000	Sub grade establishment	**10,550**	sf	0.25	2,638		
556	312000	Fine grading throughout the site	**10,550**	sf	0.55	5,803		
557								
558	*312300*	*SUPPORT OF EXCAVATION*						
559	312300	Driven Steel Sheeting & Shoring- (245 lf x20'sheet)	**3,920**	sf	90.00	352,800		
560	312300	Sheeting- Mobilization & Design	**1**	ls	30,000.00	30,000		
561	312300	Safety Railing at top of SOE	**245**	lf	20.00	4,900		
562	312300	Cutoffs of Sheets (5' B.F.G.)	**245**	lf	10.00	2,450		
563	312300	Removal & Disposal of Sheet Pile Cut-Offs (5' B.F.G.)	**1,225**	sf	4.00	4,900		
564								
565	*312000*	*ESTABLISHING GRADE*						
566	312000	Sub grade establishment	**7,607**	sf	0.25	1,902		
567	312000	Fine grading throughout the site	**7,607**	sf	0.55	4,184		
568		SUBTOTAL					438,902	
569								
570	**G20**	**SITE IMPROVEMENTS**						
571	*320000*	***ROADWAYS AND PARKING LOTS***				No work		
572	320000	SUBTOTAL					-	
573								
574	***320000***	***PEDESTRIAN PAVING***						
575		Concrete sidewalks	*2,107*	*sf*				
576	312000	gravel base; 8" thick	**52**	cy	50.00	2,600		
577	033000	Broom finish concrete paving; 4" thick	**2,107**	sf	18.00	37,926		
578		School play area - Temporary during construction	*5,500*	*sf*				
579	312000	Safety surfacing - assume EWF with gravel sub-base	**5,500**	sf	10.00	55,000		
580	320000	SUBTOTAL					95,526	
581								
582	***320000***	***SITE IMPROVEMENTS***						
583	*320000*	*SITE FURNISHINGS*						
584	320000	Relocate bench for playground access	**1**	ea	500.00	500		
585	*320000*	*FENCING*						
586	320000	fencing for play area, transformer, and dumpster	**337**	lf	85.00	28,645		
587	033000	Allowance for stair and landing at connector entry	**1**	ls	10,000.00	10,000		
588		SUBTOTAL					39,145	
589								
590	*329900*	*LAWN AND SEED*						
591	329000	Repair to lawn areas - erosion control - temp condition	**1**	ls	15,000.00	15,000		
592							15,000	
593								
594	**G30**	**CIVIL MECHANCIAL UTILITIES**						
595	*210000*	*FIRE PROTECTION*						
596	210000	6" CLDI	**30**	lf	49.64	1,489		
597	210000	Gate valve	**1**	ea	1,200.00	1,200		
598	*331000*	*WATER UTILITIES*						
599	331000	2" domestic water	**24**	lf	28.00	672		
600	*331000*	*CONNECTIONS*						
601	331000	Connect to existing water line; 6/8/10 (inside site)	**1**	ea	10,000.00	10,000		
602		SUBTOTAL					13,361	
603								
604	*333000*	*SANITARY SEWER*						
605	333000	6" PVC	**42**	lf	21.16	889		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	ENABLING								
606	333000		Cleanouts	**2**	ea	1,200.00	2,400		
607		*333000*	*CONNECTIONS*						
608	333000		Connect to existing (in roadway)	**1**	ea	15,000.00	15,000		
609			SUBTOTAL					18,289	
610									
611		*334000*	*STORM DRAINAGE*						
612			Roof drain	**20**	lf	35.00	700		
613			Roof drain connections	**1**	ea	500.00	500		
614		*334000*	*CONNECTIONS*						
615			Coordinate with city for connection point	**1**	ls	20,000.00	20,000		
616			SUBTOTAL					21,200	
617									
618		**G40**	**ELECTRICAL UTILITIES**						
619	33000		Site Electrical Civil Work						
620	33000		Concrete:						
621	33000		Primary duct bank AA 3-4" PVC	**60**	lf	40.00	2,400		
622	33000		Primary duct bank CC 4-5" PVC	**30**	lf	40.00	1,200		
623	33000		Secondary duct bank BB 3-4" PVC	**60**	lf	40.00	2,400		
624	33000		Pad mount transformer pad	**2**	ea	3,000.00	6,000		
625	33000		Excavation & backfill:						
626	33000		Primary duct bank AA 3-4" PVC	**60**	lf	30.00	1,800		
627	33000		Primary duct bank CC 4-5" PVC	**30**	lf	30.00	900		
628	33000		Secondary duct bank BB 3-4" PVC	**60**	lf	30.00	1,800		
629			SUBTOTAL					16,500	
630									
631			Power						
632	260000		Riser pole, connect to existing	**1**	ls	3,000.00	3,000		
633	260000		Connection at utility manhole	**2**	ea	4,500.00	9,000		
634	260000		Primary duct bank AA 3-4" PVC	**60**	lf	90.00	5,400		
635	260000		Primary duct bank CC 4-5" PVC	**30**	lf	120.00	3,600		
636	260000		Primary duct bank DD PVC	**210**	lf		NIC by City		
637	260000		Primary duct bank EE 4-5" PVC	**380**	lf		NIC by City		
638	260000		Primary switchgear manhole	**1**	ls	15,000.00	15,000		
639	260000		Utility Pad mount transformer	**2**	ea		By Utility		
640	260000		Secondary power 3-4" PVC with 800A feeder, run over rooftop (includes vertical rise & drop length)	**210**	lf	380.00	79,800		
641	260000		Secondary duct bank BB 3-4" PVC with 800A feeder	**60**	lf	380.00	22,800		
642	260000		Modular underground 600A feed in 2-4" PVC	**80**	lf	350.00	28,000		
643	260000		Communications						
644	260000		Riser pole, connect to existing	**1**	ls	3,000.00	3,000		
645	260000		Telecom overhead	**40**	lf		By Utility		
646	260000						NIC		
647	260000		EV Stations				NIC		
648	260000		Site Lighting				NIC		
649	260000		SUBTOTAL					169,600	
650									
651			**TOTAL - SITE DEVELOPMENT**						**$905,040**

GEOTHERMAL

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	G SITEWORK						
	G10 SITE PREPARATION & DEMOLITION						
	311000 GENERAL CONDITIONS						
311000	6' high site construction fence	**1,628**	lf	40.00	w/GR's		
311000	6' high site construction fence with jersey barriers	**838**	lf	120.00	w/GR's		
311000	6' high site construction fence double gate	**1**	loc	5,000.00	w/GR's		
311000	Site construction entrance and removal/restoration	**1**	loc	12,000.00	12,000		
311000	Site construction fence maintenance	**838**	lf	12.00	w/GR's		
311000	Mobilizations	**1**	ea	50,000.00	w/GR's		
311000	Construction offices area prep - allowance	**1**	ls	10,000.00	10,000		
311000	Temporary signs	**1**	ls	15,000.00	w/GR's		
311000	Engineering/layout	**1**	ls	25,000.00	w/GR's		
311000	As-builts	**1**	ls	5,000.00	w/GR's		
311000	Snow removal - allowance	**1**	ls	10,000.00	10,000		
311000	Winter condition - allowance	**1**	ls		Excluded		
311000		**1**	ls		Excluded		
311000	Police details	**1**	ls	50,000.00	50,000		
	311000 SITE DEMOLITION AND RELOCATIONS						
311000	Demolish existing utility structures	**17**	ea	500.00	8,500		
311000	Demolish existing utility lines	**1,396**	lf	25.00	34,900		
311000	Demolish existing gas lines	**53**	lf	15.00	795		
311000	Cut/cap utility lines	**4**	ea	10,000.00	40,000		
	311000 VEGETATION & TOPSOIL MANAGEMENT						
311000	Strip + dispose topsoil	**852**	cy	12.00	10,224		
	312000 SOIL DISPOSAL - conversion factor 1.7 to tons						
312000	Load excess soils for disposal	**852**	cy	3.00	2,556		
312000	Less than RCS-1 - clean non-regulated	**1,448**	tn	23.00	33,304		
	312000 EROSION & SEDIMENT CONTROL						
312500	Silt fence/erosion control	**264**	lf	15.00	3,960		
312500	Silt Sacks; installation and removal	**37**	ea	250.00	9,250		
312500	Street sweeping & dust control allowance	**1**	ls	10,000.00	10,000		
312500	Erosion Control monitoring & maintenance	**1**	ls	5,000.00	5,000		
	311000 HUCKINS AVE SITE PREP						
311000	Remove curbing	**120**	lf	35.00	4,200		
311000	Demolish existing paving	**836**	sf	5.00	4,180		
311000	Remove sign	**1**	ea	500.00	500		
	SUBTOTAL					249,369	
	312000 SITE EARTHWORK						
312000	Sub grade establishment	**13,336**	sf	0.25	3,334		
312000	Fine grading throughout the site	**13,336**	sf	0.55	7,335		
	SUBTOTAL					10,669	
	312000 GEOTHERMAL						
	Geothermal Site						
332313	Geothermal wells with 40 Vertical closed loop bores each 500 lf deep	**20,000**	vlf	58.00	1,160,000		
332313	UG supply and return piping to building (trench by others)	**1**	ls	150,000.00	150,000		
332313	Groundwater management/ control measures	**1**	ls	25,000.00	25,000		
332313	*Geothermal well trenches*	*1,062*	*lf*				
332313	PVC gravity piping excavation	**1,377**	cy	25.00	34,425		
332313	Trench bedding	**393**	cy	50.00	19,650		
332313	Backfill w/ new fill material w/ 25% swell factor	**984**	cy	43.50	42,804		
332313	Load excess soils for disposal	**984**	cy	3.00	2,952		
332313	Less than RCS-1 - clean non-regulated	**1,673**	tn	25.00	41,825		
332313	*Geothermal well trench to building*	*71*	*lf*				
332313	PVC gravity piping excavation	**92**	cy	25.00	2,300		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	GEOTHERMAL								
59	332313		Trench bedding	**26**	cy	50.00	1,300		
60	332313		Backfill w/ new fill material w/ 25% swell factor	**66**	cy	43.50	2,871		
61	332313		Load excess soils for disposal	**66**	cy	3.00	198		
62	332313		Less than RCS-1 - clean non-regulated	**112**	tn	25.00	2,800		
63	332313		Rock allowance	**1**	ls	15,000.00	15,000		
64			SUBTOTAL					1,501,125	
65									
66		**G20**	**SITE IMPROVEMENTS**						
67		*320000*	***ROADWAYS AND PARKING LOTS***						
68		*311000*	*HUCKINS AVE WORK*						
69			Asphalt Paving; road widening	*6,125*	*sf*				
70	312000		gravel base; 12" thick	**227**	cy	75.00	17,025		
71	320000		asphalt top; 1.5" thick	**59**	tns	225.00	13,275		
72	320000		asphalt binder; 2" thick	**97**	tns	180.00	17,460		
73		*320000*	*CURBING*						
74	320000		Vertical granite curb	**240**	lf	65.00	15,600		
75	320000		ADA Curb cuts	**1**	ea	850.00	850		
76		*320000*	*ROAD MARKINGS AND SIGNS*						
77	320000		Crosswalk hatching	**2**	loc	2,500.00	5,000		
78	320000		Schoolzone pavement marking	**2**	loc	3,500.00	7,000		
79	320000		Remove old crosswalk striping	**2**	loc	1,500.00	3,000		
80			Traffic signs						
81	320000		Signs - new	**2**	ea	125.00	250		
82	320000		Signs - mounting hardware	**2**	ea	225.00	450		
83	320000		Signs HC	**2**	ea	487.50	975		
84			*TRAFFIC CONTROL*						
85	320000		RRFB	**1**	loc	25,000.00	25,000		
86			SUBTOTAL					105,885	
87									
88		***320000***	***PEDESTRIAN PAVING***						
89		*311000*	*HUCKINS AVE WORK*						
90			Concrete sidewalks	*6,450*	*sf*				
91	312000		gravel base; 8" thick	**160**	cy	50.00	8,000		
92	320000		Broom finish concrete paving; 4" thick	**6,450**	sf	20.00	129,000		
93			Bituminous concrete walkways -no detail provided	*761*	*sf*				
94	312000		gravel base; 8" thick	**19**	cy	50.00	950		
95	320000		asphalt top; 1" thick	**5**	tns	225.00	1,125		
96	320000		asphalt binder; 2" thick	**10**	tns	180.00	1,800		
97			SUBTOTAL					140,875	
98									
99		**G40**	**ELECTRICAL UTILITIES**						
100	260000		Allowance for site electrical				NR		
101			SUBTOTAL					-	
102									
103			**TOTAL - SITE DEVELOPMENT**						**$2,007,923**
104									

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PHASE 1 DEMOLITION 1949 AND PARTIAL DEM0 1919 BUILDINGS AND ASSOCIATED HAZARDOUS MATERIAL ABATEMENT						
	F20 SELECTIVE BUILDING DEMOLITION						
	F2010 BUILDING ELEMENTS DEMOLITION						
24400	Complete demo of 1919 BLDG	**5,999**	sf	20.00	119,980		
24400	Partial 1919 BLDG; exterior wall to remain	**3,251**	sf	20.00	65,020		
24400	Demo Gym BLDG	**6,430**	sf	20.00	128,600		
24400	Demo 1949 BLDG	**6,718**	sf	20.00	134,360		
24400	Remove louvers and transoms at 1919 façade	**1**	ls	750.00	750		
24400	Remove windows at 1919 façade	**555**	sf	4.00	2,220		
24400	Allowance to support ETR exterior wall at 1919	**206**	lf	25.00	5,150		
24400	Support ETR parapet at 1919	**13**	lf	150.00	1,950		
24400	Allowance to salvage doors and transom inside 1919 building	**1**	ls	5,000.00	5,000		
24400	Salvage bricks from walk at outdoor classroom				w/Site		
24400	Boulders and Lectern at outdoor classroom				w/Site		
24400	Salvage plaques and graphics.	**6**	ea	300.00	1,800		
24400	Allowance to support ETR masonry wall	**1**	ls	150,000.00	150,000		
	SUBTOTAL					614,830	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
21210	HAZ MAT Removal	**1**	ls	851,124.00	851,124		
	SUBTOTAL					851,124	
	TOTAL - SELECTIVE BUILDING DEMOLITION						**$1,465,954**
	DEMO IN PHASE ONE AREA - 1949/1919 BUILDINGS AREA ONLY - LIMITS SHOWN ON G0.07						
	G SITEWORK						
	G10 SITE PREPARATION & DEMOLITION						
311000	*GENERAL CONDITIONS*						
311000	6' high site construction fence - incl. what is shown on arch.	**1,445**	lf	40.00	w/GR's		
311000	6' high site construction fence double gate - incl. dumpsters	**2**	loc	5,000.00	w/GR's		
311000	Site construction entrance and removal/restoration	**1**	loc	12,000.00	12,000		
311000	Site construction fence maintenance	**1,445**	lf	12.00	W_PH 1		
311000	Mobilizations	**1**	ea	50,000.00	w/GR's		
311000	Construction offices area prep - allowance	**1**	ls	10,000.00	w_EBP		
311000	Temporary signs	**1**	ls	15,000.00	15,000		
311000	Engineering/layout	**1**	ls	10,000.00	w/GR's		
311000	As-builts	**1**	ls	5,000.00	w/GR's		
311000	Snow removal - allowance	**1**	ls	25,000.00	NR		
311000	Winter condition - allowance	**1**	ls		Excluded		
311000		**1**	ls		Excluded		
311000	Job site construction trailer	**1**	ls		Excluded		
311000	*SITE SALVAGE ITEMS*						
311000	Salvage sponsor bricks adjacent to outdoor classroom	**1**	ls	10,000.00	10,000		
311000	Salvage granite boulder seats and lectern from OC	**1**	ls		incl. above		
311000	Salvage misc. items to be relocated near playground	**1**	ls		incl. above		
311000	*SITE DEMOLITION AND RELOCATIONS*						
311000	Demolish existing crushed stone/gravel	**1,122**	sf	0.75	842		
311000	Demolish existing concrete	**6,827**	sf	1.50	10,241		
311000	Demolish existing pavers	**696**	sf	1.75	1,218		
311000	Demolish existing paving	**28,584**	sf	1.25	35,730		
311000	Demolish curbing	**388**	lf	6.00	2,328		
311000	Demolish steps	**579**	lf	20.00	11,580		
311000	Demolish existing walls	**138**	lf	95.00	13,110		

PM&C

Squantum Elementary School
Quincy, MA

18-Dec-24

90% Design Development Cost Estimate

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
58	311000		Demolish existing handrails	**301**	lf	25.00	7,525		
59	311000		Demolish existing fencing	**92**	lf	5.00	460		
60	311000		Misc. Demolition - benches, bollards, planters, signs, etc	**1**	ls	50,000.00	50,000		
61		*311000*	*ROADWAY WORK*						
62	311000		Sawcut	**758**	lf	8.25	6,254		
63	311000		Remove pavement	**568**	sf	3.50	1,988		
64	311000		Temp pavement patching	**568**	sf	8.00	4,544		
65	311000		Steel plates	**1**	ls	2,500.00	2,500		
66	311000		Permanent pavement patch	**568**	sf	10.00	5,680		
67		*311000*	*VEGETATION & TOPSOIL MANAGEMENT*						
68	311000		Clear and grub	**1**	acre	5,000.00	5,000		
69	311000		Remove existing trees	**16**	ea	850.00	13,600		
70	311000		Salvage tree to be transplanted	**1**	ea	1,500.00	1,500		
71	311000		Vegetation protection fencing	**3**	ea	1,250.00	3,750		
72	311000		Strip + dispose topsoil	**2,900**	cy	12.00	34,800		
73		*312000*	*SOIL DISPOSAL - conversion factor 1.7 to tons*						
74	312000		Load excess soils for disposal	**2,900**	cy	3.00	8,700		
75	312000		Less than RCS-1 - clean non-regulated	**4,930**	tn	25.00	123,250		
76		*312000*	*EROSION & SEDIMENT CONTROL*						
77	312500		Silt fence/erosion control	**1,445**	lf	15.00	21,675		
78	312500		Street sweeping & dust control allowance	**1**	ls	25,000.00	25,000		
79	312500		Erosion Control monitoring & maintenance	**1**	ls	10,000.00	10,000		
80			SUBTOTAL					438,275	
81									
			TOTAL - SITE DEVELOPMENT						**$438,275**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK - PHASE 1						
	G SITEWORK						
	G10 SITE PREPARATION & DEMOLITION						
	311000 GENERAL CONDITIONS						
311000	6' high site construction fence - incl. what is shown on arch.	**1,445**	lf	40.00	w_EBP		
311000	6' high site construction fence double gate - incl. dumpsters	**2**	loc	5,000.00	w_EBP		
311000	Site construction entrance and removal/restoration	**1**	loc	12,000.00	12,000		
311000	Site construction fence maintenance	**1,445**	lf	12.00	w/GRs		
311000	Mobilizations	**1**	ea	50,000.00	w/GRs		
311000	Construction offices area prep - allowance	**1**	ls	10,000.00	w_EBP		
311000	Temporary signs	**1**	ls	15,000.00	15,000		
311000	Engineering/layout	**1**	ls	85,000.00	w/GRs		
311000	As-builts	**1**	ls	5,000.00	w/GRs		
311000	Snow removal - allowance	**1**	ls	25,000.00	NR		
311000	Winter condition - allowance	**1**	ls		Excluded		
311000		**1**	ls		Excluded		
311000	Job site construction trailer	**1**	ls		Excluded		
	312000 EROSION & SEDIMENT CONTROL						
312000	Street sweeping & dust control allowance	**1**	ls	25,000.00	25,000		
312000	Erosion Control monitoring & maintenance	**1**	ls	10,000.00	10,000		
	SUBTOTAL					62,000	
	312000 SITE EARTHWORK						
312000	Site cut to design subgrade - phase 1	*1,024*	*cy*				
312000	Cut	**1,024**	cy	10.00	10,240		
312000	Site fill to design subgrade - phase 1	*2,400*	*cy*				
312000	Structural fill import	**3,000**	cy	50.00	150,000		
	312000 SOIL DISPOSAL - conversion factor 1.7 to tons						
312000	Load excess soils for disposal	**1,024**	cy	2.50	2,560		
312000	Less than RCS-1 - clean non-regulated	**1,741**	tn	25.00	43,525		
	312000 SUPPORT OF EXCAVATION						
312300	SOE - support install of chambers on Mayflower	**720**	sf	100.00	NR		
312300	SOE - support excavation on Mayflower/Winslow	**1,700**	sf	100.00	170,000		
	312000 ESTABLISHING GRADE						
312000	Sub grade establishment	**218,500**	sf	0.25	54,625		
312000	Fine grading throughout the site	**218,500**	sf	0.55	120,175		
	312000 HAZARDOUS MATERIALS						
312000	UST removal allowance	**3**	ea		Already removed		
	SUBTOTAL					551,125	
	G20 SITE IMPROVEMENTS						
	320000 ROADWAYS AND PARKING LOTS						
	Asphalt Paving; parking lots and roadways	*12,531*	*sf*				
312000	gravel base; 12" thick	**464**	cy	50.00	23,200		
320000	asphalt top; 2" thick	**160**	tns	225.00	36,000		
320000	asphalt binder; 2" thick	**160**	tns	180.00	28,800		
320000	painted games in parent drop-off	**1**	ls	25,000.00	25,000		
	320000 CURBING						
320000	Vertical granite curb	**1,714**	lf	52.00	89,128		
320000	ADA Curb cuts	**6**	ea	850.00	5,100		
	320000 ROAD MARKINGS AND SIGNS						
320000	Parking spot	**33**	ea	85.00	2,805		
320000	Pavement markings allowance	**1**	ls	2,500.00	2,500		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK - PHASE 1						
57	320000	Crosswalk hatching	**1**	loc	2,500.00	2,500		
58	320000	Raised crosswalk	**2**	loc	5,000.00	10,000		
59		Traffic signs						
60	320000	Signs - new	**8**	ea	125.00	1,000		
61	320000	Signs - mounting hardware	**8**	ea	225.00	1,800		
62	320000	Signs - posts	**8**	ea	487.50	3,900		
63	320000	SUBTOTAL					231,733	
64								
65		***320000 PEDESTRIAN PAVING***						
66		Concrete sidewalks	*16,309*	*sf*				
67	312000	gravel base; 8" thick	**405**	cy	50.00	20,250		
68	033000	Broom finish concrete paving; 6" thick	**16,309**	sf	20.00	326,180		
69	320000	Colored concrete premium	**649**	sf	18.00	11,682		
70		Concrete pavers on concrete slabs	*1,092*	*sf*				
71	312000	gravel base; 6" thick	**20**	cy	50.00	1,000		
72	033000	Concrete slab paving; 4" thick	**1,092**	sf	15.00	16,380		
73	320000	Concrete pavers	**1,092**	sf	28.00	30,576		
74	320000	Geotextiles	**1,092**	sf	0.55	601		
75	320000	Edging	**45**	lf	18.00	NR		
76		Concrete pads	*374*	*sf*				
77	312000	gravel base; 12" thick	**14**	cy	50.00	700		
78	033000	Broom finish concrete paving; 8" thick	**374**	sf	30.00	11,220		
79		Stone surfacing around utility locations	985	*sf*				
80	312000	gravel base; 12" thick	**36**	cy	50.00	1,800		
81		*320000 STAIRS AND RAMPS*						
82	033000	Ramp premium	**140**	sf	20.00	2,800		
83	055000	Ramp handrails	**48**	lf	425.00	20,400		
84	033000	Stairs - cast-in-place concrete - courtyard	**79**	lf	475.00	37,525		
85	055000	Stair handrails	**11**	lf	425.00	4,675		
86	033000	Stair foundations - courtyard	**70**	lf	325.00	22,750		
87	320000	Access - courtyard	**1**	ls	25,000.00	25,000		
88		SUBTOTAL					533,539	
89								
90		***320000 SITE IMPROVEMENTS***						
91		*320000 SITE FURNISHINGS*						
92	323000	Bollards at utilities allowance	**10**	ea	900.00	9,000		
93	320000	Bollards - Helio	**13**	ea	3,280.20	42,643		
94	320000	Bollards - Helio foundations	**13**	ea	1,250.00	16,250		
95	323000	School sign - digital message board	**1**	ea	25,000.00	25,000		
96	323000	Flagpole - 35' Ht.	**1**	ea	8,000.00	8,000		
97	323000	Flagpole foundation	**1**	ea	4,500.00	4,500		
98	323000	Trash and Recycling receptacles - Universal	**5**	ea	2,015.86	10,079		
99	323000	Benches- knight - backed with arms	**8**	ea	4,421.34	35,371		
100	323000	Twig benches - landscape forms	**4**	ea	5,636.00	22,544		
101	323000	Vestre benches - block	**8**	ea	2,310.00	18,480		
102	323000	Vestre benches - Via curved with wood top	**4**	ea	8,300.60	33,202		
103	323000	Vestre benches - Via straight with wood top	**2**	ea	5,313.00	10,626		
104	323000	Shade structure in courtyard - Poligon	**1**	ls	77,924.00	77,924		
105	323000	Sculpural frog climber - Miracle Recreation	**1**	ea	14,768.60	14,769		
106	323000	Curved bench on playground walls - 40' of wall	**4**	ea	3,603.60	14,414		
107	323000	AED Emergency device	**1**	ea	2,500.00	2,500		
108	323000	Window wells	**3**	ea	10,000.00	included above		
109	323000	Courtyard access	**1**	ls	25,000.00	25,000		
110	323000	Salvaged granite seats	**11**	ea	1,000.00	11,000		
111	033000	Light pole foundations	**11**	ea		w/ elec		
112								
113								

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK - PHASE 1						
114		*320000 PLAY AREAS*						
115		Playground - pour-in-place safety surfacing	5,847	*sf*				
116	312000	gravel base; 12" thick	**217**	cy	50.00	Eliminated		
117	320000	Pour-in-place safety surface	**5,847**	sf	42.00	Eliminated		
118	320000	Geotextiles	**5,847**	sf	0.75	Eliminated		
119	320000	Pour-in-place safety surface - courtyard sloped premium	**1,730**	sf	10.00	Eliminated		
120	320000	Edging	**141**	lf	80.00	Eliminated		
121	323000	Allowance for play equipment	**1**	ls	500,000.00	Eliminated		
122		*320000 SPORTS COURTS*						
123		Pavement areas	*4,000*	*sf*				
124	312000	gravel base; 8" thick	**99**	cy	50.00	4,950		
125	320000	asphalt top; 1.5" thick	**38**	tns	225.00	8,550		
126	320000	asphalt binder; 1.5" thick	**38**	tns	190.00	7,220		
127	320000	Color surface allowance	**4,000**	sf	9.00	36,000		
128		*320000 SYNTHETIC TURF AT COURTYARD*	*602*	*sf*				
129	320000	Synthetic turf system	**602**	sf	25.00	15,050		
130	312000	Dense grade; 6" thick	**11**	tn	250.00	2,750		
131	320000	Turf anchor curbing	**103**	lf	125.00	12,875		
132		Softball - Reorientated Layout- new equipment						
133	323000	Softball mound	**1**	loc	3,500.00	3,500		
134	323000	Softball bases	**1**	set	2,500.00	2,500		
135	323000	Softball batters boxes	**1**	loc	3,500.00	3,500		
136	323000	Softball foul poles	**2**	ea	3,600.00	7,200		
137	323000	Softball backstop	**1**	ea	55,000.00	55,000		
138	323000	Team benches	**2**	ea	4,000.00	8,000		
139		*320000 FENCING*						
140	323000	4' Ht - Chain link fence	**46**	lf	70.00	3,220		
141	323000	4' Ht - Chain link double gate	**1**	ea	2,500.00	2,500		
142	323000	Double gates at brick utility enclosures	**2**	ea	4,500.00	9,000		
143	323000	Double swing gate at playground entrance	**1**	ea	3,500.00	3,500		
144	323000	Vehicular gate	**1**	ea	20,000.00	20,000		
145	055000	Guardrail at outdoor classroom	**10**	lf	65.00	650		
146		SUBTOTAL					587,267	
147								
148		*329900 SITE WALLS*						
149	033000	Concrete work - Utility enclosure - 8' Ht. Brick	**91**	lf	317.69	28,910		
150	312000	Excavation	**101**	cy	100.00	10,100		
151	312000	Backfill - (assume using onsite soils)	**162**	cy	25.00	4,050		
152	334000	Wall drain	**91**	lf	22.00	2,002		
153	042000	CMU above grade	**91**	lf	250.00	22,750		
154	042000	Brick veneer on outside only	**728**	sf	55.00	40,040		
155	042000	Precast cap	**91**	lf	100.00	9,100		
156								
157	323000	Precast seatwall - custom radius	**150**	lf	1,000.00	150,000		
158	312000	Below grade concrete foundation to frost	**150**	lf	440.61	66,092		
159	312000	Excavation	**31**	cy	100.00	3,100		
160	334000	Backfill - (assume using onsite soils)	**9**	cy	25.00	225		
161	334000	Wall drain	**150**	lf	22.00	3,300		
162								
163	323000	Prefabricated stone wall- 18" concrete base - 1.5' ht. at Huckins Ave. entrance	**59**	lf	440.61	25,996		
164	312000	Excavation	**12**	cy	100.00	1,200		
165	312000	Backfill - (assume using onsite soils)	**4**	cy	25.00	100		
166	334000	Wall drain	**59**	lf	22.00	1,298		
167								
168	323000	Prefabricated stone wall- 18" concrete base - 1.5' ht. at Northwest entrance and patio overlooking Huckins Ave.	**206**	lf	440.61	90,766		
169	312000	Excavation	**43**	cy	100.00	4,300		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK - PHASE 1						
170	312000	Backfill - (assume using onsite soils)	**13**	cy	25.00	325		
171	334000	Wall drain	**206**	lf	22.00	4,532		
172								
173	323000	Prefabricated stone wall- 18" concrete base - 1.5' avg. ht. at Courtyard	**150**	lf		switched to precast		
174	312000	Excavation	**31**	cy		switched to precast		
175	312000	Backfill - (assume using onsite soils)	**9**	cy		switched to precast		
176	334000	Wall drain	**150**	lf		switched to precast		
177								
178	323000	Prefabricated stone wall- 18" concrete base -2' ht at Winslow Rd. stairs	**34**	lf		w_structural		
179	312000	Excavation	**9**	cy	100.00	w_structural		
180	312000	Backfill - (assume using onsite soils)	**4**	cy	25.00	w_structural		
181	334000	Wall drain	**34**	lf	22.00	w_structural		
182								
183	323000	Prefabricated stone wall- 18" concrete base -2' Ht. - Playground	**105**	lf		Removed		
184	312000	Excavation	**29**	cy	100.00	Removed		
185	312000	Backfill - (assume using onsite soils)	**12**	cy	25.00	Removed		
186	334000	Wall drain	**105**	lf	22.00	Removed		
187								
188	323000	Prefabricated stone wall- 18" concrete base - 2.5' avg. ht. at Mayflower Rd.	**213**	lf	566.03	120,564		
189	312000	Excavation	**74**	cy	100.00	7,400		
190	312000	Backfill - (assume using onsite soils)	**37**	cy	25.00	925		
191	334000	Wall drain	**213**	lf	22.00	4,686		
192	323000							
193		Prefabricated stone wall- 18" concrete base -3' ht. with 4' Ht. CLF	**144**	lf	589.55	Removed		
194		Excavation	**60**	cy	100.00	Removed		
195		Backfill - (assume using onsite soils)	**36**	cy	25.00	Removed		
196		Wall drain	**144**	lf	22.00	Removed		
197		4' Ht - Chain link fence	**144**	lf	65.00	Removed		
198								
199	033000	Cast-in-place wall at playground - 4' ht. with 4' Ht. CLF	**190**	lf	749.37	142,380		
200	312000	Excavation	**132**	cy	100.00	13,200		
201	312000	Backfill - (assume using onsite soils)	**132**	cy	25.00	3,300		
202	334000	Wall drain	**190**	lf	22.00	4,180		
203	323000	4' Ht - Chain link fence	**190**	lf	65.00	12,350		
204		SUBTOTAL					777,171	
205								
206		**Landscaping**						
207	*329900*	*TOPSOIL*						
208	312000	Imported topsoil 6" thick; swell 25%	**1,984**	cy	70.00	138,880		
209	329000	Soil and mulch at planting areas; 12" thick	**17**	cy	75.00	1,275		
210	*329900*	*LAWN AND SEED*	*70,547*	*sf*				
211	329000	Topsoil - imported 6" thick	**1,306**	cy		incl. above		
212	329000	Scarify subgrade	**70,547**	sf	0.25	17,637		
213	329000	Power rake and hydroseed disturbed areas	**70,547**	sf	0.35	24,691		
214	*329900*	*MAINTENANCE*						
215	329000	1-yr plant maintenance	**1**	ls	9,686.70	9,687		
216	329000	Watering to grow-in	**1**	ls	10,000.00	10,000		
217	*320000*	*ATHLETIC LANDSCAPING*	*11,305*	*sf*				
218	329000	Topsoil - imported 8" thick	**281**	cy		incl. above		
219		Baseball	*11,305*	*sf*				
220	329000	Athletic seed mix - infield	**2,981**	sf	0.75	2,236		
221	329000	Tall fescue blue mix - outfield	**20,590**	sf	0.75	15,443		
222	329000	Scarify subgrade	**23,571**	sf	0.25	5,893		
223	329000	Irrigation - outfield only	**20,590**	sf		Removed		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK - PHASE 1								
224	329000		Reconciliation adjustment allowance	**1**	ls	75,000.00	75,000		
225			Baseball Infield Mix - profile assumed	*3,431*	*sf*				
226	329000		Infield mix	**69**	tn	225.00	15,525		
227	329000		Sand gravel fill; 8" thick	**84**	cy	50.00	4,200		
228		*329900*	*MAINTENANCE*						
229	329000		Planting maintenance - 120 days	**1**	ls	50,000.00	50,000		
230	329000		Watering to grow-in	**1**	ls	10,000.00	10,000		
231	329000	*329900*	*TREES*						
232	329000		Deciduous trees - 2-2.5" cal.	**5**	ea	1,800.00	9,000		
233	329000		Deciduous trees - 3"-3.5" cal.	**21**	ea	2,500.00	52,500		
234		*329900*	*GROUNDCOVERS - GRASSES/PERENNIALS/VINES*						
235	329000		Groundcovers - #1 container	**51**	ea	28.00	1,428		
236	329000		Groundcovers - #3 container	**30**	ea	55.00	1,650		
237		*328400*	*IRRIGATION*						
238	328400		Irrigation area - Lawn area along Huckins Ave.	**13,259**	sf	2.25	29,833		
239			SUBTOTAL					474,878	
240									
241		**G30**	**CIVIL MECHANICAL UTILITIES**						
242		*210000*	*FIRE PROTECTION*						
243	210000		6" CLDI	**80**	lf	49.64	3,971		
244	210000		Thrust blocks	**4**	ea	500.00	2,000		
245	210000		Gate valve	**2**	ea	1,200.00	2,400		
246	210000		Fire department connection	**1**	ea	2,500.00	2,500		
247		*331000*	*WATER UTILITIES*						
248	331000		4" CLDI	**72**	lf	67.50	4,860		
249		*331000*	*CONNECTIONS*						
250	331000		Connect to existing water line; 6/8/10 (in roadway)	**2**	ea	15,000.00	30,000		
251		*312000*	*EXCAVATION & BACKFILL*	*152*	*lf*				
252	312000		DI gravity piping excavation	**144**	cy	46.75	6,732		
253	312000		Trench bedding	**30**	cy	45.00	1,350		
254	312000		Pressure test & chlorinate	**152**	lf	5.00	760		
255			SUBTOTAL					54,573	
256									
257		*333000*	*SANITARY SEWER*						
258	333000		4" PVC	**124**	lf	8.18	1,014		
259	333000		6" PVC	**53**	lf	21.16	1,121		
260	333000		SMH - 0-5' deep	**1**	ea	4,800.00	4,800		
261	333000		Grease trap - 2,000 gal.	**1**	ea	15,000.00	15,000		
262	333000		Cleanouts	**2**	ea	1,200.00	2,400		
263		*333000*	*CONNECTIONS*						
264	333000		Connect to existing structure - in road	**1**	ea	10,000.00	10,000		
265	333000		Allowance for SMH connection or new SMH	**1**	ea	15,000.00	15,000		
266		*312000*	*EXCAVATION & BACKFILL - Gravity*	*177*	*lf*				
267	312000		PVC gravity piping excavation	**472**	cy	46.75	22,066		
268	312000		Trench bedding	**62**	cy	45.00	2,790		
269	312000		Pressure testing	**177**	lf	4.00	708		
270	312000		Grease trap; 2,000 gal. (e/b only) incl. shoring	**1**	ea	5,000.00	5,000		
271	312000		Video Inspection	**1**	ls	2,500.00	2,500		
272			SUBTOTAL					82,399	
273									
274		*334000*	*STORM DRAINAGE*						
275	334000		12" HDPE	**56**	lf	75.00	4,200		
276	334000		10" HDPE	**33**	lf	65.00	2,145		
277	334000		8" HDPE	**5**	lf	60.00	300		
278	334000		6" HDPE	**949**	lf	55.00	52,195		
279	334000		4' Dia. DMH - 0-5' deep	**1**	ea	4,800.00	4,800		
280	334000		OCS	**1**	ea	10,000.00	10,000		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK - PHASE 1								
281	334000		AD	**8**	ea	2,800.00	22,400		
282	334000		CB - 4' Dia.	**4**	ea	4,200.00	16,800		
283	334000		Roof drain connections	**12**	ea	500.00	6,000		
284	334000		Trench drain	**29**	lf	300.00	8,700		
285	334000		Misc. drainage in Winslow - to be designed	**2**	ea	4,000.00	8,000		
286	334000		Playground and outdoor classroom drainage allow.	**6,449**	sf	3.00	19,347		
287		*334000*	*CONNECTIONS*						
288	334000		Connect to existing	**4**	ea	10,000.00	40,000		
289	334000		Connect to existing in Winslow	**3**	ea	5,000.00	15,000		
290		*334000*	*SUBSURFACE DRAINAGE SYSTEMS*						
291			Underground recharger	*659*	*sf*				
292	334000		MC-3500 chambers and installation - 179.9cuft/per chamber with a 12" stone base (90" long x 77" wide/ea)	**659**	sf	50.00	32,950		
293			SUBTOTAL					242,837	
294									
295		**G40**	**ELECTRICAL UTILITIES**						
296	33000		Site Electrical Civil Work						
297	33000		Concrete:						
298	33000		Secondary duct bank BB 5-4" PVC	**40**	lf	40.00	1,600		
299	33000		Generator duct bank CC	**40**	lf	40.00	1,600		
300	33000		Telecom duct bank DD 4-4"	**210**	lf	40.00	8,400		
301	33000		FA service duct bank EE	**170**	lf	40.00	6,800		
302	33000		Generator pad	**1**	ea	3,000.00	3,000		
303	33000		Light pole base	**11**	ea	700.00	7,700		
304			Excavation & backfill:						
305	312000		Secondary duct bank BB 5-4" PVC	**40**	lf	30.00	1,200		
306	312000		Generator duct bank CC	**40**	lf	30.00	1,200		
307	312000		Telecom duct bank DD 4-4"	**210**	lf	30.00	6,300		
308	312000		FA service duct bank EE	**170**	lf	30.00	5,100		
309	312000			**1,200**	lf	9.00	10,800		
310	312000		Playground AED circuitry in PVC	**220**	lf	8.00	1,760		
311			SUBTOTAL					55,460	
312									
313			Power						
314	260000		Secondary duct bank BB 1600A feed in 5-4" PVC	**40**	lf	500.00	20,000		
315	260000		Generator duct bank CC 400A & 150A feeds & control circuitry in PVC	**40**	lf	300.00	12,000		
316	260000		Playground AED power conn	**1**	ls	1,000.00	1,000		
317	260000		Playground AED circuitry in PVC	**220**	lf	9.00	1,980		
318	260000		Pull box: AED power	**1**	ea	750.00	750		
319	260000		Pull box: site lighting	**1**	ea	1,000.00	1,000		
320	260000		Communications						
321	260000		Telecom duct bank DD 4-4" empty, conduits only	**210**	lf	100.00	21,000		
322	260000		FA service duct bank EE	**170**	lf	80.00	13,600		
323	260000								
324	260000						See ES tab		
325	260000		Circuitry: allow cat cabling in PVC	**1000**	lf	10.00	10,000		
326	260000		EV Stations				Phase 2		
327	260000		Site Lighting						
328	260000		Site lighting fixture Type SL4 streetlight pole fixture	**8**	ea	3,500.00	28,000		
329	260000		Site lighting fixture Type SL5 wallpack	**6**	ea	800.00	4,800		
330	260000		Site lighting fixture Type SL6 flag pole	**3**	ea	750.00	2,250		
331	260000		Site lighting fixture Type SL7 bollard	**3**	ea	1,300.00	3,900		
332	260000		Site lighting circuitry	**1,200**	lf	20.00	24,000		

Squantum Elementary School
Quincy, MA

18-Dec-24

90% Design Development Cost Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK - PHASE 1							
333	SUBTOTAL					144,280	
334							
335	**TOTAL - SITE DEVELOPMENT**						**$3,797,262**

PM&C

Squantum Elementary School 18-Dec-24
Quincy, MA

GFA 79,801

90% Design Development Cost Estimate

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
NEW SCHOOL BUILDING						
A10	**FOUNDATIONS**			**$4,108,503**		8.3%
	A1010	Standard Foundations	$1,957,857		$24.53	
	A1020	Special Foundations	$0		$0.00	
	A1030	Lowest Floor Construction	$2,150,646		$26.95	
A20	**BASEMENT CONSTRUCTION**			**$0**		0.0%
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0			
B10	**SUPERSTRUCTURE**			**$4,911,115**		9.9%
	B1010	Upper Floor Construction	$2,584,583		$32.39	
	B1020	Roof Construction	$2,326,532		$29.15	
B20	**EXTERIOR CLOSURE**			**$8,448,905**		17.0%
	B2010	Exterior Walls	$6,396,048		$80.15	
	B2020	Windows	$1,858,120		$23.28	
	B2030	Exterior Doors	$194,737		$2.44	
B30	**ROOFING**			**$4,307,573**		8.7%
	B3010	Roof Coverings	$4,305,073		$53.95	
	B3020	Roof Openings	$2,500		$0.03	
C10	**INTERIOR CONSTRUCTION**			**$6,379,589**		12.9%
	C1010	Partitions	$4,070,116		$51.00	
	C1020	Interior Doors	$697,723		$8.74	
	C1030	Specialties/Millwork	$1,611,750		$20.20	
C20	**STAIRCASES**			**$230,875**		0.5%
	C2010	Stair Construction	$207,000		$2.59	
	C2020	Stair Finishes	$23,875		$0.30	
C30	**INTERIOR FINISHES**			**$3,005,272**		6.1%
	C3010	Wall Finishes	$633,433		$7.94	
	C3020	Floor Finishes	$1,343,726		$16.84	
	C3030	Ceiling Finishes	$1,028,113		$12.88	
D10	**CONVEYING SYSTEMS**			**$273,100**		0.6%
	D1010	Elevator	$273,100		$3.42	
D20	**PLUMBING**			**$2,128,625**		4.3%
	D20	Plumbing	$2,128,625		$26.67	
D30	**HVAC**			**$7,676,710**		15.5%
	D30	HVAC	$7,676,710		$96.20	
D40	**FIRE PROTECTION**			**$653,466**		1.3%
	D40	Fire Protection	$653,466		$8.19	
D50	**ELECTRICAL**			**$5,592,889**		11.3%

PM&C

Squantum Elementary School 18-Dec-24
Quincy, MA

GFA 79,801

90% Design Development Cost Estimate

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
NEW SCHOOL BUILDING						
	D5010	Complete System	$5,592,889		$70.09	
E10	**EQUIPMENT**			**$994,340**		2.0%
	E10	Equipment	$994,340		$12.46	
E20	**FURNISHINGS**			**$884,570**		1.8%
	E2010	Fixed Furnishings	$884,570		$11.08	
	E2020	Movable Furnishings	NIC			
F10	**SPECIAL CONSTRUCTION**			**$0**		0.0%
	F10	Special Construction	$0		$0.00	
F20	**HAZMAT REMOVALS**			**$0**		0.0%
	F2010	Building Elements Demolition	$0		$0.00	
	F2020	Hazardous Components Abatement	$0		$0.00	
TOTAL DIRECT BUILDING COST (Trade Costs)				**$49,595,532**	$621.49	100.0%

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
		A10 FOUNDATIONS						
		A1010 STANDARD FOUNDATIONS						
	033000	*CONCRETE*						
		Basement Level						
1		Strip footings						
2	033000	Formwork	**828**	sf	20.00	16,560		
3	033000	Re-bar	**9,160**	lbs.	2.50	22,900		
4	033000	Concrete material	**78**	cy	171.00	13,338		
5	033000	Placing concrete	**78**	cy	130.00	10,140		
6	033000	Retaining wall						
7	033000	Formwork	**7,668**	sf	24.00	184,032		
8	033000	Re-bar	**15,995**	lbs.	2.50	39,988		
9	033000	Concrete material	**224**	cy	171.00	38,304		
10	033000	Placing concrete	**224**	cy	130.00	29,120		
11	033000	Form shelf	**335**	lf	12.00	4,020		
12		**Level 1**						
13		Strip footings						
14	033000	Formwork	**3,190**	sf	20.00	63,800		
15	033000	Re-bar	**12,099**	lbs.	2.50	30,248		
16	033000	Concrete material	**216**	cy	171.00	36,936		
17	033000	Placing concrete	**216**	cy	130.00	28,080		
13	033000	Foundation walls						
14	033000	Formwork	**12,753**	sf	22.00	280,566		
15	033000	Re-bar	**35,547**	lbs.	2.50	88,868		
16	033000	Concrete material	**285**	cy	171.00	48,735		
17	033000	Placing concrete	**285**	cy	130.00	37,050		
18	033000	Form shelf	**1,196**	lf	12.00	14,352		
14	033000	Foundation wall @ ETR building footing						
15	033000	Formwork	**1,981**	sf	22.00	43,582		
16	033000	Re-bar	**3,962**	lbs.	2.50	9,905		
17	033000	Concrete material	**32**	cy	171.00	5,472		
18	033000	Placing concrete	**32**	cy	130.00	4,160		
19	033000	Form shelf	**163**	lf	12.00	1,956		
19	033000	Spread Footings						
20	033000	Formwork	**5,000**	sf	20.00	100,000		
21	033000	Re-bar	**21,611**	lbs.	2.50	54,028		
22	033000	Concrete material	**295**	cy	171.00	50,445		
23	033000	Placing concrete	**295**	cy	130.00	38,350		
24	033000	Set anchor bolts grout plates	**134**	ea	200.00	26,800		
25		Load bearing Gym strip footings						
26	033000	Formwork	**390**	sf	20.00	7,800		
27	033000	Re-bar	**801**	lbs.	2.50	2,003		
28	033000	Concrete material	**22**	cy	171.00	3,762		
29	033000	Placing concrete	**22**	cy	130.00	2,860		
25	033000	Grade Beams; 24"x24"						
26	033000	Formwork	**1,800**	sf	20.00	36,000		
27	033000	Re-bar	**7,050**	lbs.	2.50	17,625		
28	033000	Concrete material	**47**	cy	171.00	8,037		
29	033000	Placing concrete	**47**	cy	130.00	6,110		
30	033000	Piers/Pilasters						
31	033000	Formwork	**2,256**	sf	24.00	54,144		
32	033000	Re-bar	**8,400**	lbs.	2.50	21,000		
33	033000	Concrete material	**56**	cy	171.00	9,576		
34	033000	Placing concrete	**56**	cy	130.00	7,280		
35	033000	Elevator Pits; 12" walls	**1**	ea				
36	033000	Formwork	**540**	sf	22.00	11,880		
37	033000	Re-bar	**1,320**	lbs	2.50	3,300		
38	033000	Concrete material	**11**	cy	171.00	1,881		
39	033000	Placing concrete	**11**	cy	130.00	1,430		
40	033000	24" thick Mat slab	**225**	sf	30.00	6,750		
41	033000	Sump pit premium	**1**	ea	1,500.00	1,500		
42		Strip footings @ exterior Gym stair						
43	033000	Formwork	**61**	sf	20.00	1,220		
44	033000	Re-bar	**187**	lbs.	2.50	468		
45	033000	Concrete material	**3**	cy	171.00	513		

CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL								
033000		Placing concrete	**3**	cy	130.00	390		
033000		Retaining wall @ exterior Gym stair						
033000		Formwork	**175**	sf	20.00	3,500		
033000		Re-bar	**438**	lbs.	2.50	1,095		
033000		Concrete material	**6**	cy	171.00	1,026		
033000		Placing concrete	**6**	cy	130.00	780		
033000		Miscellaneous						
033000		Allowance for stepped foundations	**1**	ls	20,000.00	20,000		
033000		Stem wall at platform and ramp, 21" high	**6**	cy	750.00	4,500		
033000		Premium to form and pour interior stair	**40**	lf	150.00	6,000		
033000		Premium to form and pour against ETR stone foundation	**206**	lf	100.00	20,600		
	070001	*WATERPROOFING, DAMPPROOFING AND CAULKING*						
070001		Dampproofing foundation wall and footing	**5,367**	sf	3.00	16,101		
070001		Waterproofing at retaining wall	**5,834**	sf	16.00	93,344		
070001		Elevator pit waterproofing	**1**	ea	8,000.00	8,000		
	072100	*THERMAL INSULATION*						
033000		Insulation at foundation walls, 3"	**11,289**	sf	3.50	39,512		
	312000	*EARTHWORK*						
		Strip Footings						
312000		Excavation	**1,497**	cy	25.00	37,425		
312000		Store on site	**1,497**	cy	12.00	17,964		
312000		Backfill with onsite material	**964**	cy	16.00	15,424		
		Retaining Wall Footings						
312000		Excavation				w/ building earthwork		
312000		Store on site				w/ building earthwork		
312000		Backfill with existing material				w/ building earthwork		
312000		Spread footings						
312000		Excavation	**1,026**	cy	25.00	25,650		
312000		Store on site	**1,026**	cy	12.00	12,312		
312000		Backfill with onsite material	**585**	cy	16.00	9,360		
312000		Perimeter drain - allowance	**1,500**	lf	32.00	48,000		
312000		Dewatering for foundation work	**1**	ls	50,000.00	50,000		
		SUBTOTAL					1,957,857	
	A1020	**SPECIAL FOUNDATIONS**						
033000		No Work in this section						
		SUBTOTAL						
	A1030	**LOWEST FLOOR CONSTRUCTION**						
	033000	*CONCRETE*						
033000		Slab on grade, 5"	*52,452*	*sf*				
033000		WWF reinforcement, 15% lap	**60,320**	sf	1.80	108,576		
033000		Concrete - 5" thick	**849**	cy	171.00	145,179		
033000		Placing concrete	**849**	cy	65.00	55,185		
033000		Finishing and curing concrete	**52,452**	sf	3.50	183,582		
033000		Sawcut full depth control joints	**52,452**	sf	0.22	11,539		
070001		Vapor barrier, 20mil	**52,452**	sf	1.50	78,678		
033000		Miscellaneous						
033000		Radon pit	**1**	loc	5,000.00	5,000		
033000		Equipment pads	**1**	ls	15,000.00	15,000		
033000		Slab depressions	**1**	ls	10,000.00	10,000		
	072100	*THERMAL INSULATION*						
033000		Rigid insulation 3"	**52,452**	sf	3.50	183,582		
	312000	*EARTHWORK*						
		Building Earthwork						
312000		12" compacted gravel under SOG	**1,943**	cy	60.00	116,580		
	312000	*SITE EARTHWORK UNDER BUILDING*						
312000		Cut	**1,554**	cy	15.00	23,310		
312000		Cut - over excavation	**4,700**	cy	15.00	70,500		
312000		Fill - import structural - 25% swell	**14,375**	cy	60.00	862,500		

CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL								
	312000	*SOIL DISPOSAL - conversion factor 1.7 to tons*						
312000		Load excess soils for disposal	**6,254**	cy	2.50	15,635		
312000		Less than RCS-1 - clean non-regulated	**10,632**	tn	25.00	265,800		
		SUBTOTAL					2,150,646	
		TOTAL - FOUNDATIONS						**$4,108,503**
	A20	***BASEMENT CONSTRUCTION***						
	A2010	**BASEMENT EXCAVATION**						
		See above						
		SUBTOTAL					-	
	A2020	**BASEMENT WALLS**						
		See above						
		SUBTOTAL					-	
		TOTAL - BASEMENT CONSTRUCTION						**$0**
	B10	***SUPERSTRUCTURE***						
			574	*tns*				
	B1010	**FLOOR CONSTRUCTION**	*$ 6,497*	*per ton*				
	033000	*CONCRETE*						
033000		WWF reinforcement, 15% lap	**42,824**	sf	1.80	77,083		
033000		Concrete topping to metal decking, 6-1/2" thick; normal weight	**724**	cy	185.00	133,940		
033000		Place and finish concrete	**37,238**	sf	4.00	148,952		
033000		Rebar to decks	**11,171**	lbs	2.00	22,342		
033000		Slab on deck in attics	**7,780**	sf	10.00	77,800		
	051200	*STRUCTURAL STEEL FRAMING*						
051200		Structural framing including columns and braced frames	**255**	tns	5,000.00	1,275,000		
051200		Reconxiliation adjustment - engineer says 16lbs/sf	**75**	ths	5,000.00	375,000		
051200		Moment connections	**101**	ea	850.00	85,850		
051200		3" Metal galvanized floor deck	**29,458**	sf	7.00	206,206		
051200		3" Metal galvanized floor deck in attics	**7,780**	sf	7.00	54,460		
051200		Shear studs	**9,310**	ea	5.00	46,550		
051200		Allowance for beam penetrations	**1**	ls	25,000.00	25,000		
	078400	*FIREPROOFING/FIRESTOPPING*						
078100		Intumescent paint - allowance	**1**	ls	50,000.00	50,000		
078100		Spray-applied fireproofing to beams and columns (allowance per Architect)	**1,600**	sf	4.00	6,400		
		SUBTOTAL					2,584,583	
	B1020	**ROOF CONSTRUCTION**						
	033000	*CONCRETE*						
033000		WWF reinforcement, 15% lap	**3,450**	sf	1.85	6,383		
033000		Concrete topping to metal decking, 6-1/2" thick; normal weight	**58**	cy	185.00	10,730		
033000		Place and finish concrete	**3,000**	sf	4.00	12,000		
033000		Rebar to decks	**900**	lbs	2.00	1,800		
	051200	*STRUCTURAL STEEL FRAMING*						
051200		Steel roof framing	**305**	tns	5,000.00	1,525,000		
051200		T1 Joists	**14**	tns	5,000.00	70,000		
051200		3" Metal galvanized roof deck	**56,677**	sf	7.00	396,739		
051200		Shear studs	**750**	ea	6.00	4,500		
051200		Premium for acoustic deck in Gymnasium	**6,625**	sf	6.00	39,750		
051200		Roof screen framing				NA		
	061753	*SHOP-FABRICATED WOOD TRUSSES*						
061753		*Glu lam framing*						
061753		WT-1; Glu-lam wood hip truss; 5 1/8"x18" members w/ 5 1/8"x6" intermediates	**7**	ea	14,850.00	103,950		
061753		WP-1; Glu-lam wood purlin; 5 1/4"x23"	**128**	lf	260.00	33,280		
061753		4" Wood t&g roof deck	**4,525**	sf	16.00	72,400		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL								
181	072160		Armatherm thermal break allowance	**1**	ls	50,000.00	50,000		
182									
183		*078400*	*FIREPROOFING/FIRESTOPPING*						
184	078100		Spray-applied fireproofing to beams and columns				NR		
185			SUBTOTAL					2,326,532	
186									
187			***TOTAL - SUPERSTRUCTURE***						**$4,911,115**
188									
189									
190		***B20***	***EXTERIOR CLOSURE***						
191									
192		**B2010**	**EXTERIOR WALLS**						
193									
194		*040001*	*MASONRY*						
195	042000		Mockup/ air leakage testing	**1**	ls	50,000.00	50,000		
196	042000		Brick veneer (EWA-2A,2B,2C)	**10,762**	sf	50.00	538,100		
197	042000		Premium for brick sill	**148**	lf	45.00	6,660		
198	042000		Premium for corbelled brick inset	**1,044**	lf	20.00	20,880		
199	042000		Premium for protruding w/ alternating course	**4,180**	sf	25.00	104,500		
200	042000		Granite base (EWA-5A&5C)	**2,022**	sf	190.00	384,180		
201	042000		Granite base on foundation wall (EWA-5B)	**3,211**	sf	190.00	610,090		
202	042000		Cast stone coping at balcony, 24" wide	**22**	lf	300.00	6,600		
203	042000		12" CMU backup at gym	**5,376**	sf	45.00	241,920		
204	042000		Staging/lifts to exterior wall	**15,995**	sf		incl		
205	042000		Insulation; 6" mineral wool at gym only	**5,376**	sf	6.00	32,256		
206	042000		Insulation; 4" mineral wool board @ masonry	**15,995**	sf	5.25	83,974		
207	042000		*Brickwork at ETR wall (EWA-1)*						
208	042000		ETR- Brick infill	**134**	sf	90.00	12,060		
209	042000		ETR- Repoint brick	**1,936**	sf	45.00	87,120		
210	042000		ETR- Remove and replace damaged quoining - allow	**1**	ls	20,000.00	20,000		
211	042000		ETR- new arched cast stone coping to match	**30**	lf	500.00	15,000		
212	042000		ETR- new cast stone lanterns to match historical photos	**2**	ea	2,000.00	4,000		
213	042000		ETR- new cast stone medallion based on existing	**1**	ea	5,000.00	5,000		
214	042000		ETR- new cast stone signage; 8lf	**1**	ea	2,800.00	2,800		
215	042000		ETR- new window sill to match	**10**	lf	225.00	2,250		
216	042000		Clean ETR masonry	**1,936**	sf	7.00	13,552		
217									
218		*052000*	*MISC. METALS*						
219	055000		Perforated metal panel rail at balcony	**22**	lf	650.00	14,300		
220	055000		Loose lintels allowance	**1**	ls	50,000.00	50,000		
221	055000		Misc. metals at masonry	**21,371**	sf	1.50	32,057		
222									
223		*070001*	*WATERPROOFING, DAMPPROOFING AND CAULKING*						
224	070001		AVB	**37,071**	sf	10.00	370,710		
225	070001		AVB at etr brick wall	**1,936**	sf	10.00	19,360		
226	070001		AVB at window openings	**5,144**	lf	6.25	32,150		
227	070001		Miscellaneous sealants	**39,007**	sf	0.50	19,504		
228	070001		AVB at soffits	**1,892**	sf	10.00	18,920		
229									
230		*074210*	*WALL PANELS*						
231	074200		Mockup allowance	**1**	ls	10,000.00	10,000		
231	074200		EWA-3A WD1- Wood look rain screen; phenolic, Trespa or equal	**2,528**	sf	105.00	265,440		
232	074200		EWA-3B Metal panel Alucobond	**1,711**	sf	100.00	171,100		
233	074200		EWA-3C Single skin aluminum panels, Versa seam or equal (including elevator over run)	**3,500**	sf	70.00	245,000		
234	074200		MP-1 ACM at windows, fascia's and gym cornice	**1,289**	sf	100.00	128,900		
235	074250		EWA-4A- Terracotta shingle	**12,048**	sf	105.00	1,265,040		
236	074200		ACM panel CW surround at CW, 12" wide x 3" thick	**350**	lf	100.00	35,000		
237	074200		ACM canopy fascia, 18" wide	**111**	lf	112.50	12,488		
238	074200		Support column cladding allowance at canopies	**4**	ea	2,500.00	10,000		
239	074200		Soffit - WD1- Wood look rain screen; phenolic, Trespa or equal	**1,400**	sf	105.00	147,000		
240	074250		Insulation; 4" mineral wool board @ MP	**21,076**	sf	5.25	110,649		
241	074200		Staging/lifts to exterior wall & soffits	**22,476**	sf		In rates		
242			*Siding work at ETR wall*						
243	074200		ETR wall; new wood fascia/trim w/ brackets (A5.20)	**164**	lf	200.00	32,800		
244									

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
	079500 EXPANSION CONTROL						
079500	Vertical expansion joint	**96**	lf	75.00	7,200		
	092900 GYPSUM BOARD ASSEMBLIES						
092900	Exterior gypsum sheathing, 5/8"	**31,695**	sf	3.50	110,933		
092900	8" metal stud	**31,695**	sf	17.00	538,815		
092900	GWB lining, 5/8"	**31,695**	sf	4.50	142,628		
092900	Mineral wool insulation at studs, 7.25"	**31,695**	sf	6.50	206,018		
092900	Framing at soffits	**1,400**	sf	20.00	28,000		
092900	Insulation at soffits	**1,400**	sf	5.00	7,000		
092900	Furring to inside face of retaining wall in basement - 3-5/8" MS, insulation, GWB	**4,536**	sf	13.00	58,968		
	Interior wall work at ETR wall EWA-1						
092900	Exterior gypsum sheathing, 5/8" @ eave	**492**	sf	3.50	1,722		
092900	Parge coat to create even substrate for AVB	**1,936**	sf	8.00	15,488		
092900	6" metal stud	**1,936**	sf	15.00	29,040		
092900	GWB lining, 5/8"	**1,936**	sf	4.50	8,712		
092900	Mineral wool insulation at studs, 4"	**1,936**	sf	5.25	10,164		
	101400 SIGNAGE						
101400	Signage				See C1030		
	SUBTOTAL					6,396,048	
	B2020 WINDOWS	*8,929*	sf				
	061000 ROUGH CARPENTRY						
061000	Wood blocking at openings	**5,144**	lf	14.00	72,016		
061000	Insulation at window openings	**5,144**	lf	4.00	20,576		
	070001 WATERPROOFING, DAMPPROOFING AND CAULKING						
070001	Backer rod & double sealant	**5,144**	lf	12.00	61,728		
	080001 WINDOWS/CURTAINWALL						
	TRIPLE GLAZED						
084413	Mockup allowance	**1**	ls	10,000.00	10,000		
084110	Aluminum Storefront	**251**	sf	180.00	45,180		
084413	Aluminum Curtainwall, Kawneer 1600 UT System 1 or equal	**3,930**	sf	200.00	786,000		
080001	Aluminum Windows, EFCO 325X or equal	**4,111**	sf	180.00	739,980		
084613	Kalwall		sf	150.00	see Alternate		
080001	Premium for operable openings				incl		
080001	Premium allowance for school guard SG5				NR		
080001	Premium for ballistic glass				NR		
080001	Horizontal sunshades at Admin offices	**21**	lf	350.00	7,350		
080001	*Window work at ETR wall*						
080001	Windows and transom, triple glazed, to match existing historic	**555**	sf	190.00	105,450		
	089000 LOUVERS						
089000	Louvers	**82**	sf	120.00	9,840		
	SUBTOTAL					1,858,120	
	B2030 EXTERIOR DOORS						
	061000 ROUGH CARPENTRY						
061000	Wood blocking at openings	**152**	lf	11.00	1,672		
	079200 JOINT SEALANTS						
070001	Backer rod & double sealant	**152**	lf	10.00	1,520		
	081110 DOORS AND FRAMES						
081113	Frames, single	**4**	ea	450.00	1,800		
081113	Frames, double	**4**	ea	600.00	2,400		
081113	Flush HM door, insulated	**12**	leaf	1,000.00	12,000		
081113	Wood doors, glazed, double leaf at Media Center entrance to match existing historic profile	**1**	pr	15,000.00	15,000		
	080001 WINDOWS						
084110	Glazed aluminum entrance doors including frame and hardware; single	**1**	ea	8,000.00	8,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL							
084110	Glazed aluminum entrance doors including frame and hardware; double	**7**	pr	16,000.00	112,000		
080002	Premium for school guard at vestibule doors (7 lvs)	**147**	sf	35.00	5,145		
083300	*OVERHEAD DOORS*						
087100	*DOOR HARDWARE*						
081113	Hardware	**14**	leaf	1,600.00	22,400		
081113	Auto opener, allow	**1**	ls	10,000.00	10,000		
090007	*PAINTING*						
090007	Finish doors and frames	**14**	ea	200.00	2,800		
	SUBTOTAL					194,737	
	TOTAL - EXTERIOR CLOSURE						**$8,448,905**
B30	***ROOFING***						
B3010	**ROOF COVERINGS**	*61,202*	*sf*				
055000	*MISC. METALS*						
055000	Galv. stairs and rails at roof, 1" grating tread	**1**	ls	20,000.00	20,000		
055000	Up and over roof ladders	**2**	ea	5,000.00	10,000		
055000	Tie-off davits				NR		
061000	*ROUGH CARPENTRY*						
092900	Rough carpentry and wood blocking at roofing	**61,202**	sf	1.50	91,803		
070002	*ROOFING AND FLASHING*						
070002	Mockup allowance	**1**	ls	10,000.00	10,000		
	<u>TPO Roofing Membrane</u>						
070002	ERA#1- PVC, 1/2" coverboard, minimum 5" polyiso insulation, AVB, thermal barrier board	**37,140**	sf	28.00	1,039,920		
070002	Premium for 10" insulation, ERA-1A	**8,077**	sf	3.00	24,231		
070002	Vertical PVC membrane @ parapets	**840**	sf	18.00	15,120		
	<u>Asphalt Roof</u>						
070002	ERA#2- Asphalt shingle on 5" nail board insulation on plywood substrate on 2" rigid insulation w/ AVB and thermal barrier board	**19,278**	sf	36.00	694,008		
	<u>Slate Roof</u>						
070002	ERA#3- Slate shingle on felt, plywood, 9" polyiso insulation in 2 layers w/ AVB and thermal barrier board	**4,784**	sf	129.50	619,528		
070002	<u>Miscellaneous Roofing</u>						
070002	Pre-formed aluminum gravel stop on cont. cleat w/ formed aluminum fascia (4/A5.21)	**1,085**	lf	60.00	65,100		
070002	12" Formed aluminum fascia w/ perf. aluminum soffit vent @ gutter (6/A5.21)	**709**	lf	75.00	53,175		
070002	Pitched roof rake edge	**390**	lf	60.00	23,400		
070002	Preformed parapet coping on cont. cleat, 24"	**700**	lf	120.00	84,000		
070002	Downspouts	**306**	lf	75.00	22,950		
070002	Gutters	**873**	lf	75.00	65,475		
070002	Miscellaneous flashings and sealants	**61,202**	sf	1.50	91,803		
070002	Snow guard	**1**	ls	40,000.00	40,000		
070002	Walkway pads	**2,800**	sf	15.00	42,000		
070002	EFA-2 Pavers at deck	**186**	sf	50.00	9,300		
072100	*THERMAL INSULATION*						
092900	Spray applied cellulose insulation 7.5" thick to underside of sloped asphalt roof deck (ERA-2)- HOLD $$ -RESEARCHING	**19,278**	sf	18.00	347,004		
092900	Spray applied cellulose insulation 10" thick to underside of roof deck (ERA-1, EFA-2)- HOLD $$ -RESEARCHING	**30,189**	sf	24.00	724,536		
092900	Spray applied cellulose insulation 10" thick to underside of attic floors - HOLD $$ -RESEARCHING	**7,780**	sf	24.00	186,720		
079500	*EXPANSION CONTROL*						
079500	Horizontal expansion joint allowance	**1**	ls	25,000.00	25,000		
	SUBTOTAL					4,305,073	
B3020	**ROOF OPENINGS**						
070002	Elevator vent	**1**	ea	2,500.00	2,500		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
370	070002	Roof hatch allowance				NA		
371		SUBTOTAL					2,500	
372								
373		***TOTAL - ROOFING***						**$4,307,573**
374								
375								
376		***C10 INTERIOR CONSTRUCTION***						
377								
378		**C1010 PARTITIONS**						
379								
380		*015200 TRADE SUPPORT*						
381	015200	Hoisting				w/GR's		
382								
383		*040001 MASONRY*						
384	042000	CMU, 8"	**1,753**	sf	38.00	66,614		
385	042000	M12- 12" CMU at gym	**3,272**	sf	45.00	147,240		
386								
387		*052000 MISC. METALS*						
388	055000	Seismic clips	**81**	loc	280.00	22,680		
389	055000	Misc. metals at masonry	**5,025**	sf	2.00	10,050		
390	055000	Misc. metal support at operable partitions	**46**	lf	150.00	6,900		
391								
392		*061000 ROUGH CARPENTRY*						
393	061000	Rough carpentry/ Safety - allowance per LKCO	**79,801**	gsf	3.00	239,403		
394								
395		*070001 WATERPROOFING, DAMPPROOFING AND CAULKING*						
396	070001	Miscellaneous sealants at partitions	**79,801**	sf	0.65	51,871		
397	078400	Fire stopping	**79,801**	sf	1.50	119,702		
398								
399		*080002 GLASS AND GLAZING*						
400	084413	Interior curtainwall at vestibules	**298**	sf	135.00	40,230		
401	084413	Interior curtainwall in Cafeteria	**440**	sf	135.00	59,400		
402	080002	Premium allowance for school guard SG5	**250**	sf	55.00	13,750		
403	084110	Aluminum framed glazing @ Media Center	**420**	sf	125.00	52,500		
404	080002	Interior glass @ borrowed lites	**188**	sf	50.00	9,400		
405	080001	Windows, triple glazed, to match existing historic, interior in existing rough opening	**94**	sf	190.00	17,860		
406	080002	Premium for 1hr interior fire rated glass @ stair #2	**42**	sf	300.00	12,600		
407	080002	Transaction window	**1**	ea	5,000.00	5,000		
408	080002	Glazed folding door at Media, 9'-6"x11'-5"	**1**	ea	27,312.50	27,313		
409								
410		*081110 HOLLOW METAL DOOR FRAMES*						
411	081113	Hollow metal frames @ borrowed lites	**188**	sf	55.00	10,340		
412								
413		*092900 GYPSUM BOARD ASSEMBLIES*						
414	092900	Wood blocking at interiors	**79,801**	gsf	0.75	59,851		
415	092900	Rough blocking at partitions	**12,106**	lf	6.00	72,636		
416	092900	F1 - 7/8" MS, 1 layer type X GWB o/s	**464**	sf	8.50	3,944		
417	092900	F3- 2 1/2" MS, 1 layer type X GWB o/s	**624**	sf	9.50	5,928		
418	092900	F4 - 3-5/8" MS, 1 layer type X GWB o/s	**15,414**	sf	11.50	177,261		
419	092900	F6 - 6" MS, 1 layer type X GWB o/s	**538**	sf	13.50	7,263		
420	092900	S4- 3-5/8" MS, 1 layer type X GWB b/s	**8,454**	sf	17.00	143,718		
421	092900	S4.A- 3-5/8" MS, 1 layer type X GWB b/s, insulation	**720**	sf	19.50	14,040		
422	092900	S4.1.A- 3-5/8" MS, 1 layer type X GWB o/s, 2 lyr o/s - insulation	**2,661**	sf	24.50	65,195		
423	092900	S4.2.A- 3-5/8" MS, 2 layer type X GWB b/s	**5,164**	sf	25.50	131,682		
424	092900	S4.R2- 3-5/8" MS, 1 layer type X GWB b/s, insulation (2 Hr)	**1,225**	sf	21.50	26,338		
425	092900	S6- 6" MS, 1 layer type X GWB b/s	**6,721**	sf	19.00	127,699		
426	092900	S6.R1- 3-6" MS, 1 layer type X GWB b/s, 1HR	**2,066**	sf	20.00	41,320		
427	092900	S6.1.A- 3-6" MS, 1 layer type X GWB o/s, 2 lyr o/s - insulation	**3,388**	sf	26.50	89,782		
428	092900	S6.2.A- 6" MS, 2 layer type X GWB b/s - insulation	**16,930**	sf	29.50	499,435		
429	092900	S6.2.R1- 3-6" MS, 1 layer type X GWB o/s, 2 lyr o/s, 2HR	**560**	sf	25.00	14,000		
430	092900	S6.2.R2- 3-6" MS, 2 layers type X GWB b/s - insulation	**734**	sf	27.50	20,185		
431	092900	S8- 8" MS, 1 layer type X GWB b/s	**2,469**	sf	21.00	51,849		
432	092900	CH 4/2 - 2 rows 3-5/8" MS, 1 layer type X GWB b/s	**3,321**	sf	29.00	96,309		
433	092900	CH 4/6 - 2 rows 3-5/8" MS, 1 layer type X GWB b/s	**7,585**	sf	29.00	219,965		
434	092900	CH 4/9 2.A - 2 rows 3-5/8" MS, 2 layer type X GWB b/s, 2 layers insulation	**14,096**	sf	35.00	493,360		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL								
435	092900		CH 4/11 - 2 rows 3-5/8" MS, 1 layer type X GWB b/s	**320**	sf	29.00	9,280		
436	092900		Premium for abuse resistant	**1**	ls	10,000.00	10,000		
437	092900		Progress cleaning	**1**	ls	467,943.00	467,943		
438									
439		*102200*	*OPERABLE PARTITIONS*						
440	102200		Manually operated folding partition						
441	102200		At ELL high NRC	**1**	ea	59,400.00	59,400		
478	102200		STC Rated vertical folding partition at Stage, 12' high	**384**	sf	340.00	130,560		
479	102200		STC Rated vertical folding partition at Music room, 12' high	**348**	sf	340.00	118,320		
442			SUBTOTAL					4,070,116	
443									
444		**C1020**	**INTERIOR DOORS**						
445									
446		*061000*	*ROUGH CARPENTRY*						
447	061000		Wood blocking at openings	**2,529**	lf	4.00	10,116		
448									
449		*070001*	*WATERPROOFING, DAMPPROOFING AND CAULKING*						
450	070001		Backer rod & double sealant	**2,529**	lf	3.00	7,587		
451									
452		*080002*	*GLASS AND GLAZING*						
453	080002		Glazing in doors and sidelights	**910**	sf	50.00	45,500		
454									
455		*081110*	*HOLLOW METAL DOOR FRAMES*						
456	081113		Hollow metal frames, single	**104**	ea	450.00	46,800		
457	081113		Hollow metal frames, double	**21**	ea	600.00	12,600		
458	081113		Premium for sidelight, 24" wide	**41**	ea	350.00	14,350		
459	081113		HM door, flush, single leaf	**10**	ea	600.00	6,000		
460	081113		HM door, flush, double leaf	**4**	pr	1,200.00	4,800		
461									
462		*081400*	*WOOD DOORS*						
463	081113		Wood door, Type F, flush, single leaf	**48**	ea	650.00	31,200		
464	081113		Wood door, Type F, flush, double leaf	**6**	pr	1,300.00	7,800		
465	081113		Wood door, Type G, upper lite, single leaf	**45**	ea	750.00	33,750		
466	081113		Wood door, Type G2, glazed upper and lower, single leaf	**1**	ea	900.00	900		
467	081113		Wood door, Type G2, glazed upper and lower, double leaf	**8**	pr	1,800.00	14,400		
468	081113		Wood door, Type N, vision lite, double leaf	**3**	pr	1,400.00	4,200		
469	081113		Premium for STC ratings, fire rated doors etc.	**1**	ls	20,000.00	20,000		
470	092900		Install door and hardware	**146**	ea	350.00	51,100		
471	092900		Install frame	**125**	ea	300.00	37,500		
472	081113		Install salvaged door and transom from 1919 building	**1**	loc	1,500.00	1,500		
473									
474		*083110*	*ACCESS DOORS AND FRAMES*						
475	083100		Access doors	**1**	ls	10,000.00	10,000		
476									
477		*083300*	*SPECIALTY DOORS*						
478	083300		Rolling grille at kitchen, 10' high	**1**	ls	27,000.00	27,000		
479	083300		Automatic fire shutters @ gym doors, dbl	**2**	ea	20,000.00	40,000		
480									
481		*084110*	*ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS*						
482	084110		Glazed aluminum entrance doors including frame and hardware; single	**3**	ea	6,000.00	18,000		
483	084110		Glazed aluminum entrance doors including frame and hardware; double	**5**	pr	12,000.00	60,000		
484	080002		Premium for school guard at vestibule doors (8 lvs)	**168**	sf	35.00	5,880		
485									
486		*087100*	*DOOR HARDWARE*						
487	081113		Hardware to doors, material only	**146**	set	1,000.00	146,000		
488	081113		Premium auto openers	**1**	ls	10,000.00	10,000		
489									
490		*090007*	*PAINTING*						
491	090007		Finish doors and frames	**146**	ea	190.00	27,740		
492	090007		Refinish salvaged double door and transom	**1**	ea	3,000.00	3,000		
493			SUBTOTAL					697,723	
494									
495		**C1030**	**SPECIALTIES / MILLWORK**						
496									
497		*055000*	*MISCELLANEOUS METALS*						
498	055000		Metal railing w/ mesh at open to below, 6'-6" high	**30**	lf	800.00	24,000		
499	055000		Metal railing w/ mesh at Main St. ramp	**24**	lf	500.00	12,000		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL								
500	055000		Metal hand railing at steps and ramps mounted to wall	**210**	lf	150.00	31,500		
501	055000		Metal guard railing at steps and ramps	**32**	lf	400.00	12,800		
502	055000		Pipe grid ceilings at STE	**326**	lf	25.00	8,150		
503	055000		Miscellaneous metals	**79,801**	gsf	3.00	239,403		
504									
505		*061000*	*ROUGH CARPENTRY*						
506	061000		Backer panels in electrical closets	**1**	ls	20,000.00	20,000		
507									
508		*064020*	*INTERIOR ARCHITECTURAL WOODWORK*						
509	062000		Reception desks	**25**	lf	1,000.00	25,000		
510	062000		Media center circulation desk	**34**	lf	1,000.00	34,000		
511	062000		Vanity counters	**8**	lf	350.00	2,800		
511	062000		Built-in bench in Media Center (5 loc)	**15**	lf	600.00	9,000		
512	062000		Built-in seating/ bench under Main stair	**21**	lf	600.00	12,600		
513	062000		Built-in bench in corridors & breakout areas	**57**	lf	400.00	22,800		
514	062000		Built-in banquettes in Cafeteria	**47**	lf	1,000.00	47,000		
515	062000		Window sills at exterior glazing; quartz	**1,400**	lf	60.00	84,000		
516	062000		Window seat	**200**	lf	500.00	100,000		
517	062000		Built-in shelving in Media Center	**5**	loc	2,000.00	10,000		
518	062000		Trash/recycling in Cafeteria	**16**	lf	600.00	9,600		
519	062000		Mail cabinet, mail slots	**9**	lf	800.00	7,200		
520	062000		Display case	**15**	lf	650.00	9,750		
521									
522		*070001*	*WATERPROOFING, DAMPPROOFING AND CAULKING*						
523	070001		Miscellaneous sealants throughout building	**79,801**	gsf	2.00	159,602		
524									
525		*101100*	*VISUAL DISPLAY SURFACES*						
526	101100		Marker board	**1,360**	sf	26.00	35,360		
527	101100		Tackboard	**1,216**	sf	24.00	29,184		
528	101100		Misc. marker and tackboards not yet show	**1**	ls	20,000.00	20,000		
529	115200		Short throw projectors	**36**	ea	4,000.00	144,000		
530									
531		*101400*	*SIGNAGE*						
532	101400		Code and wayfinding signage	**79,801**	gsf	0.50	39,901		
533	101400		Building directory	**1**	loc	3,000.00	3,000		
534	101400		Room Signs	**133**	loc	120.00	15,960		
535			<u>Allowance per AG0.01</u>						
536	101400		Reinstall plaques	**6**	loc	1,000.00	6,000		
537	101400		Custom wall graphics A- entry door signs	**3**	loc	10,000.00	30,000		
538	101400		Custom wall graphics K	**3,200**	sf	30.00	96,000		
539	101400		Custom window graphics L	**1,100**	sf	35.00	38,500		
540	101400		Custom wall graphics M per door leaf; plotter cut film	**10**	ea	200.00	2,000		
541	101400		Custom wall graphics N- dimensional letters (assumes 15 letter per location)	**13**	loc	3,000.00	39,000		
542	101400		Custom wall graphics P banners	**6**	ea	2,000.00	12,000		
543	101400		Custom wall graphics Q dedication plaque	**1**	ea	3,000.00	3,000		
544									
545		*102110*	*TOILET COMPARTMENTS*						
546	102100		ADA	**6**	ea	1,800.00	10,800		
547	102100		Standard	**10**	ea	1,600.00	16,000		
548	102100		Urinal screen	**2**	ea	650.00	1,300		
549	102100		Shower accessories including seat	**2**	ea	1,500.00	3,000		
550	102100		Curtain at nurse	**1**	loc	2,000.00	2,000		
551									
552		*102800*	*TOILET ACCESSORIES*						
553	102800		Gang bathroom	**6**	rms	3,000.00	18,000		
554	102800		Unisex toilet rooms	**16**	rms	1,000.00	16,000		
555	102800		Custodian	**2**	rms	500.00	1,000		
556	102800		Changing table	**2**	ea	800.00	1,600		
557									
558		*104800*	*WALL PROTECTION*						
559	104800		Wall protection throughout, allow	**1**	ls	10,000.00	10,000		
560									

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
561		*104400 FIRE PROTECTION SPECIALTIES*						
562	104400	Fire extinguisher cabinets	**1**	ls	10,000.00	10,000		
563	104400	AED cabinets	**3**	ea	500.00	1,500		
564								
565		*105000 LOCKERS*						
566	105000	Student corridor lockers; 2 tier	**392**	ope	320.00	125,440		
567		SUBTOTAL					1,611,750	
568								
569		***TOTAL - INTERIOR CONSTRUCTION***						**$6,379,589**
570								
571								
572		***C20 STAIRCASES***						
573								
574		**C2010 STAIR CONSTRUCTION**						
575								
576		*033000 CONCRETE*						
577	033000	Concrete to stairs	**3**	flt	4,000.00	12,000		
578								
579		*055000 MISCELLANEOUS METALS*						
580	055000	Central stair w/ steel perforated infill panels (custom design laser cut openings)	**1**	flt	125,000.00	125,000		
581	055000	Egress stairs w/ steel perforated infill guardrails	**1**	flt	50,000.00	50,000		
582	055000	Egress stair w/ handrails only	**1**	flt	20,000.00	20,000		
583		SUBTOTAL					207,000	
584								
585		**C2020 STAIR FINISHES**						
586								
587		*090005 RESILIENT FLOORS*						
588	090005	Rubber tile at stairs - landings	**125**	sf	22.00	2,750		
589	090005	Rubber tile at stairs - treads & risers	**425**	lfr	25.00	10,625		
590								
591		*090007 PAINTING*						
592	090007	High performance paint to staircases and railings	**3**	flt	3,500.00	10,500		
593		SUBTOTAL					23,875	
594								
595		***TOTAL - STAIRCASES***						**$230,875**
596								
597								
598		***C30 INTERIOR FINISHES***						
599								
600		**C3010 WALL FINISHES**						
601								
602		*064020 INTERIOR ARCHITECTURAL WOODWORK*						
603								
604		*066400 FRP PANELING*						
605	066400	FRP wall panels	*5,660*	*total sf*				
606	066400	Receiving	**848**	sf	14.00	11,872		
607	066400	Custodial	**376**	sf	14.00	5,264		
608	066400	Single bathrooms & Mother's room, wainscot, all walls, 4' high	**1,700**	sf	18.00	30,600		
609	066400	Gang toilets, wainscot, all walls, 4' high	**692**	sf	18.00	12,456		
610	066400	Cafeteria	**400**	sf	18.00	7,200		
611	066400	Classroom backsplash	**414**	sf	18.00	7,452		
612	066400	Kitchen	**1,230**	sf	18.00	22,140		
613								
614		*090002 TILE*	*6,701*	*total sf*				
615	090002	Wall tile wainscotting at public spaces	**5,250**	sf	38.00	199,500		
616	090002	Wall tile backsplash in Staff lunch 201, STE, Mother's room	**93**	sf	38.00	3,534		
617	090002	Wall tile gang toilets 111 & 113, wainscot, 4' high	**440**	sf	38.00	16,720		
618	090002	Wall tile at kitchen Dwg A6.07/5 only	**130**	sf	38.00	4,940		
619	090002	Wall tile, full height at shower rooms, 10'-6" high	**788**	sf	38.00	29,944		
620								
621		*090007 PAINTING*						
622	090007	Paint to walls	**173,312**	sf	0.85	147,315		
623	090007	Touch-up	**79,801**	gsf	0.25	19,950		
624								
625		*098400 ACOUSTIC ROOM COMPONENTS*						
626	098400	AWP-1 Wood fiber acoustic wall panel						
627	098400	Café	**300**	sf	28.00	8,400		
628	098400	Gymnasium	**1,250**	sf	28.00	35,000		
629	098400	STE	**60**	sf	28.00	1,680		

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL								
630	098400		ELL	**182**	sf	28.00	5,096		
631	098400		AWP-2 Tackable fabric wrapped acoustical wall panel						
632	098400		Media center	**250**	sf	40.00	10,000		
633	098400		Literacy	**40**	sf	40.00	1,600		
634	098400		Music room	**345**	sf	40.00	13,800		
635	098400		Therapy, Cares, Resource	**866**	sf	45.00	38,970		
636			SUBTOTAL					633,433	
637									
638		**C3020**	**FLOOR FINISHES**	*70,763*	sf				
639									
640	03300	*003300*	*Concrete*	*4,828*	*sf*				
641	090007		Sealed Concrete	**4,828**	sf	2.50	12,070		
642									
643	90002	*090002*	*TILE*	*2,990*	*sf*				
644	90002		Porcelain tile in Cafeteria	**2,990**	sf	43.00	128,570		
645	90002		Porcelain tile base	**140**	lf	25.00	3,500		
646									
647		*090005*	*RESILIENT FLOORS*	*44,056*	*sf*				
648	90005		Resilient flooring - Forbo sheet	**44,056**	sf	8.00	352,448		
649	90005		RF-3 Electrostatic discharge flooring	**214**	sf	14.00	2,996		
650	90005		Rubber base	**10,110**	lf	4.00	40,440		
651	90005		Moisture mitigation	**44,270**	sf	5.00	221,350		
652									
653		*096560*	*WOOD FLOORING*	*6,916*	*sf*				
654	096560		Wood athletic flooring at Gym	**6,078**	sf	30.00	182,340		
655	096560		Ventilating cove base	**367**	lf	10.00	3,670		
656	096560		Wood floor at stage	**838**	sf	25.00	20,950		
657	096560		Steps at stage; wood rise and tread	**120**	lf	90.00	10,800		
658	096560		Moisture mitigation				NR		
659									
660		*096620*	*TERRAZZO*	*4,469*	*sf*				
661	096620		Terrazzo, thin set	**4,469**	sf	50.00	223,450		
662	096620		Moisture mitigation				NR		
663	096620		Floor protection	**4,469**	sf	2.00	8,938		
664									
665		*096650*	*EPOXY FLOORING*	*3,365*	*sf*				
666	096650		EP-1 Epoxy floor and base	**3,365**	sf	26.00	87,490		
667									
668		*096820*	*CARPETING+ WOM*	*4,139*	*sf*				
669	096800		Carpet tile	**1,402**	sf	7.00	9,814		
670	096800		Broadloom carpet in Media Center	**2,372**	sf	6.25	14,825		
671	124813		Vestibules Mats Off Mats	**365**	sf	55.00	20,075		
672	096800		Moisture mitigation				NR		
673			SUBTOTAL					1,343,726	
674									
675		**C3030**	**CEILING FINISHES**						
676									
677		*015200*	*TRADE SUPPORT*						
678	015200		Staging				w/ GRs		
679									
680		*090003*	*ACOUSTICAL TILE*						
681	090003		ACT 1, 2x2, Ultima 1912	**5,595**	sf	7.00	39,165		
682	090003		ACT 1B, 2 x 2, high NRC	**25,148**	sf	7.50	188,610		
683	090003		ACT 2, 2 x 2; Ultima Health zone in kitchen	**1,160**	sf	8.00	9,280		
684	090003		Premium for ACT 3, Pyramids in Music room - assume 25%	**250**	sf	40.00	10,000		
685	090003		ACT 4- 2x4 - no spec (allow)	**4,690**	sf	10.00	46,900		
686	090003		Axiom trim, allowance	**535**	lf	20.00	10,700		
699	090003		Acoustic ceiling clouds in Cafeteria (CLG-01)	**1,545**	sf	40.00	61,800		
687	090003		Wood look ceiling grille in Hall, Cafeteria and Media (CLG-03) Woodworks Grille	**3,150**	sf	50.00	157,500		
688	090003		Suspended wood look linear baffles in Café (CLG-02) Armstrong Soundscapes Blades or equal	**750**	lf	75.00	56,250		
689									
690		*090007*	*PAINTING*						
691	090007		Paint to GWB ceilings	**13,308**	sf	1.00	13,308		
692	090007		Paint all exposed structure, deck & mep/fp systems to be painted	**17,642**	sf	2.50	44,105		
693									

CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
NEW SCHOOL								
	092900	*GYPSUM BOARD ASSEMBLIES*						
092900		GWB ceiling (GWB-1)	**7,857**	sf	18.00	141,426		
092900		Acoustic GWB ceiling in Media Center (GWB-2)	**2,857**	sf	35.00	99,995		
092900		Sound reduction GWB ceiling in basement mech (GWB-3)	**1,049**	sf	28.00	29,372		
092900		GWB soffits throughout	**79,801**	gsf	1.50	119,702		
092900		Radiant panels	**4,620**	sf		N/A		
		SUBTOTAL					1,028,113	
		TOTAL - INTERIOR FINISHES						**$3,005,272**
	D10	***CONVEYING SYSTEMS***						
	D1010	**ELEVATOR**						
	055000	*MISCELLANEOUS METALS*						
55000		Elevator pit ladders and sump pit covers	**1**	ea	2,500.00	2,500		
55000		Sill angles	**15**	lf	40.00	600		
	142000	*ELEVATOR*						
142424		Elevators, 3 stop, 3500lb	**1**	ea	270,000.00	270,000		
		SUBTOTAL					273,100	
		TOTAL - CONVEYING SYSTEMS						**$273,100**
	D20	***PLUMBING***						
	D20	**PLUMBING, GENERALLY**						
		Equipment						
220000		Domestic water service and meter	**1**	ea	15,000.00	15,000		
220000		Reduced pressure backflow preventer, 4"	**1**	ea	8,500.00	8,500		
220000		Domestic water heater, 36 KW / 500 gal.	**1**	ea	55,000.00	55,000		
220000		Domestic water heater, 9 KW	**1**	ea	15,000.00	15,000		
220000		Domestic water heater, storage type at core toilets	**1**	ea		NR		
220000		Thermostatic mixing valve	**2**	ea	3,500.00	7,000		
220000		Expansion tank	**2**	ea	2,500.00	5,000		
220000		Buffer tank	**1**	ea	3,800.00	3,800		
220000		Recirc. Pump	**3**	ea	4,000.00	12,000		
220000		Instantaneous water heater at sinks/lavatories	**76**	ea	900.00	NR		
220000		Interior grease interceptor	**1**	ea	4,200.00	4,200		
220000		Exterior grease interceptor - by div 33, connections by PC	**1**	ea	5,000.00	5,000		
220000		Elevator sump pump with oil separator	**1**	ea	7,500.00	7,500		
220000		Miscellaneous plumbing equipment	**79,801**	gsf	0.25	19,950		
220000		Plumbing Fixtures & Specialties						
220000		Water closet	**34**	ea	2,250.00	76,500		
220000		Urinal	**1**	ea	2,200.00	2,200		
220000		Lavatory wall hung ADA	**18**	ea	2,100.00	37,800		
220000		Lavatory wall hung, 2-station	**2**	ea	5,500.00	11,000		
220000		Lavatory wall hung, 3-station	**2**	ea	7,500.00	15,000		
220000		Mop sink	**2**	ea	1,750.00	3,500		
220000		Sink, classroom	**46**	ea	1,800.00	82,800		
220000		Sink, break room	**6**	ea	1,750.00	10,500		
220000		Sink, art with solids interceptor	**3**	ea	2,250.00	6,750		
220000		Shower with valve and drain ADA	**2**	ea	3,900.00	7,800		
220000		Electric water cooler with bottle fill, bi-level	**4**	ea	4,450.00	17,800		
220000		Floor drain	**35**	ea	1,300.00	45,500		
220000		Trap primer	**8**	ea	950.00	7,600		
220000		Roof drain	**20**	ea	1,800.00	36,000		
220000		Hose bibb	**17**	ea	450.00	7,650		
220000		Freezeproof wall hydrant	**9**	ea	550.00	4,950		
220000		Miscellaneous fixtures and specialties	**79,801**	gsf	0.50	39,901		
220000		Domestic Water Type L Copper Pipe						

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
758	220000	Domestic water pipe with fittings & hangers	**7,300**	lf	60.00	438,000		
759	220000	Valves & Accessories	**1**	ls	87,600.00	87,600		
760	220000	Rough-in & connection to kitchen equipment/fixtures	**1**	ls	25,000.00	25,000		
761	220000	Sanitary W&V, Cast Iron Pipe						
762	220000	Sanitary waste pipe with fittings below grade	**1,470**	lf	75.00	110,250		
763	220000	Sanitary waste pipe with fittings & hangers above grade	**3,200**	lf	72.00	230,400		
764	220000	Kitchen waste pipe with fittings below grade	**150**	lf	75.00	11,250		
765	220000	Kitchen waste pipe with fittings & hangers above grade	**200**	lf	72.00	14,400		
766	220000	Rough-in & connection to kitchen equipment/fixtures	**1**	ls	25,000.00	25,000		
767	220000	Storm Drainage, Cast Iron Pipe						
768	220000	Cast iron pipe with fittings	**79,801**	gsf	3.50	279,304		
769	220000	Pipe Insulation						
770	220000	Domestic water pipe insulation	**7,300**	lf	14.00	102,200		
771	220000	Stormwater pipe insulation	**79,801**	gsf	0.25	19,950		
772	220000	Radon Mitigation System						
773	130000	4" PVC (Sched 40) - Risers	**330**	lf	54.00	17,820		
774	130000	3" PVC (Sched 40) Slot screen - Underground	**1,250**	lf	45.00	56,250		
775	130000	4" PVC (Sched 40) Roof stacks	**10**	ea	200.00	2,000		
776	130000	Misc Radon Mitigation fixtures & fittings	**1**	ls	5,000.00	5,000		
777	220000	Miscellaneous						
778	220000	Project management, coordination and BIM	**1**	ls	60,000.00	60,000		
779	220000	Testing and flushing	**1**	ls	5,000.00	5,000		
780	220000	Coring, cutting, sleeves & sealing	**1**	ls	5,000.00	5,000		
781	220000	Hydraulic lifts/rigging	**1**	ls	8,000.00	8,000		
782	220000	Commissioning Support	**1**	ls	5,000.00	5,000		
783	220000	Fees & permits	**1**	ls	25,000.00	25,000		
784	220000	Reconciliation adjustment	**1**	ls	25,000.00	25,000		
785	220000	SUBTOTAL					2,128,625	
786								
787		***TOTAL - PLUMBING***						**$2,128,625**
788								
789								
790		***D30 HVAC***						
791								
792		**D30 HVAC, GENERALLY**						
793	230000	Geothermal Site						
793	230000	Geothermal wells with 40 Vertical closed loop bores each 500 lf deep	**20,000**	vlf	58.00	w/Early bid package		
794	230000	Heating & cooling equipment						
794	230000	Hydronic hot water heat pump generator Budget Supply Quote from NEAP.	**1**	ls	300,000.00	300,000		
795	230000	Groundwater loop pump w/VFD	**2**	ea	35,000.00	70,000		
795	230000	Hot water distribution pump w/VFD	**2**	ea	25,000.00	50,000		
796	230000	Groundwater distribution pump w/VFD	**4**	ea	25,000.00	NR		
796	230000	Expansion Tank	**3**	ea	2,700.00	8,100		
797	230000	Buffer Tank	**1**	ea	4,000.00	4,000		
797	230000	Air Separator	**2**	ea	3,200.00	6,400		
798	230000	Chemical Shot Feeder	**2**	ea	3,500.00	7,000		
798	230000	Glycol feeder unit	**1**	ea	7,500.00	7,500		
799	230000	Radiant panels - hydronic	**2,830**	lf	140.00	396,200		
799	230000	Wall radiation units - hydronic	**292**	lf	140.00	40,880		
800	230000	Unit heaters - hydronic	**7**	ea	1,800.00	12,600		
800	230000	Cabinet unit heaters - hydronic	**11**	ea	2,200.00	24,200		
801	230000	Electric unit heaters	**1**	ea	1,600.00	1,600		
802	230000	Air curtains - hydronic	**3**	ea	2,000.00	6,000		
803	230000	Ductless split system incl condensate pump	**6**	ea	8,500.00	51,000		
804	230000	Air Distribution Equipment						
805	230000	Quote from NEAP for 7no. RTU's and 1no. MAU	**1**	ls	1,725,000.00	1,725,000		
806	230000	AHU-1, indoor (WSHP)	**10,800**	cfm		Incl above		
807	230000	AHU-2, indoor (WSHP)	**6,000**	cfm		Incl above		
808	230000	AHU-3, indoor (WSHP)	**8,500**	cfm		Incl above		
809	230000	AHU-4, indoor (WSHP)	**2,000**	cfm		Incl above		
810	230000	AHU-5, Roof mounted (WSHP)	**6,500**	cfm		Incl above		
811	230000	AHU-6, Roof mounted (WSHP)	**7,000**	cfm		Incl above		
812	230000	AHU-7, Roof mounted (WSHP)	**3,500**	cfm		Incl above		
813	230000	MAU-1, Roof mounted (WSHP)	**2,500**	cfm		Incl above		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
814	230000	Roof Curbs for air distribution equipment	**4**	ea	6,000.00	24,000		
815	230000	Exhaust Fans						
816	230000	Attic exhaust fans	**2**	ea	2,500.00	5,000		
817	230000	Kitchen exhaust fans - 5000 cfm	**1**	ea	16,000.00	16,000		
818	230000	Miscellaneous exhaust fans	**1**	ls	20,000.00	20,000		
819	230000	Sheet metal & Accessories						
820	230000	Ductwork and accessories	**91,300**	lb	20.00	1,826,000		
821	230000	Registers, grilles & diffusers	**110**	ea	250.00	27,500		
822	230000	Displaced diffusers	**115**	ea	400.00	46,000		
823	230000	VAV terminal unit	**63**	ea	1,500.00	94,500		
824	230000	Sound attenuators	**15**	ea	1,800.00	27,000		
825	230000	Hydronic Piping						
826	230000	Hot water mains piping (4")	**250**	lf	80.00	20,000		
827	230000	Hot water distribution piping (2 1/2" or less)	**10,700**	lf	60.00	642,000		
828	230000	Groundwater distribution piping (6")	**290**	lf	120.00	34,800		
829	230000	Groundwater distribution piping (4")	**660**	lf	80.00	52,800		
830	230000	Groundwater distribution piping (3")	**220**	lf	70.00	15,400		
831	230000	Groundwater distribution piping (2 1/2" or less)	**770**	lf	60.00	46,200		
832	230000	Refrigerant Piping						
833	230000	Refrigerant piping - split system	**800**	lf	55.00	44,000		
834	230000	Condensate Drain Piping						
835	230000	Condensate piping with fittings & hangers	**200**	lf	40.00	8,000		
836	230000	Insulation						
837	230000	Duct insulation	**69,000**	sf	7.00	483,000		
838	230000	Hydronic pipe insulation	**12,890**	lf	18.00	232,020		
839	230000	Condensate drain pipe insulation	**200**	lf	14.00	2,800		
840	230000	Refrigerant pipe insulation	**800**	lf	14.00	11,200		
841	230000	Automatic Temperature Controls						
842	230000	Automatic temperature controls DDC	**79,801**	gsf	9.00	718,209		
843	230000	Balancing						
844	230000	System testing & balancing	**79,801**	gsf	1.00	79,801		
845	230000	Miscellaneous						
846	230000	Testing and start-up	**1**	ls	20,000.00	20,000		
847	230000	Coring, cutting, sleeves & sealing	**1**	ls	15,000.00	15,000		
848	230000	Hydraulic lifts/rigging	**1**	ls	30,000.00	30,000		
849	230000	Management / Shop drawings / BIM / As-Builts	**1**	ls	300,000.00	300,000		
850	230000	Commissioning Support	**1**	ls	15,000.00	15,000		
851	230000	Fees and Permits	**1**	ls	110,000.00	110,000		
852		SUBTOTAL					7,676,710	
853								
854		***TOTAL - HVAC***						**$7,676,710**
855								
856								
857		***D40 FIRE PROTECTION***						
858								
859		**D40 FIRE PROTECTION, GENERALLY**						
860	210000	Fire Equipment						
861	210000	6" Fire service	**1**	ea	10,000.00	10,000		
862	210000	6" Double check valve assembly	**1**	ea	8,500.00	8,500		
863	210000	Wet alarm check valve assembly	**1**	ea	6,500.00	6,500		
864	210000	Dry pipe valve assembly for attic sprinklers				NR		
865	210000	Electric bell	**1**	ea	800.00	800		
866	210000	Fire department connection	**1**	ea	2,650.00	2,650		
867	210000	Fire pump, jockey pump and control panel - excluded				NIC		
868	210000	Zone control valve assembly	**4**	ea	2,800.00	11,200		
869	210000	Fire department valve with cabinet - carried forward	**8**	ea	1,200.00	9,600		
870	210000	Fire Protection Service						
871	210000	Sprinkler Heads & Piping						
872	210000	Sprinkler heads, wet system	**796**	ea	115.00	91,540		
873	210000	Main piping	**1,800**	lf	54.00	97,200		
874	210000	Distribution piping	**7,752**	lf	41.00	317,832		
875	210000	Sprinkler heads and distribution piping, dry heads				NR		
876	210000	Sprinkler heads, attic	**78**	ea	115.00	8,970		
877	210000	Main piping, attic	**200**	lf	54.00	10,800		
878	210000	Distribution piping, attic	**814**	lf	41.00	33,374		
879	210000	Miscellaneous						

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
880	210000	Project management, coordination and BIM	**1**	ls	20,000.00	20,000		
881	210000	Hydraulic calculations	**1**	ls	3,000.00	3,000		
882	210000	Coring, cutting, sleeves & sealing	**1**	ls	6,500.00	6,500		
883	210000	Hydraulic lifts/rigging	**1**	ls	5,000.00	5,000		
884	210000	Commissioning Support	**1**	ls	3,000.00	3,000		
885	210000	Fees & permits	**1**	ls	7,000.00	7,000		
886		SUBTOTAL					653,466	
887								
888		***TOTAL - FIRE PROTECTION***						**$653,466**
889								
890								
891		***D50 ELECTRICAL***						
892								
893	260000	**D5010 ELECTRICAL SYSTEMS**						
894	260000	**Gear & Distribution**						
895	260000	Normal Power						
896	260000	Meter Sockets	**1**	ea	500.00	500		
897	260000	2000A 277/480V main switchboard	**1**	ea	143,000.00	143,000		
898	260000	600A 277/480V distribution panelboard	**2**	ea	25,000.00	50,000		
899	260000	400A 277/480V panelboard	**1**	ea	4,445.00	4,445		
900	260000	225A 277/480V panelboard	**3**	ea	3,665.00	10,995		
901	260000	100A 277/480V panelboard	**3**	ea	2,255.00	6,765		
902	260000	T5 45KVA K13 type transformer	**7**	ea	7,750.00	54,250		
903	260000	150A 120/208V double tub panelboard	**7**	ea	6,410.00	44,870		
904	260000	Digital monitoring	**1**	ls	35,000.00	35,000		
905	260000	TVSS	**14**	ea	550.00	7,700		
906	260000	Feeders:						
907	260000	600A feed AL	**600**	lf	195.27	117,162		
908	260000	225A feed AL	**100**	lf	78.46	7,846		
909	260000	150A feed AL	**200**	lf	52.56	10,512		
910	260000	100A feed AL	**310**	lf	38.14	11,823		
911	260000	Emergency power						
912	260000	Milton Cat generator package budget pricing	**1**	ls	250,000.00	250,000		
913	260000	Installation labor for package:						
914	260000	350KW diesel fueled generator set with WP enclosure & 200kw load bank	**1**	ea	22,000.00	22,000		
915	260000	800A 3 pole automatic transfer switch	**1**	ea	3,100.00	3,100		
916	260000	150A 3 pole automatic transfer switch	**1**	ea	1,100.00	1,100		
917	260000	Exterior quick disconnect 150A	**1**	ea	2,500.00	2,500		
918	260000	Generator annunciator panel	**1**	ea	1,000.00	1,000		
919	260000	Additional installation & materials for generator package	**1**	ls	5,000.00	5,000		
920	260000	800A 277/480V distribution panelboard	**1**	ea	30,000.00	30,000		
921	260000	225A 277/480V panelboard	**4**	ea	3,665.00	14,660		
922	260000	100A 277/480V panelboard	**1**	ea	2,255.00	2,255		
923	260000	75KVA dry type transformer	**3**	ea	10,112.00	30,336		
924	260000	225A 120/208V double tub panelboard	**3**	ea	7,330.00	21,990		
925	260000	TVSS	**11**	ea	550.00	6,050		
926	260000	800A feed AL	**60**	lf	359.48	21,569		
927	260000	225A feed AL	**700**	lf	78.46	54,922		
928	260000	200A feed AL	**20**	lf	68.34	1,367		
929	260000	150A feed AL	**100**	lf	52.56	5,256		
930	260000	100A feed AL	**160**	lf	38.14	6,102		
931	260000	Uninterruptible Power Supply						
932	260000	UPS 24kw	**1**	ea	20,000.00	20,000		
933	260000	125A 120/208V panelboard	**1**	ea	2,398.00	2,398		
934	260000	100A 120/208V panelboard	**1**	ea	2,255.00	2,255		
935	260000	200A disconnect	**1**	ea	1,948.00	1,948		
936	260000	EPO	**1**	ea	50.00	50		
937	260000	125A feed AL	**70**	lf	43.12	3,018		
938	260000	100A feed AL	**240**	lf	38.14	9,154		
939	260000	Grounding						
940	260000	Ground and bonding	**79,801**	sf	0.50	39,901		
941	260000	Lightning Protection System	**79,801**	sf	0.45	35,910		
942	260000	Photovoltaic system						
943	260000	PV infrastructure	**1**	ls	10,000.00	10,000		
944	260000	Pull box WP	**2**	ea	1,500.00	3,000		
945	260000	1-1/2" conduit	**100**	lf	28.08	2,808		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
946	260000	4" conduit	**200**	lf	74.46	14,892		
947	260000	Equipment wiring						
948	260000	AC feed, connection & safety switch	**3**	ea	1,750.00	5,250		
949	260000	AHU feed, connection & safety switch WP	**7**	ea	4,000.00	28,000		
950	260000	ATC panel feed & connection	**1**	ea	1,250.00	1,250		
951	260000	EUH feed, connection & safety switch	**1**	ea	1,500.00	1,500		
952	260000	CUH feed, connection & safety switch	**11**	ea	1,500.00	16,500		
953	260000	EF feed, connection & safety switch	**3**	ea	1,750.00	5,250		
954	260000	Elevator & cab feed, connection & safety switch	**2**	ea	5,000.00	10,000		
955	260000	GM feed, connection & safety switch	**1**	ea	1,500.00	1,500		
956	260000	HWG feed, connection & safety switch	**3**	ea	1,500.00	4,500		
957	260000	KEF feed, connection & safety switch WP	**1**	ea	2,000.00	2,000		
958	260000	MAU feed, connection & safety switch WP	**1**	ea	2,500.00	2,500		
959	260000	PUMP feed, connection, connection to VFD & safety switch	**4**	ea	2,500.00	10,000		
960	260000	Unit heaters at attic feed and connection	**7**	ea	1,500.00	10,500		
961	260000	VAV terminal unit feed and connection	**63**	ea	550.00	34,650		
962	260000	From mechanical:						
963	260000	Domestic water heater feed and connection	**3**	ea	4,500.00	13,500		
964	260000	Ductless split system units feeds & connections	**6**	ea	1,750.00	10,500		
965	260000	Groundwater distribution pump w/VFD feed and connection	**4**	ea	1,500.00	6,000		
966	260000	Groundwater loop pump w/VFD feed and connection	**2**	ea	1,500.00	3,000		
967	260000	Air curtain feed & connection	**1**	ea	1,500.00	1,500		
968	260000	Instantaneous water heater at sinks/lavatories	**76**	ea	600.00	45,600		
969	260000	Recirc. Pump feed and connection	**3**	ea	2,000.00	6,000		
970	260000	Kitchen:						
971	260000	20A feed & connection	**12**	ea	1,175.00	14,100		
972	260000	20A feed, connection & 30A NFSS	**6**	ea	1,725.00	10,350		
973	260000	20A feed, connection & TS	**5**	ea	1,255.00	6,275		
974	260000	30A feed, connection & 30A NFSS	**1**	ea	1,760.00	1,760		
975	260000	70A feed, connection & 100A NFSS	**1**	ea	3,105.00	3,105		
976	260000	100A feed, connection & 100A NFSS	**1**	ea	3,770.00	3,770		
977	260000	125A feed, connection & 200A NFSS	**1**	ea	4,420.00	4,420		
978	260000	Gymnasium:						
979	260000	Motorized back stop feed, connection & LV to control station	**2**	ea	2,500.00	5,000		
980	260000	Motorized back stop height adjuster feed, connection & LV to control station	**2**	ea	2,500.00	5,000		
981	260000	Motorized curtain jbox & conduit for future	**1**	ea	1,500.00	1,500		
982	260000	Motorized projections screen 20A feed, connection, TS & LV to control station	**1**	ea	1,750.00	1,750		
983	260000	Scoreboard with controls and shot clock 15A feed, connection, 30A FSS & LV to control station	**2**	ea	2,500.00	5,000		
984	260000	Equipment wiring feeds and connections	**79,801**	sf	1.50	119,702		
985	260000	*Note: mechanical schedule incomplete. Allowances made as needed*						
986		SUBTOTAL					1,530,641	
987								
988		**D5020 LIGHTING & POWER**						
989	260000	Lighting Fixtures						
990	260000	Type LK22	**12**	ea	480.00	5,760		
991	260000	Type LP4	**12**	ea	450.00	5,400		
992	260000	Type LP6	**45**	ea	650.00	29,250		
993	260000	Type LP8	**138**	ea	880.00	121,440		
994	260000	Type LPA	**1**	ea	880.00	880		
995	260000	Type LPG	**24**	ea	650.00	15,600		
996	260000	Type LR4	**11**	ea	450.00	4,950		
997	260000	Type LR6	**13**	ea	650.00	8,450		
998	260000	Type LR8	**6**	ea	880.00	5,280		
999	260000	Type LRS	**67**	lf	130.00	8,710		
1000	260000	Type LS4 4' BOH	**20**	ea	450.00	9,000		
1001	260000	Type LS6 6' BOH	**9**	ea	650.00	5,850		
1002	260000	Type LS8	**9**	ea	880.00	7,920		
1003	260000	Type LS8 8' BOH	**1**	ea	880.00	880		
1004	260000	Type LWS	**208**	lf	130.00	27,040		
1005	260000	Type RC1	**34**	ea	450.00	15,300		
1006	260000	Type RC2	**61**	ea	450.00	27,450		
1007	260000	Type EL, allow	**4**	ea	400.00	1,600		
1008	260000	Exit sign	**5**	ea	300.00	1,500		
1009	260000	Emergency/egress lighting, allow	**79,801**	sf	1.25	99,751		
1010	260000	Lighting not yet detailed, allow	**87,581**	sf	5.00	437,905		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
1011	260000	Site lighting in Courtyard allowance	**5,700**	sf	10.00	57,000		
1012	260000	Lighting controls						
1013	260000	Networked lighting control system	**79,801**	sf	1.50	119,702		
1014	260000	Single pole switch	**7**	ea	45.00	315		
1015	260000	Single pole LV switch	**71**	ea	75.00	5,325		
1016	260000	Occupancy sensor, ceiling mnt	**93**	ea	250.00	23,250		
1017	260000	Daylight sensor	**37**	ea	250.00	9,250		
1018	260000	Lighting control not yet detailed	**87,581**	sf	1.50	131,372		
1019	260000	Lighting circuitry						
1020	260000	Device plate	**80**	ea	6.95	556		
1021	260000	Device box	**650**	ea	43.20	28,080		
1022	260000	3/4" EMT	**2,200**	lf	13.00	28,600		
1023	260000	#12 THHN	**13,000**	lf	1.38	17,940		
1024	260000	MC cable	**6,200**	lf	7.00	43,400		
1025	260000	Cat Cable	**10,500**	lf	2.35	24,675		
1026	260000	Circuitry to lighting & control not yet detailed	**87,581**	sf	1.20	105,097		
1027	260000	Branch devices						
1028	260000	Duplex receptacle	**346**	ea	40.53	14,023		
1029	260000	Duplex receptacle, AV	**10**	ea	40.53	405		
1030	260000	Double duplex receptacle	**174**	ea	81.00	14,094		
1031	260000	Double duplex receptacle in FB	**10**	ea	81.00	810		
1032	260000	GFI duplex receptacle	**103**	ea	59.00	6,077		
1033	260000	GFI Double duplex	**3**	ea	118.00	354		
1034	260000	Special purpose outlet	**15**	ea	85.00	1,275		
1035	260000	Special purpose outlet 30A	**1**	ea	95.00	95		
1036	260000	Conn EWC	**3**	ea	155.00	465		
1037	260000	Conn GFI in RR	**2**	ea	200.00	400		
1038	260000	Connection to fire alarm panel	**6**	ea	155.00	930		
1039	260000	Floor box	**8**	ea	750.00	6,000		
1040	260000	Poke thru	**2**	ea	750.00	1,500		
1041	260000	Branch devices not yet detailed	**79,801**	sf	0.42	33,516		
1042	260000	Branch circuitry						
1043	260000	Device plate	**680**	ea	6.95	4,726		
1044	260000	Device box	**680**	ea	43.20	29,376		
1045	260000	3/4" EMT	**3,100**	lf	13.00	40,300		
1046	260000	Conduit in slab	**300**	lf	15.00	4,500		
1047	260000	#12 THHN	**20,000**	lf	1.38	27,600		
1048	260000	MC cable	**9,100**	lf	7.00	63,700		
1049	260000	Circuitry to branch devices not yet detailed	**79,801**	sf	1.00	79,801		
1050		SUBTOTAL					1,764,425	
1051								
1052	**D5030**	**COMMUNICATION & SYSTEMS**						
1053	260000	Telecommunications						
1054	260000	Telecommunications devices and cabling						
1055	260000	MDF fit out	**1**	ea	5,000.00	5,000		
1056	260000	IDF fit out	**1**	ea	2,500.00	2,500		
1057	260000	2 Data device in FB	**1**	ea	50.00	50		
1058	260000	2 Port data device	**15**	ea	50.00	750		
1059	260000	4 Port data device, AV	**2**	ea	100.00	200		
1060	260000	4 Port data device in FB	**10**	ea	100.00	1,000		
1061	260000	Data device	**11**	ea	25.00	275		
1062	260000	MEC lightspeed media connection	**39**	ea	50.00	1,950		
1063	260000	Teacher device	**45**	ea	225.00	10,125		
1064	260000	Teacher device in FB	**2**	ea	225.00	450		
1065	260000	Tele/2data device	**17**	ea	75.00	1,275		
1066	260000	Tele/data device	**35**	ea	75.00	2,625		
1067	260000	Telephone device	**47**	ea	25.00	1,175		
1068	260000	TVC 2 port	**1**	ea	50.00	50		
1069	260000	TVE	**48**	ea	75.00	3,600		
1070	260000	Wireless AN	**63**	ea	650.00	40,950		
1071	260000	Cat cable	**175,000**	lf	2.35	411,250		
1072	260000	Rough-in:						
1073	260000	MDF rough-in	**1**	ea	3,500.00	3,500		
1074	260000	IDF rough-in	**1**	ea	2,000.00	2,000		
1075	260000	Backboard	**2**	ea	750.00	1,500		
1076	260000	1" EMT sleeves	**4**	ea	200.00	800		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
1077	260000	4" EMT sleeves	**18**	ea	300.00	5,400		
1078	260000	Cable tray	**60**	lf	75.00	4,500		
1079	260000	1 Gang device box with conduit stub	**324**	ea	185.00	59,940		
1080	260000	2 Gang device box with conduit stub	**93**	ea	195.00	18,135		
1081	260000	Public Address System + Wireless Clock system						
1082	260000	Head-end with programming & system testing	**1**	ls	25,000.00	25,000		
1083	260000	Clock	**61**	ea	125.00	7,625		
1084	260000	Paging intercom call switch	**38**	ea	125.00	4,750		
1085	260000	Speaker ceiling mount	**141**	ea	165.00	23,265		
1086	260000	Speaker ceil WP	**2**	ea	185.00	370		
1087	260000	Speaker wall	**9**	ea	165.00	1,485		
1088	260000	Speaker wall WP	**28**	ea	185.00	5,180		
1089	260000	Volume control	**9**	ea	165.00	1,485		
1090	260000	Wireguard	**2**	ea	75.00	150		
1091	260000	Speaker cabling	**11,300**	lf	2.25	25,425		
1092	260000	Rough-in:						
1093	260000	Speaker back box	**143**	ea	65.00	9,295		
1094	260000	Device both with conduit stub	**84**	ea	170.00	14,280		
1095	260000	Clock MC cabling	**4,000**	lf	7.00	28,000		
1096	260000	Speech Reinforcement System						
1097	260000	TOP topcat speech reinforcement system: equipment with installation labor & LV cabling	**39**	ea	3,500.00	136,500		
1098	260000	Rough-in: boxes, conduit & 120V power	**39**	ea	1,000.00	39,000		
1099	260000	2 Way Communications System						
1100	260000	Head-end with programming & system testing, allow	**1**	ls	2,500.00	2,500		
1101	260000	Smart rescue phone	**1**	ls	350.00	350		
1102	260000	Area of refuge call station	**1**	ea	350.00	350		
1103	260000	Speaker cabling	**300**	lf	2.50	750		
1104	260000	Rough-in:						
1105	260000	Device both with conduit stub	**3**	ea	170.00	510		
1106	260000	Audio Visual Systems						
1107	260000	Cafeteria AV system: THS budget price	**1**	ls	100,000.00	100,000		
1108	260000	Gym AV system: THS budget price	**1**	ls	50,000.00	50,000		
1109	260000	Music classroom sound system: THS budget price	**1**	ls	15,000.00	15,000		
1110	260000	Projection screens: caf & gym: THS budget price	**1**	ls		See Equipment		
1111	260000	Digital Signage				NIC		
1112	260000	AV equipment with installation labor & LV cabling:						
1113	260000	AL	**2**	ea		Included above		
1114	260000	AV	**1**	ea		Included above		
1115	260000	AV RACK	**3**	ea		Included above		
1116	260000	DPA	**1**	ea		Included above		
1117	260000	LG	**8**	ea		Included above		
1118	260000	LP3	**2**	ea		Included above		
1119	260000	PL	**2**	ea		Included above		
1120	260000	Proj screen 114"	**1**	ea		Included above		
1121	260000	Proj screen 84"	**1**	ea		Included above		
1122	260000	PS	**2**	ea		Included above		
1123	260000	R2	**1**	ea		Included above		
1124	260000	RC	**1**	ea		Included above		
1125	260000	SP	**12**	ea		Included above		
1126	260000	SP Speaker, ceil	**20**	ea		Included above		
1127	260000	SP1	**1**	ea		Included above		
1128	260000	SP2	**1**	ea		Included above		
1129	260000	TP	**1**	ea		Included above		
1130	260000	V	**1**	ea		Included above		
1131	260000	VP	**1**	ea		Included above		
1132	260000	WA	**3**	ea		Included above		
1133	260000	WBG	**1**	ea		Included above		
1134	260000	Rough-in:						
1135	260000	JB1	**1**	ea	250.00	250		
1136	260000	JB2	**1**	ea	250.00	250		
1137	260000	1 gang back box	**14**	ea	43.20	605		
1138	260000	2 gang back box	**3**	ea	54.00	162		
1139	260000	3 gang back box	**2**	ea	64.00	128		
1140	260000	4 gang back box	**1**	ea	74.00	74		
1141	260000	4X4X4 box	**8**	ea	45.00	360		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
1142	260000	6X6X4 box	**1**	ea	75.00	75		
1143	260000	8X8X4 box	**2**	ea	95.00	190		
1144	260000	OCT box	**12**	ea	54.00	648		
1145	260000	3/4" EMT, allow	**3,000**	lf	13.00	39,000		
1146	260000	1" EMT, allow	**600**	lf	16.00	9,600		
1147	260000	1-1/4" EMT, allow	**100**	lf	20.00	2,000		
1148	260000	Stage Dimming System						
1149	260000	Stage dimming system, equipment with fixture package, initial light hang & focus	**1**	ls	105,000.00	See equipment		
1150	260000	Control:						
1151	260000	Lighting control box with terminations	**1**	ea		Included above		
1152	260000	Installation	**1**	ea	1,000.00	1,000		
1153	260000	Touch panel	**1**	ea		Included above		
1154	260000	Installation	**1**	ea	250.00	250		
1155	260000	3/4" EMT	**400**	lf	13.00	5,200		
1156	260000	Belden cabling	**750**	lf	2.50	1,875		
1157	260000	Circuitry:						
1158	260000	Connector strip with receptacles, DMX & ethernet	**3**	ea		Included above		
1159	260000	Strip installation	**3**	ea	600.00	1,800		
1160	260000	Terminations	**1**	ls	500.00	500		
1161	260000	20A circuit in EMT	**200**	lf	19.75	3,950		
1162	260000	Distribution Antennae System						
1163	260000	BDA/DAS system, allow	**79,801**	sf	1.00	79,801		
1164	260000	Annunciator	**1**	ea		Included above		
1165	260000	BDA panel	**2**	ea		Included above		
1166	260000	LPSU	**2**	ea		Included above		
1167	260000	Splitter	**9**	ea		Included above		
1168	260000	Fire Alarm						
1169	260000	Fire alarm control panel	**1**	ea	25,000.00	25,000		
1170	260000	Fire alarm remote annunciator	**2**	ea	2,000.00	4,000		
1171	260000	FATC	**5**	ea	2,000.00	10,000		
1172	260000	Master box	**1**	ea	2,000.00	2,000		
1173	260000	Exterior beacon	**2**	ea	350.00	700		
1174	260000	Knox box	**4**	ea	375.00	1,500		
1175	260000	Manual pull station	**14**	ea	135.00	1,890		
1176	260000	Smoke detector	**78**	ea	200.00	15,600		
1177	260000	Heat detector, allow	**2**	ea	200.00	400		
1178	260000	CO detector	**10**	ea	200.00	2,000		
1179	260000	Duct smoke detector, allow	**14**	ea	660.00	9,240		
1180	260000	Speaker/visual device	**60**	ea	195.00	11,700		
1181	260000	Speaker/light mass not amber	**83**	ea	255.00	21,165		
1182	260000	Speaker/light mass not amber WP	**10**	ea	265.00	2,650		
1183	260000	Mass notification Visual	**58**	ea	210.00	12,180		
1184	260000	Visual device	**2**	ea	175.00	350		
1185	260000	Magnetic door holder	**4**	ea	252.00	1,008		
1186	260000	FP equipment connection, allow	**8**	ea	300.00	2,400		
1187	260000	Kitchen connection	**1**	ea	200.00	200		
1188	260000	Elevator recall connection	**4**	ea	200.00	800		
1189	260000	Monitoring/control module	**60**	ea	300.00	18,000		
1190	260000	Testing & programming	**1**	ls	12,000.00	12,000		
1191	260000	Device box	**420**	lf	43.20	18,144		
1192	260000	3/4" EMT	**1,500**	lf	13.00	19,500		
1193	260000	FA cable	**2,100**	lf	2.00	4,200		
1194	260000	FA MC cable	**2,000**	lf	7.00	14,000		
1195	260000	Fire alarm in attic	**7,780**	sf	4.00	31,120		
1196	260000							
1197	260000					125,000		
1198	260000					Included above		
1199	260000					Included above		
1200	260000					3,850		
1201	260000					42,550		
1202	260000					12,000		
1203	260000					15,400		
1204	260000					40,000		
1205	260000					12,000		
1206	260000					17,500		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	NEW SCHOOL						
260000					4,000		
260000					8,000		
260000					18,750		
260000					1,050		
260000					9,300		
260000					1,750		
260000					525		
260000					7,200		
260000					2,400		
260000					5,000		
260000					4,500		
260000					24,000		
260000					7,000		
260000					48,300		
260000							
260000					1,800		
260000					56,610		
						1,928,220	
	D5040 OTHER ELECTRICAL SYSTEMS						
260000	Common Work Results						
260000	Temporary power and lights	**79,801**	sf	1.50	119,702		
260000	Temporary heat detection	**79,801**	sf	0.50	39,901		
260000	Coordination & BIM	**1**	ls	135,000.00	135,000		
260000	Permits & fees	**1**	ls	75,000.00	75,000		
	SUBTOTAL					369,603	
	TOTAL - ELECTRICAL						**$5,592,889**
	E10 EQUIPMENT						
	E10 EQUIPMENT, GENERALLY						
114500	*APPLIANCES*						
114500	Residential appliances	**1**	ls	20,000.00	20,000		
114000	*FOODSERVICE EQUIPMENT*						
114000	Kitchen equipment per Crabtree Mc Grath dated November 6, 2024	**1**	ls	482,540.00	482,540		
115200	*AV EQUIPMENT*						
115200	AV Equipment allowance for Cafeteria	**1**	ls	100,000.00	w/elec		
115200	AV Equipment allowance for Gym	**1**	ls	50,000.00	w/elec		
115200	AV Equipment allowance for Music Room	**1**	ls	15,000.00	w/elec		
116200	*THEATRE EQUIPMENT*						
116200	Stage dimming system, equipment with fixture package, initial light hang & focus	**1**	ls	105,000.00	105,000		
116200	Allowance for curtains at cafeteria stage (allowance per Architect)	**1**	ls	30,000.00	30,000		
116200	Allowance for rigging and pipe grid (allowance per Architect)	**1**	ls	110,000.00	110,000		
115213	Projection screens in Café and Gym (allowance per Architect)	**1**	ls	40,000.00	40,000		
116600	*ATHLETIC EQUIPMENT*						
116600	Gym wall pads	**1,260**	sf	30.00	37,800		
116600	Basketball backstops	**2**	ea	14,000.00	28,000		
116600	Gymnasium dividing net				NR		
116600	Volleyball net and standards	**1**	ls	5,000.00	5,000		
116600	Score board in Gym	**1**	loc	20,000.00	20,000		
116600	Traverse wall, 40'x8', Everlast Climbing or equal	**1**	ls	20,000.00	20,000		
119000	*MISCELLANEOUS EQUIPMENT*						
119000	Tieback lifeline anchors	**12**	ea	8,000.00	96,000		
119000	Kiln				NR		
126600	*TELESCOPING STANDS*						
126600	Telescoping bleachers				NIC		
	SUBTOTAL					994,340	
	TOTAL - EQUIPMENT						**$994,340**

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
1277		***E20 FURNISHINGS***						
1278								
1279		**E2010 FIXED FURNISHINGS**						
1280								
1281		*122100 WINDOW TREATMENT*						
1282	122400	Window treatments	**1**	ls	125,000.00	125,000		
1283								
1284		*123000 CASEWORK*						
1285	123000	Kindergarten Classroom	**3**	ea				
1286	123000	Cubbies wood 15"x15"x48" w/ wood base	**72**	ea	600.00	43,200		
1287	123000	Perimeter shelving w/ solid surface counter	**69**	lf	400.00	27,600		
1288	123000	Base cabinet and counter	**27**	lf	500.00	13,500		
1289	123000	Wall cabinet	**27**	lf	280.00	7,560		
1290	123000	Tall storage, 48"	**6**	ea	3,000.00	18,000		
1291	123000	Wall cabinet above cubby	**48**	lf	280.00	13,440		
1292	123000	1st Grade Classroom	**3**	ea				
1293	123000	Open cubby, 16" wide x 48" high	**72**	ea	600.00	43,200		
1294	123000	Perimeter shelving w/ solid surface counter	**60**	lf	400.00	24,000		
1295	123000	Base cabinet and counter	**27**	lf	500.00	13,500		
1296	123000	Wall cabinet	**27**	lf	280.00	7,560		
1297	123000	Tall storage, 48"	**3**	ea	3,000.00	9,000		
1298	123000	Wall cabinet above cubby	**54**	lf	280.00	15,120		
1299	123000	2nd-5th Grade Classroom	**12**	ea				
1300	123000	Perimeter shelving w/ solid surface counter	**240**	lf	400.00	96,000		
1301	123000	Base cabinet and counter	**108**	lf	500.00	54,000		
1302	123000	Wall cabinet	**108**	lf	280.00	30,240		
1303	123000	Tall storage, 48"	**24**	ea	3,000.00	72,000		
1304	123000	Art	**1**	ea				
1305	123000	Base cabinet and epoxy counter	**21**	lf	600.00	12,600		
1306	123000	Wall cabinet	**21**	lf	280.00	5,880		
1307	123000	Tall storage, 48"	**2**	ea	3,000.00	6,000		
1308	123000	ELL	**1**	ea				
1309	123000	Tall storage, 48"	**2**	ea	3,000.00	6,000		
1310	123000	STE	**1**	ea				
1311	123000	Base cabinet and counter	**19**	lf	500.00	9,500		
1312	123000	Wall cabinet	**19**	lf	280.00	5,320		
1313	123000	Cares/Learning Center	**5**	ea				
1314	123000	Perimeter shelving w/ solid surface counter	**102**	lf	400.00	40,800		
1315	123000	Base cabinet and counter	**45**	lf	500.00	22,500		
1316	123000	Wall cabinet	**45**	lf	280.00	12,600		
1317	123000	Tall storage, 48"	**10**	ea	3,000.00	30,000		
1318	123000	Therapy	**6**	ea		0		
1319	123000	Base cabinet and counter	**66**	lf	500.00	33,000		
1320	123000	PT	**1**	ea		0		
1321	123000	Tall storage, 48"	**2**	ea	3,000.00	6,000		
1322	123000	Mail & Copy						
1323	123000	Base cabinet and counter	**18**	lf	500.00	9,000		
1324	123000	Wall cabinet	**9**	lf	280.00	2,520		
1325	123000	Music						
1326	123000	Base cabinet and counter	**24**	lf	500.00	12,000		
1327	123000	Music storage, 30"	**3**	ea	1,800.00	5,400		
1328	123000	Music storage, 42"	**3**	ea	2,500.00	7,500		
1329	123000	Media Center						
1330	123000	Perimeter shelving w/ solid surface counter	**26**	lf	400.00	10,400		
1331	123000	Nurses Office						
1332	123000	Base cabinet and counter	**30**	lf	500.00	15,000		
1333	123000	Staff lunch & Work						
1334	123000	Base cabinet and counter	**21**	lf	500.00	10,500		
1335	123000	Wall cabinet	**21**	lf	280.00	5,880		
1336	123000	Mother's Room						
1337	123000	Base cabinet and counter	**6.5**	lf	500.00	3,250		
1338		SUBTOTAL					884,570	
1339								
1340		**E2020 MOVABLE FURNISHINGS**						

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		NEW SCHOOL						
1341		All movable furnishings to be provided and installed by owner						
1342		SUBTOTAL					NIC	
1343								
1344		***TOTAL - FURNISHINGS***						**$884,570**
1345								
1346								
1347		***F10 SPECIAL CONSTRUCTION***						
1348								
1349		**F10 SPECIAL CONSTRUCTION**						
1350		SUBTOTAL					-	
1351								
1352		***TOTAL - SPECIAL CONSTRUCTION***						**$0**
1353								
1354								
1355		***F20 SELECTIVE BUILDING DEMOLITION***						
1356								
1357		**F2010 BUILDING ELEMENTS DEMOLITION**						
1358	24400	See main summary						
1359		SUBTOTAL					$0	
1360								
1361		**F2020 HAZARDOUS COMPONENTS ABATEMENT**						
1362		See main summary for HazMat allowance				See Summary		
		SUBTOTAL					$0	
		TOTAL - SELECTIVE BUILDING DEMOLITION						**$0**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	PHASE 2 BUILDING DEMOLITION AND ABATEMENT						
	F20 SELECTIVE BUILDING DEMOLITION						
F2010	**BUILDING ELEMENTS DEMOLITION**						
	Complete demo of 1971 BLDG	**21,302**	sf	20.00	426,040		
	SUBTOTAL					426,040	
F2020	**HAZARDOUS COMPONENTS ABATEMENT**						
	HAZ MAT Removal	**1**	ls	848,876.00	848,876		
	SUBTOTAL					848,876	
	TOTAL - SELECTIVE BUILDING DEMOLITION						**$1,274,916**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK - PHASE 2						
	G SITEWORK						
	G10 SITE PREPARATION & DEMOLITION						
	DEMO IN 1971 AREA ONLY						
	311000 GENERAL CONDITIONS						
311000	6' high site construction fence - taken from CM phasing	**1,000**	lf	40.00	w/GR's		
311000	6' high site construction fence double gate	**1**	loc	5,000.00	w/GR's		
311000	Site construction entrance and removal/restoration	**1**	loc	12,000.00	12,000		
311000	Site construction fence maintenance	**1,000**	lf	12.00	w/GR's		
311000	Mobilizations	**1**	ea	50,000.00	w/GR's		
311000	Construction offices area prep - allowance	**1**	ls	10,000.00	w/GR's		
311000	Temporary signs	**1**	ls	15,000.00	w/GR's		
311000	Engineering/layout	**1**	ls	50,000.00	w/GR's		
311000	As-builts	**1**	ls	5,000.00	w/GR's		
311000	Snow removal - allowance	**1**	ls	10,000.00	10,000		
311000	Winter condition - allowance	**1**	ls		Excluded		
311000		**1**	ls		Excluded		
311000	Police details	**1**	ls		Excluded		
	311000 SITE DEMOLITION AND RELOCATIONS						
311000	Demolish existing concrete	**3,792**	sf	1.50	5,688		
311000	Demolish curbing	**378**	lf	6.00	2,268		
311000	Demolish existing fencing	**176**	lf	5.00	880		
311000	Demolish existing paving	**7,443**	sf	1.25	9,304		
311000	Demolish existing pavers	**109**	sf	1.75	191		
311000	Demolish existing infield mix	**3,361**	sf	0.75	2,521		
311000	Demolish existing handrails	**49**	lf	25.00	1,225		
311000	Prep playground and softball areas	**1**	ls	15,000.00	15,000		
311000	Demolish existing walls	**46**	lf	95.00	4,370		
311000	Demolish existing signs	**4**	ea	150.00	600		
311000	Misc. Demolition	**1**	ls	25,000.00	25,000		
	311000 UTILITY DEMOLITION						
311000	Demolish existing gas lines	**170**	lf	15.00	2,550		
311000	Cut/cap gas lines	**2**	ea	10,000.00	20,000		
311000	Protection of utilities during construction allowance	**1**	ls	50,000.00	50,000		
	311000 ROADWAY WORK						
311000	Sawcut	**520**	lf	16.00	8,320		
311000	Remove pavement	**1,149**	sf	3.50	4,022		
311000	Temp pavement patching	**1,149**	sf	8.00	9,192		
311000	Steel plates	**1**	ls	2,500.00	2,500		
311000	Permanent pavement patch	**1,149**	sf	10.00	11,490		
	311000 VEGETATION & TOPSOIL MANAGEMENT						
311000	Clear and grub	**2**	acre	5,000.00	10,000		
311000	Remove existing trees	**1**	ea	850.00	850		
311000	Strip + dispose topsoil	**800**	cy	12.00	9,600		
	312000 SOIL DISPOSAL - conversion factor 1.7 to tons						
312000	Load excess soils for disposal	**800**	cy	3.00	2,400		
312000	Less than RCS-1 - clean non-regulated	**1,360**	tn	25.00	34,000		
	312000 EROSION & SEDIMENT CONTROL						
312500	Silt fence/erosion control	**1,000**	lf	15.00	15,000		
312500	Silt Sacks; installation and removal	**8**	ea	250.00	2,000		
312500	Erosion Control monitoring & maintenance	**1**	ls	5,000.00	5,000		
	SUBTOTAL					275,971	
	312000 SITE EARTHWORK						
312000	Site cut to design subgrade - phase 2	*3,622*	*cy*				
312000	Cut	**3,622**	cy	10.00	36,220		
312000	Site fill to design subgrade - phase 2	*0*	*cy*				
312000	Fill - from cut	**0**	cy	12.00			

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
			SITEWORK - PHASE 2						
59		*312000*	*SOIL DISPOSAL - conversion factor 1.7 to tons*						
60	312000		Load excess soils for disposal	**3,622**	cy	2.50	9,055		
61	312000		Less than RCS-1 - clean non-regulated	**6,157**	tn	25.00	153,925		
62									
63		*312000*	*ESTABLISHING GRADE*						
64	312000		Sub grade establishment	**62,000**	sf	0.25	15,500		
65	312000		Fine grading throughout the site	**62,000**	sf	0.55	34,100		
66			SUBTOTAL					248,800	
67									
68		**G20**	**SITE IMPROVEMENTS**						
69		*320000*	***ROADWAYS AND PARKING LOTS***						
70			Asphalt Paving; parking lots and roadways	*29,844*	*sf*				
71	312000		gravel base; 12" thick	**1,105**	cy	50.00	55,250		
72	320000		asphalt top; 2" thick	**381**	tns	225.00	85,725		
73	320000		asphalt binder; 2" thick	**381**	tns	180.00	68,580		
74		*320000*	*CURBING*						
75	320000		Vertical granite curb	**1,940**	lf	58.00	112,520		
76	320000		ADA Curb cuts	**9**	ea	850.00	7,650		
77		*320000*	*ROAD MARKINGS AND SIGNS*						
78	320000		Parking spot	**59**	ea	85.00	5,015		
79	320000		Parking spot ADA	**2**	ea	250.00	500		
80	320000		Pavement markings allowance	**1**	ls	10,000.00	10,000		
81	320000		Crosswalk hatching	**4**	loc	2,500.00	10,000		
82			Traffic signs						
83	320000		Signs - new	**14**	ea	125.00	1,750		
84	320000		Signs - mounting hardware	**14**	ea	225.00	3,150		
85	320000		Signs - posts	**14**	ea	487.50	6,825		
86	320000		SUBTOTAL					366,965	
87									
88		***320000***	***PEDESTRIAN PAVING***						
89			Concrete sidewalks	*5,063*	*sf*				
90	312000		gravel base; 8" thick	**126**	cy	50.00	6,300		
91	033000		Broom finish concrete paving; 6" thick	**5,063**	sf	20.00	101,260		
92			Concrete pads	*336*	*sf*				
93	320000		gravel base; 12" thick	**12**	cy	50.00	600		
94	033000		Broom finish concrete paving; 8" thick	**336**	sf	30.00	10,080		
95			SUBTOTAL					118,240	
96									
97		***320000***	***SITE IMPROVEMENTS***						
98		*320000*	*SITE FURNISHINGS*						
99	323000		Bike racks	**9**	ea	800.00	7,200		
100		*320000*	*FENCING*						
101	323000		4' Ht - Chain link fence	**101**	lf	65.00	6,565		
102	323000		Dumpster enclosure - metal louver screening	**37**	lf	800.00	29,600		
103	323000		Dumpster enclosure - metal louver double gate	**1**	ea	10,000.00	10,000		
104	323000		Vehicular gate	**1**	ea	20,000.00	20,000		
105			SUBTOTAL					73,365	
106									
107			**Landscaping**						
108		*329900*	*TOPSOIL*						
109	329000		Topsoil - imported 6" thick; swell 25%	**298**	cy	70.00	20,860		
110		*329900*	*LAWN AND SEED*	*12,825*	*sf*				
111	329000		Topsoil - imported 6" thick	**238**	cy		incl. above		
112	329000		Scarify subgrade	**12,825**	sf	0.25	3,206		
113	329000		Power rake and hydroseed disturbed areas	**12,825**	sf	0.35	4,489		
114	329000	*329900*	*TREES*						

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK - PHASE 2						
115	329000	Deciduous trees - 2.5-3" cal.	**8**	ea	1,900.00	15,200		
116	329000	Deciduous trees - 3"-3.5" cal.	**13**	ea	2,500.00	32,500		
117	329000	*329900 MAINTENANCE*						
118	329000	1-yr plant maintenance	**1**	ls	7,155.00	7,155		
119	329000	Watering to grow-in	**1**	ls	5,000.00	5,000		
120		SUBTOTAL					88,410	
121								
122		**G30 CIVIL MECHANICAL UTILITIES**						
123		*210000 FIRE PROTECTION*						
124		No work in this section						
125		*331000 WATER UTILITIES*						
126		No work in this section						
127		SUBTOTAL					-	
128								
129		*333000 SANITARY SEWER*						
130		No work in this section						
131		SUBTOTAL					-	
132								
133		*334000 STORM DRAINAGE*						
134	334000	18" HDPE	**63**	lf	80.00	5,040		
135	334000	12" HDPE	**284**	lf	75.00	21,300		
136	334000	6" HDPE	**49**	lf	55.00	2,695		
137	334000	4' Dia. DMH - 0-5' deep	**6**	ea	4,200.00	25,200		
138	334000	WQS	**2**	ea	20,000.00	40,000		
139	334000	OCS	**1**	ea	8,000.00	8,000		
140	334000	AD	**1**	ea	2,800.00	2,800		
141	334000	CB - 4' Dia.	**6**	ea	4,000.00	24,000		
142		*334000 SUBSURFACE DRAINAGE SYSTEMS*						
143		Underground recharger	*8,851*	*sf*				
144	334000	MC-3500 chambers and installation - 179.9cuft/per chamber with a 12" stone base (90" long x 77" wide/ea)	**8,851**	sf	50.00	442,550		
145		SUBTOTAL					571,585	
146								
147		*220001 NATURAL GAS*						
148	334000	No work in this section						
149		SUBTOTAL					-	
150								
151		**G40 ELECTRICAL UTILITIES**						
152		Site Electrical Civil Work						
153	33000	Concrete:						
154	33000	Light pole base	**21**	ea	700.00	14,700		
155	33000	EV station base	**3**	ea	350.00	1,050		
156		Excavation & backfill:						
157	312000	Site lighting & circuitry	**1,400**	lf	9.00	12,600		
158	312000	Digital signage circuitry in PVC	**220**	lf	8.00	1,760		
159	312000	EV Circuitry: allow 40A feed & cat in PVC from each station	**600**	lf	9.00	5,400		
160		SUBTOTAL					35,510	
161								
162	260000	Power						
163	260000	Digital signage electrical/data connection	**1**	ls	1,500.00	1,500		
164	260000	Digital signage circuitry in PVC	**220**	lf	9.00	1,980		
165	260000	Pull box: digital signage	**1**	ea	750.00	750		
166	260000	EV Stations						
167	260000	Dual EV stations and circuity	**3**	loc	12,500.00	37,500		
168	260000	Circuitry: allow 40A feed & cat in PVC from each station	**600**	lf	25.00	15,000		
169	260000	Site Lighting						
170	260000	Site lighting fixture Type SL1 pole	**5**	ea	2,200.00	11,000		
171	260000	Site lighting fixture Type SL2 2-head pole	**5**	ea	2,800.00	14,000		
172	260000	Site lighting fixture Type SL3 3 head pole	**1**	ea	3,400.00	3,400		

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK - PHASE 2						
173	260000	Site lighting fixture Type SL4 streetlight pole fixture	**10**	ea	3,500.00	35,000		
174	260000	Site lighting circuitry	**1,400**	lf	20.00	28,000		
175	260000	*Note: reduction in Type SL4 count is represented in this estimate*						
		SUBTOTAL					148,130	
		TOTAL - SITE DEVELOPMENT						**$1,926,976**

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
	Alt #1- Faux Slate Shingles Roof ILO Real Slate @ 1919 building						
	Base Estimate						
	Slate Roof						
	ERA#3- Slate shingle on felt, plywood, 9" polyiso insulation in 2 layers w/ AVB and thermal barrier board	**4,784**	sf	(129.50)	(619,528)		
	Additional Scope						
	Faux Slate Roof						
	ERA#3- Faux slate shingle on 5" nailboard insulation on plywood substrate on 2" rigid insulation w/ AVB and thermal barrier board	**4,784**	sf	100.00	478,400		
	SUBTOTAL					(141,128)	
	TOTAL - Alt #1						***($141,128)***
	Alt #2 Faux Slate Roof on new roofs ILO Asphalt						
	Faux slate ilo Asphalt shingle roof						
	ERA#2- Asphalt shingle	**19,278**	sf	72.00	1,388,016		
	SUBTOTAL					1,388,016	
	TOTAL - Alt #2						***$1,388,016***
	Alt #3- Aluminum Shingle Roof ILO Asphalt						
	Base Estimate						
	Aluminum slate ilo Asphalt shingle roof						
	Interlock metal roof shingle on 6" nailboard insulation w/ AVB and thermal barrier board	**19,278**	sf	42.00	809,676		
	SUBTOTAL					809,676	
	TOTAL - Alt #3						***$809,676***
	Alt #4- Segmented Retaining Walls						
	Base Estimate						
	Prefabricated stone wall- 18" concrete base - 1.5' ht. at Huckin	**59**	lf	440.61	25,636		
	Excavation	**12**	cy	100.00	1,200		
	Backfill - (assume using onsite soils)	**4**	cy	25.00	100		
	Wall drain	**59**	lf	22.00	1,298		
	Prefabricated stone wall- 18" concrete base - 1.5' ht. at Northwest entrance and patio overlooking Huckins Ave.	**206**	lf	440.61	90,571		
	Excavation	**43**	cy	100.00	4,300		
	Backfill - (assume using onsite soils)	**13**	cy	25.00	325		
	Wall drain	**206**	lf	22.00	4,532		
	Prefabricated stone wall- 18" concrete base - 2.5' avg. ht. at Mayflower Rd.	**213**	lf	566.03	120,564		
	Excavation	**74**	cy	100.00	7,400		
	Backfill - (assume using onsite soils)	**37**	cy	25.00	925		
	Wall drain	**213**	lf	22.00	4,686		
	SUBTOTAL					(261,537)	
	Additional Scope						
	Segmental Wall - 1.5' ht. walls - Huckins	*59*	*lf*				
	Small block wall	**148**	sf	50.00	7,400		
	Excavate and prepare wall base	**20**	cy	100.00	2,000		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
	Backfill wall - crushed stone	**3**	cy	50.00	150		
	Wall cap	**59**	lf	50.00	2,950		
	Wall drain	**59**	lf	22.00	1,298		
	Segmental Wall - 1.5' ht. walls - Northwest	*206*	*lf*				
	Small block wall	**515**	sf	50.00	25,750		
	Excavate and prepare wall base	**69**	cy	100.00	6,900		
	Backfill wall - crushed stone	**11**	cy	50.00	550		
	Wall cap	**206**	lf	50.00	10,300		
	Wall drain	**206**	lf	22.00	4,532		
	Segmental Wall - 2.5' ht. walls at Mayflower road	*213*	*lf*				
	Small block wall	**746**	sf	50.00	37,300		
	Excavate and prepare wall base	**71**	cy	100.00	7,100		
	Backfill wall - crushed stone	**20**	cy	50.00	1,000		
	Backfill-controlled placement; above grade - on-site soils no	**100**	cy	50.00	5,000		
	Wall cap	**213**	lf	50.00	10,650		
	Wall drain	**213**	lf	22.00	4,686		
	SUBTOTAL					127,566	
	TOTAL - Alt #4						***($133,971)***
	Alt #5- Lightning Prevention System ilo Lightning protection system						
	Additional Scope						
	UL lightning protection system	**1**	ls	60,000.00	60,000		
	SUBTOTAL					60,000	
	TOTAL - Alt #5						***$60,000***
	Alt #6- T&G Roof Deck						
	SUBTOTAL					See Alt #19	
	TOTAL - Alt #6						
	Alt #7- 2x2 ACT ILO GWB at Toilets 111 & 113						
	Base Estimate						
090007	*PAINTING*						
	Paint to GWB ceilings	**373**	sf	(1.00)	(373)		
092900	*GYPSUM BOARD ASSEMBLIES*						
	GWB ceiling at toilets	**373**	sf	(18.00)	(6,714)		
	Additional Scope						
090003	*ACOUSTICAL TILE*						
	ACT, 2 x 2	**373**	sf	8.00	2,984		
	SUBTOTAL					(4,103)	
	TOTAL - Alt #7						***($4,103)***

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
	Alt #8- Linoleum ILO Terrazzo						
	Base Estimate						
096620	*TERRAZZO*	*4,469*	*sf*				
	Terrazzo - Corridors and Lobby	**4,469**	sf	(50.00)	(223,450)		
	Additional Scope						
090005	*RESILIENT FLOORS*						
	RF 1 Resilient at main at hall- Forbo tile	**4,469**	sf	8.00	35,752		
	SUBTOTAL					(187,698)	
	TOTAL - Alt #8						***($187,698)***
	Alt #9- Porcelain Floor Tile ILO Terrazzo						
	Base Estimate						
096620	*TERRAZZO*	*4,469*	*sf*		-		
	Terrazzo - Corridors and Lobby	**4,469**	sf	(50.00)	(223,450)		
	Additional Scope						
090002	*TILE*						
	Porcelain tile	**4,469**	sf	43.00	192,167		
	SUBTOTAL					(31,283)	
	TOTAL - Alt #9						***($31,283)***
	Alt #10- Linoleum ILO Porcelain Floor Tile at Café						
	Base Estimate						
090002	*TILE*						
	Porcelain tile - In Cafeteria	**2,990**	sf	(43.00)	(128,570)		
	Porcelain tile base	**140**	lf	(25.00)	(3,500)		
	Additional Scope						
090005	*RESILIENT FLOORS*						
	RF 1 Resilient at cafeteria- Forbo	**2,990**	sf	8.00	23,920		
	Rubber base	**140**	lf	4.00	560		
	Moisture mitigation	**2,990**	sf	5.00	14,950		
	SUBTOTAL					(107,590)	
	TOTAL - Alt #10						***($107,590)***
	Alt #11- FRP ILO tile at Kitchen only						
	SUBTOTAL					-	
	TOTAL - Alt #11						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
	Alt #12- Porcelain Wall Tile ILO FRP at Toilet Rooms Only						
	Base Estimate						
066400	*FRP PANELING*						
	FRP at all toilets full height	**2,392**	sf	(18.00)	(43,056)		
	Additional Scope						
090002	*TILE*						
	Wall tile wainscotting at toilets	**2,392**	sf	38.00	90,896		
	SUBTOTAL					47,840	
	TOTAL - Alt #12						***$47,840***
	Alt #13- FRP ILO Wall Tile at Toilet Rm 111 and 113 Only						
	Base Estimate						
090002	*TILE*						
	Wall tile wainscotting at toilets	**440**	sf	(38.00)	(16,720)		
	Additional Scope						
066400	*FRP PANELING*						
	FRP w/ subway tile pattern at all toilets full height	**440**	sf	18.00	7,920		
	SUBTOTAL					(8,800)	
	TOTAL - Alt #13						***($8,800)***
	Alt #14- FRP ILO Wall Tile at Corridors						
	Base Estimate						
090002	*TILE*						
	Wall tile Wainscotting in corridors	**5,250**	sf	(38.00)	(199,500)		
	Additional Scope						
066400	*FRP PANELING*						
	FRP w/ subway tile pattern at all corridors	**5,250**	sf	18.00	94,500		
	SUBTOTAL					(199,500)	
	TOTAL - Alt #14						***($199,500)***
	Alt #15- Metal Screen ILO brick wall						
	Base Estimate						
	Concrete work - Utility enclosure - 8' Ht. Brick	**91**	lf	350.78	(31,921)		
	Excavation	**101**	cy	100.00	(10,100)		
	Backfill - (assume using onsite soils)	**162**	cy	25.00	(4,050)		
	Wall drain	**91**	lf	22.00	(2,002)		
	CMU above grade	**91**	lf	250.00	(22,750)		
	Brick veneer on outside only	**546**	sf	55.00	(30,030)		
	Precast cap	**91**	lf	100.00	(9,100)		
	Additional Scope						
	Metal screen - 8'ht.	**91**	lf	800.00	72,800		
	SUBTOTAL					(37,153)	
	TOTAL - Alt #15						***($37,153)***

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
Alt #16- Add Irrigation							
	Additional Scope						
	Irrigation - lawns, plant beds and trees around entire school	**13,781**	sf	4.00	55,124		
	Irrigation - plant beds and trees along huckins	**3,058**	sf	4.00	12,232		
	SUBTOTAL					67,356	
	TOTAL - Alt #16						***$67,356***
Alt #17 - Fiberglass Windows (Manuf: Cascadia) ILO Aluminum Windows							
	Base Estimate						
	Aluminum windows	**4,111**	sf	(180.00)	(739,980)		
	Additional Scope						
	Fiberglass windows	**4,111**	sf	170.00	698,870		
	SUBTOTAL					(41,110)	
	TOTAL - Alt #17						***($41,110)***
Alt #18 - Fiberglass curtainwall (Manuf: Cascadia) ILO Aluminum Aluminum Curtainwall							
	Base Estimate						
	Aluminum curtainwall	**3,930**	sf	(200.00)	(786,000)		
	Additional Scope						
	Fiberglass curtainwall	**3,930**	sf	190.00	746,700		
	SUBTOTAL					(39,300)	
	TOTAL - Alt #18						***($39,300)***
Alt #19 - Roof Structure 1919							
	Base Estimate						
	Exposed wood truss including wood deck						
	Vaulted acoustical GWB ceiling						
	Additional Scope						
	Metal truss w/ metal deck - allowance 15#/SF						
	Lowered acoustical GWB ceiling (non-vaulted)						
	SUBTOTAL						
	TOTAL - Alt #19						

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
	Alt #20 - Existing ballfield as is ILO new ballfield in new location						
	Base Estimate						
	Softball - Reorientated Layout- new equipment						
	Softball mound	**1**	loc	3,500.00	3,500		
	Softball bases	**1**	set	2,500.00	2,500		
	Softball batters boxes	**1**	loc	3,500.00	3,500		
	Softball foul poles	**2**	ea	3,600.00	7,200		
	Softball backstop	**1**	ea	55,000.00	55,000		
	Team benches	**2**	ea	4,000.00	8,000		
	ATHLETIC LANDSCAPING	*11,305*	*sf*				
	Imported topsoil	**351**	cy	75.00	26,325		
	Baseball	*11,305*	*sf*				
	Athletic seed mix - infield	**2,981**	sf	0.75	2,236		
	Tall fescue blue mix - outfield	**20,590**	sf	0.75	15,443		
	Scarify subgrade	**23,571**	sf	0.25	5,893		
	Irrigation - outfield only	**20,590**	sf	1.25	Removed		
	Baseball Infield Mix - profile assumed	*3,431*	*sf*				
	Infield mix	**69**	tn	225.00	15,525		
	Sand gravel fill; 8" thick	**84**	cy	50.00	4,200		
	MAINTENANCE						
	Watering to grow-in	**1**	ls	10,000.00	10,000		
	Reconcilation adjustment allowance	**1**	ls	75,000.00	75,000		
	Additional Scope						
	No work in this section						
	SUBTOTAL					(234,322)	
	TOTAL - Alt #20						***($234,322)***
	Alt #21- Terrazzo ILO porcelain floor tile in the Cafeteria						
	Base Estimate						
090005	*PORCELAIN FLOORING*						
	Porcelain tile	**2,990**	sf	(43.00)	(128,570)		
	Additional Scope						
096620	*TERRAZZO*	*2,990*	*sf*				
	Terrazzo	**2,990**	sf	50.00	149,500		
	SUBTOTAL					20,930	
	TOTAL - Alt #21						***$20,930***
	Alt #22 - Carpet tile ILO of broadloom carpet at Media Center						
	Base Estimate						
090005	*Carpet*						
	Broadloom carpet	**2,372**	sf	(6.25)	(14,825)		
	Additional Scope						
096620	*Carpet*	*2,372*	*sf*				
	Carpet tile	**2,372**	sf	8.00	18,976		
	SUBTOTAL					4,151	
	TOTAL - Alt #22						***$4,151***

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
	Alt #23 - Kalwall insulated panel fenestration at the Gym East Façade ILO of alum and glass curtainwall						
	Base Estimate						
	Aluminum curtainwall	**382**	sf	(200.00)	(76,400)		
	Additional Scope						
	Kalwall insulated panel fenestration	**382**	sf	150.00	57,300		
	SUBTOTAL					(19,100)	
	TOTAL - Alt #23						***($19,100)***
	Alt #24 - Add Alternate: Increase insulation						
	a: 4" ILO 3" under slab on grade	**52,452**	sf	2.00	104,904		
	SUBTOTAL					104,904	
	b: 6" ILO 4" continuous board insulation at EWA-2,3,4,5. Masonry ties increased from 4" to 6" ties.	**37,071**	sf	11.25	417,049		
	SUBTOTAL					417,049	
	c: 10" ILO 7.5" of spray cellulose under the metal deck at ERA-2	**19,278**	sf	6.00	115,668		
	SUBTOTAL					115,668	
	TOTAL - Alt #24						***$637,621***
	Alt #25a- Lighting Alternate				N/A		
	SUBTOTAL						
	TOTAL - Alt #25a						
	Alt #25b- Lighting Alternate				N/A		
	SUBTOTAL						
	TOTAL - Alt #25b						
	Alt #26- 30 Year roof warranty ILO 20 year warranty						
	30 year warranty premium @ asphalt roof	**19,278**	sf	1.50	28,917		
	SUBTOTAL					28,917	
	TOTAL - Alt #26						***$28,917***
	Alt #27- Impact resistant exterior glazing ILO standard rated windows. Triple glazing shall remain.						
	Impact resistant premium	**8,292**	sf	30.00	248,760		
	SUBTOTAL					248,760	
	TOTAL - Alt #27						***$248,760***

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
ALTERNATES							
	Alt #28- Stage Lighting - Reduce scope to simplified light fixtures and controls						
	Base estimate credit	**1**	ls	(105,000.00)	(105,000)		
	Updated allowance	**1**	ls	50,000.00	50,000		
	Installation included in base estimate ($15k)						
	SUBTOTAL					(55,000)	
	TOTAL - Alt #28						***($55,000)***
	Alt #29- Mock-up; Insitu ILO stand alone mockup						
	Base estimate credit	**1**	ls	(80,000.00)	(80,000)		
	SUBTOTAL					(80,000)	
	TOTAL - Alt #29						***($80,000)***
	Alt #30- Double glazed storefront w/ school guard glass ILO triple glazed					Included in base	
	SUBTOTAL					-	
	TOTAL - Alt #30						
	Alt #31- Full glass double door ILO folding glass door at Media Center	**1**	ls	(10,000.00)	(10,000)		
	SUBTOTAL					(10,000)	
	TOTAL - Alt #31						***($10,000)***
	Alt #32- Fire alarm control panel - reuse existing, relocated approx. 30' ILO new FA panel (Enabling)	**1**	ls	(10,000.00)	(10,000)		
	SUBTOTAL					(10,000)	
	TOTAL - Alt #32						***($10,000)***

6A.3.4.B. CMR's Cost Estimate (CSI MasterFormat)

Refer to the Construction Manager's Cost Estimate on the following page.

DESIGN DEVELOPMENT ESTIMATE

SQUANTUM SCHOOL

QUINCY, MA
DECEMBER 18, 2024 Rev. 3

LEE KENNEDY

CONTACT: BOB O'LEARY
T 617-825-6930 | F 617-265-0815
BOLEARY@LEEKENNEDY.COM

Squantum School Addition and Renovation

Design Development

INTRODUCTION

12/18/2024 Rev. 3

1.0 Basis of Estimate

1.01 Squantum School Main Building 90% Design Development Drawings and Specifications received from Arrowstreet dated 10/30/2024
1.02 Squantum School Demo 90% Design Development Drawings and Specifications received from Arrowstreet dated 10/30/2024
1.03 Squantum School Geothermal 90% Design Development Drawings and Specifications received from Arrowstreet dated 10/30/2024
1.04 Squantum School Enabling 90% Design Development Drawings and Specifications received from Arrowstreet dated 10/30/2024
1.05 Arrowstreet Memo dated 11/12/2024
1.06 Arrowstreet Memo dated 11/13/2024
1.07 Arrowstreet Memo dated 11/25/2024
1.08 Arrowstreet Memo dated 12/02/2024

2.0 Exclusions - The following items are not included

2.01 Design fees and other soft costs.
2.02 Owner project administration costs.
2.03 Owners project contingency.
2.04 Escalation beyond LKCO Construction Schedule
2.05 Overtime or other project acceleration costs beyond current Construction Schedule.
2.06 Latent Building and Site Conditions
2.07 Hazardous Materials and Contaminated Soils testing/abatement/removal. - Beyond what is identified on the Documents
2.08 Utility Company Back charges and Fees for New & Temporary Services
2.09 Furnishings and Equipment (FF&E) unless specifically identified.
2.10 Performance Audio System(s)
2.11 Full scale preconstruction mock-ups, unless specifically identified.
2.12 Temp Water and Gas Usage
2.13 Labor and storage of furnishings - remove and reinstall
2.14 Builder's Risk Policy including cost and time deductibles
2.15 Preconstruction Costs
2.16 Third party testing and inspections
2.17 All 3rd party firesafing inspections
2.18 Owner's NFPA 241 prep/payment and Submission
2.19 Work outside of the defined project limits.
2.20 Delegated Design (With exception of Curtainwall, LGMF, Fire Protection, Stair Railings.)
2.21 Adjacent Building Fire Safety Survey

3.0 Assumptions and Qualifications

3.00 **General**

3.00.1 This estimate has been prepared based on the Design Development documents. No additional costs have been included for achieving LEED v4.1 Building Design and Construction Schools Gold certification beyond what is specifically indicated in the design documents.
CM Bonds and Insurance values will be reconciled once GMP value is established. Values included in the estimate are based on RFP Submission

3.01 **Demolition & Abatement**

3.01.1 Includes an Allowance for Abatement - See list below

0 3.02 **Earthwork & Landscaping**

3.02.1 Includes an allowance for soil disposal ($30 / Ton)

3.03 **Finishes**

3.03.1 We have assumed all laminates to be standard color/finish/thickness.
3.03.2 We have included Corian counters to be polymer group 2.
3.03.3 We have included standard color range for all resilient sheet flooring and carpeting.
3.03.4 Resilient Flooring RF-02 is included as sheet flooring not tile as it is shown on the Finish Schedule.

3.04 Div 10,11,12

3.04.1 Markerboards and tackboards in new classrooms in the enabling (SPED Classroom (7), Grade 2 (6A), and Grade 2 (6)) are assumed to be the same size and configurations as the addition classrooms
3.04.2 Carried two tier metal lockers along all corridors
3.04.3 We assume doors in the enabling work are hollow metal doors with hollow metal frames

3.08 Fire Protection

3.08.1 Specific Scope is Within the Details of Each MEP Section
3.08.2 No Third Party Commissioning (Assist Only)
3.07.3 Fire Pump is not required and has been excluded
3.07.4 Excludes Fire Protection within the Modular Building - Preassembled By Others
3.07.5 Excludes and Dry or Specialty Sprinkler Systems

3.09 Plumbing

3.09.1 Specific Scope is Within the Details of Each MEP Section
3.09.2 No Third Party Commissioning (Assist Only)
3.09.3 Excludes any Domestic Hot Water Upgrades in the Enabling Phase
3.09.4 Excludes FM Global Requirements

3.10 HVAC

3.10.1 Specific Scope is Within the Details of Each MEP Section
3.10.2 No Third Party Commissioning (Assist Only)
3.10.3 Excludes FM Global Requirements

3.11 Electrical

3.11.1 Specific Scope is Within the Details of Each MEP Section
3.11.2 No Third Party Commissioning (Assist Only)
3.11.3 Excludes F&I Pad Mounted Transformer - By Utility Co
3.11.4 Excludes FM Global Requirements

3.12 AV , Tele / Data

3.12.1 Specific Scope is Within the Details of Each MEP Section
3.12.2 No Third Party Commissioning (Assist Only)
3.12.3 Excludes Fiber / Backbone to Building
3.12.4 Excludes FM Global Requirements

4.0 Allowances

4.1	Fire Extinguishers and Cabinets	$	2,400
4.2	Wall and Door Protection	$	81,302
4.3	Signage	$	264,232
4.4	Flashing for equipment mounted on roofing and roofing penetrations	$	10,000
4.5	Abatement Allowance	$	1,772,500
4.6	Drainage Allowance to Playground	$	18,000
4.7	Sculpture Allowance	$	13,000
4.8	Plant Beds Allowance	$	66,675
4.9	Demo Existing 1971 Structure	$	175,000
4.10	Electric Consumption	$	100,000

Lee Kennedy Co. Inc.,
122 Quincy Shore Drive, Quincy, MA 02171
(t) 617-825-6930 (f) 617-265-0815

PROJECT: Squantum School Addition and Renovation
LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet

DATE: 12/18/2024 Rev. 3

	GSF
See GSF Sheet for Detail by Level	
TOTAL	79,100

Estimate Type: Design Development

PROJECT SUMMARY

Uniformat II	ITEM DESCRIPTION	Level 2 Cost	Level 3 Cost	$ / SF	% Total
A	**SUBSTRUCTURE**				
A10	**Foundations**	**$ 4,128,418**		**52**	**5%**
A1010	Standard Foundations		$ 2,848,517	36.01	0.00%
A1020	Special Foundations		$ -	0.00	0.00%
A1030	Lowest Floor Construction		$ 1,279,900	16.18	1.56%
A20	**Basement Construction**	**$ -**		**0**	**0%**
A2010	Basement Excavation		$ -	0.00	0.00%
A2020	Basement Walls		$ -	0.00	0.00%
B	**SHELL**				
B10	**Superstructure**	**$ 8,795,463**		**111**	**11%**
B1010	Upper Floor Construction		$ 7,607,431	96.17	9.26%
B1020	Roof Construction		$ 1,188,031	15.02	1.45%
B20	**Exterior Closure**	**$ 8,234,516**		**104**	**10%**
B2010	Exterior Walls		$ 7,380,265	93.30	8.99%
B2020	Windows		$ 854,251	10.80	1.04%
B2030	Exterior Doors		$ -	0.00	0.00%
B30	**Roofing**	**$ 2,738,614**		**35**	**3%**
B3010	Roof Coverings		$ 2,738,614	34.62	3.34%
B3020	Roof Openings		$ -	0.00	0.00%
C	**INTERIORS**				
C10	**Interior Construction**	**$ 5,830,158**		**74**	**7%**
C1010	Partitions		$ 2,669,455	33.75	3.25%
C1020	Interior Doors		$ 698,412	8.83	0.85%
C1030	Specialties/Millwork		$ 2,462,292	31.13	3.00%
C20	**Staircases**	**$ 413,225**		**5**	**1%**
C2010	Stair Construction		$ 413,225	5.22	0.50%
C2020	Stair Finishes		w / Finishes		
C30	**Interior Finishes**	**$ 3,081,866**		**39**	**4%**
C3010	Wall Finishes		$ 715,459	9.04	0.87%
C3020	Floor Finishes		$ 1,511,828	19.11	1.84%
C3030	Ceiling Finishes		$ 854,579	10.80	1.04%
D	**SERVICES**				
D10	**Conveying Systems**	**$ 244,000**		**3**	**0%**
D1010	Elevator		$ 244,000	3.08	0.30%
D20	**Plumbing**	**$ 2,078,815**		**26**	**3%**
D2010	Plumbing		$ 2,078,815	26.28	2.53%
D30	**HVAC**	**$ 7,711,323**		**97**	**9%**
D3010	HVAC		$ 7,711,323	97.49	9.39%
D40	**Fire Protection**	**$ 673,118**		**9**	**1%**
D4010	Fire Protection		$ 673,118	8.51	0.82%
D50	**Electrical**	**$ 6,539,921**		**83**	**8%**
D5010	Electrical		$ 6,539,921	82.68	7.96%
E	**EQUIPMENT & FURNISHINGS**				
E10	**Equipment**	**$ 1,058,900**		**13**	**1%**
E1010	Equipment		$ 1,058,900	13.39	1.29%
E20	**Furnishings**	**$ 131,740**		**2**	**0%**
E2010	Fixed Furnishings		$ 131,740	1.67	0.16%
F	**SPECIAL CONSTRUCTION & DEMOLITION**			0.00	$ -
F10	**Special Construction**	**$ -**		**0**	**0%**
F1010	Special Construction		$ -	0.00	0.00%

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OWNER: Squantum School
ARCHITECT: Arrowstreet

DATE: 12/18/2024 Rev. 3

	GSF
See GSF Sheet for Detail by Level	
TOTAL	79,100

Estimate Type: Design Development

PROJECT SUMMARY

Uniformat II	ITEM DESCRIPTION		Level 2 Cost	Level 3 Cost	$ / SF	% Total
F20	**Demolition**		**$ 2,940,500**		**37**	**4%**
F2010	Building Demolition			$ 1,168,000	14.77	1.42%
F2020	Hazardous Abatement			$ 1,772,500	22.41	2.16%
G	**BUILDING SITEWORK**		**$ 7,680,986**			
G10	Site Preparation and Demolition			$ 1,378,593	17.43	1.68%
G20	Site Improvements			$ 3,126,195	39.52	3.81%
G30	Civil Mechanical Utilities			$ 2,875,698	36.36	3.50%
G40	Electrical Utilities			$ 300,500	3.80	0.37%
	Subcontractor Bonding/CDI		$ 541,894	$ 541,894	6.85	0.66%
	Subtotal - Direct Work		$ 62,823,456	$ 62,823,456	794	77%
	General Conditions		$ 4,522,229		57.17	5.51%
	General Requirements		$ 3,172,266		40.10	3.86%
	Trade Contractor Bussing and Parking		By Owner		0.00	0.00%
	Preconstruction		By Owner		0.00	0.00%
	Subtotal - Direct Work & Reimbursables		$ 70,517,951		892	86%
	GMP Contingency	3%	$ 2,115,539		26.75	2.58%
	Pricing Contingency	1%	$ 628,235		7.94	0.77%
	Design Contingency	5%	$ 3,631,674		45.91	4.42%
	Building Permits	0%	By Owner		By Owner	0.00%
	Phasing / OT Requirements	1%	$ 384,467		4.86	0.47%
	CM Bonds	0%	$ 551,578		6.97	0.67%
	Construction Fee	2%	$ 1,506,918		19.05	1.84%
	Insurance	0%	$ 1,037,500		13.12	1.26%
	Escalation - Phase 2	6%	$ 246,427		3.12	0.30%
	Escalation - Building	3%	$ 1,492,432		18.87	1.82%
	Total Construction Cost		**$ 82,112,720**		1,038	100%

** Note - See Introduction for assumptions and qualifications*

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LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: December 9, 2024

RECONCILIATION SUMMARY

CSI	ITEM DESCRIPTION		Total LKCO	Total - PM&C	Delta	Comments
02 4120	Selective Demolition		$ 1,168,000	$ 1,111,060	$ 56,940	
02 1000	Abatement / PCB's		$ 1,772,500	$ 1,700,000	$ 72,500	
31 0000	Earthwork & Utilities		$ 6,610,640	$ 6,415,965	$ 194,675	
32 0000	Landscaping and Site Improvements		$ 1,141,381	$ 1,277,778	$ (136,397)	
34 0000	Geothermal Wells		$ 1,475,000	$ 1,501,125	$ (26,125)	Updated Well Unit Rate $35K per
03 3000	Cast-In-Place Concrete		$ 3,744,566	$ 3,854,064	$ (109,498)	Adjustted SOG Unit Rate $14 / SF to $12
03 4500	Architectural Precast				$ -	
04 0120	Brick Masonry Restoration	Filed Trade Bid			$ -	
04 8000	Masonry	Filed Trade Bid	$ 2,485,911	$ 2,549,561	$ (63,650)	
05 1200	Structural Steel		$ 4,232,145	$ 4,110,560	$ 121,585	
05 5000	Misc. Metals	Filed Trade Bid	$ 636,829	$ 723,275	$ (86,446)	
06 1200	Rough Carpentry		$ 683,551	$ 600,167	$ 83,384	
06 4020	Interior Architectural Millwork		$ 1,338,758	$ 1,291,304	$ 47,454	
07 1000	Waterproofing, Sealants, AVB	Filed Trade Bid	$ 963,014	$ 1,008,179	$ (45,166)	Adjusted waterproofing to split out below grade walls from perimeter footings
07 4120	Aluminum Composite Wall and Soffit Panels		$ 1,040,535	$ 1,127,728	$ (87,193)	
07 4250	Terra Cotta Rainscreen Cladding		$ 1,282,000	$ 1,375,689	$ (93,689)	
07 5423	Thermoplastic-Polyolfen (TPO) Roofing	Filed Trade Bid	$ 2,738,614	$ 2,936,570	$ (197,956)	
07 8100	Sprayed Fire-Resistive Materials		$ 85,280	$ 56,400	$ 28,880	
07 8413	Firestops and Smokeseals		$ 182,930	$ 119,702	$ 63,228	
07 9500	Expansion Control		$ 8,250	$ 32,200	$ (23,950)	
08 1113	Doors, Frames, and Hardware		$ 507,650	$ 479,290	$ 28,360	
08 3113	Access Doors		$ 81,302	$ 10,500	$ 70,802	
08 4413	Glazed Aluminum Curtain Walls		$ 1,392,384	$ 1,191,310	$ 201,074	
08 5113	Aluminum Windows		$ 854,251	$ 870,640	$ (16,389)	
08 6300	Metal Framed Skylights		$ -		$ -	
08 8000	Glass and Glazing	Filed Trade Bid	$ 227,410	$ 191,588	$ 35,822	
	OH Doors		$ -	$ -	$ -	
08 9000	Louvers		$ 2,000	$ 9,840	$ (7,840)	
09 2900	Gypsum Drywall		$ 5,360,809	$ 5,927,549	$ (566,741)	
09 3000	Tile	Filed Trade Bid	$ 329,400	$ 386,708	$ (57,308)	
09 5113	Acoustical Panel Ceilings	Filed Trade Bid	$ 632,341	$ 600,205	$ 32,136	
09 6400	Wood Flooring		$ 241,215	$ 217,760	$ 23,455	
09 6516	Resilient Flooring and Base	Filed Trade Bid	$ 681,590	$ 722,119	$ (40,529)	
09 6813	Carpet Flooring		$ 120,450	$ 126,714	$ (6,265)	
09 6900	Terrazzo Flooring	Filed Trade Bid	$ 270,125	$ 232,388	$ 37,737	
09 7723	Acoustical Wall Panels		$ 123,765	$ 114,546	$ 9,219	
09 9000	Painting and Finishing	Filed Trade Bid	$ 305,618	$ 295,183	$ 10,435	
10 0000	Division 10 Specialties		$ 1,123,534	$ 910,287	$ 213,247	
11 0000	Equipment		$ 1,058,900	$ 1,148,340	$ (89,440)	
12 0000	Furnishings		$ 131,740	$ 125,000	$ 6,740	Adjusted Shade Unit Rate
13 0000	Radon Systems			$ 86,070	$ (86,070)	
14 2100	MRL Electric Traction Elevators	Filed Trade Bid	$ 244,000	$ 270,000	$ (26,000)	
14 4000	Wheelchair / Vertical Lift		$ -		$ -	
21 0000	Fire Protection	Filed Trade Bid	$ 673,118	$ 667,026	$ 6,092	Ansul system for hoods with KEC
22 0000	Plumbing	Filed Trade Bid	$ 2,078,815	$ 2,057,555	$ 21,260	
23 0000	HVAC	Filed Trade Bid	$ 7,711,323	$ 7,937,980	$ (226,657)	Adjusted Equipment Costs
26 0000	Electrical	Filed Trade Bid	$ 6,539,921	$ 6,416,354	$ 123,567	Adjusted lighting and feeders
27 0000	Communications / AV	Filed Trade Bid			$ -	
28 0000		Filed Trade Bid			$ -	Adjusted Unit Pricing
	Subcontractor Bonding		$ 541,894	$ 450,000	$ 91,894	
	Subtotal - Direct Work		$ 62,823,456	$ 63,236,279	$ (412,823)	

Lee Kennedy Co. Inc.,
122 Quincy Shore Drive, Quincy, MA 02171
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PROJECT: Squantum School Addition and Renovation
LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

GSF	
See GSF Sheet for Detail by Level	
TOTAL	79100

Design Development

PROJECT SUMMARY

CSI	ITEM DESCRIPTION	Total	Enabling	Geothermal	Building Demolition / Abatement Phase 1	Site Phase 1	Addition	Building Demolition / Abatement Phase 2	Site Phase 2	$ / SF	% Total
		BREAKOUT COSTS									
02 4120	Selective Demolition	$ 1,168,000	$ 73,000	$ -	$ 675,000	$ -	$ -	$ 420,000	$ -	$ 15	1.42%
02 1000	Abatement / PCB's	$ 1,772,500	$ 10,000	$ -	$ 431,100	$ -	$ -	$ 1,331,400	$ -	$ 22	2.16%
31 0000	Earthwork & Utilities	$ 6,610,640	$ 354,453	$ 101,990	$ 125,000	$ 3,286,989	$ 1,057,808	$ 105,000	$ 1,579,400	$ 84	8.05%
32 0000	Landscaping and Site Improvements	$ 1,141,381	$ 10,000	$ 31,493	$ -	$ 368,500	$ 271,898	$ 412,874	$ 46,617	$ 14	1.39%
34 0000	Geothermal Wells	$ 1,475,000	$ -	$ 1,475,000	$ -	$ -	$ -	$ -	$ -	$ 19	1.80%
03 3000	Cast-In-Place Concrete	$ 3,744,566	$ 223,113	$ -	$ -	$ 361,886	$ 3,049,096	$ -	$ 110,472	$ 47	4.56%
03 4500	Architectural Precast	$ 92,625	$ -	$ -	$ -	$ -	$ 92,625	$ -	$ -	$ 1	0.11%
04 0120	Brick Masonry Restoration Filed Trade Bid	$ 110,212	$ -	$ -	$ -	$ -	$ 110,212	$ -	$ -	$ 1	0.13%
04 8000	Masonry Filed Trade Bid	$ 2,283,074	$ -	$ -	$ -	$ -	$ 2,283,074	$ -	$ -	$ 29	2.78%
05 1200	Structural Steel	$ 4,232,145	$ -	$ -	$ -	$ -	$ 4,232,145	$ -	$ -	$ 54	5.15%
05 5000	Misc. Metals Filed Trade Bid	$ 636,829	$ -	$ -	$ -	$ -	$ 636,829	$ -	$ -	$ 8	0.78%
06 1200	Rough Carpentry	$ 683,551	$ 68,326	$ 40,651	$ 20,326	$ 60,977	$ 452,621	$ 20,326	$ 20,326	$ 9	0.83%
06 4020	Interior Architectural Millwork	$ 1,338,758	$ -	$ -	$ -	$ -	$ 1,338,758	$ -	$ -	$ 17	1.63%
07 1000	Waterproofing, Sealants, AVB Filed Trade Bid	$ 963,014	$ 2,000	$ -	$ -	$ -	$ 961,014	$ -	$ -	$ 12	1.17%
07 4120	Aluminum Composite Wall and Soffit Panels	$ 1,040,535	$ 23,000	$ -	$ -	$ -	$ 1,017,535	$ -	$ -	$ 13	1.27%
07 4250	Terra Cotta Rainscreen Cladding	$ 1,282,000	$ -	$ -	$ -	$ -	$ 1,282,000	$ -	$ -	$ 16	1.56%
07 5423	Thermoplastic-Polyolfen (TPO) Roofing Filed Trade Bid	$ 2,738,614	$ 28,000	$ -	$ -	$ -	$ 2,710,614	$ -	$ -	$ 35	3.34%
07 8100	Sprayed Fire-Resistive Materials	$ 85,280	$ -	$ -	$ -	$ -	$ 85,280	$ -	$ -	$ 1	0.10%
07 8413	Firestops and Smokeseals	$ 182,930	$ -	$ -	$ -	$ -	$ 182,930	$ -	$ -	$ 2	0.22%
07 9500	Expansion Control	$ 8,250	$ -	$ -	$ -	$ -	$ 8,250	$ -	$ -	$ 0	0.01%
08 1113	Doors, Frames, and Hardware	$ 507,650	$ 36,000	$ -	$ -	$ -	$ 471,650	$ -	$ -	$ 6	0.62%
08 3113	Access Doors	$ 81,302	$ -	$ -	$ -	$ -	$ 81,302	$ -	$ -	$ 1	0.10%
08 4413	Glazed Aluminum Curtain Walls	$ 1,392,384	$ -	$ -	$ -	$ -	$ 1,392,384	$ -	$ -	$ 18	1.70%
08 5113	Aluminum Windows	$ 854,251	$ 3,000	$ -	$ -	$ -	$ 851,251	$ -	$ -	$ 11	1.04%
08 6300	Metal Framed Skylights	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	0.00%
08 8000	Glass and Glazing Filed Trade Bid	$ 227,410	$ -	$ -	$ -	$ -	$ 227,410	$ -	$ -	$ 3	0.28%
08 9000	Louvers	$ 2,000	$ -	$ -	$ -	$ -	$ 2,000	$ -	$ -	$ 0	0.00%
09 2900	Gypsum Drywall	$ 5,360,809	$ 103,930	$ -	$ -	$ -	$ 5,256,879	$ -	$ -	$ 68	6.53%
09 3000	Tile Filed Trade Bid	$ 329,400	$ -	$ -	$ -	$ -	$ 329,400	$ -	$ -	$ 4	0.40%
09 5113	Acoustical Panel Ceilings Filed Trade Bid	$ 632,341	$ 15,000	$ -	$ -	$ -	$ 617,341	$ -	$ -	$ 8	0.77%
09 6400	Wood Flooring	$ 241,215	$ -	$ -	$ -	$ -	$ 241,215	$ -	$ -	$ 3	0.29%
09 6516	Resilient Flooring and Base Filed Trade Bid	$ 681,590	$ 6,500	$ -	$ -	$ -	$ 675,090	$ -	$ -	$ 9	0.83%
09 6813	Carpet Flooring	$ 120,450	$ 34,500	$ -	$ -	$ -	$ 85,950	$ -	$ -	$ 2	0.15%
09 6900	Terrazzo Flooring Filed Trade Bid	$ 270,125	$ -	$ -	$ -	$ -	$ 270,125	$ -	$ -	$ 3	0.33%
09 7723	Acoustical Wall Panels	$ 123,765	$ -	$ -	$ -	$ -	$ 123,765	$ -	$ -	$ 2	0.15%
09 9000	Painting and Finishing Filed Trade Bid	$ 305,618	$ 19,400	$ -	$ -	$ -	$ 286,218	$ -	$ -	$ 4	0.37%
10 0000	Division 10 Specialties	$ 1,123,534	$ 12,800	$ -	$ -	$ -	$ 1,110,734	$ -	$ -	$ 14	1.37%
11 0000	Equipment	$ 1,058,900	$ 8,700	$ -	$ -	$ -	$ 1,050,200	$ -	$ -	$ 13	1.29%
12 0000	Furnishings	$ 131,740	$ -	$ -	$ -	$ -	$ 131,740	$ -	$ -	$ 2	0.16%
14 2100	MRL Electric Traction Elevators Filed Trade Bid	$ 244,000	$ -	$ -	$ -	$ -	$ 244,000	$ -	$ -	$ 3	0.30%
14 4000	Wheelchair / Vertical Lift	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	0.00%
21 0000	Fire Protection Filed Trade Bid	$ 673,118	$ 6,150	$ -	$ -	$ -	$ 666,968	$ -	$ -	$ 9	0.82%
22 0000	Plumbing Filed Trade Bid	$ 2,078,815	$ 7,850	$ -	$ -	$ -	$ 2,070,965	$ -	$ -	$ 26	2.53%
23 0000	HVAC Filed Trade Bid	$ 7,711,323	$ 219,570	$ -	$ -	$ -	$ 7,491,753	$ -	$ -	$ 97	9.39%
26 0000	Electrical Filed Trade Bid	$ 5,155,394	$ 397,780	$ -	$ -	$ -	$ 4,757,614	$ -	$ -	$ 65	6.28%
27 0000	Communications / AV Filed Trade Bid	$ 821,664	$ 68,200	$ -	$ -	$ -	$ 753,464	$ -	$ -	$ 10	1.00%
28 0000	Filed Trade Bid	$ 562,862	$ 139,350	$ -	$ -	$ -	$ 423,512	$ -	$ -	$ 7	0.69%
	Subcontractor Bonding	$ 541,894	$ 14,412	$ 24,737	$ 18,771	$ 61,175	$ 362,102	$ 34,344	$ 26,352	$ 7	0.66%
	Subtotal - Direct Work	$ 62,823,456	$ 1,885,034	$ 1,673,871	$ 1,270,197	$ 4,139,527	$ 49,747,719	$ 2,323,943	$ 1,783,166	$ 794	76.51%
	General Conditions	$ 4,522,229	$ 110,504	$ 226,141	$ 118,182	$ 177,381	$ 3,654,167	$ 102,404	$ 133,450	$ 57	5.51%
	General Requirements	$ 3,172,266	$ 77,517	$ 158,634	$ 82,902	$ 124,430	$ 2,563,335	$ 71,834	$ 93,613	$ 40	3.86%
	Trade Contractor Bussing and Parking Allowance	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner		
	Preconstruction	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner		
	Subtotal - Direct Work & Reimbursables	$ 70,517,951	$ 2,073,055	$ 2,058,646	$ 1,471,281	$ 4,441,338	$ 55,965,221	$ 2,498,182	$ 2,010,228	$ 892	85.88%
	GMP Contingency 3.0%	$ 2,115,539	$ 62,192	$ 61,759	$ 44,138	$ 133,240	$ 1,678,957	$ 74,945	$ 60,307	$ 27	2.58%
	Pricing Contingency 1.0%	$ 628,235	$ 18,850	$ 16,739	$ 12,702	$ 41,395	$ 497,477	$ 23,239	$ 17,832	$ 8	0.77%
	Design Contingency 5.0%	$ 3,631,674	$ 106,762	$ 106,020	$ 75,771	$ 228,729	$ 2,882,209	$ 128,656	$ 103,527	$ 46	4.42%
	Building Permits 0.00%	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	By Owner	
	Phasing / OT Requirements 0.5%	$ 384,467	$ 11,304	$ 11,216	$ 8,019	$ 24,224	$ 305,119	$ 13,625	$ 10,959	$ 5	0.47%
	CM Bonds	$ 551,578	$ 13,478	$ 27,583	$ 14,415	$ 21,635	$ 445,700	$ 12,490	$ 16,277	$ 7	0.67%
	Construction Fee 1.95%	$ 1,506,918	$ 44,307	$ 43,960	$ 31,432	$ 94,944	$ 1,195,915	$ 53,404	$ 42,956	$ 19	1.84%
	Insurance	$ 1,037,500	$ 25,352	$ 51,882	$ 27,114	$ 40,695	$ 838,347	$ 23,494	$ 30,616	$ 13	1.26%
	Escalation - Phase 2 6.00%	$ 246,427						$ 139,437	$ 106,990	$ 3	0.30%
	Escalation - Building 3.00%	$ 1,492,432					$ 1,492,432			$ 19	1.82%
	Total Construction Cost	**$ 82,112,720**	**$ 2,355,301**	**$ 2,377,805**	**$ 1,684,872**	**$ 5,026,200**	**$ 65,301,377**	**$ 2,967,472**	**$ 2,399,692**	$ 1,038	100%

** Note - See Introduction for assumptions and qualifications*

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PROJECT: Squantum School Addition and Renovation
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OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 2 SITEWORK						
02 4120	**Selective Demolition**				**LKCO**	
	Scope of Work					
	Enabling					
	3ea Crew Weeks	600	MH	$ 90.00	$ 54,000	
	Machine Time	1	LS	$ 10,000.00	$ 10,000	
	Dumpsters	10	EA	$ 900.00	$ 9,000	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	Complete Building Teardown	25,000	SF	$ 20.00	$ 500,000	
	Shoring Allowance to Existing Façade	1	AL	$ 175,000.00	$ 175,000	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 2					
	Demo Existing 1971 Structure	21,000	SF	$ 20.00	$ 420,000	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 1,168,000**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 2 SITEWORK						
02 1000	**Abatement / PCB's**				**LKCO**	
	Scope of Work					
	Enabling					
	Abatement Allowance	1	AL	$ 10,000.00	$ 10,000	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	Abatement / PCB Allowance	1	AL	$ 431,100.00	$ 431,100	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 2					
	Abatement Allowance	1	AL	$ 1,331,400.00	$ 1,331,400	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 1,772,500**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 31 SITEWORK						
31 0000	**Earthwork & Utilities**				**LKCO**	
	Scope of Work					
	Enabling					
	Excavation and Backfill					
	Prep for New Foundations	1	LOC	$ 10,000.00	$ 10,000	
	E&B for New Foundations / Frostwalls	1	LOC	$ 12,000.00	$ 12,000	
	Crushed Stone under Slabs to Connector	523	SF	$ 10.00	$ 5,230	
	Prep Area for New Temp Classrooms	1	LOC	$ 25,000.00	$ 25,000	
	Temp SOE at Grade Change	1	LOC	$ 80,000.00	$ 80,000	
	E&B for Footings to Temp Classrooms	21	EA	$ 1,800.00	$ 37,800	
	Site Utilities and Drainage					
	Relocation of Roof Drainage	1	LOC	$ 12,500.00	$ 12,500	
	Misc Utilities / E&B for New Electrical Temp Service	1	LOC	$ 25,000.00	$ 25,000	
	Stub in Sewer	1	LOC	$ 15,000.00	$ 15,000	
	Street Patch	1	LOC	$ 8,000.00	$ 8,000	
	New Utility Connections to Modular Classrooms	1	LOC	$ 50,000.00	$ 50,000	
	Paving / Curbs					
Added Mayflowe	F&I Asphalt Paving - Road	569	SY	$ 110.00	$ 62,590	
	Sub Bases	126	CYDS	$ 90.00	$ 11,333	
	Geothermal					
	Excavation and Backfill					
	Clear and Grub Site	20,995	SF	$ 2.00	$ 41,990	
	Dewatering / Support	1	LOC	$ 60,000.00	$ 60,000	
	Building Demo / Abatement Phase 1					
	Demolition of Existing Building Footings / Frostwalls	25,000	SF	$ 5.00	$ 125,000	
	Site Phase 1					
	Paving / Curbs					
	Granite Curbs	1,430	LF	$ 75.00	$ 107,250	
	F&I Asphalt Paving	-	SY	$ 70.00	N/A	
	Sub Bases	-	CYDS	$ 85.00	N/A	
	F&I Asphalt Paving - Road	1,207	SY	$ 110.00	$ 132,770	
	Sub Bases	402	CYDS	$ 90.00	$ 36,197	
	Excavation and Backfill					
	Clear Site / Site Demo	52,000	SF	$ 2.75	$ 143,000	
	Erosion Control	52,000	SF	$ 1.00	$ 52,000	
	Grading / Backfill	52,000	SF	$ 2.00	$ 104,000	
	Beddings for Concrete Sidewalks	745	CYDS	$ 125.00	$ 93,078	
	Soil Disposal - Site Clearing	3,274	TONS	$ 30.00	$ 98,222	
	Site Utilities and Drainage					
	F&I New 8" Drainage	30	LF	$ 75.00	$ 2,250	
	Excavation	33	CYDS	$ 50.00	$ 1,667	
	Soil Disposal	28	TONS	$ 30.00	$ 850	
	Sand Beddings / Backfill	17	CYDS	$ 75.00	$ 1,250	
	F&I New 6" Drainage	913	LF	$ 80.00	$ 73,040	
	Excavation	1,014	CYDS	$ 50.00	$ 50,722	
	Soil Disposal	862	TONS	$ 30.00	$ 25,868	
	Sand Beddings / Backfill	507	CYDS	$ 75.00	$ 38,042	
	F&I New 6" Sewer	173	LF	$ 225.00	$ 38,925	
	Excavation	192	CYDS	$ 50.00	$ 9,611	
	Soil Disposal	163	TONS	$ 30.00	$ 4,902	
	Sand Beddings / Backfill	96	CYDS	$ 75.00	$ 7,208	
	F&I New 6" DICL Fire Protection	80	LF	$ 200.00	$ 16,000	
	Excavation	89	CYDS	$ 50.00	$ 4,444	
	Soil Disposal	76	TONS	$ 30.00	$ 2,267	
	Sand Beddings / Backfill	44	CYDS	$ 75.00	$ 3,333	
	F&I New 4" Domestic	73	LF	$ 200.00	$ 14,600	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Excavation	81	CYDS	$ 50.00	$ 4,056	
	Soil Disposal	69	TONS	$ 30.00	$ 2,068	
	Sand Beddings / Backfill	41	CYDS	$ 75.00	$ 3,042	
	Water / FP Connections	2	EA	$ 10,000.00	$ 20,000	
	Sewer Connections	2	EA	$ 15,000.00	$ 30,000	
	Drainage Connections	3	EA	$ 8,500.00	$ 25,500	
	Site Ductbanks	601	LF	$ 500.00	$ 300,500	
	F&I New Trench Drain	21	LF	$ 500.00	$ 10,500	
	F&I New Sewer Manholes	2	EA	$ 6,500.00	$ 13,000	
	F&I New OCS	1	EA	$ 7,500.00	$ 7,500	
	F&I New Grease Trap	1	EA	$ 25,000.00	$ 25,000	
	F&I New Catch Basins	2	EA	$ 3,800.00	$ 7,600	
	F&I New Area Drains	8	EA	$ 3,000.00	$ 24,000	
	F&I New Drainage Manholes	1	EA	$ 4,800.00	$ 4,800	
	F&I New Stormwater Recharge System	1,628	SF	$ 20.00	$ 32,560	
	Excavation	301	CYDS	$ 30.00	$ 9,030	
	Soil Disposal	256	TONS	$ 30.00	$ 7,676	
	Sand Beddings / Backfill	151	CYDS	$ 75.00	$ 11,288	
	Stone wall solutions (total lf to be confirmed)	**1,020**	SF	$ 275.00	$ 280,500	
	Precast Walls at Courtwayd	**150**	LF	$ 450.00	$ 67,500	
	Changed Playground Wall to CIP Concrete	**184**	LF	$ 450.00	$ 82,800	
	Playground Equipment TBD?	**1**	AL	$ 500,000.00	Not in scope	
	Addition					
	Excavation and Backfill					
	Erosion Control	60,000	SF	$ 1.00	$ 60,000	
	Construction Entrance	2	LOC	$ 10,000.00	$ 20,000	
	Clear Site / Site Demo	60,000	SF	$ 2.75	$ 165,000	
	Grading / Backfill	60,000	SF	$ 2.00	$ 120,000	
	Beddings for Concrete Sidewalks	745	CYDS	$ 125.00	$ 93,078	
	Soil Disposal - Site Clearing	3,778	TONS	$ 30.00	$ 113,333	
	E&B for Footings / Frostwalls	1,941	CYDS	$ 65.00	$ 126,174	
	Soil Disposal - Site Clearing	3,300	TONS	$ 30.00	$ 98,998	
	F&I Underslab Plumbing / Radon System	52,582	SF	$ 2.00	$ 105,164	
	F&I Crushed Stone Under Slab on grade	1,947	CYDS	$ 75.00	$ 146,061	
	E&B Elevator Pits	1	EA	$ 10,000.00	$ 10,000	
	Building Demo / Abatement Phase 2					
	Excavation and Backfill					
	Demolition of Existing Building Footings / Frostwalls	21,000	SF	$ 5.00	$ 105,000	
	Site Phase 2					
	Paving / Curbs					
	Granite Curbs	2,253	LF	$ 75.00	$ 168,975	
	F&I Asphalt Paving	3,070	SY	$ 70.00	$ 214,900	
	Sub Bases	1,023	CYDS	$ 85.00	$ 86,993	
	F&I Asphalt Paving - Road	532	SY	$ 110.00	$ 58,520	
	Sub Bases	177	CYDS	$ 90.00	$ 15,973	
	Excavation and Backfill					
	Erosion Control	45,600	SF	$ 1.00	$ 45,600	
	Construction Entrance	1	LOC	$ 10,000.00	$ 10,000	
	Clear Site / Site Demo	45,600	SF	$ 2.75	$ 125,400	
	Grading / Backfill	45,600	SF	$ 2.00	$ 91,200	
	Beddings for Concrete Sidewalks	186	CYDS	$ 125.00	$ 23,269	
	Soil Disposal	2,871	TONS	$ 30.00	$ 86,133	
	Site Utilities and Drainage					
	F&I New 10" Drainage	32	LF	$ 100.00	$ 3,200	
	Excavation	36	CYDS	$ 50.00	$ 1,778	
	Soil Disposal	30	TONS	$ 30.00	$ 907	
	Sand Beddings / Backfill	18	CYDS	$ 75.00	$ 1,333	
	F&I New 12" Drainage	265	LF	$ 125.00	$ 33,125	
	Excavation	294	CYDS	$ 50.00	$ 14,722	
	Soil Disposal	250	TONS	$ 30.00	$ 7,508	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Sand Beddings / Backfill	147	CYDS	$ 75.00	$ 11,042	
	F&I New 18" Drainage	63	LF	$ 150.00	$ 9,450	
	Excavation	70	CYDS	$ 50.00	$ 3,500	
	Soil Disposal	60	TONS	$ 30.00	$ 1,785	
	Sand Beddings / Backfill	35	CYDS	$ 75.00	$ 2,625	
	F&I New 6" Drainage	110	LF	$ 80.00	$ 8,800	
	Excavation	122	CYDS	$ 50.00	$ 6,111	
	Soil Disposal	104	TONS	$ 30.00	$ 3,117	
	Sand Beddings / Backfill	61	CYDS	$ 75.00	$ 4,583	
	Drainage Allowance to Playground	1	LOC	$ 18,000.00	$ 18,000	
	Drainage Connections	1	EA	$ 8,500.00	$ 8,500	
	F&I New Catch Basins	7	EA	$ 3,800.00	$ 26,600	
	F&I New Drainage Manholes	10	EA	$ 4,800.00	$ 48,000	
	F&I New Stormwater Recharge System	11,000	SF	$ 20.00	$ 220,000	
	Excavation	2,341	CYDS	$ 30.00	$ 70,242	
	Soil Disposal	1,990	TONS	$ 30.00	$ 59,706	
	Sand Beddings / Backfill	1,171	CYDS	$ 75.00	$ 87,803	
	Reconciliation	20,000	SF			
	Over excavation / Replacement					
	Excavate Existing Soils	5,185	CYDS	$ 25.00	$ 129,630	
	Disposal	8,815	TONS	$ 30.00	$ 264,444	
	Replace with Structural Fill	11,500	CYDS	$ 75.00	$ 862,500	
					Total	**$ 6,610,640**

DIVISION 32 LANDSCAPING

32 0000 Landscaping and Site Improvements — LKCO

Scope of Work					
Enabling					
Temp Landscaping / Protection Allowance	1	AL	$ 10,000.00	$ 10,000	
Geothermal					
Restoration of Field - Hydroseed	20,995	SF	$ 1.50	$ 31,493	
Building Demo / Abatement Phase 1					
No Scope	1	LS	$ 1.00	N/A	
Site Phase 1					
Unit Pavers	1,114	SF	$ 50.00	$ 55,700	
Basketball Backstop	109	LF	$ 100.00	$ 10,900	
Brick Wall Surround to Utility Area	848	SF	$ 85.00	$ 72,080	
Benches	6	EA	$ 2,000.00	$ 12,000	
Flagpole	1	EA	$ 2,000.00	$ 2,000	
Sculpture Allowance	2	EA	$ 6,500.00	$ 13,000	
Litter and Recycling Units	5	EA	$ 1,500.00	$ 7,500	
Bike Racks	9	EA	$ 1,200.00	$ 10,800	
Lawns - Sod	22,428	SF	$ 3.35	$ 75,134	
Planting Soils for Lawns - 8" Depth	623	CYDS	$ 80.00	$ 49,840	
Irrigation	11,214	SF	$ 4.00	$ 44,856	
F&I Stone to Masonry Retaining Walls	1,076	SF	$ 65.00	Stone wall solutions w / Site	
Plant Beds Allowance	475	SF	$ 25.00	$ 11,875	
Planting Soils - 2' Depth	35	CYDS	$ 80.00	$ 2,815	
Irrigation	475	SF	$ 4.00	See Alternates	

Lee Kennedy Co. Inc.,
122 Quincy Shore Drive, Quincy, MA 02171
(t) 617-825-6930 (f) 617-265-0815

PROJECT: Squantum School Addition and Renovation
LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Addition					
	Interior Courtyard					
	PIP Color A Paving	351	SF	$ 48.00	$ 16,848	
	PIP Color B Paving	195	SF	$ 48.00	$ 9,360	
	PIP Color C Paving	429	SF	$ 48.00	$ 20,592	
	PIP Color D Paving	576	SF	$ 48.00	$ 27,648	
	Standard Color Concrete Paving	1,694	SF	$ 30.00	$ 50,820	
	Colored Concrete Paving	642	SF	$ 40.00	$ 25,680	
	Unit Pavers	1,109	SF	$ 50.00	$ 55,450	
	Block Seats	8	EA	$ 550.00	$ 4,400	
	Frog Sculpture	1	EA	$ 5,000.00	$ 5,000	
	Shade Structure	1	EA	$ 7,500.00	$ 7,500	
	Curved Benches	4	EA	$ 2,500.00	$ 10,000	
	Straight Benches	2	EA	$ 1,800.00	$ 3,600	
	Field Engineer / layout	1	LS	$ 35,000.00	$ 35,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	Trash Enclosure	53	LF	$ 55.00	$ 2,915	
	Chain Link Fence	92	LF	$ 45.00	$ 4,140	
	Bollards	13	EA	$ 2,200.00	$ 28,600	
	Lawns - Sod	8,630	SF	$ 3.35	$ 28,911	
	Planting Soils for Lawns - 8" Depth	240	CYDS	$ 80.00	$ 19,178	
	Irrigation	8,630	SF	$ 4.00	See Alternates	
	Plant Beds Allowance	2,192	SF	$ 25.00	$ 54,800	
	Planting Soils - 2' Depth	162	CYDS	$ 80.00	$ 12,990	
	Irrigation	2,192	SF	$ 4.00	See Alternates	
	Reseed Baseball Field - Hydroseed	22,263	SF	$ 1.50	w / Below	
	New Baseball Field	15,373	SF	$ 17.00	$ 261,341	
	Playground					
	PIP Color A Paving	1,691		$ 48.00	NIC	
	PIP Color B Paving	1,552		$ 48.00	NIC	
	PIP Color C Paving	856		$ 48.00	NIC	
	Bituminous Paving - Colored	556	SY	$ 75.00	$ 41,667	
	Chain Link Fence	90	LF	$ 55.00	$ 4,950	
	PIP Color D Paving				$ -	
	Standard Color Concrete Paving				N/A	
	Colored Concrete Paving				N/A	
					Total	**$ 1,141,381**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 34 FOUNDATIONS						
34 0000	**Geothermal Wells**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	Rig Mobilization	1	LS	$ 75,000.00	$ 75,000	
	F&I New Geothermal Well Fields	40	EA	$ 35,000.00	$ 1,400,000	< Potential Additional 2
	F&I New Loop and Piping to Building Foundation Walls				w / Rate	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 1,475,000**
DIVISION 3 CONCRETE						
03 3000	**Cast-In-Place Concrete**				**LKCO**	
	Scope of Work					
	Enabling					
	12" Thick Foundation Wall	10	LF			
	Formwork	81	SF	$ 20.00	$ 1,620	
	Concrete Material	1	CY	$ 200.00	$ 200	
	Rebar	0	TONS	$ 3,900.00	$ 293	
	Place	1	CY	$ 275.00	$ 275	
	12" Thick x 24" Wide Footing	10	LF			
	Formwork	20	SF	$ 20.00	$ 400	
	Concrete Material	1	CY	$ 275.00	$ 275	
	Rebar	0	TONS	$ 3,900.00	$ 293	
	Place	1	CY	$ 275.00	$ 275	
	12" Thick x 30" Wide Footing	55	LF			
	Formwork	109	SF	$ 20.00	$ 2,180	
	Concrete Material	6	CY	$ 275.00	$ 1,650	
	Rebar	0	TONS	$ 3,900.00	$ 1,755	
	Place	6	CY	$ 275.00	$ 1,650	
	12" Thick x 30" Wide Footing - Temp Connector	58	LF			
	Formwork	117	SF	$ 20.00	$ 2,340	
	Concrete Material	6	CY	$ 275.00	$ 1,650	
	Rebar	0	TONS	$ 3,900.00	$ 1,755	
	Place	6	CY	$ 275.00	$ 1,650	
	16" Long #4 Dowels @ 12" OC Vert Embedded 4" in Exist. Wall w/Epoxy	4	EA	$ 500.00	$ 2,000	
	16" Long #4 Dowels @ 12" OC Vertically Embedded 4" in Exist. Wall	2	EA	$ 500.00	$ 1,000	
	5" CIP Concrete Slab on Grade - Temp Boiler Room	162	SF	$ 20.00	Not Required	
	5" CIP Concrete Slab on Grade w/6x6 W2.9xW2.9 WWF - Temp Connector	523	SF	$ 20.00	$ 10,460	
	8" Thick Foundation Wall	55	LF			
	Formwork	493	SF	$ 20.00	$ 9,860	
	Concrete Material	6	CY	$ 275.00	$ 1,650	
	Rebar	0	TONS	$ 3,900.00	$ 1,755	
	Place	6	CY	$ 275.00	$ 1,650	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	8" Thick Foundation Wall - Temp Connector	59	LF			
	Formwork	528	SF	$ 20.00	$ 10,560	
	Concrete Material	7	CY	$ 275.00	$ 1,925	
	Rebar	1	TONS	$ 3,900.00	$ 2,048	
	Place	7	CY	$ 275.00	$ 1,925	
	CIP Concrete Slab on Grade - New Access to Playground During	126	SF	$ 20.00	$ 2,520	
	Footings for Temp Classroom	21	EA	$ 7,500.00	$ 157,500	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	6" CIP Exterior Concrete Paving; Pedestrian - 6x6 W1.4xW1.4 WWM	20,105	SF	$ 18.00	$ 361,886	
	CIP Concrete Site Walls	443	LF	$ 400.00	Stone wall solutions w / Site	
	Addition					
	1'-6" Thick x 10'-6" High Concrete Wall w/Veneer Shelf (4/S3.01)	39	LF			
	Formwork	812	SF	$ 20.00	$ 16,240	
	Concrete Material	23	CY	$ 200.00	$ 4,600	
	Rebar	2	TONS	$ 3,700.00	$ 6,383	
	Place	23	CY	$ 200.00	$ 4,600	
	1'-6" Thick x 11'-6" High Concrete Wall w/Veneer Shelf (3/S3.01)	133	LF			
	Formwork	3,060	SF	$ 20.00	$ 61,200	
	Concrete Material	85	CY	$ 200.00	$ 17,000	
	Rebar	6	TONS	$ 3,700.00	$ 23,588	
	Place	85	CY	$ 200.00	$ 17,000	
	1'-6" Thick x 2'-3" High Concrete Wall	64	LF			
	Formwork	286	SF	$ 20.00	$ 5,720	
	Concrete Material	8	CY	$ 200.00	$ 1,600	
	Rebar	1	TONS	$ 3,700.00	$ 2,220	
	Place	8	CY	$ 200.00	$ 1,600	
	1'-6" Thick x 2'-6" High Concrete Wall	42	LF			
	Formwork	209	SF	$ 20.00	$ 4,180	
	Concrete Material	6	CY	$ 200.00	$ 1,200	
	Rebar	0	TONS	$ 3,700.00	$ 1,665	
	Place	6	CY	$ 200.00	$ 1,200	
	1'-6" Thick x 3'-6" High Concrete Wall	71	LF			
	Formwork	500	SF	$ 20.00	$ 10,000	
	Concrete Material	14	CY	$ 200.00	$ 2,800	
	Rebar	1	TONS	$ 3,700.00	$ 3,885	
	Place	14	CY	$ 200.00	$ 2,800	
	1'-6" Thick x 4'-0" High Concrete Wall	675	LF			
	Formwork	5,398	SF	$ 20.00	$ 107,960	
	Concrete Material	150	CY	$ 200.00	$ 30,000	
	Rebar	11	TONS	$ 3,900.00	$ 43,875	
	Place	150	CY	$ 275.00	$ 41,250	
	1'-6" Thick x 4'-3" High Concrete Wall	106	LF			
	Formwork	91	SF	$ 20.00	$ 1,820	
	Concrete Material	25	CY	$ 275.00	$ 6,875	
	Rebar	2	TONS	$ 3,700.00	$ 6,938	
	Place	25	CY	$ 200.00	$ 5,000	
	1'-6" Thick x 6'-6" High Concrete Wall w/Veneer Shelf (4/S3.01)	69	LF			
	Formwork	900	SF	$ 20.00	$ 18,000	
	Concrete Material	25	CY	$ 200.00	$ 5,000	
	Rebar	2	TONS	$ 3,700.00	$ 6,938	
	Place	25	CY	$ 200.00	$ 5,000	
	1'-6" Thick x 6'-6" High Concrete Wall w/Veneer Shelf (5/S3.01)	50	LF			
	Formwork	654	SF	$ 20.00	$ 13,080	
	Concrete Material	18	CY	$ 200.00	$ 3,600	
	Rebar	1	TONS	$ 3,700.00	$ 4,995	
	Place	18	CY	$ 200.00	$ 3,600	
	1'-6" Thick x 8'-6" High Concrete Wall w/Veneer Shelf (4/S3.01)	19	LF			
	Formwork	331	SF	$ 20.00	$ 6,620	
	Concrete Material	9	CY	$ 200.00	$ 1,800	
	Rebar	1	TONS	$ 3,700.00	$ 2,498	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Place	9	CY	$ 200.00	$ 1,800	
	1'-6" Thick x 9'-6" High Concrete Wall w/Veneer Shelf (4/S3.01)	63	LF			
	Formwork	1,201	SF	$ 20.00	$ 24,020	
	Concrete Material	33	CY	$ 200.00	$ 6,600	
	Rebar	2	TONS	$ 3,700.00	$ 9,158	
	Place	33	CY	$ 200.00	$ 6,600	
	1'-9" Slab Haunch	163	LF	$ 20.00	$ 3,260	
	10" Thick x 6'-0" High Concrete Elevator Wall (Overrun)	26	LF			
	Formwork	308	SF	$ 20.00	$ 6,160	
	Concrete Material	5	CY	$ 200.00	$ 1,000	
	Rebar	0	TONS	$ 3,900.00	$ 1,463	
	Place	5	CY	$ 275.00	$ 1,375	
	100"x18" Footing	2,176	SF			
	Formwork	563	SF	$ 20.00	$ 11,260	
	Concrete Material	121	CY	$ 200.00	$ 24,200	
	Rebar	9	TONS	$ 3,700.00	$ 33,578	
	Place	121	CY	$ 200.00	$ 24,200	
	14" Thick x 36" Wide Footing	1,041	LF			
	Formwork	2,432	SF	$ 20.00	$ 48,648	
	Concrete Material	135	CY	$ 200.00	$ 27,027	
	Rebar	10	TONS	$ 3,700.00	$ 37,500	
	Place	135	CY	$ 200.00	$ 27,027	
	14" Thick x 36" Wide Footing @ Retaining Wall	26	LF			
	Formwork	60	SF	$ 20.00	$ 1,200	
	Concrete Material	3	CY	$ 200.00	$ 600	
	Rebar	0	TONS	$ 3,700.00	$ 833	
	Place	3	CY	$ 200.00	$ 600	
	16" Thick x 19'-6" High Concrete Wall	183	LF			
	Formwork	5,491	SF	$ 20.00	$ 109,820	
	Concrete Material	43	CY	$ 275.00	$ 11,877	
	Rebar	3	TONS	$ 3,700.00	$ 11,985	
	Place	43	CY	$ 200.00	$ 8,638	
	2'-0" Slab Haunch	262	LF	$ 20.00	$ 5,240	
	2'-0" Thick Mat Footing	229	SF			
	Formwork	61	SF	$ 20.00	$ 1,220	
	Concrete Material	17	CY	$ 200.00	$ 3,400	
	Rebar	1	TONS	$ 3,700.00	$ 4,718	
	Place	17	CY	$ 200.00	$ 3,400	
	2'-0" Thick x 10'-6" High Concrete Wall w/Veneer Shelf (3/S3.01)	17	LF			
	Formwork	365	SF	$ 20.00	$ 7,300	
	Concrete Material	14	CY	$ 200.00	$ 2,800	
	Rebar	1	TONS	$ 3,700.00	$ 3,885	
	Place	14	CY	$ 200.00	$ 2,800	
	2'-0" Thick x 11'-6" High Concrete Wall w/Veneer Shelf (3/S3.01)	66	LF			
	Formwork	1,523	SF	$ 20.00	$ 30,460	
	Concrete Material	56	CY	$ 200.00	$ 11,200	
	Rebar	4	TONS	$ 3,700.00	$ 15,540	
	Place	56	CY	$ 200.00	$ 11,200	
	2'-0" Thick x 13'-6" High Concrete Wall w/Veneer Shelf (3/S3.01)	105	LF			
	Formwork	2,822	SF	$ 20.00	$ 56,440	
	Concrete Material	105	CY	$ 200.00	$ 21,000	
	Rebar	8	TONS	$ 3,700.00	$ 29,138	
	Place	105	CY	$ 200.00	$ 21,000	
	2'-0" Thick x 9'-6" High Concrete Wall w/Veneer Shelf (3/S3.01)	11	LF			
	Formwork	208	SF	$ 20.00	$ 4,160	
	Concrete Material	8	CY	$ 200.00	$ 1,600	

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Rebar	1	TONS	$ 3,700.00	$ 2,220	
	Place	8	CY	$ 200.00	$ 1,600	
	3'-0"x14" Footing	130	LF			
	Formwork	304	SF	$ 20.00	$ 6,080	
	Concrete Material	17	CY	$ 200.00	$ 3,400	
	Rebar	1	TONS	$ 3,700.00	$ 4,718	
	Place	17	CY	$ 200.00	$ 3,400	
	48"x14" Footing	142	SF			
	Formwork	79	SF	$ 20.00	$ 1,580	
	Concrete Material	6	CY	$ 200.00	$ 1,200	
	Rebar	0	TONS	$ 3,700.00	$ 1,665	
	Place	6	CY	$ 200.00	$ 1,200	
	5" SOG w/6x6-W4.0xW4.0 WWF (EL = 39'-5-3/8")	20,921	SF	$ 12.00	$ 251,052	
	5" SOG w/6x6-W4.0xW4.0 WWF (EL = 41'-5-3/8") - Lobby Floor	21,154	SF	$ 12.00	$ 253,848	
	5" SOG w/6x6-W4.0xW4.0 WWF (EL = 43'-2-3/8") - Platform Level	4,760	SF	$ 12.00	$ 57,120	
	5" SOG; Reinf. w/6x6=W4.0xW4.0 WWF	3,829	SF	$ 12.00	$ 45,948	
	6" CIP Exterior Concrete Paving at Mechanical Pads - 6x6 W1.4x1.4 WWM	1,362	SF	$ 12.00	$ 16,344	
No Roof Slabs	Slab on Metal Deck	45,000	SF	$ 12.00	$ 540,000	
	Concrete at Stair Treads	54	EA	$ 100.00	$ 5,400	
	Footing F4.0	49	EA			
	Formwork	980	SF	$ 20.00	$ 19,600	
	Concrete Material	36	CY	$ 200.00	$ 7,259	
	Rebar	3	TONS	$ 3,700.00	$ 10,072	
	Place	36	CY	$ 200.00	$ 7,259	
	Footing F5.0	25	EA			
	Formwork	750	SF	$ 20.00	$ 15,000	
	Concrete Material	35	CY	$ 200.00	$ 6,944	
	Rebar	3	TONS	$ 3,700.00	$ 9,635	
	Place	35	CY	$ 200.00	$ 6,944	
	Footing F5.5x8.5	3	EA			
	Formwork	162	SF	$ 20.00	$ 3,240	
	Concrete Material	9	CY	$ 200.00	$ 1,889	
	Rebar	1	TONS	$ 3,700.00	$ 2,621	
	Place	9	CY	$ 200.00	$ 1,889	
	Footing F6.0	19	EA			
	Formwork	912	SF	$ 20.00	$ 18,240	
	Concrete Material	51	CY	$ 200.00	$ 10,133	
	Rebar	4	TONS	$ 3,700.00	$ 14,060	
	Place	51	CY	$ 200.00	$ 10,133	
	Footing F7.0	16	EA			
	Formwork	896	SF	$ 20.00	$ 17,920	
	Concrete Material	58	CY	$ 200.00	$ 11,615	
	Rebar	4	TONS	$ 3,700.00	$ 16,116	
	Place	58	CY	$ 200.00	$ 11,615	
	Footing F7.0x9.5	4	EA			
	Formwork	264	SF	$ 20.00	$ 5,280	
	Concrete Material	20	CY	$ 200.00	$ 3,941	
	Rebar	1	TONS	$ 3,700.00	$ 5,468	
	Place	20	CY	$ 200.00	$ 3,941	
	Footing F7.5	3	EA			
	Formwork	180	SF	$ 20.00	$ 3,600	
	Concrete Material	13	CY	$ 200.00	$ 2,500	
	Rebar	1	TONS	$ 3,700.00	$ 3,469	
	Place	13	CY	$ 200.00	$ 2,500	
	Footing F8.0	7	EA			
	Formwork	560	SF	$ 20.00	$ 11,200	
	Concrete Material	41	CY	$ 200.00	$ 8,296	
	Rebar	3	TONS	$ 3,700.00	$ 11,511	
	Place	41	CY	$ 200.00	$ 8,296	
	Footing F8.5	2	EA			
	Formwork	170	SF	$ 20.00	$ 3,400	
	Concrete Material	13	CY	$ 200.00	$ 2,676	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Rebar	1	TONS	$ 3,700.00	$ 3,713	
	Place	13	CY	$ 200.00	$ 2,676	
	Footing F9.0	1	EA			
	Formwork	90	SF	$ 20.00	$ 1,800	
	Concrete Material	8	CY	$ 275.00	$ 2,063	
	Rebar	1	TONS	$ 3,700.00	$ 2,081	
	Place	8	CY	$ 200.00	$ 1,500	
	Grade Beam GB1	684	SF			
	Formwork	1,454	SF	$ 20.00	$ 29,080	
	Concrete Material	51	CY	$ 200.00	$ 10,200	
	Rebar	4	TONS	$ 3,700.00	$ 14,153	
	Place	51	CY	$ 200.00	$ 10,200	
	Pier P1	23	EA	$ 2,000.00	$ 46,000	
	Pier P1A	3	EA	$ 2,000.00	$ 6,000	
	Pier P1E	3	EA	$ 2,000.00	$ 6,000	
	Pier P2	14	EA	$ 2,000.00	$ 28,000	
	Pier P2E	4	EA	$ 2,000.00	$ 8,000	
	Pier P3	6	EA	$ 2,000.00	$ 12,000	
	Pier P3E	2	EA	$ 2,000.00	$ 4,000	
	Pier P4	12	EA	$ 2,000.00	$ 24,000	
	Pier P5	1	EA	$ 2,000.00	$ 2,000	
	Pier P7	6	EA	$ 2,000.00	$ 12,000	
	Pier P8	5	EA	$ 2,000.00	$ 10,000	
	Pier P9	2	EA	$ 2,000.00	$ 4,000	
	Radon Pit	1	EA	$ 2,000.00	$ 2,000	
	Thickened Slab at Base of Stair	5	SF	$ 20.00	$ 100	
	Foundation Insulation 3"	12,540	SF	$ 6.00	$ 75,240	
	Underslab Insulation	8,360	SF	$ 10.00	w / Above	
	Concrete Pump	10	DAYS	$ 4,000.00	$ 40,000	
	Field Engineer / layout	1	LS	$ 26,000.00	$ 26,000	
	Mock Up	1	LOC	$ 10,000.00	$ 10,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	6" CIP Exterior Concrete Paving; Pedestrian - 6x6 W1.4xW1.4 WWM	5,026	SF	$ 18.00	$ 90,472	
	Base for Flag Pole	1	EA	$ 5,000.00	$ 5,000	
	Base for Signs	2	EA	$ 2,500.00	$ 5,000	
	Misc. Site Bases	1	LS	$ 10,000.00	$ 10,000	
					Total	**$ 3,744,566**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 3 CONCRETE						
03 4500	**Architectural Precast**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	New Cast Stone Medallion of Chief Squanto Based on Existing Mold	1	EA	$ 25,000.00	$ 25,000	
	Custom casting	1	EA	$ 5,000.00	$ 5,000	
	New Cast Stone Sculptural Elements Based on Historical Photos	2	EA	$ 8,000.00	$ 16,000	
	Custom casting	1	EA	$ 5,000.00	$ 5,000	
	New Replication of Cast Stone Cap/Moldings (Match Historical Profile)	18	LF	$ 375.00	$ 6,750	
	Custom casting	1	EA	$ 5,000.00	$ 5,000	
	New Replication of Cast Stone School Name Plaque	1	EA	$ 15,000.00	$ 15,000	
	Custom casting	1	EA	$ 5,000.00	$ 5,000	
	New Replication of Cast Stone Trim/Moldings	13	LF	$ 375.00	$ 4,875	
	Custom casting	1	EA	$ 5,000.00	$ 5,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 92,625**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 4 MASONRY						
04 0120	**Brick Masonry Restoration**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	Restore ETR Brick at 1919 Facade	1,559	SF	$ 60.00	$ 93,540	
	Staging	1,559	SF	$ 8.00	$ 12,472	
	New Infill Brick at Areas of Removed Elements	28	SF	$ 150.00	$ 4,200	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 110,212**

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OWNER: Squantum School
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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 4 MASONRY						
04 8000	**Masonry**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	BR-1 Brick System - East Elevation	366	SF	$ 55.00	$ 20,130	
	BR-1 Brick System - General (A3.02)	857	SF	$ 55.00	$ 47,135	
	BR-1 Brick System - North Entry East Facade	117	SF	$ 55.00	$ 6,435	
	BR-1 Brick System - North Entry East Facade	36	SF	$ 55.00	$ 1,980	
	BR-1 Brick System - South Elevation	803	SF	$ 55.00	$ 44,165	
	BR-1 Brick System - West Elevation	1,194	SF	$ 55.00	$ 65,670	
	BR-1 Brick System w/Cobbling (Assume 50% of Area) - General (A3.02)	2,637	SF	$ 65.00	$ 171,405	
	BR-1 Brick System w/Cobbling (Assume 50% of Area) - North Elevation	626	SF	$ 65.00	$ 40,690	
	BR-1 Brick System w/Cobbling (Assume 50% of Area) - North Gable E/W Facade	46	SF	$ 65.00	$ 2,990	
	BR-1 Brick System w/Cobbling (Assume 50% of Area) - South Elevation	68	SF	$ 55.00	$ 3,740	
	BR-1 Brick System w/Cobbling (Assume 50% of Area) - West Elevation	604	SF	$ 55.00	$ 33,220	
	BR-2 Brick System - North Elevation	2,797	SF	$ 55.00	$ 153,835	
	Brick Window Sill - North Elevation	56	LF	$ 30.00	$ 1,680	
	Brick Window Sill - West Elevation	63	LF	$ 55.00	$ 3,465	
	Double Course Brick Trim at Window Surrounds - General (A3.02)	195	LF	$ 110.00	$ 21,450	
	Double Course Brick Trim at Window Surrounds - North Elevation	503	LF	$ 110.00	$ 55,330	
	Double Course Brick Trim at Window Surrounds - West Elevation	324	LF	$ 110.00	$ 35,640	
	Cast Stone Coping - North Elevation	10	LF	$ 275.00	$ 2,750	
	New Stone Sill to Match Existing @ 1919 Facade - South (7' Long)	2	EA	$ 8,500.00	$ 17,000	
	ST-1 - Stone Base - East Elevation	273	SF	$ 175.00	$ 47,775	
	ST-1 - Stone Base - General (A3.02)	611	SF	$ 175.00	$ 106,925	
	ST-1 - Stone Base - Music Room Jog North	27	SF	$ 175.00	$ 4,725	
	ST-1 - Stone Base - North Elevation	1,011	SF	$ 175.00	$ 176,925	
	ST-1 - Stone Base - North Entry East Facade	28	SF	$ 175.00	$ 4,900	
	ST-1 - Stone Base - North Gable E/W Facade	17	SF	$ 175.00	$ 2,975	
	ST-1 - Stone Base - South Elevation	231	SF	$ 175.00	$ 40,425	
	ST-1 - Stone Base - West Elevation	1,023	SF	$ 175.00	$ 179,025	
	Stone Sill/Coping - East Elevation	172	LF	$ 175.00	$ 30,100	
	Stone Sill/Coping - General (A3.02)	280	LF	$ 175.00	$ 49,000	
	Stone Sill/Coping - North Elevation	268	LF	$ 175.00	$ 46,900	
	Stone Sill/Coping - North Entry East Facade	4	LF	$ 175.00	$ 700	
	Stone Sill/Coping - North Gable E/W Facade	3	LF	$ 175.00	$ 525	
	Stone Sill/Coping - West Elevation	37	LF	$ 175.00	$ 6,475	
	Staging	13,372	SF	$ 8.00	$ 106,976	
	CMU Partitions to Basement	421	SF	$ 58.00	$ 24,418	
	CMU to Elevator Shafts	1,517	SF	$ 65.00	$ 98,605	
	CMU to Gym	9,546	SF	$ 65.00	$ 620,490	
	Mock up	100	SF	$ 65.00	$ 6,500	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 2,283,074**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 5 METALS						
05 1200	**Structural Steel**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	Braced Frame	19	LF			
	Braced Frame - BF-1	88	LF			
	Braced Frame - BF-1 - HSS6x6x1/2	99	LF			
	Braced Frame - BF-10	16	LF			
	Braced Frame - BF-10 - HSS6x6x1/2	28	LF			
	Braced Frame - BF-11	19	LF			
	Braced Frame - BF-11 - HSS6x6x1/2	44	LF			
	Braced Frame - BF-12	16	LF			
	Braced Frame - BF-12 - HSS10x10x5/8	17	LF			
	Braced Frame - BF-12 - HSS6x6x1/2	36	LF			
	Braced Frame - BF-13	14	LF			
	Braced Frame - BF-13 - HSS6x6x1/2	23	LF			
	Braced Frame - BF-14 - HSS6x6x1/2	29	LF			
	Braced Frame - BF-15	16	LF			
	Braced Frame - BF-15 - HSS6x6x1/2	28	LF			
	Braced Frame - BF-16	50	LF			
	Braced Frame - BF-16 - HSS6x6x1/2	76	LF			
	Braced Frame - BF-17	19	LF			
	Braced Frame - BF-17 - HSS6x6x1/2	44	LF			
	Braced Frame - BF-18	33	LF			
	Braced Frame - BF-18 - HSS6x6x1/2	43	LF			
	Braced Frame - BF-19	30	LF			
	Braced Frame - BF-19 - HSS6x6x1/2	46	LF			
	Braced Frame - BF-2	66	LF			
	Braced Frame - BF-2 - HSS6x6x1/2	152	LF			
	Braced Frame - BF-3	53	LF			
	Braced Frame - BF-3 - HSS6x6x1/2	62	LF			
	Braced Frame - BF-4	66	LF			
	Braced Frame - BF-4 - HSS6x6x1/2	90	LF			
	Braced Frame - BF-5	45	LF			
	Braced Frame - BF-5 - HSS6x6x1/2	76	LF			
	Braced Frame - BF-6	29	LF			
	Braced Frame - BF-6 - HSS6x6x1/2	82	LF			
	Braced Frame - BF-7	37	LF			
	Braced Frame - BF-7 - HSS6x6x1/2	71	LF			
	Braced Frame - BF-8	23	LF			
	Braced Frame - BF-8 - HSS6x6x1/2	56	LF			
	Braced Frame - BF-9	23	LF			
	Braced Frame - BF-9 - HSS6x6x1/2	32	LF			
	HSS12x6x5/8 (LLH)	109	LF			
	HSS16x8x3/8	33	LF			
	HSS24x12x5/8	66	LF			
	HSS4x4x3/8 - Column Steel	58	LF			
	HSS4x4x3/8 CS	36	LF			
	HSS8x8x1/2 - Column Steel	97	LF			
	HSS8x8x1/2 - Column Steel	63	LF			
	HSS8x8x3/8	13	LF			
	HSS8x8x3/8 - Column Steel	1,088	LF			
	HSS8x8x5/8 - Column Steel	33	LF			
	W10x12	480	LF			

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	W10x15	49	LF			
	W10x17	88	LF			
	W10x19	38	LF			
	W10x33	11	LF			
	W10x33 - Column Steel	333	LF			
	W10x39 - Column Steel	42	LF			
	W10x45	85	LF			
	W10x45 - Column Steel	122	LF			
	W10x49 - Column Steel	762	LF			
	W10x54 - Column Steel	47	LF			
	W10x60 - Column Steel	693	LF			
	W10x68 - Column Steel	97	LF			
	W12x106 - Column Steel	17	LF			
	W12x14	840	LF			
	W12x16	276	LF			
	W12x19	337	LF			
	W12x48 (46)	33	LF			
	W12x50	98	LF			
	W12x58 - Column Steel	32	LF			
	W12x65 - Column Steel	151	LF			
	W12x72 - Column Steel	16	LF			
	W12x79 - Column Steel	32	LF			
	W12x87 - Column Steel	33	LF			
	W14x22	842	LF			
	W14x26	89	LF			
	W14x43	123	LF			
	W14x43 - Column Steel	65	LF			
	W16x26	924	LF			
	W16x31	626	LF			
	W16x36	60	LF			
	W18x35	932	LF			
	W18x35 (16)	285	LF			
	W18x35 (30)	82	LF			
	W18x40	771	LF			
	W18x55	77	LF			
	W18x60	107	LF			
	W21x44 (22)	1,397	LF			
	W21x44 (42)	1,280	LF			
	W21x48	207	LF			
	W21x50 (48)	732	LF			
	W21x55 (33)	31	LF			
	W24x104	40	LF			
	W24x117	39	LF			
	W24x55	1,498	LF			
	W24x62 (36)	347	LF			
	W24x68	252	LF			
	W24x76	459	LF			
	W24x76 (38)	30	LF			
	W24x84	87	LF			
	W24x94	32	LF			
	W27x102	26	LF			
	W27x114	38	LF			
	W27x129	73	LF			
	W27x146	119	LF			
	W27x84	478	LF			
	W30x108	196	LF			
	W30x116	63	LF			
	W30x124	73	LF			
	W30x132	106	LF			
	W30x90	205	LF			
	W30x99	66	LF			
	W33x169	41	LF			
	W36x135	50	LF			
	W6x25	25	LF			
	W8x10	1,599	LF			
	W8x18	245	LF			

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	WP1	129	LF			
	WT1	247	LF			
650	Total Weight	650	TON	$ 4,900.00	$ 3,185,000	
	Beam to Girder Shear Connection using Full Depth Stiffener Plate	56	EA	$ 1,200.00	$ 67,200	
	EP10 (Plate)	6	EA	$ 300.00	$ 1,800	
	EP8 (Plate)	9	EA	$ 300.00	$ 2,700	
	D6.5 Metal Deck	38,930	SF	$ 8.00	$ 311,440	
	RD1.5 Metal Deck	270	SF	$ 8.00	$ 2,160	
	RD3.0 Metal Deck	43,691	SF	$ 8.00	$ 349,528	
	Undefined Metal Roof Deck	4,814	SF	$ 8.00	N/A	
	WD3.0 Metal Deck	5,049	SF	$ 8.00	$ 40,392	
	Moment Connection	127	EA	$ 550.00	$ 69,850	
	Steel Roof Truss - T1	731	LF	$ 225.00	$ 164,475	
	Structural Thermal Break in Steel	26	EA	$ 600.00	$ 15,600	
	Field Engineer / layout	1	LS	$ 22,000.00	$ 22,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 4,232,145**

DIVISION 5 METALS

05 5000 Misc. Metals

					LKCO	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	2-Line Rails at Stair 2	104	LF	$ 250.00	$ 26,000	
	Aluminum Staircase at Staff Lunch & Work Elevation	1	EA	$ 10,000.00	$ 10,000	
	Exterior Wall Rails - North Elevation	11	LF	$ 275.00	$ 3,025	
	Ornamental Expanded Mesh Screen at Main Stair	116	SF	$ 500.00	$ 58,000	
	Ornamental Expanded Mesh Rail at Main Stair	62	LF	$ 500.00	$ 31,000	
	Ornamental Expanded Mesh Rail at Main Street Ramp	48	LF	$ 500.00	$ 24,000	
	Ornamental Expanded Mesh Rail at Stair 2	54	LF	$ 500.00	$ 27,000	
	Stair 2 - Treads/Risers (Count of 27)	27	EA	$ 700.00	$ 18,900	
	Main Stair - Treads/Risers (Count of 27)	27	EA	$ 700.00	$ 18,900	
	Stair Stringers	4	EA	$ 20,000.00	$ 80,000	
	Wall Rails at Ramp - Hall 100D	106	LF	$ 275.00	$ 29,150	
	Wall Rails at Ramp - Hall 1081	74	LF	$ 275.00	$ 20,350	
	Wall Rails at Ramp - Hall 129	90	LF	$ 275.00	$ 24,750	
	Wall Rails at Stair 3	66	LF	$ 275.00	$ 18,150	
	Roof Dunnage for Mep Equipment	1	LS	$ 60,000.00	$ 60,000	
	Misc. Metals Clips / Angles not yet depicted	81,302	GSF	$ 2.00	$ 162,604	
	Mock up	1	LS	$ 25,000.00	$ 25,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 636,829**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 6 WOODS AND PLASTICS						
06 1200	**Rough Carpentry**				**LKCO**	
	Scope of Work					
	Enabling					
	Rough Carpentry / Safety	81,302	GSF	$ 0.25	$ 20,326	
	Framing to Connector					
	Roof and Wall Framing	525	SF	$ 50.00	$ 26,250	
	Framing to Ramp	335	SF	$ 50.00	$ 16,750	
	Misc. Rails	1	LOC	$ 5,000.00	$ 5,000	
	Geothermal					
	Rough Carpentry / Safety	81,302	GSF	$ 0.50	$ 40,651	
	Building Demo / Abatement Phase 1					
	Rough Carpentry / Safety	81,302	GSF	$ 0.25	$ 20,326	
	Site Phase 1					
	Rough Carpentry / Safety	81,302	GSF	$ 0.75	$ 60,977	
	Addition					
	Rough Carpentry / Safety	1	LS	$ 184,000.00	$ 184,000	
	Safety Software (siteform) PLUS HIGHWIRE	1	LS	$ 21,821.00	$ 21,821	
	Erect and Maintain Trash Chutes	1	LS	$ 12,000.00	$ 12,000	
	Trash Chute Purchase (Fire Retardant)/Rental	1	LS	$ 20,000.00	$ 20,000	
	Temp Ramps at Trash Chute Locations	1	LS	$ 1,200.00	$ 1,200	
	Temp Enclosures at Trash Chute Locations	1	LS	$ 2,400.00	$ 2,400	
	Exposed Wooden Trusses at Media Center	352	LF	$ 600.00	$ 211,200	
	Building Demo / Abatement Phase 2					
	Rough Carpentry / Safety	81,302	GSF	$ 0.25	$ 20,326	
	Site Phase 2					
	Rough Carpentry / Safety	81,302	GSF	$ 0.25	$ 20,326	
					Total	**$ 683,551**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 6 WOODS AND PLASTICS						
06 4020	**Interior Architectural Millwork**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope					
	Addition					
	Kindergarten Classrooms					
	Short Cubby's (4'-4" Tall)	41	LF	$ 350.00	$ 14,350	
	Tall Cubby's (6'-10" Tall) w/ Upper Cabinets	49	LF	$ 450.00	$ 22,050	
	Solid Surface Countertop	58	SF	$ 300.00	$ 17,400	
	Base Cabinets	18	LF	$ 600.00	$ 10,800	
	Wall Cabinets	27	LF	$ 600.00	$ 16,200	
	Under Sink Cabinets (Accessible)	9	LF	$ 450.00	$ 4,050	
	Tall Cabinets	24	LF	$ 400.00	$ 9,600	
	Window Seat w/ P-Lam Shelves and Flotex Inset	23	LF	$ 350.00	$ 8,050	
	Cushion			w/ Furnishings?	w/ Furnishings?	
	Bench/Shelves	64	LF	$ 325.00	$ 20,800	

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Grade 1-5 Classrooms					
	Short Cubby's (4'-4" Tall)	40	LF	$ 350.00	$ 14,000	
	Tall Cubby's (6'-10" Tall) w/ Upper Cabinets	51	LF	$ 450.00	$ 22,950	
	Solid Surface Countertop	344	SF	$ 300.00	$ 103,200	
	Base Cabinets	123	LF	$ 600.00	$ 73,800	
	Wall Cabinets	168	LF	$ 600.00	$ 100,800	
	Under Sink Cabinets (Accessible)	60	LF	$ 450.00	$ 27,000	
	Tall Cabinets	127	LF	$ 400.00	$ 50,800	
	Window Seat w/ P-Lam Shelves and Flotex Inset Cushion	159	LF	$ 350.00 w/ Furnishings?	$ 55,650 w/ Furnishings?	
	Bench/Shelves	375	LF	$ 325.00	$ 121,875	
	ELL and Art (Rooms 132 & 134)					
	Solid Surface Countertop	43	SF	$ 300.00	$ 12,900	
	Base Cabinets	18	LF	$ 600.00	$ 10,800	
	Wall Cabinets	21	LF	$ 600.00	$ 12,600	
	Under Sink Cabinets (Accessible)	3	LF	$ 450.00	$ 1,350	
	Tall Cabinets	8	LF	$ 400.00	$ 3,200	
	STE (Room 204)					
	Solid Surface Counter	40	SF	$ 300.00	$ 12,000	
	Base Cabinets	15	LF	$ 600.00	$ 9,000	
	Wall Cabinets	15	LF	$ 600.00	$ 9,000	
	Learning Centers (Room 123 & 213)					
	Solid Surface Counter	38	SF	$ 300.00	$ 11,400	
	Base Cabinets	12	LF	$ 600.00	$ 7,200	
	Wall Cabinets	18	LF	$ 600.00	$ 10,800	
	Under Sink Cabinets (Accessible)	6	LF	$ 450.00	$ 2,700	
	Tall Cabinets	12	LF	$ 400.00	$ 4,800	
	Window Seat w/ P-Lam Shelves and Flotex Inset Cushion	16	LF	$ 350.00 w/ Furnishings?	$ 5,600 w/ Furnishings?	
	Bench/Shelves	38	LF	$ 325.00	$ 12,350	
	Therapy (Room 118 & 210)					
	Solid Surface Counter	48	SF	$ 300.00	$ 14,400	
	Base Cabinets	24	LF	$ 600.00	$ 14,400	
	Main Office/Mail (Room 104 & 104A)					
	Reception Desk	24	LF	$ 750.00	$ 18,000	
	Solid Surface Counter	38	SF	$ 300.00	$ 11,400	
	Base Cabinets	18	LF	$ 600.00	$ 10,800	
	Wall Cabinets	9	LF	$ 600.00	$ 5,400	
	Cafeteria (Room 108)					
	Solid Surface Counter	36	SF	$ 300.00	$ 10,800	
	Base Cabinets	16	LF	$ 600.00	$ 9,600	
	Banquet Seating	30	LF	$ 775.00	$ 23,250	
	Music (Room 106)					
	Solid Surface Counter	50	SF	$ 300.00	$ 15,000	
	Base Cabinets	24	LF	$ 600.00	$ 14,400	
	Tall Cabinets	18	LF	$ 400.00	$ 7,200	
	Media Center (Room ###)					
	Circulation Desk (2'-10" H)	40	LF	$ 350.00	$ 14,000	
	Fixed Shelves	26	LF	$ 250.00	$ 6,500	
	Wood Trim	296	LF	$ 25.00	$ 7,400	
	WD-1 Wood Veneer and Trim at Niche Walls	130	SF	$ 100.00	$ 13,000	
	WD-1 Shelving at Niche Walls	40	SF	$ 100.00	$ 4,000	
	Nurse's Office (Room 117)					
	Solid Surface Counter	68	SF	$ 300.00	$ 20,400	
	Base Cabinets	28	LF	$ 600.00	$ 16,800	
	Wall Cabinets	8	LF	$ 600.00	$ 4,800	
	Administration Areas (Room 201 & 201A)					
	Solid Surface Counter	60	SF	$ 300.00	$ 18,000	
	Base Cabinets	28	LF	$ 600.00	$ 16,800	
	Wall Cabinets	21	LF	$ 600.00	$ 12,600	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Wood Stairs in Corridor (1/A7.00)	45	SF	$ 450.00	$ 20,250	
	Fiberglass Reinforced Panels (FRP) (8' Height)	1,200	SF	$ 15.00	$ 18,000	
	Fiberglass Reinforced Panels (FRP) (4' Height)	1,245	SF	$ 15.00	$ 18,675	
	Built-In Display Cases (3)	15	LF	$ 500.00	$ 7,500	
	Built-In Benches (3)	45	LF	$ 225.00	$ 10,125	
	Exterior Solid Wood trim, fascia, and soffit at South Wall	160	LF	$ 100.00	$ 16,000	
	Wood Look Panel Ceiling at under side of Canopies	917	SF	w/ ACT	w/ ACT	
	General Items					
	Handrail at Stairs	1	LS	w/ Misc. Metals	w/ Misc. Metals	
	Countertop Protection	823	SF	$ 10.00	$ 8,230	
	Misc. Millwork Not Yet Depicted	81,302	GSF	$ 1.50	$ 121,953	
	Crane/Lift	1	LS	$ 10,000.00	$ 10,000	
					Total	**$ 1,338,758**

DIVISION 7 THERMAL AND MOISTURE PROTECTION

07 1000 Waterproofing, Sealants, AVB

CSI	Item Description	Quantity	Unit	Rate	LKCO	Total
	Scope of Work					
	Enabling					
	Joint Sealants - Enabling	1	LS	$ 2,000.00	$ 2,000	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	Below Slab Vapor Barrier	52,582	SF	$ 3.25	$ 170,892	
	Foundation Waterproofing	3,320	SF	$ 16.00	$ 53,120	
	Foundation Damproofing	8,113	SF	$ 10.00	$ 81,130	
	AVB at Façade	34,734	SF	$ 11.50	$ 399,441	
	Joint Sealants - Addition	81,302	GSF	$ 3.00	$ 243,906	
	Elevator Pit	1	EA	$ 8,500.00	$ 8,500	
	Mock up	350	SF	$ 11.50	$ 4,025	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 963,014**

Lee Kennedy Co. Inc.,
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PROJECT: Squantum School Addition and Renovation
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OWNER: Squantum School
ARCHITECT: Arrowstreet
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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 7 THERMAL AND MOISTURE PROTECTION						
07 4120	**Aluminum Composite Wall and Soffit Panels**				**LKCO**	
	Scope of Work					
	Enabling					
	MP-1	200	SF	$ 115.00	$ 23,000	
	Geothermal					
	No Scope	1	LS	$ 1.00	N /A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N /A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N /A	
	Addition					
	6'-6" Sunshade at South Elevation	3	EA	$ 7,800.00	$ 23,400	
	ACM Fascia - General (A3.02)	943	SF	$ 98.00	$ 92,414	
	ACM Fascia - South Elevation	194	LF	$ 98.00	$ 19,012	
	ACM Panel Cornice & Fascia at North Elevation	238	SF	$ 98.00	$ 23,324	
	Formed Aluminum Coping - North Elevation	153	LF	$ 100.00	$ 15,300	
	Formed Aluminum Coping - West Elevation	168	LF	$ 100.00	$ 16,800	
	Formed Aluminum Gable End Coping - East Elevation	85	LF	$ 100.00	$ 8,500	
	Formed Aluminum Gable End Coping - General (A3.02)	82	LF	$ 100.00	$ 8,200	
	Formed Aluminum Gable End Coping - North Elevation	42	LF	$ 100.00	$ 4,200	
	Formed Aluminum Gable End Coping - North Facade West Entry	44	LF	$ 100.00	$ 4,400	
	Formed Aluminum Gable End Coping - West Elevation	136	LF	$ 100.00	$ 13,600	
	Metal Coping at Perimeter of Gym - East Elevation	155	SF	$ 98.00	$ 15,190	
	Metal Fascia Coping - General (A3.02)	575	LF	$ 100.00	$ 57,500	
	Metal Fascia Profile above Entry - North Elevation	22	LF	$ 100.00	$ 2,200	
	Metal Fascia Profile at Top of Terracotta Wall - East Elevation	58	LF	$ 100.00	$ 5,800	
	MP-1 Metal Panel at East Elevation	16	SF	$ 110.00	$ 1,760	
	MP-1 Metal Panel at North Elevation	417	SF	$ 110.00	$ 45,870	
	MP-1 Metal Panel at North Entry East Facade	131	SF	$ 110.00	$ 14,410	
	MP-1 Metal Panel at North Entry West Facade	200	SF	$ 110.00	$ 22,000	
	MP-1 Metal Panel at South Elevation	194	SF	$ 110.00	$ 21,340	
	MP-1 Metal Panel at STE Room	380	SF	$ 110.00	$ 41,800	
	MP-1 Metal Panel at West Elevation	776	SF	$ 110.00	$ 85,360	
	MP-2 Metal Panel - General (A3.02)	1,288	SF	$ 110.00	$ 141,680	
	MP-2 Metal Panel at East Elevation	292	SF	$ 110.00	$ 32,120	
	MP-2 Metal Panel at North Elevation	332	SF	$ 110.00	$ 36,520	
	MP-3 Metal Panel - General (A3.02)	368	SF	$ 110.00	$ 40,480	
	Preformed Aluminum Parapet Coping - East Elevation	58	LF	$ 275.00	$ 15,950	
	WD-1 Wood Look Rainscreen System - East Elevation	205	SF	$ 135.00	$ 27,675	
	WD-1 Wood Look Rainscreen System - General (A3.02)	779	SF	$ 135.00	$ 105,165	
	WD-1 Wood Look Rainscreen System - South Elevation	351	SF	$ 135.00	$ 47,385	
	Wood Look Panel Ceiling at Underside of Canopy at Entry - North Elevation	168	SF	$ 135.00	$ 22,680	
	Mock up	50	SF	$ 110.00	$ 5,500	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N /A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N /A	
					Total	**$ 1,040,535**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 7 THERMAL AND MOISTURE PROTECTION						
07 4250	**Terra Cotta Rainscreen Cladding**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	TC-1 - Terracotta Shingle Rainscreen System - East Elevation	2,557	SF	$ 100.00	$ 255,700	
	TC-1 - Terracotta Shingle Rainscreen System - General (A3.02)	1,095	SF	$ 100.00	$ 109,500	
	TC-1 - Terracotta Shingle Rainscreen System - General (A3.02)	1,845	SF	$ 100.00	$ 184,500	
	TC-1 - Terracotta Shingle Rainscreen System - Music Room North Jog	121	SF	$ 100.00	$ 12,100	
	TC-1 - Terracotta Shingle Rainscreen System - North Elevation	2,768	SF	$ 100.00	$ 276,800	
	TC-1 - Terracotta Shingle Rainscreen System - North Entry East Facade	149	SF	$ 100.00	$ 14,900	
	TC-1 - Terracotta Shingle Rainscreen System - North Entry West Facade	328	SF	$ 100.00	$ 32,800	
	TC-1 - Terracotta Shingle Rainscreen System - South Elevation	1,563	SF	$ 100.00	$ 156,300	
	TC-1 - Terracotta Shingle Rainscreen System - West Elevation	2,144	SF	$ 100.00	$ 214,400	
	Mock up	250	SF	$ 100.00	$ 25,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 1,282,000**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 7 THERMAL AND MOISTURE PROTECTION						
07 5423	**Thermoplastic-Polyolfen (TPO) Roofing**				**LKCO**	
	Scope of Work					
	Enabling					
	Enabling					
	PVC Membrane Roof at Mechanical Building	105	SF	$ 40.00	$ 4,200	
	PVC Membrane Roof at Connector	595	SF	$ 40.00	$ 23,800	
	Addition					
	Thermoplastic Membrane Roofing					
	Adhered membrane-roofing system					
	ERA-1 PVC Flat Roofing	27,725	SF	$ 38.00	$ 1,053,550	
	Spray foam under roof deck	27,725	SF		w / Drywall	
	ERA-1A	8,018	SF	$ 38.00	$ 304,684	
	Spray foam under roof deck				N/A	
	ERA-1C	105	SF	$ 38.00	$ 3,990	
	Cover board over insulation	63,573	SF	Included above	Included above	
	Roof Insulation	63,573	SF	Included above	Included above	
	Substrate Board	63,573	SF	Included above	Included above	
	Vapor retarder	63,573	SF	Included above	Included above	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Shingle Roofing					
	ERA-2 Sloped Shingle Roofing	3,123	SF	$ 30.00	$ 93,690	
	ERA-2 Sloped Shingle Roofing (10"/1')	891	SF	$ 30.00	$ 26,730	
	ERA-2 Sloped Shingle Roofing (1'2"/1')	14,103	SF	$ 30.00	$ 423,090	
	ERA-2 Sloped Shingle Roofing (3"/1')	1,052	SF	$ 30.00	$ 31,560	
	ERA-3 Sloped Slate Roof	353	SF	$ 100.00	$ 35,300	
	ERA-3 Sloped Slate Roof	3,640	SF	$ 100.00	$ 364,000	
	ERA-3 Sloped Slate Roof	264	SF	$ 100.00	$ 26,400	
	ERA-3 Sloped Slate Roof	272	SF	$ 100.00	$ 27,200	
	Membrane clad metal flashing	1	LS	w/ Div 5	w/ Div 5	
	Flashing for equipment mounted on roofing and roofing penetrations	1	AL	$ 10,000.00	$ 10,000.00	
	Parapet Coping	1	LS	w/ Div 5	w/ Div 5	
	Install Only					
	Roof drains	18	EA	w/ Plumbing?	w/ Plumbing?	
	Roof Pavers at Level 2	190	SF	$ 70.00	$ 13,300	
	Roof Specialties and Accessories	1	AL	$ 50,000.00	$ 50,000	
	Access Ladder	2	EA	$ 10,000.00	$ 20,000	
	Walkway Pads	3,309	SF	$ 10.00	$ 33,090	
	Snowguards	1,031	LF	$ 25.00	$ 25,775.00	
	Gutters	1,033	LF	$ 85.00	$ 87,805.00	
	General Items					
	Misc. Patching / MEP Tie Ins	4	CD	$ 2,750.00	$ 11,000	
	Hoisting / Rigging	1	LS	$ 25,000.00	$ 25,000	
	Solar Ready Roof Zones	39,421	SF	$ 1.75	No Scope	
	Temp Fall Protection	1	LS	$ 25,000.00	$ 25,000	
	Roof Protection	1	LS	$ 10,000.00	$ 10,000	
	Mock up	315	SF	$ 30.00	$ 9,450	
					Total	**$ 2,738,614**

DIVISION 7 THERMAL AND MOISTURE PROTECTION 07 8100 Sprayed Fire-Resistive Materials					LKCO	
Scope of Work						
Enabling						
No Scope	1	LS	$ 1.00		N/A	
Geothermal						
No Scope	1	LS	$ 1.00		N/A	
Building Demo / Abatement Phase 1						
No Scope	1	LS	$ 1.00		N/A	
Site Phase 1						
No Scope	1	LS	$ 1.00		N/A	
Addition						
Spray Fireproofing	1	AL	$ 50,000.00	$	50,000	
Intumescent Paint at Beams	382	LF	$ 40.00	$	15,280	
Intumescent Paint at Columns	20	EA	$ 1,000.00	$	20,000	
Building Demo / Abatement Phase 2						
No Scope	1	LS	$ 1.00		N/A	
Site Phase 2						
No Scope	1	LS	$ 1.00		N/A	
					Total	**$ 85,280**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 7 THERMAL AND MOISTURE PROTECTION						
07 8413	**Firestops and Smokeseals**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	Firestops and Smokeseals - Addition	81,302	GSF	$ 1.25	$ 101,628	
	Premium for additional PHIUS Requirements	81,302	GSF	$ 1.00	$ 81,302	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 182,930**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 7 THERMAL AND MOISTURE PROTECTION						
07 9500	**Expansion Control**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	2nd Floor / Low Roof Structural Expansion Joints	26	LF	$ 150.00	$ 3,900	
	High Roof Expansion Joint	7	LF	$ 150.00	$ 1,050	
	Low Roof Expansion Joint	7	LF	$ 150.00	$ 1,050	
	Vertical Expansion Joint - 1919 Facade - South	11	LF	$ 125.00	$ 1,375	
	Vertical Expansion Joint - Courtyard Elevation - West	7	LF	$ 125.00	$ 875	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 8,250**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 8 OPENINGS						
08 1113	**Doors, Frames, and Hardware**				**LKCO**	
	Scope of Work					
	Enabling					
	Hollow Metal Doors and Frames					
	3' x 7' Hollow Metal Frame	15	EA	$ 450.00	$ 6,750	
	3' x 7' Hollow Metal Door	13	EA	$ 550.00	$ 7,150	
	3' x 7' Hollow Metal Door - 90 Minute Rating	2	EA	$ 550.00	$ 1,100	
	Door Hardware	15	EA	$ 1,400.00	$ 21,000	
	Geothermal					
	No Scope	1	LS	$ -		N/A
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ -		N/A
	Site Phase 1					
	No Scope	1	LS	$ -		N/A
	Addition					
	Hollow Metal Doors and Frames					
	Hollow Metal Frames					
	Frame Type 1 - 3' x 7' - Hollow Metal - Painted	92	EA	$ 450.00	$ 41,400	
	Frame Type 2 - 3' x 7' - Hollow Metal - Painted	19	EA	$ 450.00	$ 8,550	
	Frame Type 2 - 3' x 7' - Hollow Metal - Painted (45 min Fire Rated)	2	EA	$ 500.00	$ 1,000	
	Frame Type 2 - 3' x 7' - Hollow Metal - Painted (60 min Fire Rated)	2	EA	$ 600.00	$ 1,200	
	Frame Type 2 - 3' x 7' - Hollow Metal - Painted (90 min Fire Rated)	1	EA	$ 700.00	$ 700	
	Frame - 3' x 8' - Hollow Metal - Painted	2	EA	$ 450.00	$ 900	
	Frame - 6'10" x 7' - Hollow Metal - Painted	1	EA	$ 750.00	$ 750	
	Frame Type 1 - Hollow Metal - Painted (45 min Fire Rated)	4	EA	$ 500.00	$ 2,000	
	Frame Type 1 - Hollow Metal - Painted (90 min Fire Rated)	2	EA	$ 700.00	$ 1,400	
	Hollow Metal Doors					
	Type F - 3' x 7' - Hollow Metal - CLR	9	EA	$ 550.00	$ 4,950	
	Type F - 3' x 7' - Hollow Metal - Painted	2	EA	$ 550.00	$ 1,100	
	Type F - 3' x 7' - Hollow Metal - Painted (45 min Fire Rated)	3	EA	$ 500.00	$ 1,500	
	Type F - 3' x 7' - Hollow Metal - Painted (90 min Fire Rated)	46	EA	$ 700.00	$ 32,200	
	Type G - 3' x 7' - Hollow Metal - Painted	45	EA	$ 550.00	$ 24,750	
	Type N - 3' x 7' - Hollow Metal - Painted	1	EA	$ 550.00	$ 550	
	Flush Wood Doors					
	Type G - 3' x 7' - Wood Door CLR	4	EA	$ 450.00	$ 1,800	
	Type G2 - 3' x 7' - Wood Door CLR	2	EA	$ 450.00	$ 900	
	Type G2 - 3' x 7- Wood Door CLR (60 min Fire Rated)	3	EA	$ 600.00	$ 1,800	
	Type G2 - 3' x 8' - Wood Door CLR	1	EA	$ 450.00	$ 450	
	Type G2 - 3' x 8' - Wood Door CLR - 45 min rated	1	EA	$ 500.00	$ 500	
	Type F - 3' x 7' - Wood Door CLR	2	EA	$ 450.00	$ 900	
	Type F - 3' x 7' - Wood Door CLR (45 min Fire Rated)	1	EA	$ 500.00	$ 500	
	Type SFW - 3' x 8' - Wood Door CLR	1	EA		$ -	
	Type N - 3' x 7' - Wood Door CLR	1	EA	$ 450.00	$ 450	
	Type N - 3' x 8' - Wood Door CLR (45 min Fire Rated)	1	EA	$ 500.00	$ 500	
	Door - 6'10" x 7' - Wood Door CLR	1	EA	$ 750.00	$ 750	
	Door - 6'8" x 8' - Wood Door w/ glass CLR	11	EA	$ 1,200.00	$ 13,200	
	Aluminum Frames					
	Frame - ALUM - 3' x 7'	1	EA	$ 750.00	$ 750	
	Frame - ALUM - 3' x 8'	11	EA	$ 800.00	$ 8,800	
	Frame Type 3 - 5'4" x 8'4" - ALUM (45 min Fire Rated)	1	EA	$ 900.00	$ 900	
	Frame Type 3 - 6'4" x 8'4" - ALUM (45 min Fire Rated)	1	EA	$ 900.00	$ 900	
	Misc. Doors and Frames					
	Frame Type 1 - 3' x 7'	31	EA	$ 450.00	$ 13,950	
	Frame Type 1 - 3' x 7' - Fire Rated (45 min)	2	EA	$ 500.00	$ 1,000	
	Frame Type 1 - 3' x 7' - Fire Rated (90 min)	1	EA	$ 700.00	$ 700	
	Frame Type 2 n- 3' x 7'	3	EA	$ 450.00	$ 1,350	

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Type F - 3' x 7'	2	EA	$ 500.00	$ 1,000	
	Type F - 3' x 7' (45 min Fire Rated)	1	EA	$ 500.00	$ 500	
	Type F - 3' x 7' (90 min Fire Rated)	1	EA	$ 700.00	$ 700	
	Type G - 3' x 7'	1	EA	$ 500.00	$ 500	
	Type SFW - 3' x 8'	5	EA	$ 500.00	$ 2,500	
	Door Hardware	181	EA	$ 1,400.00	$ 253,400	
	Fire Shutter	1	LOC	$ 30,000.00	$ 30,000	
	Coiling Door at Servery	1	LOC	$ 10,000.00	$ 10,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ -	N/A	
	Site Phase 2					
	No Scope	1	LS	$ -	N/A	
					Total	**$ 507,650**

DIVISION 8 OPENINGS

08 3113 Access Doors — **LKCO**

Scope of Work					
Enabling					
No Scope	1	LS	$ 1.00	N/A	
Geothermal					
No Scope	1	LS	$ 1.00	N/A	
Building Demo / Abatement Phase 1					
No Scope	1	LS	$ 1.00	N/A	
Site Phase 1					
No Scope	1	LS	$ 1.00	N/A	
Addition					
Scope Detail	81,302	LS	$ 1.00	$ 81,302	
Building Demo / Abatement Phase 2					
No Scope	1	LS	$ 1.00	N/A	
Site Phase 2					
No Scope	1	LS	$ 1.00	N/A	
				Total	**$ 81,302**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 8 OPENINGS						
08 4413	**Glazed Aluminum Curtain Walls**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	CW at Courtyard Elevation East	329	SF	$ 195.00	$ 64,155	
	CW at Courtyard Elevation South	917	SF	$ 195.00	$ 178,815	
	CW at East Elevation	80	SF	$ 195.00	$ 15,600	
	CW at East Elevation (14'-2"W x 2'-5"H)	38	SF	$ 195.00	$ 7,410	
	CW-1 at North Elevation (7'-6"W x 8'-8"H) - qty=2	131	SF	$ 195.00	$ 25,594	
	CW-1 at South Elevation (7'-6"W x 8'-8"H) - qty=2	131	SF	$ 195.00	$ 25,594	
	CW-1 at West Elevation (7'-6"W x 8'-8"H) - qty=4	263	SF	$ 195.00	$ 51,188	
	CW-10 at North Elevation	128	SF	$ 195.00	$ 24,960	
	CW-11 at Cafeteria South	43	SF	$ 195.00	$ 8,385	
	CW-12 at Cafeteria South	66	SF	$ 195.00	$ 12,870	
	CW-12 at North Elevation (5'-8"W x 7'-6"H) - qty=5	216	SF	$ 195.00	$ 42,047	
	CW-12 at North Wall of Cafeteria	65	SF	$ 195.00	$ 12,675	
	CW-13 at Courtyard Elevation East	76	SF	$ 195.00	$ 14,820	
	CW-13 at North Elevation (3'-4"W x 7'-6"H) - qty=6	150	SF	$ 195.00	$ 29,221	
	CW-14 at North Elevation	80	SF	$ 195.00	$ 15,600	
	CW-2 at South Elevation	178	SF	$ 195.00	$ 34,710	
	CW-21 at Courtyard Elevation North	147	SF	$ 195.00	$ 28,665	
	CW-22 at Courtyard Elevation East	72	SF	$ 195.00	$ 14,040	
	CW-3 at South Elevation (6'-0"W x 8'-9"H) - qty=1	59	SF	$ 195.00	$ 11,408	
	CW-4 at South Elevation	141	SF	$ 195.00	$ 27,495	
	CW-5 at South Elevation (Thermally Broken)	196	SF	$ 195.00	$ 38,220	
	CW-6 at South Elevation (3'-6"W x 7'-0"H) - qty=3	25	SF	$ 195.00	$ 4,914	
	CW-7 at North Elevation	274	SF	$ 195.00	$ 53,430	
	CW-8 at North Elevation	71	SF	$ 195.00	$ 13,845	
	CW-8 at STE Elevation	229	SF	$ 195.00	$ 44,655	
	CW-9 at East Elevation	386	SF	$ 195.00	$ 75,270	
	SG5 School Guard Glass (A2.22B)					
	Vestibule 100A	105	SF	$ 295.00	$ 30,975	
	Vestibule 100B	75	SF	$ 295.00	$ 22,125	
	Vestibule 100C	60	SF	$ 295.00	$ 17,700	
	Mock up	100	SF	$ 195.00	$ 19,500	
	Glass Cleaning	1	LS	$ 17,500.00	$ 17,500	
	Aluminum Doors					
	Door - 5'4" x 8'4" ALUM (45 min Fire Rated)	1	EA	$ 11,500.00	$ 11,500	
	Door - 6'4" x 8'6" ALUM (45 min Fire Rated)	1	EA	$ 11,500.00	$ 11,500	
	Type SFM - 3' x 8' ALUM	2	EA	$ 10,000.00	$ 20,000	
	Type SFN - 3' x 7' ALUM	3	EA	$ 10,000.00	$ 30,000	
	Type SFW - 3' x 7' ALUM	4	EA	$ 10,000.00	$ 40,000	
	Type SFW - 3' x 8' ALUM	2	EA	$ 10,000.00	$ 20,000	
	Type FP - 9'6" x 11'5" ALUM	24	EA	$ 11,500.00	$ 276,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 1,392,384**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 8 OPENINGS						
08 5113	**Aluminum Windows**				**LKCO**	
	Scope of Work					
	Enabling					
	New Operable Windows at 1971 Bldg	2	EA	$ 1,500.00	$ 3,000	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	New Transom Window Over Entry Door at Courtyard Elevation West	6	SF	$ 100.00	$ 600	
	New Transom Window Over Main Entry Door @ 1919 Facade - South	22	SF	$ 100.00	$ 2,200	
144	New Triple Glazed Windows @ 1919 E&W Elevation (3'-8" W x 5'-9"H)	6	EA	$ 3,557.81	$ 21,347	
126	W1 - Window at Courtyard Elevation North (6'-5-1/4"W x 9'-0"H)	2	EA	$ 9,652.50	$ 19,305	
126	W1 - Window at Elevation 6-a (6'-5-1/4"W x 9'-0"H)	2	EA	$ 9,652.50	$ 19,305	
504	W1 - Window at North Elevation (6'-5-1/4"W x 9'-0"H)	8	EA	$ 9,652.50	$ 77,220	
315	W1 - Window at West Elevation (6'-5-1/4"W x 9'-0"H)	5	EA	$ 9,652.50	$ 48,263	
377.00	W10 - Window at Courtyard Elevation North (3'-4"W x 7'-4"H)	16	EA	$ 4,331.25	$ 69,300	
94.25	W10 - Window at Courtyard Elevation West (3'-4"W x 7'-4"H)	4	EA	$ 4,331.25	$ 17,325	
70.69	W10 - Window at East Elevation (3'-4"W x 7'-4"H)	3	EA	$ 4,331.25	$ 12,994	
353.44	W10 - Window at North Elevation (3'-4"W x 7'-4"H)	15	EA	$ 4,331.25	$ 64,969	
329.88	W10 - Window at West Elevation (3'-4"W x 7'-4"H)	14	EA	$ 4,331.25	$ 60,638	
24.38	W12 - Window at Courtyard Elevation West (3'-4"W x 7'-6"H)	1	EA	$ 4,331.25	$ 4,331	
292.50	W15 - New Triple Glazed Windows @ 1919 South Elevation (3'-8" W x 8'-6"H)	10	EA	$ 5,259.38	$ 52,594	
174.00	W2 - Window at Courtyard Elevation North (5'-8"W x 7'-4"H)	4	EA	$ 7,115.63	$ 28,463	
174.00	W2 - Window at Courtyard Elevation West (5'-8"W x 7'-4"H)	4	EA	$ 7,115.63	$ 28,463	
348.00	W2 - Window at North Elevation (5'-8"W x 7'-4"H)	8	EA	$ 7,115.63	$ 56,925	
174.00	W2 - Window at West Elevation (5'-8"W x 7'-4"H)	4	EA	$ 7,115.63	$ 28,463	
130.50	W4 - Window at South Elevation (5'-0"W x 7'-0"H)	3	EA	$ 5,775.00	$ 17,325	
78.60	W5 - Window at South Elevation (5'-0"W x 4'-4"H)	3	EA	$ 3,712.50	$ 11,138	
115.50	W6 - Window at East Elevation (5'-6"W x 6'-9"H)	3	EA	$ 6,125.63	$ 18,377	
120	W7 - Window at Staff Lunch & Work Elevation (5'-0"W x 8'-0"H)	3	EA	$ 6,600.00	$ 19,800	
72.50	W8 - Window w/Single Lower Hopper at Courtyard Elev North (5'-8"W x 7'-4"H)	2	EA	$ 7,115.63	$ 14,231	
72.50	W8 - Window w/Single Lower Hopper at Courtyard Elev West (5'-8"W x 7'-4"H)	2	EA	$ 7,115.63	$ 14,231	
145.00	W8 - Window w/Single Lower Hopper at North Elevation (5'-8"W x 7'-4"H)	4	EA	$ 7,115.63	$ 28,463	
145.00	W8 - Window w/Single Lower Hopper at West Elevation (5'-8"W x 7'-4"H)	4	EA	$ 7,115.63	$ 28,463	
72.50	W9 - Window w/Single Lower Hopper at Courtyard Elev North (5'-8"W x 7'-4"H)	2	EA	$ 7,115.63	$ 14,231	
36.25	W9 - Window w/Single Lower Hopper at Courtyard Elev West (5'-8"W x 7'-4"H)	1	EA	$ 7,115.63	$ 7,116	
145.00	W9 - Window w/Single Lower Hopper at North Elevation (5'-8"W x 7'-4"H)	4	EA	$ 7,115.63	$ 28,463	
145.00	W9 - Window w/Single Lower Hopper at West Elevation (5'-8"W x 7'-4"H)	4	EA	$ 7,115.63	$ 28,463	
	Mock up	50	SF	$ 165.00	$ 8,250	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 854,251**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 8 OPENINGS						
08 6300	**Metal Framed Skylights**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ -**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 8 OPENINGS						
08 8000	**Glass and Glazing**				**LKCO**	
	Scope of Work					
	Enabling					
	Doors and Frames Tempered Glass	N/A	N/A	N/A	N/A	
	Addition					
	Doors and Frames Tempered Glass (1/4")					
	Door Type G (61 EA)	305	SF	$ 55.00	$ 16,775	
	Door Type G2 (9 EA)	90	SF	$ 55.00	$ 4,950	
	Door Type N (3 EA)	5	SF	$ 55.00	$ 275	
	Door Type SF (17 EA)	187	SF	$ 55.00	$ 10,285	
	Tempered Glass Sidelites (1/4") (41 EA)	410	SF	$ 60.00	$ 24,600	
	Glazing at Grade 5 Breakout Space (9/8.03)	115	SF	$ 55.00	$ 6,325	
		40	SF	$ 250.00	$ 10,000	
	Side Folding Glass Door	1	LOC	$ 30,000.00	$ 30,000	
	Glazing at Cafeteria Storefront	430	SF	$ 135.00	$ 58,050	
	Glazing at Media Center Storefront	435	SF	$ 135.00	$ 58,725	
	Glazing at Main Office Storefront	55	SF	$ 135.00	$ 7,425	
					Total	**$ 227,410**

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DIVISION 8 OPENINGS						
08 9000	**Louvers**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	Louver - West Elevation	1	EA	$ 2,000.00	$ 2,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 2,000**
DIVISION 9 FINISHES						
09 2900	**Gypsum Drywall**				**LKCO**	
	Scope of Work					
	Enabling					
	Exterior Wall Assemblies					
	EWA-1A	1,627	SF	$ 16.00	$ 26,032	
	EWA-1B	212	SF	$ 16.00	$ 3,392	
	EWA-2A	94	SF	$ 16.00	$ 1,504	
	6WA-1A	213	SF	$ 16.00	$ 3,408	
	Shaftwall to Inside face of existing windows	2	LOC	$ 7,000.00	$ 14,000	
	Interior Wall Assemblies					
	S-4	230	SF	$ 22.00	$ 5,060	
	S-4.A	2,297	SF	$ 22.00	$ 50,534	
	Addition					
	Interior Assemblies					
	Chase Partitions					
	WT - CH4/11 : 3 5/8" studs, 1 layer of GWB, 19.5" Assembly width, Sound	487	SF	$ 24.00	$ 11,688	
	WT - CH4/2 : 3 5/8" studs, 1 layer of GWB, 10.5" Assembly width, Sound	2,182	SF	$ 24.00	$ 52,368	
	WT - CH4/6 : 3 5/8" studs, 1 layer of GWB, varying Assembly width,	6,793	SF	$ 24.00	$ 163,032	
	WT - CH4/9.2A : 3 5/8" studs, 2 layers of GWB, 18.75" Assembly width, 2	12,439	SF	$ 26.00	$ 323,414	
	Furred Partitions					
	WT - F1 : 7/8" studs, 1 layer of GWB, 1.5" Assembly width, Sound	550	SF	$ 16.00	$ 8,800	
	WT - F2 : 2" studs, 1 layer of GWB, 2.25" Assembly width, Sound	337	SF	$ 16.00	$ 5,392	
	WT - F3 : 2 1/2" studs, 1 layer of GWB, 3.125" Assembly width, Sound	1,401	SF	$ 16.00	$ 22,416	
	WT - F4 : 3 5/8" studs, 1 layer of GWB, 4.25" Assembly width, Sound	19,799	SF	$ 16.00	$ 316,784	
	WT - F6 : 6" studs, 1 layer of GWB, 6.625" Assembly width, Sound	286	SF	$ 16.00	$ 4,576	

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Metal Stud and Gypsum Wall Board Partitions					
	WT - S4 : 3 5/8" studs, 1 layers of GWB, 4 7/8" Assembly width, Sound	7,666	SF	$ 20.00	$ 153,320	
	WT - S4.1.A : 3 5/8" studs, 2 layers of GWB, 5.5" Assembly width, STC	2,985	SF	$ 20.00	$ 59,700	
	WT - S4.2.A : 3 5/8" studs, 2 layers of GWB, 6 1/8" Assembly width,	4,942	SF	$ 20.00	$ 98,840	
	WT - S4.2.R2 : 3 5/8" studs, 2 layers of GWB, 6 1/8" Assembly width, 2	1,490	SF	$ 20.00	$ 29,800	
	WT - S4.A : 3 5/8" studs, 1 layers of GWB, 4 7/8" Assembly width, STC	1,382	SF	$ 20.00	$ 27,640	
	WT - S6 : 6" studs, 1 layers of GWB, 7 1/4" Assembly width, Sound	4,640	SF	$ 20.00	$ 92,800	
	WT - S6.1.A : 6" studs, 2 layers of GWB, 7 7/8" Assembly width, STC 45,	3,675	SF	$ 20.00	$ 73,500	
	WT - S6.2.A : 6" studs, 2 layers of GWB, 8.5" Assembly width, STC 50,	14,639	SF	$ 20.00	$ 292,780	
	WT - S6.R1 : 6" studs, 2 layers of GWB, 7 1/4" Assembly width, 2 Hour	2,086	SF	$ 20.00	$ 41,720	
	WT - S8 : 8" studs, 2 layers of GWB, 9 1/4" Assembly width, Sound	1,965	SF	$ 20.00	$ 39,300	
	WT - S8.2.A : 8" studs, 2 layers of GWB, 10.5" Assembly width, STC 50,	240	SF	$ 20.00	$ 4,800	
	Exterior Assemblies (GWB)					
	EWT-EWA-1 (Existing Brick Wall)	2,200	SF	$ 40.00	$ 88,000	
	EWT- EWA-2A (Face Brick, Metal Stud Backup)	9,250	SF	$ 40.00	$ 370,000	
	EWT- EWA-3A (Wood Look Rainscreen, Metal Stud Backup)	3,100	SF	$ 40.00	$ 124,000	
	EWT- EWA-3B.B (Composite Metal Panel, Metal Stud Backup)	2,450	SF	$ 40.00	$ 98,000	
	EWT- EWA-3C (Composite Metal Panel, Metal Stud Backup)	2,025	SF	$ 40.00	$ 81,000	
	EWT- EWA-4A (Terracotta, Metal Stud Backup)	10,981	SF	$ 40.00	$ 439,240	
	Ceilings					
	Gypsum Board Ceilings	10,884	SF	$ 18.00	$ 195,912	
	Installation of access panels	1	LS	$ 10,000.00	$ 10,000	
	Misc.					
	Door/Frame Installation	124	EA	$ 625.00	$ 77,500	
	Wall Tile Backer Board	-	SF		w / Above	
	Spray Cellulose Insulation at ERA-1 - 10"	27,725	SF	$ 24.00	$ 665,400	
	Spray Cellulose Insulation at ERA-2 - 7.5"	19,169	SF	$ 18.00	$ 345,042	
	Mock up	350	SF	$ 40.00	$ 14,000	
	General Items					
	Misc. Patch and Repair	25	MD	$ 1,500.00	$ 37,500	
	Enhanced Building Insulation / Caulking PHIUS Requirements	81,302	GSF	$ 2.50	$ 203,255	
	Roof Blocking	24,356	SF	$ 4.00	$ 97,424	
	In Wall Blocking	119,990	SF	$ 0.75	$ 89,993	
	Field Engineer / layout	1	LS	$ 30,000.00	$ 30,000	
	Progress Cleaning - Laborer #2	1	LS	$ 255,686.00	$ 255,686	
	Progress Cleaning - Laborer #3	1	LS	$ 212,257.00	$ 212,257	
					Total	**$ 5,360,809**

DIVISION 9 FINISHES
09 3000 Tile

LKCO

Scope of Work					
Addition					
Tile					
Wall Tile and Base					
WTL-01	530	SF	$ 30.00	$ 15,900	
WTL-02/WTL-03	4,175	SF	$ 30.00	$ 125,250	
Floor Tile and Base					
FTL-01 Porcelain Floor Tile	3,000	SF	$ 48.00	$ 144,000	
General Items					
Stone Thresholds					
Floor Prep	3,000	SF	$ 8.00	$ 24,000	
Waterproofing	3,000	SF	$ 6.75	$ 20,250	
Final Cleaning	1	LS	$ 4,100.00	w / GRs	
				Total	**$ 329,400**

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 9 FINISHES						
09 5113	**Acoustical Panel Ceilings**				**LKCO**	
	Scope of Work					
	Enabling					
	Acoustical Ceilings					
	Acoustical ceiling tiles and panels repair as needed	1,500	SF	$ 10.00	$ 15,000	
	Addition					
	Acoustical Ceilings					
	Acoustical ceiling tiles and panels					
	ACT-1 - Armstrong, Ultima No. 1912 and Suprafine XL grid	31,623	SF	$ 8.75	$ 276,701	
	ACT-2 - Armstrong, Ultima Health Zone Panel, No. 1935	5,794	SF	$ 10.00	$ 57,940	
	ACT Ceiling Clouds	1,186	SF	$ 35.00	$ 41,510	
	Acoustical Ceiling Trim at Clouds	258	LF	$ 55.00	$ 14,190	
	Ceiling Baffles					
	CLG-02 - Suspended Wood Look Ceiling Baffles - Soundscapes	753	LF	$ 55.00	$ 41,415	
	CLG-03 - Wood Look Ceiling Grille	2,208	SF	$ 35.00	$ 77,280	
	Wood Paneled Soffit At Vestibules	1,133	SF	$ 85.00	$ 96,305	
	General Items					
	Misc. Patch and Repair	10	MD	$ 1,200.00	$ 12,000	
	Final Cleaning	1	LS	$ 12,300.00	w / GRs	
					Total	**$ 632,341**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 9 FINISHES						
09 6400	**Wood Flooring**				**LKCO**	
	Scope of Work					
	Addition					
	Wood Athletic Flooring					
	WDF-01 Wood Athletic Flooring	6,014	SF	$ 25.00	$ 150,350	
	WDF-02 Wood Platform Floor	829	SF	$ 25.00	$ 20,725	
	WDF-03 Wood Stair and Tread Risers at Cafeteria	100	SF	$ 100.00	$ 10,000	
	Floor Prep	6,014	SF	$ 10.00	$ 60,140	
	General Items					
	Final Cleaning	1	LS	$ 4,100.00	w / GRs	
					Total	**$ 241,215**

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 9 FINISHES						
09 6516	**Resilient Flooring and Base**				**LKCO**	
	Scope of Work					
	Enabling					
	Patch and Repair Resilient Flooring at demolished wall	1	LS	$ 5,000.00	$ 5,000	
	Resilient Wall Base	375	LF	$ 4.00	$ 1,500	
	Addition					
	Resilient Flooring - (B.O.D) Forbo; Marmoleum Sheet Flooring					
	RF-01 - Resilient Floor Typical	34,651	SF	$ 8.00	$ 277,208	
	RF-02 - Resilient Tile Floor - Accent	308	SF	$ 8.00	$ 2,464	
	RF-04 - Resilient Floor - Accent	847	SF	$ 8.00	$ 6,776	
	RF-05 - Resilient Floor - Accent	1,194	SF	$ 8.00	$ 9,552	
	RF-06 - Resilient Floor - Accent	1,301	SF	$ 8.00	$ 10,408	
	RF-07 - Resilient Floor - Accent	1,408	SF	$ 8.00	$ 11,264	
	RF-08 - Resilient Floor - Accent	1,387	SF	$ 8.00	$ 11,096	
	RF-09 - Resilient Floor - Accent	1,628	SF	$ 8.00	$ 13,024	
	Resilient wall base and accessories					
	Wall Base	8,701	LF	$ 4.00	$ 34,804	
	Resilient Stair accessories					
	Treads and Risers	72	EA	$ 750.00	$ 54,000	
	Landings	585	SF	$ 10.00	$ 5,850	
	Static Control Resilient Flooring - Armstong World Industries; Excelon SDT					
	RF-03 - Electro Static Discharge Flooring	211	SF	$ 25.00	$ 5,275	
	Epoxy Flooring - Dur-A-Flex, Accelera HB					
	EP-01 Epoxy Flooring	3,291	SF	$ 14.75	$ 48,542	
	General Items					
	Resilient Floor Prep	42,724	SF	$ 4.25	$ 181,577	
	Moisture Mitigation		SF			
	Transition Strips	325	LF	$ 10.00	$ 3,250	
	Final Cleaning	1	LS	$ 24,600.00	w / GRs	
					Total	**$ 681,590**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 9 FINISHES						
09 6813	**Carpet Flooring**				**LKCO**	
	Scope of Work					
	Enabling					
	New Carpet at reconfigured classrooms	3,000	SF	$ 7.50	$ 22,500	
	Carpet Floor Prep	3,000	SF	$ 4.00	$ 12,000	
	Addition					
	Carpeting					
	CPT-01 - Carpet Tile	1,399	SF	$ 6.00	$ 8,394	
	CPT-03 - Broadloom	1,966	SF	$ 9.00	$ 17,694	
	CPT-03A - Broadloom	297	SF	$ 9.00	$ 2,673	
	Rubber Base	8,701	LF	$ 4.00	w/ Resilient	
	Entrance Grilles and Floor Mats					
	Entrance Grille	375	SF	$ 95.00	$ 35,625	
	General Items					
	Carpet Floor Prep	3,662	SF	$ 4.25	$ 15,564	
	Misc. Patch and Repair	5	MD	$ 1,200.00	$ 6,000	
	Final Cleaning	1	LS	$ 4,100.00	w / GRs	
					Total	**$ 120,450**

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DIVISION 9 FINISHES						
09 6900	**Terrazzo Flooring**				**LKCO**	
	Scope of Work					
	Addition					
	Terrazzo Flooring - (B.O.D) EnviroGLAS (3/8")					
	TZ-01 Terrazzo Flooring	3,457	SF	$ 55.00	$ 190,135	
	TZ-02 Terrazzo Flooring	1,018	SF	$ 55.00	$ 55,990	
	Thin-set Epoxy Terrazzo Base	600	LF	$ 40.00	$ 24,000	
	General Items					
	Moisture Testing/ Crack suppression membrane	4,475	SF	$ 9.50	w / SF Unit Rate above	
	Final Cleaning	1	LS	$ 12,300.00	w / GRs	
					Total	**$ 270,125**
DIVISION 9 FINISHES						
09 7723	**Acoustical Wall Panels**				**LKCO**	
	Scope of Work					
	Addition					
	Acoustic Wall Panels					
	AWP-1 Recycled Wood Fiber and Cementitious Acoustical Panel					
	Basis of Design: Armstrong; Tectum Direct Attached					
	Gym 115 - AWP-01	1,188	SF	$ 35.00	$ 41,580	
	ELL 132 - AWP-01	185	SF	$ 35.00	$ 6,475	
	Cafeteria 108 - AWP-01	300	SF	$ 35.00	$ 10,500	
	STE 204 - AWP-01	61	SF	$ 35.00	$ 2,135	
	AWP-2 Fabric Wrapped Glass Fiber Board Core Acoustical Panel (B.O.D TBD)					
	Therapy Room 118 - AWP-02	93	SF	$ 45.00	$ 4,185	
	Cares 119 - AWP-02	133	SF	$ 45.00	$ 5,985	
	Therapy Room 129 - AWP-02	93	SF	$ 45.00	$ 4,185	
	Media Center 101 - AWP-02	250	SF	$ 45.00	$ 11,250	
	Literacy Room 1-3 - AWP-02	40	SF	$ 45.00	$ 1,800	
	Music 106 - AWP-02	347	SF	$ 45.00	$ 15,615	
	Therapy Room 137 - AWP-02	93	SF	$ 45.00	$ 4,185	
	Therapy Room 210 - AWP-02	93	SF	$ 45.00	$ 4,185	
	Therapy Room 225 - AWP-02	93	SF	$ 45.00	$ 4,185	
	General Items					
	Interiors Lifts	1	LS	$ 7,500.00	$ 7,500	
	Final Cleaning	1	LS	$ 4,100.00	w / GRs	
					Total	**$ 123,765**

Lee Kennedy Co. Inc.,
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OWNER: Squantum School
ARCHITECT: Arrowstreet
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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 9 FINISHES						
09 9000	**Painting and Finishing**				**LKCO**	
	Scope of Work					
	Enabling					
	Painting and Coating					
	Paint Walls	7,200	SF	$ 2.00	$ 14,400	
	Misc. Touch-Up	5	MD	$ 1,000.00	$ 5,000	
	Addition					
	Interior Painting and Coating					
	Paint Walls	157,595	SF	$ 1.15	$ 181,234	
	Paint GWB Ceilings	10,884	SF	$ 1.50	$ 16,326	
	Paint Exposed Decks	5,000	SF	$ 2.00	$ 10,000	
	Paint Door Frames	124	EA	$ 150.00	$ 18,600	
	Paint Hollow Metal Doors	16	EA	$ 210.00	$ 3,360	
	Wood Doors	29	EA	Prefinished	Prefinished	
	Sealed Concrete Floors	5,099	SF	$ 2.00	$ 10,198	
	Paint Stair Metals	6	EA	$ 4,000.00	$ 24,000	
	General Items					
	Misc. Touch-Up	25	MD	$ 900.00	$ 22,500	
	Final Cleaning	1	LS	$ 4,100.00	w / GRs	
					Total	**$ 305,618**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 10 SPECIALTIES						
10 0000	**Division 10 Specialties**				**LKCO**	
	Scope of Work					
	Enabling					
	Visual Display Surfaces					
	Marker Boards					
	Markerboard - 4' H x 8' W	3	EA	$ 2,500.00	$ 7,500	
	Tack Boards					
	Tack Board - 4' H x 4' W	6	EA	$ 300.00	$ 1,800	
	Signage	1	AL	$ 3,500.00	w / below	
	Building Signage				Included Above	
	Code Required Signage				Included Above	
	Wall and Door Protection	1	AL	$ 3,500.00	$ 3,500	
	Corner Guards				Included Above	
	Crash Rails				Included Above	
	Impact-Resistant Wall Covering					
	Toilet Accessories	1	EA	$ -	N/A	
	Geothermal					
	No Scope	1	LS	$ -	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ -	N/A	
	Site Phase 1					
	No Scope	1	LS	$ -	N/A	

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Addition					
	Visual Display Surfaces					
	Marker Boards					
	Markerboard - 4' H x 8' W	20	EA	$ 2,500.00	$ 50,000	
	Markerboard - 4' H x 12' W	1	EA	$ 4,250.00	$ 4,250	
	Markerboard - 6' H x 8' W	12	EA	$ 3,750.00	$ 45,000	
	Tack Boards					
	Tack Board - 3' H x 6' W	1	EA	$ 250.00	$ 250	
	Tack Board - 4' H x 4' W	40	EA	$ 300.00	$ 12,000	
	Tack Board - 6' H x 4' W	12	EA	$ 375.00	$ 4,500	
	Electronic Markerboard	3	EA	$ 1,200.00	$ 3,600	
	Signage	81,302	GSF	$ 3.25	$ 264,232	
	Building Signage				Included Above	
	Sign Type A - Exterior Entrance Signs	3	EA		Included Above	
	Sign Type K - Custom Wall Graphics	22	EA		Included Above	
	Sign Type L - Custom Window Graphis	8	EA		Included Above	
	Sign Type M - Plotter Cut Film	10	EA		Included Above	
	Sign Type N - Dimensional Letters	13	EA		Included Above	
	Sign Type P - Banners	6	EA		Included Above	
	Sign Type Q - Dedication Plaque	1	EA		Included Above	
	Sign Type R - Timeline	1	EA		Included Above	
	Code Required Signage				Included Above	
	Accessibility Signage				Included Above	
	Toilet Room Signage				Included Above	
	Mechanical Room Signage				Included Above	
	Electric Room Signage				Included Above	
	Exterior Signage				Included Above	
	Salvaged Signage to be Reinstalled				Included Above	
	Exterior Messaging Sign	1	EA	$ 10,000.00	$ 10,000	
	Exterior Monument Sign	1	EA	$ 10,000.00	$ 10,000	
	Toilet Compartments					
	Toilet Compartments - Single, Full Height	10	EA	$ 3,250.00	$ 32,500	
	Toilet Compartments - Handicap, Full height	6	EA	$ 3,750.00	$ 22,500	
	Urinal-Screen	2	EA	$ 1,750.00	$ 3,500	
	Cubicle Curtains and Tracks					
	Curtain Track	15	LF	$ 30.00	$ 450	
	Curtain	150	SF	$ 10.00	$ 1,500	
	Folding Partitions					
	Vertical Partitions	2	EA	$ 150,000.00	$ 300,000	
	Horizontal Partitions	408	SF	$ 170.00	$ 69,360	
	Wall and Door Protection	81,302	GSF	$ 1.00	$ 81,302	
	Corner Guards				Included Above	
	Crash Rails				Included Above	
	Impact-Resistant Wall Covering					
	Toilet Accessories					
	Baby Changing Station	2	EA	$ 1,500.00	$ 3,000	
	Framed Mirror	28	EA	$ 150.00	$ 4,200	
	Grab Bar - 42"	48	EA	$ 120.00	$ 5,760	
	Paper Towel Dispenser	23	EA	$ 50.00	$ 1,150	
	Soap Dispenser	26	EA	$ 30.00	$ 780	
	Toilet Paper Dispenser	24	EA	$ 50.00	$ 1,200	
	Shower Seat	2	EA	$ 650.00	$ 1,300	
	Trash Receptacle	22	EA	$ 250.00	$ 5,500	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Fire Extinguishers and Cabinets	8	EA	$ 300.00	$ 2,400	
	Fire Extinguishers				Included Above	
	Cabinets				Included Above	
	AED				Included Above	
	Metal Lockers					
	Two-Tier Metal Lockers	200	EA	$ 800.00	$ 160,000	
	Mailboxes	3	EA	$ 3,500.00	$ 10,500	
	Final Cleaning	1	LS	$ 12,300.00	w / GRs	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ -	$ -	
	Site Phase 2					
	No Scope	1	LS	$ -	$ -	
					Total	**$ 1,123,534**

DIVISION 11 EQUIPMENT

11 0000 Equipment					**LKCO**	
Scope of Work						
Enabling						
Appliances						
Refrigerator	1	EA	$ 3,000.00	$ 3,000		
Freezer/Icemaker	1	EA	$ 1,800.00	Existing		
Warming Oven	1	EA	$ 3,200.00	$ 3,200		
Milk Cooler	1	EA	$ 2,000.00	Existing		
Hand Sink	1	EA	$ 1,500.00	$ 1,500		
Install	5	EA	$ 200.00	$ 1,000		
Geothermal			$ -			
No Scope	1	LS	$ -	$ -		
Building Demo / Abatement Phase 1						
No Scope	1	LS	$ -	$ -		
Site Phase 1						
No Scope	1	LS	$ -	$ -		
Addition						
Projection Screens	1	AL	$ 40,000.00	$ 40,000		
Projection Screen - Gym				Included Above		
Projection Screen - Cafeteria				Included Above		
Parking Control Equipment						
Traffic Control Gate	2	EA	$ 15,000.00	$ 30,000		
Appliances						
Refrigerator	1	EA	$ 3,000.00	$ 3,000		
Undercabinet Refrigerator	1	EA	$ 1,500.00	$ 1,500		
Food Service Equipment	1	AL	$ 482,540.00	$ 482,540		
1 - Stacked washer and dryer	1	EA	$ 2,450.00	Included Above		
2 - Mop sink and faucet (by PC)	1	EA	By Plumber	Included Above		
3 - Utility shelf	1	EA	$ 350.00	Included Above		
4 - Dunnage rack	3	EA	$ 900.00	Included Above		
5 - Storage shelving, five-tier	4	EA	$ 1,200.00	Included Above		
6 - Lockers	3	EA	FF&E	Included Above		
7 - Detergent storage cabinet	1	EA	$ 6,200.00	Included Above		
8 - Walk-in cooler	1	EA	$ 58,500.00	Included Above		

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	8a - Cooler condensing unit, outdoor air-cooled	1	EA	Included in #8	Included Above	
	8b - Cooler evaporator coils	1	EA	Included in #8	Included Above	
	9 - Walk-in freezer	1	EA	Included in #8	Included Above	
	9a - Freezer condensing unit, outdoor air-cooled	1	EA	Included in #8	Included Above	
	9b - Freezer evaporator coils	1	EA	Included in #8	Included Above	
	10 - Dunnage rack, mobile	2	EA	$ 600.00	Included Above	
	11 - Mobile storage shelving, four-tier	10	EA	$ 4,000.00	Included Above	
	14 - File Cabinet	1	EA	FF&E	Included Above	
	15 - Desk and Chair (by GC)	1	EA	FF&E	Included Above	
	16 - Hand sink with side splashes	2	EA	$ 2,800.00	Included Above	
	17 - Waste Bin (by Owner)	2	EA	FF&E	Included Above	
	18 - Prep table with sinks	1	EA	$ 9,900.00	Included Above	
	19 - Wall shelf	1	EA	$ 1,100.00	Included Above	
	20 - Wall shelf	1	EA	$ 1,100.00	Included Above	
	21 - Twenty-quart mixer	1	EA	$ 11,200.00	Included Above	
	22 - Mobile equipment stand	1	EA	$ -	Included Above	
	23 - Mobile storage shelving, four-tier	2	EA	$ -	Included Above	
	24 - Mobile work table	1	EA	$ -	Included Above	
	25 - Electrical drop cord	1	EA	$ 680.00	Included Above	
	26 - Pan rack, mobile	2	EA	$ 1,800.00	Included Above	
	27 - Convection ovens, double stacked	1	EA	$ 33,200.00	Included Above	
	28 - Range with oven	1	EA	$ 6,500.00	Included Above	
	29 - Combi-oven, double stacked	1	EA	$ 48,500.00	Included Above	
	30 - Water filter assembly	1	EA	$ 1,800.00	Included Above	
	31 - Stainless steel wall flashing	1	LF	$ 3,500.00	Included Above	
	32 - Exhaust ventilator	1	EA	$ 28,900.00	Included Above	
	33 - Fire suppression system	1	EA	$ 14,200.00	Included Above	
	34a - Ventilator fan management system processor	1	EA	$ 9,000.00	Included Above	
	34b - Ventilator control interface panel	1	EA	$ 450.00	Included Above	
	34c - Ventilator room temperature sensor	1	EA	$ 650.00	Included Above	
	38 - Utility Cart	1	EA		Included Above	
	39 - Wall shelf	1	EA	$ 980.00	Included Above	
	40 - Three-compartment sink	1	EA	$ 14,800.00	Included Above	
	41a - Disposer	1	EA	$ 9,800.00	Included Above	
	41b - Disposer control panel	1	EA	$ 1,500.00	Included Above	
	42 - Hose reel assembly	1	EA	$ 1,480.00	Included Above	
	43 - Dish machine with booster heater, ventless Drain tempering kit	1	EA	$ 18,000.00	Included Above	
	44 - Clean dish table	1	EA	$ 7,800.00	Included Above	
	45 - Heated cabinet, pass-thru	2	EA	$ 16,000.00	Included Above	
	46 - Work table	1	EA	$ 1,400.00	Included Above	
	47 - Refrigerator, pass-thru	1	EA	$ 14,500.00	Included Above	
	48 - Work table with over shelf and utensil rack	1	EA	$ 11,200.00	Included Above	
	49 - Can Opener, Manual	1	EA	$ 800.00	Included Above	
	50 - Serving counter	1	EA	$ 39,500.00	Included Above	
	50a - Full-service glass food protector case	1	EA	$ 5,800.00	Included Above	
	50b - Two-tier self-serve glass food display case	1	EA	$ 7,800.00	Included Above	
	51 - Fill faucet	1	EA	$ 250.00	Included Above	
	52 - Hot food wells, drop-In (mounted in group)	4	EA	$ 3,600.00	Included Above	
	53 - Cold pan, three-pan, drop-In	1	EA	$ 2,800.00	Included Above	
	54 - Serving counter	1	EA	$ 39,500.00	Included Above	
	54a - Full-service glass food protector case	1	EA	$ 5,800.00	Included Above	
	54b - Two-tier self-serve glass food display case	1	EA	$ 7,800.00	Included Above	
	55 - Fill faucet	1	EA	$ 250.00	Included Above	
	56 - Hot food wells, drop-In (mounted in group)	4	EA	$ 3,600.00	Included Above	
	57 - Cold pan, three-pan, drop-In	1	EA	$ 2,300.00	Included Above	
	58 - Condiment counters with doors, mobile	1	EA	$ 5,800.00	Included Above	
	59 - Milk cooler	1	EA	$ 3,200.00	Included Above	
	60 - Mobile cashier stands	1	EA	$ 6,800.00	Included Above	
	60 - Cashier terminal (by Owner)	1	EA	FF&E	Included Above	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Stage Curtains and Rigging					
	Theatrical Lighting Devices Including Installation	1	AL	$ 105,000.00	$ 105,000	
	Theatrical Curtains	1	AL	$ 30,000.00	$ 30,000	
	Main Curtain - 12' H x 20'6" W				Included Above	
	Upstage Traveler - 12' H x 20'6" W				Included Above	
	Theatre Rigging	1	AL	$ 75,000.00	$ 75,000	
	Pipe Grid	1	LOC	$ 35,000.00	$ 35,000	
	Installation of Curtains	1	AL	$ 8,000.00	$ 8,000	
	Athletic Equipment					
	Basketball Equipment					
	Ceiling Supported Basketball Backstop	2	EA	$ 17,500.00	$ 35,000	
	Volleyball Equipment					
	Competition Volleyball System	2	EA	$ 5,600.00	$ 11,200	
	Floor Insert	1	LS		Included Above	
	Floor Plate	1	LS		Included Above	
	Floor Sleeve	1	LS		Included Above	
	Scoreboards	1	EA	$ 10,000.00	$ 10,000	
	Shot Clock	2	EA	$ 575.00	$ 1,150	
	Safety Pads - 2'W x 6'H	115	EA	$ 450.00	$ 51,750	
	Climbing Walls					
	Climbing Wall Panels - 8' H x 40'W	320	SF	$ 100.00	$ 32,000	
	Safety Mats				Included Above	
	Climbing Wall Accessories				Included Above	
	Play Equipment					
	Player Benches	2	EA	$ 1,500.00	$ 3,000	
	Pitchers Rubber	1	EA	$ 30.00	$ 30	
	Home Plate	1	EA	$ 30.00	$ 30	
	Fall Protection					
	Tieback Lifeline Anchors	12	EA	$ 8,000.00	$ 96,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ -	N/A	
	Site Phase 2					
	No Scope	1	LS	$ -	N/A	
					Total	**$ 1,058,900**

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 12 FURNISHINGS						
12 0000	**Furnishings**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ -	N/A	
	Geothermal					
	No Scope	1	LS	$ -	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ -	N/A	
	Site Phase 1					
	No Scope	1	LS	$ -	N/A	
	Addition					
	Window Shades					
	WTR-01 - Manual Single Roller Shade	4,672	SF	$ 10.00	$ 46,720	
	WTR-02 - Manual Dual Roller Shade	876	SF	$ 35.00	$ 30,660	
	WTR-03 - Motorized Single Roller Shade	942	SF	$ 50.00	$ 47,100	
	WTR-04 - Motorized Dual Roller Shade	121	SF	$ 60.00	$ 7,260	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ -	N/A	
	Site Phase 2					
	No Scope	1	LS	$ -	N/A	
					Total	**$ 131,740**

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 14 CONVEYING SYSTEMS						
14 2100	**MRL Electric Traction Elevators**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	Cab Finishes	1	EA	$ 48,000.00	$ 48,000	
	3-Stop MRL Electric Traction Elevator	3	STOP	$ 50,000.00	$ 150,000	
	Cab Finishes	1	LS	$ 6,000.00	$ 6,000	
	Elevator Operator	1	AL	$ 40,000.00	$ 40,000	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ 244,000**

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 14 CONVEYING SYSTEMS						
14 4000	**Wheelchair / Vertical Lift**				**LKCO**	
	Scope of Work					
	Enabling					
	No Scope	1	LS	$ 1.00	N/A	
	Geothermal					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 1					
	No Scope	1	LS	$ 1.00	N/A	
	Addition					
	No Scope	1	LS	$ 1.00	N/A	
	Building Demo / Abatement Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
	Site Phase 2					
	No Scope	1	LS	$ 1.00	N/A	
					Total	**$ -**
DIVISION 20 MECHANICAL						
21 0000	**Fire Protection**				**LKCO**	
	Scope of Work	81,302				
	Enabling					
	Enabling					
	Fire Protection Service	10	LF	$ 115.00	$ 1,150	
	Test, Start-up	1	LS	$ 5,000.00	$ 5,000	
	Geothermal				N/A	
	Building Demo / Abatement Phase 1				N/A	
	Site Phase 1				N/A	
	Addition:					
	Service & System Requirements					
	Fire Protection Service					
	6" Fire Main (Underground)	30	LF	$ 115.00	$ 3,450	
	Fire Protection Equipment & Valves					
	6" DCDA	1	EA	$ 12,500.00	$ 12,500	
	4" DCVA Test Header	1	EA	$ 6,500.00	$ 6,500	
	MACV - Main Wet Alarm Control Valve	1	EA	$ 7,500.00	$ 7,500	
	Check Valve	1	EA	$ 900.00	$ 900	
	FDC - Fire Department Connection STORZ	1	EA	$ 6,500.00	$ 6,500	
	SCVA - Floor Control Valve	4	EA	$ 4,500.00	$ 18,000	
	Flow Switch	5	EA	$ 475.00	$ 2,375	
	Tamper Switch	7	EA	$ 475.00	$ 3,325	
	Pressure Switch	1	EA	$ 475.00	$ 475	
	Electric Bell FDC	1	EA	$ 750.00	$ 750	
	Wet Sprinkler System					
	Sprinkler Piping					

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CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	4" Standpipe	423	LF	$ 125.00	$ 52,875	
	4" SP	1,484	LF	$ 125.00	$ 185,500	
	2" SP	290	LF	$ 60.00	$ 17,400	
	1.5" SP	491	LF	$ 50.00	$ 24,550	
	1.25" SP	722	LF	$ 45.00	$ 32,490	
	1" SP	5,314	LF	$ 35.00	$ 185,981	
	Sprinkler Drain	129	LF	$ 55.00	$ 7,095	
	Sprinkler Heads					
	Pendant Sprinkler Head	412	EA	$ 75.00	$ 30,900	
	Exposed Upright Sprinkler Head	157	EA	$ 70.00	$ 10,990	
	Kitchen System					
	Kitchen Fire Protection System					
12/11/24 Recon	Kitchen				by KEC	
	Miscellaneous Trade Requirements					
12/11/24 Recon	BIM / 3D Coordination	81,302	SF	$ 0.25	$ 20,326	
	NFPA 241	81,302	SF	$ 0.10	$ 8,130	
	Material Hoisting / Rigging / Lifts	81,302	SF	$ 0.15	$ 12,195	
	Coring, Sleeves, Fire Stopping	81,302	SF	$ 0.10	$ 8,130	
	Start-up, Assist in Commissioning	81,302	SF	$ 0.05	$ 4,065	
	Hydrant Flow Test	81,302	SF	$ 0.05	$ 4,065	
	Permits, Fees	81,302	SF	$ 0.05	Waived	
	Building Demo / Abatement Phase 2				N/A	
	Site Phase 2				N/A	
					Total	**$ 673,118**

DIVISION 20 MECHANICAL

22 0000 Plumbing — LKCO

	Scope of Work					
	Enabling					
	Plumbing Service					
	2" Cold Water	10	LF	$ 115.00	$ 1,150	
	Fixtures, Drains & Cleanouts					
	Plumbing Fixtures	-				
	DEMO Sink - Make-Safe	1	LS	$ 1,250.00	$ 1,250	
	Freezer / Ice Maker Connection Only	1	LS	$ 1,500.00	Existing	
	Storm					
	Under Slab					
	UG 10" RL DEMO / Make-Safe	1	LS	$ 750.00	$ 750	
	UG 3"& 4" RL DEMO / Make-Safe	1	LS	$ 1,500.00	$ 1,500	
	UG 6" RL Re-Work	10	LF	$ 145.00	$ 1,450	
	UG 10" RL Re-Work	10	LF	$ 175.00	$ 1,750	
	Geothermal				N/A	
	Building Demo / Abatement Phase 1				N/A	
	Site Phase 1				N/A	

Lee Kennedy Co. Inc.,
122 Quincy Shore Drive, Quincy, MA 02171
(t) 617-825-6930 (f) 617-265-0815

PROJECT: Squantum School Addition and Renovation
LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Addition:	81,302	SF			
	Service & System Requirements					
	Equipment					
	Water Meter	1	EA	$ 10,000.00	$ 10,000	
	EWH-1 (250 Gal) Rheem E250A	1	EA	$ 27,500.00	$ 27,500	
	EWH-2 (65 Gal) Hubbel SE-65	1	EA	$ 8,000.00	$ 8,000	
	ET-1 Expansion Tank (45 Gal) Wessels TTA-100	1	EA	$ 7,000.00	$ 7,000	
	ET-2 Expansion Tank (15 Gal) Wessels TTA-30	1	EA	$ 4,000.00	$ 4,000	
	ST-3 Buffer Tank	1	EA	$ 5,000.00	$ 5,000	
	Oil Separator Streim #OS-50-SS	1	EA	$ 15,000.00	$ 15,000	
	P-14 In-Floor Grease Interceptor	1	EA	$ 10,000.00	$ 10,000	
	Elevator Sump Pump Stancor WES-50	1	EA	$ 11,000.00	$ 11,000	
	RP-1 Recirc. Pump	1	EA	$ 5,000.00	$ 5,000	
	RP-2 Recirc. Pump	1	EA	$ 5,000.00	$ 5,000	
	4" RPBP	1	EA	$ 6,500.00	$ 6,500	
	Valves & Misc					
	MV-1 Mixing Valve	1	EA	$ 3,500.00	$ 3,500	
	MV-2 Mixing Valve	1	EA	$ 3,500.00	$ 3,500	
	Eye Wash	1	EA	$ 4,000.00	$ 4,000	
	Balancing Valve	2	EA	$ 750.00	$ 1,500	
	Plaster Trap	5	EA	$ 500.00	$ 2,500	
	WH - Wall Hydrant Zurn #Z-1310-PB	9	EA	$ 450.00	$ 4,050	
	HB - Hose Bibb T&S Brass B-720	18	EA	$ 250.00	$ 4,500	
	Ball Valve	31	EA	$ 95.00	$ 2,945	
	Check Valve	2	EA	$ 95.00	$ 190	
	Fixtures, Drains & Cleanouts					
	Plumbing Fixtures					
	P-1 Water Closet Sloan WETS 2450.1401-1.2	10	EA	$ 1,200.00	$ 12,000	
	P-1A Water Closet Sloan WETS 2450.1401-1.2	24	EA	$ 1,200.00	$ 28,800	
	P-2 Urinal Sloan Model WEUS 1000.1401-0.125	1	EA	$ 1,100.00	$ 1,100	
	P-2A Urinal Sloan Model WEUS 1000.1401-0.125	1	EA	$ 1,100.00	$ 1,100	
	Battery Powered Flush Valve	36	EA	$ 500.00	$ 18,000	
	P-3 Lavatory American Standard “Decorum” 9024.004EC	18	EA	$ 2,000.00	$ 36,000	
	P-4 Lavatory Two Station Sloan Sloanstone, 2-station wall mounted g	1	EA	$ 4,000.00	$ 4,000	
	P-5 Lavatory Three Station Sloan Sloanstone, 3-station wall mounted	2	EA	$ 6,000.00	$ 12,000	
	Battery Powered Faucet	26	EA	$ 500.00	$ 13,000	
	P-6 Mop Receptor Stern-Williams Model SB-902-BP, 24 in. x 24 in.	2	EA	$ 2,000.00	$ 4,000	
	P-7 Electric Water Cooler with Bottle Fill (Hi-Lo) Elkay LZWS-LRPBM	5	EA	$ 3,500.00	$ 17,500	
	P-8 Shower, Accessible Symmons 1-25-FSB-1.5-VP-X Safetymix Pre	2	EA	$ 1,500.00	$ 3,000	
	P-9 Sink, Accessible Just model SL-ADA-2125-A-GR w/ Chicago #20	5	EA	$ 1,250.00	$ 6,250	
	P-10 Classroom Sink Just model SL-ADA-1921-A55-J, single bowl w/	23	EA	$ 1,250.00	$ 28,750	
	P-10A Classroom Sink, Accessible Just model CRAADA1725A55-J,	23	EA	$ 1,500.00	$ 34,500	
	P-11 Art Sink Just model SLX-2125-A-GR-316, single bowl w/ Chicag	2	EA	$ 1,250.00	$ 2,500	
	P-11A Art Sink, Accessible Just model SL-ADA-2125-A-GR-316, sing	1	EA	$ 1,250.00	$ 1,250	
	P-12 Trough Sink Just model J6020-J, 60 in. x 20 in. x 8 in, wall mou	1	EA	$ 6,500.00	$ 6,500	
	Plumbing Drains					
	FD-A Floor Drain Zurn #ZN-415-5BZ-P	14	EA	$ 450.00	$ 6,300	
	FD-B Floor Drain Zurn #Z-550-Y-P	10	EA	$ 350.00	$ 3,500	
	FD-E Floor Drain Zurn #ZN-1910-25-P	8	EA	$ 2,000.00	$ 16,000	
	FD-F Floor Drain Zurn #ZN-1901-25-2-P	1	EA	$ 1,500.00	$ 1,500	
	RD-B Floor Drain Zurn	3	EA	$ 1,250.00	$ 3,750	
	RD-C Floor Drain Zurn #ZC-100-DP-EA-G	15	EA	$ 1,750.00	$ 26,250	
	6" Area Drain	2	EA	$ 500.00	$ 1,000	
	Plumbing Cleanouts					
	FCO	37	EA	$ 250.00	$ 9,250	
	GCO	2	EA	$ 250.00	$ 500	
	Domestic Water					
	4" CW	29	LF	$ 145.00	$ 4,205	
	3" CW	637	LF	$ 135.00	$ 85,995	
	2" HW	165	LF	$ 110.00	$ 18,150	
	2" CW	174	LF	$ 110.00	$ 19,140	
	1-1/4" HW	711	LF	$ 80.00	$ 56,880	
	1" HWR	588	LF	$ 75.00	$ 44,100	
	1" CW	18	LF	$ 75.00	$ 1,350	
	3/4" HW	129	LF	$ 65.00	$ 8,385	
	3/4" CW	558	LF	$ 65.00	$ 36,270	

Lee Kennedy Co. Inc.,
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PROJECT: Squantum School Addition and Renovation
LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	1/2" HW	50	LF	$ 55.00	$ 2,750	
	1/2" CW	83	LF	$ 55.00	$ 4,565	
	CW Trim out at Fixtures	2,520	LF	$ 55.00	$ 138,600	
	HW Trim out at Fixtures	1,800	LF	$ 55.00	$ 99,000	
	Kitchen Final Connections	390	LF	$ 55.00	$ 21,450	
	Sanitary, Waste & Vent					
	Under Slab					
	UG 6" S	284	LF	$ 185.00	$ 52,540	
	UG 5" S	140	LF	$ 175.00	$ 24,500	
	UG 4" S	639	LF	$ 165.00	$ 105,435	
	UG 3" S	169	LF	$ 145.00	$ 24,505	
	UG 2" S	64	LF	$ 125.00	$ 8,000	
	UG 4" KW	268	LF	$ 175.00	$ 46,900	
	UG 3" KW	6	LF	$ 165.00	$ 990	
	UG 4" V	4	LF	$ 165.00	$ 660	
	UG 2" V	45	LF	$ 115.00	$ 5,175	
	UG 4" Tank Vent	10	LF	$ 165.00	$ 1,650	
	UG 3" KV	7	LF	$ 175.00	$ 1,225	
	UG 2" KV	51	LF	$ 135.00	$ 6,885	
	Above-Grade					
	4" S	9	LF	$ 115.00	$ 1,035	
	2" W	21	LF	$ 75.00	$ 1,575	
	2" IW	29	LF	$ 75.00	$ 2,175	
	1-1/2" W	13	LF	$ 70.00	$ 910	
	1" IW	92	LF	$ 65.00	$ 5,980	
	5/8" IW	8	LF	$ 60.00	$ 480	
	4" VTR	10	EA	$ 150.00	$ 1,500	
	4" KVTR	1	EA	$ 150.00	$ 150	
	2" KV	16	LF	$ 135.00	$ 2,160	
	San/Waste&Vent Trim out at Fixtures	2,520	LF	$ 95.00	$ 239,400	
	Kitchen San/Waste&Vent Final Connections	390	LF	$ 125.00	$ 48,750	
	Storm					
	Under Slab					
	UG 10" RL	61	LF	$ 175.00	$ 10,675	
	UG 8" RL	121	LF	$ 155.00	$ 18,755	
	UG 6" RL	55	LF	$ 145.00	$ 7,975	
	Above Grade					
	Vertical Storm System	81,302	SF	$ 2.00	$ 162,604	
12/11/24 Recon	**Radon System**					
12/11/24 Recon	Under Slab					
12/11/24 Recon	UG 3" Slotted PVC	1,331	LF	$ 25.00	$ 33,275	
12/11/24 Recon	Above Grade					
12/11/24 Recon	4" Vent PVC	300	LF	$ 15.00	$ 4,500	
12/11/24 Recon	Separate Sub Contractor	1	LS	$ 35,000.00	$ 35,000	
	Insulation					
	Plumbing Piping Insulation	81,302	SF	$ 1.50	$ 121,953	
	Miscellaneous Trade Requirements					
	BIM/3D Coordination	81,302	SF	$ 0.75	$ 60,977	
	Material Hoisting / Rigging / Lifts	81,302	SF	$ 0.35	$ 28,456	
	Core Drills, Firestopping	81,302	SF	$ 0.15	$ 12,195	
	Start-up, Assist in Commissioning	81,302	SF	$ 0.10	$ 8,130	
	Vibration & Seismic Controls	81,302	SF	$ 0.05	$ 4,065	
	Permits, Fees	81,302	SF	$ 0.05	Waived	
	Building Demo / Abatement Phase 2				N/A	
	Site Phase 2				N/A	
					Total	**$ 2,078,815**

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OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 20 MECHANICAL						
23 0000	**HVAC**				**LKCO**	
	Scope of Work					
$ 219,570	**Enabling**					
	Equipment					
	Temporary Electric Hot Water Boiler (1194 MBH)	1,194	MBH	$ 55.00	$ 65,670	
	Pumps					
	P-1 HHW Temp Boiler Plant	1	EA	$ 7,000.00	$ 7,000	
	P-2 HHW Temp Boiler Plant	1	EA	$ 7,000.00	$ 7,000	
	BP-1 HHW Temp Boiler Plant	1	EA	$ 2,000.00	$ 2,000	
	Pump VFD	2	EA	$ 3,000.00	$ 6,000	
	Expansion Tanks					
	ET-1 Expansion Tank HHW	1	EA	$ 2,500.00	$ 2,500	
	ET-2 Expansion Tank HHW	1	EA	$ 2,500.00	$ 2,500	
	Air Separator					
	AS-1 HHW	1	EA	$ 5,000.00	$ 5,000	
	Unit Heaters					
	UH-1 Unit Heater (10 MBH) "Sterling HS"	1	EA	$ 2,000.00	$ 2,000	
	Electric Radiant Panels					
	ERP-1 Radiant Panel 24"x(varies)	28	LF	$ 150.00	$ 4,200	
	Chemical Shot Feeder					
	CF-1 Chemical Shot Feeder	1	EA	$ 2,500.00	$ 2,500	
	GM-1 Glycol Make-Up "Advantage Controls GF"	1	EA	$ 8,000.00	$ 8,000	
	Piping					
	4" GWS	140	LF	$ 145.00	$ 20,300	
	4" GWR	140	LF	$ 145.00	$ 20,300	
	Insulation					
	Piping Insulation	280	LF	$ 20.00	$ 5,600	
	Automatic Temperature Controls					
	Front End & Programming					
	AP-1 Main ATC Panel	1	EA	$ 15,000.00	$ 15,000	
	Radiant Panels					
	RP Radiant Panel 24"x(varies) "TWA Linear" (197 QTY)	14	PTS	$ 1,100.00	$ 15,400	
	Pumps					
	HHW Water Pump	12	PTS	$ 1,100.00	$ 13,200	
	Pump VFD	4	PTS	$ 1,100.00	$ 4,400	
	Expansion Tanks					
	ET-1 Expansion Tank (QTY 3)	3	PTS	$ 1,100.00	$ 3,300	
	Glycol					
	CF Chemical Shot Feeder (QTY 2)	4	PTS	$ 1,100.00	$ 4,400	
	GM-1 Glycol Make-Up "Advantage Controls GF"	1	PTS	$ 1,100.00	$ 1,100	
	Unit Heaters					
	UH-1 Unit Heater	2	PTS	$ 1,100.00	$ 2,200	
	Geothermal					N/A
	Building Demo / Abatement Phase 1					N/A
	Site Phase 1					N/A
	Addition:	**81,302**	**SF**			
$ 2,831,000	**Equipment**					
	Air Handlers					
12/11/24 Recon	AHU-1 Indoor (10,800 CFM) Addison PRMW	10,800	CFM	$ 36.50	$ 394,200	
12/11/24 Recon	AHU-2 Indoor (6,000 CFM) Addison PRMW	6,000	CFM	$ 36.50	$ 219,000	
12/11/24 Recon	AHU-3 Indoor (8,500 CFM) Addison PRMW	8,500	CFM	$ 36.50	$ 310,250	
12/11/24 Recon	AHU-4 Indoor (2,000 CFM) Addison PRMW	2,000	CFM	$ 36.50	$ 73,000	
12/11/24 Recon	AHU-5 Roof Mounted (6,500 CFM) Addison PRMW	6,500	CFM	$ 36.50	$ 237,250	
12/11/24 Recon	AHU-6 Roof Mounted (7,000 CFM) Addison PRMW	7,000	CFM	$ 36.50	$ 255,500	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
12/11/24 Recon	AHU-7 Roof Mounted (3,500 CFM) Addison PRMW	3,500	CFM	$ 36.50	$ 127,750	
	MAU-1 Roof Mounted (2,500 CFM) Addison PRMW	2,500	CFM	$ 26.00	$ 65,000	
	Water Source Heat Pumps					
	HWG-1 WSHP Hot Water Generator "Multi-Stack MSH030W"	30	TON	$ 3,500.00	$ 105,000	
	HWG-2 WSHP Hot Water Generator "Multi-Stack MSH030W"	30	TON	$ 3,500.00	$ 105,000	
	HWG-3 WSHP Hot Water Generator "Multi-Stack MSH030W"	30	TON	$ 3,500.00	$ 105,000	
	Ductless Cooling					
	Ductless Cooling Indoor	2	EA	$ 5,000.00	$ 10,000	
	Ductless Cooling Condenser	2	EA	$ 10,000.00	$ 20,000	
	Air Curtain					
	AC-X	2	EA	$ 7,500.00	$ 15,000	
	VAV Boxes					
	VAV # - Price SDV	19	EA	$ 500.00	$ 9,500	
	VAV 1-X - Price SDV	15	EA	$ 500.00	$ 7,500	
	VAV 2-X - Price SDV	12	EA	$ 750.00	$ 9,000	
	VAV 7-X - Price SDV	8	EA	$ 1,200.00	$ 9,600	
	Fans					
	Attic Exhaust Fan	2	EA	$ 2,000.00	$ 4,000	
	KEF-1 Kitchen Hood Exhaust Fan (5000 CFM) "Greenheck Cube"	5,000	CFM	$ 5.00	$ 25,000	
	Unit Heaters					
	UH-1 Unit Heater (10 MBH) "Sterling HS"	1	EA	$ 2,000.00	$ 2,000	
	UH-2 Unit Heater (10 MBH) "Sterling HS"	1	EA	$ 2,000.00	$ 2,000	
	UH-3 Unit Heater (10 MBH) "Sterling HS"	1	EA	$ 2,000.00	$ 2,000	
	UH-4 Unit Heater (15 MBH) "Sterling HS"	1	EA	$ 2,250.00	$ 2,250	
	UH-5 Unit Heater (20 MBH) "Sterling HS"	1	EA	$ 2,500.00	$ 2,500	
	UH-6 Unit Heater (20 MBH) "Sterling HS"	1	EA	$ 2,500.00	$ 2,500	
	UH-7 Unit Heater (10 MBH) "Sterling HS"	1	EA	$ 2,000.00	$ 2,000	
	CUH-10 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	CUH-11 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	CUH-2 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	CUH-4 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	CUH-5 Cabinet Unit Heater (20 MBH) "Sterling"	1	EA	$ 5,500.00	$ 5,500	
	CUH-6 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	CUH-7 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	CUH-8 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	CUH-9 Cabinet Unit Heater (10 MBH) "Sterling"	1	EA	$ 3,500.00	$ 3,500	
	Radiant Panels					
	RP-1 Radiant Panel 24"x(varies) "TWA Linear" (139 EA)	2,452	LF	$ 150.00	$ 367,800	
	RP-2 Radiant Panel 24"x(varies) "TWA Linear" (23 EA)	190	LF	$ 150.00	$ 28,500	
	RP-3 Radiant Panel 24"x24" "TWA Modular" (20 LF)	10	EA	$ 500.00	$ 5,000	
	RP-4 Radiant Panel 24"x48" "TWA Modular" (100 LDF)	25	EA	$ 500.00	$ 12,500	
	WRU-1 Wall Radiation Unit "Runtal R2F-3" Pedestal Mounted (6 EA)	108	LF	$ 200.00	$ 21,600	
	WRU-(2) Wall Radiation Unit "Runtal R2F-3" Wall Mounted (8 EA)	149	LF	$ 200.00	$ 29,800	
	Pumps					
	P-1 Water Pump Serves GW "TACO FI" 25% Glycol	1	EA	$ 30,000.00	$ 30,000	
	P-2 Water Pump Serves GW "TACO FI" 25% Glycol	1	EA	$ 30,000.00	$ 30,000	
	P-3 Water Pump Serves HHW "TACO FI" 25% Glycol	1	EA	$ 25,000.00	$ 25,000	
	P-4 Water Pump Serves HHW "TACO FI" 25% Glycol	1	EA	$ 25,000.00	$ 25,000	
	Pump VFD	4	EA	$ 7,500.00	$ 30,000	
	Expansion Tanks					
	ET-1 Expansion Tank Serves GW "TACO"	1	EA	$ 4,500.00	$ 4,500	
	ET-2 Expansion Tank Serves GW "TACO"	1	EA	$ 4,500.00	$ 4,500	
	ET-3 Expansion Tank Serves HHW "TACO"	1	EA	$ 48,500.00	$ 48,500	
	Glycol					
	CF-1 Chemical Shot Feeder Serves Geo Loop "Vector FA-1000AL"	1	EA	$ 2,500.00	$ 2,500	
	CF-2 Chemical Shot Feeder Serves HHW Loop "Vector FA-1000AL"	1	EA	$ 2,500.00	$ 2,500	
	GM-1 Glycol Make-Up "Advantage Controls GF"	1	EA	$ 8,000.00	$ 8,000	
$ 1,877,419	**Sheetmetal**					
	Ductwork					
12/11/24 Recon	Galvi LP	39,753	LBS	$ 20.00	$ 795,050	
12/11/24 Recon	Galvi MP	42,781	LBS	$ 20.00	$ 855,625	
	Kitchen	791	LBS	$ 35.00	$ 27,694	
	Flex Duct (84 EA)	240	LF	$ 75.00	$ 18,000	
	Louvers					
	AHU-1 Louver	1	EA	$ 3,500.00	$ 3,500	
	AHU-4 Louver	1	EA	$ 3,500.00	$ 3,500	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	RGDs					
	DD-# - Price DFR (??) w/ 4" Sub Base by others	24	EA	$ 1,000.00	$ 24,000	
	DD-1 - Price DFR 24x48x8 w/ 4" Sub Base by others	26	EA	$ 1,000.00	$ 26,000	
	DD-2 - Price DFR 48x24x8 w/ 4" Sub Base by others	47	EA	$ 1,000.00	$ 47,000	
	DD-8 - Price DFW 42x72x16 w/ Center & Horizontal Supports	8	EA	$ 2,000.00	$ 16,000	
	DD-X - Price DFR (??) w/ 4" Sub Base by others	20	EA	$ 1,000.00	$ 20,000	
	R-1 - Price 80 Register	87	EA	$ 350.00	$ 30,450	
	R-3 - Price SDR Register	6	EA	$ 350.00	$ 2,100	
	R-4 32"x12"	7	EA	$ 500.00	$ 3,500	
	Dampers					
	FD - Combo Smoke Fire Damper	2	EA	$ 2,500.00	$ 5,000	
$ 935,040	**Piping**					
	Remote Refrigeration Connection	2	EA	$ 5,000.00	$ 10,000	
	6" GWS	180	LF	$ 195.00	$ 35,100	
	6" GWR	147	LF	$ 195.00	$ 28,665	
	4" HHWS	58	LF	$ 145.00	$ 8,410	
	4" HHWR	133	LF	$ 145.00	$ 19,285	
	4" GWS	289	LF	$ 145.00	$ 41,905	
	4" GWR	292	LF	$ 145.00	$ 42,340	
	3" GWS	206	LF	$ 135.00	$ 27,810	
	3" GWR	204	LF	$ 135.00	$ 27,540	
	2-1/2" HHWS	250	LF	$ 130.00	$ 32,500	
	2-1/2" HHWR	253	LF	$ 130.00	$ 32,890	
	2-1/2" GWS	176	LF	$ 130.00	$ 22,880	
	2-1/2" GWR	177	LF	$ 130.00	$ 23,010	
	2" HHWS	345	LF	$ 110.00	$ 37,950	
	2" HHWR	340	LF	$ 110.00	$ 37,400	
	2" GWS	39	LF	$ 110.00	$ 4,290	
	2" GWR	40	LF	$ 110.00	$ 4,400	
	1-1/2" HHWS	227	LF	$ 95.00	$ 21,565	
	1-1/2" HHWR	226	LF	$ 95.00	$ 21,470	
	1-1/4" HHWS	916	LF	$ 80.00	$ 73,280	
	1-1/4" HHWR	918	LF	$ 80.00	$ 73,440	
	1" HHWS	949	LF	$ 75.00	$ 71,175	
	1" HHWR	952	LF	$ 75.00	$ 71,400	
	3/4" HHWS	1,274	LF	$ 65.00	$ 82,810	
	3/4" HHWR	1,285	LF	$ 65.00	$ 83,525	
$ 731,718	**Insulation**					
	Piping Insulation	81,302	SF	$ 3.00	$ 243,906	
	Ductwork Insulation	81,302	SF	$ 6.00	$ 487,812	
$ 828,280	**Automatic Temperature Controls**	$ 10.19				
	Front End & Programming					
	AP-1 Main ATC Panel	1	EA	$ 50,000.00	$ 50,000	
	Tridium Niagara open protocol BACnet system infrastructure	81,302	SF	$ 2.25	$ 182,930	
	Air Handlers					
	AHU QTY 7	70	PTS	$ 1,050.00	$ 73,500	
	MAU-1 QTY 1	7	PTS	$ 1,050.00	$ 7,350	
	VAV Boxes					
	VAV QTY 54	216	PTS	$ 1,050.00	$ 226,800	
	Fans					
	Attic Exhaust Fan	2	PTS	$ 1,050.00	$ 2,100	
	KEF-1 Kitchen Hood Exhaust Fan (5000 CFM) "Greenheck Cube"	1	PTS	$ 1,050.00	$ 1,050	
	Unit Heaters					
	UH Unit Heater (QTY 7)	7	PTS	$ 1,050.00	$ 7,350	
	CUH Cabinet Unit Heater (QTY 9)	9	PTS	$ 1,050.00	$ 9,450	
	Radiant Panels					
	RP Radiant Panel 24"x(varies) "TWA Linear" (197 QTY)	197	PTS	$ 1,050.00	$ 206,850	
	WRU Wall Radiation Unit (QTY 14)	14	PTS	$ 1,050.00	$ 14,700	

Lee Kennedy Co. Inc.,
122 Quincy Shore Drive, Quincy, MA 02171
(t) 617-825-6930 (f) 617-265-0815

PROJECT: Squantum School Addition and Renovation
LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Pumps					
	P Water Pump "TACO FI" 25% Glycol (QTY 4)	16	PTS	$ 1,050.00	$ 16,800	
	HWG WSHP Hot Water Generator (QTY 4)	16	PTS	$ 1,050.00	$ 16,800	
	Pump VFD	4	PTS	$ 1,050.00	$ 4,200	
	Expansion Tanks					
	ET-1 Expansion Tank (QTY 3)	3	PTS	$ 1,050.00	$ 3,150	
	Glycol					
	CF Chemical Shot Feeder (QTY 2)	4	PTS	$ 1,050.00	$ 4,200	
	GM-1 Glycol Make-Up "Advantage Controls GF"	1	PTS	$ 1,050.00	$ 1,050	
$ 288,297	**Miscellaneous Trade Requirements**					
	Material Hoisting / Rigging / Lifts	81,302	SF	$ 1.25	$ 101,628	
	BIM / 3D Coordination	81,302	SF	$ 0.75	$ 60,977	
	Testing, Adjusting & Balancing	81,302	SF	$ 0.65	$ 52,846	
	Chemical Treatment	81,302	SF	$ 0.25	$ 20,326	
	Start-up, Assist in Commissioning	81,302	SF	$ 0.15	$ 12,195	
	Coring, Firestopping, Smokestopping	81,302	SF	$ 0.15	$ 12,195	
	Vibration Isolation	81,302	SF	$ 0.10	$ 8,130	
	Refrigerant Leak Detection Sensor & Alarm	1	LS	$ 20,000.00	$ 20,000	
	Building Demo / Abatement Phase 2				N/A	
	Site Phase 2				N/A	
					Total	**$ 7,711,323**

DIVISION 26 ELECTRICAL

26 0000	**Electrical**				**LKCO**	
	Scope of Work					
$ 605,330	**Enabling**					
	Site Conduit					
	3 - 4" Conduit (TEMP Trans to Back)	130	LF	$ 55.00	$ 7,150	
	Permanent Transformer					
	UG Secondary Duct Bank	50	LF	$ 55.00	$ 2,750	
	Distribution					
	Normal Distribution					
	1000A PANELBOARD HDPT	1	EA	$ 118,880.10	$ 118,880	
	1000A PANELBOARD PDPT	1	EA		Vendor Quote	
	225KVA k-13 RATED TRANSFORMER	1	EA		Vendor Quote	
	300KVA K-13 RATED TRANSFORMER	1	EA		Vendor Quote	
	Existing Building Panels:	1	EA	$ 5,000.00	$ 5,000	
	LP1 to FAPP Panel (6) Re-Work	6	EA	$ 3,000.00	$ 18,000	
	New Panel PP1	1	EA	$ 5,000.00	$ 5,000	
	Conex Box Install	1	LS	$ 50,000.00	$ 50,000	
	Feeders	200	LF	$ 300.00	$ 60,000	
	Mechanical					
	Temporary Electric Hot Water Boiler (1194 MBH)	*1*	*LS*	$ 10,000.00	*$ 10,000*	
	P-1 HHW Temp Boiler Plant	1	EA	$ 1,500.00	$ 1,500	
	P-2 HHW Temp Boiler Plant	1	EA	$ 1,500.00	$ 1,500	
	BP-1 HHW Temp Boiler Plant	1	EA	$ 1,500.00	$ 1,500	
	Pump VFD	2	EA	$ 1,000.00	$ 2,000	
	UH-1 Unit Heater (10 MBH) "Sterling HS"	1	EA	$ 750.00	$ 750	
	ERP-1 Radiant Panel 24"x(varies)	7	EA	$ 1,000.00	$ 7,000	
	GM-1 Glycol Make-Up "Advantage Controls GF"	1	EA	$ 500.00	$ 500	
	Kitchen Equipment					
	-MILK CASE -120V -PP1	1	EA	$ 1,500.00	$ 1,500	
	-WARMER -120V -PP1	1	EA	$ 1,500.00	$ 1,500	
	-FREEZER -120V -PP1	1	EA	$ 1,500.00	$ 1,500	
	-FRIDGE -120V -PP1	1	EA	$ 1,500.00	$ 1,500	
	-HAND SINK -120V -PP1	1	EA	$ 1,500.00	$ 1,500	

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LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	General Power					
	Normal Power					
	Temporary MDF Power	1	LS	$ 3,500.00	$ 3,500	
	(DJ) Door Junction	6	EA	$ 500.00	$ 3,000	
	Fire Alarm					
	Fire Alarm Equipment					
	Temporary FA Terminal Cabinet	1	LS	$ 15,000.00	$ 15,000	
	FA Devices Rework	6	EA	$ 1,000.00	$ 6,000	
	FATC - Fire Alarm Terminal Cabinet (Reused Existing - Relocate)	5	EA	$ 2,250.00	$ 11,250	
	Testing & Programming	1	LS	$ 10,000.00	$ 10,000	
	Temp Firealarm to Temp Classrooms	24	EA	$ 1,000.00	$ 24,000	
	Lighting					
12/11/24 Recon	Lighting & Branch power as required in existing building	4,000	SF	$ 6.50	$ 26,000	
	Geothermal					N/A
	Building Demo / Abatement Phase 1					N/A
	Site Phase 1					N/A
	Addition:	81,302	SF			
$ 301,125	**Site Utilities**	32				
	Site Lighting					
	SL1 Lithonia Single Head LED Pole Fixture	5	EA	$ 4,000.00	$ 20,000	
	SL2 Lithonia Double Head LED Pole Fixture	4	EA	$ 7,000.00	$ 28,000	
	SL3 Gotham 4" Aperature LED Downlight	6	EA	$ 1,000.00	$ 6,000	
Supp Info 3	SL4 Lithonia LED Wall Mount	18	EA	$ 1,500.00	$ 27,000	
Supp Info 3	SL4 Del Mar Model Fixture by Sternberg Lighting	12	EA	$ 7,500.00	$ 90,000	
	SL5 Lithonia LED Pedestrian Pole	6	EA	$ 1,600.00	$ 9,600	
	SL6 Targetti LED IP68 Rated Fixture In Grade	3	EA	$ 1,000.00	$ 3,000	
	SL7 Acolyte LED Neon Tube	3	EA	$ 800.00	$ 2,400	
	Site Lighting Pull Box	4	EA	$ 600.00	$ 2,400	
	Site Conduit & Feeders					
Note 1 E004	2#8, 1#10G, 1"C, 24" Below Grade	2,135	LF	$ 10.00	$ 21,350	
Note 1 E004	2#12 Shielded Cable(0-10VDC) 1"C, 24" Below Grade	2,135	LF	$ 15.00	$ 32,025	
	UG Comm Duct Bank	202	LF	$ 75.00	$ 15,150	
	UG Fire Alarm Duct Bank	172	LF	$ 75.00	$ 12,900	
	UG Generator Duct Bank	37	LF	$ 200.00	$ 7,400	
	UG Secondary Duct Bank	37	LF	$ 200.00	$ 7,400	
	Site EV					
	EV Charging Station FBO Install Only	3	EA	$ 5,500.00	$ 16,500	
$ 628,822	**Distribution**					
	Normal Distribution					
	MSB 2000A	1	EA	$ 100,000.00	$ 100,000	
	KHP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	KP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	LP1A Panel	1	EA	$ 5,000.00	$ 5,000	
	LP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	LP2A Panel	1	EA	$ 5,000.00	$ 5,000	
	MHP1A Panel	1	EA	$ 5,000.00	$ 5,000	
	MHP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	MHP2A Panel	1	EA	$ 5,000.00	$ 5,000	
	MP1A Panel	1	EA	$ 5,000.00	$ 5,000	
	MP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	MP2A Panel	1	EA	$ 5,000.00	$ 5,000	
	PP1A Panel	1	EA	$ 5,000.00	$ 5,000	
	PP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	PP2A Panel	1	EA	$ 5,000.00	$ 5,000	
	T-5 45KVA Transformer	7	EA	$ 7,500.00	$ 52,500	
	T-6 75KVA Transformer	3	EA	$ 15,000.00	$ 45,000	
12/11/24 Recon	Normal Feeders	81,302	SF	$ 2.25	$ 182,930	
	Emergency Distribution					
	EHP1A Panel 225A	1	EA	$ 4,995.00	$ 4,995	
	EHP1B Panel 225A	1	EA	$ 4,995.00	$ 4,995	
	EHP2A Panel 225A	1	EA	$ 4,995.00	$ 4,995	
	ELP1A Panel 100A	1	EA	$ 3,995.00	$ 3,995	

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	EP1A Panel 225A	1	EA	$ 4,995.00	$ 4,995	
	ELP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	EP1B Panel 225A	1	EA	$ 4,995.00	$ 4,995	
	EP2A Panel 225A	1	EA	$ 4,995.00	$ 4,995	
	TEP1A Panel	1	EA	$ 5,000.00	$ 5,000	
	TEP1B Panel	1	EA	$ 5,000.00	$ 5,000	
	UPS - 24kW/30kVA for TEP1B	1	EA	$ 27,500.00	$ 27,500	
	EPO Push Button w/ Guard for TEP1B	1	EA	$ 300.00	$ 300	
12/11/24 Recon	Emergency Feeders	81,302	SF	$ 1.25	$ 101,628	
$ 496,104	**Mechanical**					
	Air Handlers					
	AHU QTY 7	7	EA	$ 1,000.00	$ 7,000	
	MAU-1 QTY 1	1	EA	$ 1,000.00	$ 1,000	
	VAV Boxes					
	VAV QTY 54	54	EA	$ 1,000.00	$ 54,000	
	Fans					
	Attic Exhaust Fan	2	EA	$ 1,000.00	$ 2,000	
	KEF-1 Kitchen Hood Exhaust Fan (5000 CFM) "Greenheck Cube"	1	EA	$ 1,000.00	$ 1,000	
	Unit Heaters					
	UH Unit Heater (QTY 7)	7	EA	$ 1,000.00	$ 7,000	
	CUH Cabinet Unit Heater (QTY 9)	9	EA	$ 1,000.00	$ 9,000	
	Radiant Panels					
	RP Radiant Panel 24"x(varies) "TWA Linear" (197 QTY)	197	EA	$ 1,000.00	$ 197,000	
	WRU Wall Radiation Unit (QTY 14)	14	EA	$ 1,000.00	$ 14,000	
	Pumps					
	P Water Pump "TACO FI" 25% Glycol (QTY 4)	4	EA	$ 1,000.00	$ 4,000	
	HWG WSHP Hot Water Generator (QTY 4)	4	EA	$ 1,000.00	$ 4,000	
	Pump VFD	4	EA	$ 1,000.00	$ 4,000	
	Expansion Tanks					
	ET-1 Expansion Tank (QTY 3)	3	EA	$ 1,000.00	$ 3,000	
	Glycol					
	CF Chemical Shot Feeder (QTY 2)	2	EA	$ 1,000.00	$ 2,000	
	GM-1 Glycol Make-Up "Advantage Controls GF"	1	EA	$ 1,000.00	$ 1,000	
	Elevator					
	Elevator Controller	1	EA	$ 10,000.00	$ 10,000	
	40 HP Motor Starter	2	EA	$ 2,500.00	$ 5,000	
	100A Disconnect	1	EA	$ 1,000.00	$ 1,000	
	20A/30A Disconnect	1	EA	$ 500.00	$ 500	
	Misc					
	ATC Panel	1	EA	$ 1,000.00	$ 1,000	
	Horsepower Rated Thermal Switch	2	EA	$ 1,000.00	$ 2,000	
	Emergency Boiler & Heater Shut Off	1	EA	$ 1,000.00	$ 1,000	
	EPO - Emergency Power Shunt Trip	1	EA	$ 1,000.00	$ 1,000	
	Fused Disconnect Switch	2	EA	$ 1,000.00	$ 2,000	
	Power & Wiring	81,302	SF	$ 2.00	$ 162,604	
$ 322,712	**General Power**					
	Normal Power					
	Computer Double Duplex	4	EA	$ 285.00	$ 1,140	
	Duplex Receptacle	123	EA	$ 285.00	$ 35,055	
	GFC Duplex	19	EA	$ 310.00	$ 5,890	
	Duplex Switched	229	EA	$ 285.00	$ 65,265	
	GFC Duplex Switched	68	EA	$ 310.00	$ 21,080	
	Double Duplex Switched	146	EA	$ 385.00	$ 56,210	
	GFC Double Duplex Switched	3	EA	$ 385.00	$ 1,155	
	FAX Receptacle	2	EA	$ 385.00	$ 770	
	Junction Box	7	EA	$ 500.00	$ 3,500	
	Key Operated Switch	2	EA	$ 385.00	$ 770	
	Recessed Floor Box (2 Duplex Receptacles & 4 Data Outlet))	8	EA	$ 2,000.00	$ 16,000	
	Recessed Floor Box (Tel/Data & 2 Duplex Receptacles)	1	EA	$ 1,750.00	$ 1,750	
	Recessed Floor Box (Tel/Data & 2 Duplex Switched Receptacles)	2	EA	$ 1,750.00	$ 3,500	
	Scoreboard Control Outlet	2	EA	$ 800.00	$ 1,600	
	Special Purpose Outlet	4	EA	$ 800.00	$ 3,200	
	Kitchen					
	20A Circuit In Floor	2	EA	$ 500.00	$ 1,000	
	Conduit Stub Up	7	EA	$ 150.00	$ 1,050	
	Double Data Receptacle In Floor	1	EA	$ 1,200.00	$ 1,200	

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Drop Cord	3	EA	$ 1,500.00	$ 4,500	
	Duplex Receptacle	15	EA	$ 285.00	$ 4,275	
	Heat Trace - Kitchen	1	EA	$ 1,500.00	$ 1,500	
	Junction Box	15	EA	$ 500.00	$ 7,500	
	LED Light FBO Install Only	6	EA	$ 150.00	$ 900	
	NEMA 5-15P Receptacle In Floor	1	EA	$ 1,200.00	$ 1,200	
	Switch - Single Pole	4	EA	$ 350.00	$ 1,400	
	Branch Power & Wiring	81,302	SF	$ 1.00	$ 81,302	
$ 1,464,869	**Lighting & Lighting Controls**	$ 18.02				
	Lighting					
	LK22 - Kurtzon Lighting 2'x2' Recessed Fixture	12	EA	$ 700.00	$ 8,400	
	LP4 - Lux Illuminaire 4' LED Linear (66 LF)	16	EA	$ 470.00	$ 7,520	
	LP6 - No Sched (281 LF)	46	EA	$ 680.00	$ 31,280	
	LP8 - No Sched (1136 LF)	140	EA	$ 890.00	$ 124,600	
	LPA - Axis Lighting LED Baffle Fixture (10 LF)	1	EA	$ 1,000.00	$ 1,000	
	LPG - Spec Grade LED High Bay	24	EA	$ 900.00	$ 21,600	
	LR4 - Lux Illuminaire 4' LED Recessed (83 LF)	21	EA	$ 470.00	$ 9,870	
	LR6 - Lux Illuminaire 6' LED Recessed (79 LF)	13	EA	$ 680.00	$ 8,840	
	LR8 - Lux Illuminaire 8' LED Recessed (49 LF)	6	EA	$ 890.00	$ 5,340	
	LRS - Lux Illuminaire Continuous Recessed LED	68	LF	$ 125.00	$ 8,500	
	LS4 - Primus Lighting 4' LED Linear (91 LF)	22	EA	$ 470.00	$ 10,340	
	LS6 - Primus Lighting 6' LED Linear (55 LF)	9	EA	$ 680.00	$ 6,120	
	LS8 - Primus Lighting 8' LED Linear (65 LF)	8	EA	$ 890.00	$ 7,120	
	LWS - Finelite Lighting 4" Aperature LED Wall Wash	220	LF	$ 125.00	$ 27,500	
	RC1 - Gotham Lighting 4" Aperature LED Downlight	34	EA	$ 500.00	$ 17,000	
	RC2 - Gotham Lighting 2" Aperature LED Downlight	64	EA	$ 350.00	$ 22,400	
	Single Face Exit Sign - Evenlite Lighting	5	EA	$ 500.00	$ 2,500	
	Lighting Controls					
	Switch - Single Pole	7	EA	$ 325.00	$ 2,275	
	Occupancy Sensor	97	EA	$ 390.00	$ 37,830	
	Photo Sensor	39	EA	$ 390.00	$ 15,210	
	Multi-zone Local Station	80	EA	$ 525.00	$ 42,000	
	Lighting Installation					
	Branch Wiring & Home Runs	81,302	SF	$ 5.00	$ 406,510	
12/11/24 Recon	Install Lighting & Controls Package	81,302	SF	$ 3.00	$ 243,906	
12/11/24 Recon	Allowance for lighting not yet depicted	81,302	SF	$ 4.00	$ 325,208	
12/11/24 Recon	Allowance for Coutyard Lighting	5,700	SF	$ 10.00	$ 57,000	
12/11/24 Recon	Stage Lighting Installation	1	LS	$ 15,000.00	$ 15,000	
$ 475,807	**Fire Alarm**	$ 5.85				
	Fire Alarm Equipment					
	Control Panel Headend System	1	LS	$ 50,000.00	$ 50,000	
	ANN	2	EA	$ 8,000.00	$ 16,000	
	FATC - Fire Alarm Terminal Cabinet	5	EA	$ 4,500.00	$ 22,500	
	Knox Boxes	4	EA	$ 300.00	$ 1,200	
	BDA System					
	FD & Police BDA	2	EA	$ 35,000.00	$ 70,000	
	BDA Annunciator	1	EA	$ 5,000.00	$ 5,000	
	BDA Splitter	9	EA	$ 350.00	$ 3,150	
	LSPU - Lightning & Surge Protection	2	EA	$ 450.00	$ 900	
12/11/24 Recon	2HR Fire Rated Cable	1	LS	$ 15,000.00	$ 15,000	
	2HR Fire Rated Enclosure for LSPU & Splitters	11	EA	$ 100.00	$ 1,100	
	Initiating Devices					
	Pull Station	15	EA	$ 500.00	$ 7,500	
	Carbon Monoxide Detector	10	EA	$ 450.00	$ 4,500	
	CM Smoke	77	EA	$ 450.00	$ 34,650	
	Elevator Smoke	4	EA	$ 450.00	$ 1,800	
	Notification Appliances					
	Site Beacon	4	EA	$ 600.00	$ 2,400	
	Speaker/Visual ADA (F)	2	EA	$ 675.00	$ 1,350	
	Speaker/Visual	83	EA	$ 675.00	$ 56,025	
	Speaker/Visual WP	8	EA	$ 775.00	$ 6,200	
	CLG Speaker/Visual ADA (F)	58	EA	$ 700.00	$ 40,600	
	CLG Visual Signal (A)	58	EA	$ 700.00	$ 40,600	
	Visual ADA	2	EA	$ 575.00	$ 1,150	
	Interface & Modules					
	Magnetic DH	14	EA	$ 220.00	$ 3,080	

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Control Module (CM)	2	EA	$ 400.00	$ 800	
	Monitor Module	10	EA	$ 400.00	$ 4,000	
	Additional Requirements					
	Wiring	81,302	SF	$ 1.00	$ 81,302	
	Testing & Programming	1	LS	$ 5,000.00	$ 5,000	
$ 10,000	**Photovoltaic**					
	PV Pull Box	2	EA	$ 500.00	$ 1,000	
	(2) 4" Conduit (Panel to Roof) For Future PV	2	LS	$ 4,000.00	$ 8,000	
	(1) 1-1/2" Conduit (Roof to IDF) For Future PV	1	LS	$ 1,000.00	$ 1,000	
$ 217,104	**LV Infrastructure**					
	TelData					
	TelData Infrastructure	81,302	SF	$ 1.00	$ 81,302	
	TOP - Lightspeed Topcat Classroom Audio System	38	EA	$ 100.00	$ 3,800	
	MEC - Lightspeed Media Connector	38	EA	$ 100.00	$ 3,800	
	Volume Control Outlet	13	EA	$ 100.00	$ 1,300	
	Intercom Call Switch	38	EA	$ 100.00	$ 3,800	
	WM Speaker	9	EA	$ 100.00	$ 900	
	WP Wall Mounted Speaker	29	EA	$ 100.00	$ 2,900	
	WP Ceiling Flush Mounted Speaker	2	EA	$ 100.00	$ 200	
	Ceiling Mounted Speaker	140	EA	$ 100.00	$ 14,000	
	AV					
	AV Infrastructure	81,302	SF	$ 0.50	$ 40,651	
	JB1 - PA Systems Wiring	1	EA	$ 100.00	$ 100	
	AV Rack	3	EA	$ 100.00	$ 300	
	AL - Assistive Listening Antenna	1	EA	$ 100.00	$ 100	
	SP - Pendant Loudspeaker	12	EA	$ 100.00	$ 1,200	
	SP1 - Stage Connection Panel	1	EA	$ 100.00	$ 100	
	SP2 - Stage Connection Panel	1	EA	$ 100.00	$ 100	
	TP - Touch Panel Controller	1	EA	$ 100.00	$ 100	
	PS - Projection Screen Control Wiring	1	EA	$ 100.00	$ 100	
	VP - Video Projector Connection Panel	1	EA	$ 100.00	$ 100	
	LP3 - Laptop Input Panel	2	EA	$ 100.00	$ 200	
	PM Speaker	20	EA	$ 100.00	$ 2,000	
	WA - Wireless Antenna Connection	1	EA	$ 100.00	$ 100	
	DPA - Projector Audio Connection	1	EA	$ 100.00	$ 100	
	PL - Program Loud Speaker Wiring	2	EA	$ 100.00	$ 200	
	R2 - Ceiling Microphone Connection	1	EA	$ 100.00	$ 100	
	AL - Assistive Listening Antenna	1	EA	$ 100.00	$ 100	
	AV - AV Connection Panel	1	EA	$ 100.00	$ 100	
	PS - Projection Screen Control Wiring	1	EA	$ 100.00	$ 100	
	LG - Loud Speaker Wiring	8	EA	$ 100.00	$ 800	
	WBG - Wall Connection Panel	1	EA	$ 100.00	$ 100	
	WA - Wireless Antenna Connection	2	EA	$ 100.00	$ 200	
	V - Volume Control	1	EA	$ 100.00	$ 100	
					$ 40,651	
					$ 1,900	
					$ 600	
					$ 4,000	
					$ 500	
					$ 600	
					$ 2,000	
					$ 2,600	
					$ 800	
					$ 800	
					$ 400	
					$ 100	
					$ 100	
					$ 2,400	
					$ 300	
					$ 300	
	Life Safety					
$ 415,050	**Generator & ATS**					
12/11/24 Recon	350kW Diesel Generator	350	kW	$ 900.00	$ 315,000	
	ATS-LS 150A	1	EA	$ 13,500.00	$ 13,500	
	ATS-OS 800A	1	EA	$ 67,750.00	$ 67,750	

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ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI		Item Description	Quantity	Unit	Rate	Extension	Total
		EPO Push Button "WP" w/ Cover for Gen	1	EA	$ 300.00	$ 300	
		Exterior Quick Connect - ESL Storm Switch 3020	1	EA	$ 15,000.00	$ 15,000	
		GANN - Generator Remote Status Panel	1	EA	$ 3,500.00	$ 3,500	
$	426,021	**Miscellaneous Trade Requirements**					
		Grounding	81,302	SF	$ 1.25	$ 101,628	
		Material Hoisting / Rigging / Lifts	81,302	SF	$ 0.50	$ 40,651	
		Lightning Protection	81,302	SF	$ 0.33	$ 26,830	
		BIM / 3D Coordination	81,302	SF	$ 0.33	$ 26,830	
		Submittals, Shop Drawings & Closeout Documents	81,302	SF	$ 0.25	$ 20,326	
		Coring, Sleeves & Firestopping	81,302	SF	$ 0.25	$ 20,326	
		Commissioning - Assist Only	81,302	SF	$ 0.10	$ 8,130	
		Permits & Fees	81,302	SF	$ 0.05	Waived	
		NFPA 241	81,302	SF	$ 1.00	$ 81,302	
		Temporary Power					
		Temp Power & Lighting - Building Construction	1	LS	$ 100,000.00	$ 100,000	
		Building Demo / Abatement Phase 2				N/A	
		Site Phase 2				N/A	
						Total	**$ 5,155,394**

DIVISION 27 COMMUNICATIONS

27 0000 Communications / AV — LKCO

		Scope of Work					
		Enabling					
		Enabling					
		EASYSWING WALL MOUNT RACK	1	LS	$ 1,200.00	$ 1,200	
		Pull Back (30)CAT6 Cable from Existing MDF room	30	Ea	$ 1,000.00	$ 30,000	
		Pull Back (12)CAT6 Cable from Existing Wall MTD	12	Ea	$ 1,000.00	$ 12,000	
		Relocate PA System to Modulars	1	LS	$ 25,000.00	$ 25,000	
		Geothermal				N/A	
		Building Demo / Abatement Phase 1				N/A	
		Site Phase 1				N/A	
$	753,464	**Addition:**	81,302	SF			
		Communications					
		TelData					
		Elevator Comms Station (SRP)	1	EA	$ 4,000.00	$ 4,000	
		Equipment Control Panel	6	EA	$ 3,500.00	$ 21,000	
		Rack Connection Panel	1	EA	$ 2,500.00	$ 2,500	
		Data Outlet	24	EA	$ 200.00	$ 4,800	
		1V/2D - TelData Outlet	18	EA	$ 300.00	$ 5,400	
		Voice/Data Outlet (T)	81	EA	$ 300.00	$ 24,300	
		Voice Outlet (W/V)	49	EA	$ 200.00	$ 9,800	
		Flush Floor Mounted Data	3	EA	$ 600.00	$ 1,800	
		Flush Mounted Poke Through TelData 2hr Rated Assembly	2	EA	$ 500.00	$ 1,000	
		Junction Box door Cafetorium Rack (JB2)	1	EA	$ 150.00	$ 150	
		Wall Mounted Clock	60	EA	$ 150.00	$ 9,000	
		WAP Data Outlet	63	EA	$ 300.00	$ 18,900	
		TVE - Video Outlet	47	EA	$ 250.00	$ 11,750	
		TVC - Video Outlet	1	EA	$ 250.00	$ 250	
		Device Wiring & Connections	81,302	SF	$ 1.00	$ 81,302	

Lee Kennedy Co. Inc.,
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PROJECT: Squantum School Addition and Renovation
LOCATION: 50 Huckins Avenue, Quincy MA
OWNER: Squantum School
ARCHITECT: Arrowstreet
DATE: 12/18/2024 Rev. 3

Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
	Classroom Loudspeaker	$ 2.75				
	TOP - Lightspeed Topcat Classroom Audio System	38	EA	$ 1,000.00	$ 38,000	
	MEC - Lightspeed Media Connector	38	EA	$ 250.00	$ 9,500	
	Volume Control Outlet	13	EA	$ 250.00	$ 3,250	
	Intercom Call Switch	38	EA	$ 300.00	$ 11,400	
	WM Speaker	9	EA	$ 350.00	$ 3,150	
	WP Wall Mounted Speaker	29	EA	$ 450.00	$ 13,050	
	WP Ceiling Flush Mounted Speaker	2	EA	$ 550.00	$ 1,100	
	Ceiling Mounted Speaker	140	EA	$ 450.00	$ 63,000	
	Device Wiring & Connections	81,302	SF	$ 1.00	$ 81,302	
	ARA - Area of Rescue Button	4	EA	$ 1,500.00	$ 6,000	
	Smart Rescue Phone	1	EA	$ 2,500.00	$ 2,500	
	Audio Visual (Per Supplemental Information V4)	1	AL	$ 165,000.00	$ 165,000	
12/11/24 Recon	**Projectors**	36	EA	$ 4,000.00	$ 144,000	
	AV System					
	JB1 - PA Systems Wiring	1	LS	$ 50,000.00	w / Allowance	
	AV Rack	3	EA	$ 1,500.00	w / Allowance	
	Cafetorium					
	AL - Assistive Listening Antenna	1	EA	$ 5,000.00	w / Allowance	
	SP - Pendant Loudspeaker	12	EA	$ 500.00	w / Allowance	
	SP1 - Stage Connection Panel	1	EA	$ 5,000.00	w / Allowance	
	SP2 - Stage Connection Panel	1	EA	$ 5,000.00	w / Allowance	
	TP - Touch Panel Controller	1	EA	$ 3,500.00	w / Allowance	
	PS - Projection Screen Control Wiring	1	EA	$ 2,000.00	w / Allowance	
	VP - Video Projector Connection Panel	1	EA	$ 3,000.00	w / Allowance	
	LP3 - Laptop Input Panel	2	EA	$ 3,500.00	w / Allowance	
	PM Speaker	20	EA	$ 500.00	w / Allowance	
	WA - Wireless Antenna Connection	1	EA	$ 1,000.00	w / Allowance	
	Music Room					
	DPA - Projector Audio Connection	1	EA	$ 2,000.00	w / Allowance	
	PL - Program Loud Speaker Wiring	2	EA	$ 1,500.00	w / Allowance	
	R2 - Ceiling Microphone Connection	1	EA	$ 1,000.00	w / Allowance	
	Gym					
	AL - Assistive Listening Antenna	1	EA	$ 5,000.00	w / Allowance	
	AV - AV Connection Panel	1	EA	$ 3,000.00	w / Allowance	
	PS - Projection Screen Control Wiring	1	EA	$ 2,000.00	w / Allowance	
	LG - Loud Speaker Wiring	8	EA	$ 2,000.00	w / Allowance	
	WBG - Wall Connection Panel	1	EA	$ 3,000.00	w / Allowance	
	WA - Wireless Antenna Connection	2	EA	$ 1,000.00	w / Allowance	
	V - Volume Control	1	EA	$ 750.00	w / Allowance	
12/11/24 Recon	Device Wiring & Connections				w / Allowance	
	Trade Requirements					
	Material delivery, storage and handling	81,302	SF	$ 0.10	$ 8,130	
	Testing, commissioning and training	81,302	SF	$ 0.05	$ 4,065	
	Coordination	81,302	SF	$ 0.05	$ 4,065	
	Building Demo / Abatement Phase 2				N/A	
	Site Phase 2				N/A	
					Total	**$ 821,664**

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Estimate Detail

CSI	Item Description	Quantity	Unit	Rate	Extension	Total
DIVISION 28						
28 0000					**LKCO**	
	Enabling					
	Building Demo / Abatement Phase 2				N/A	
	Site Phase 2				N/A	
					Total	**$ 562,862**

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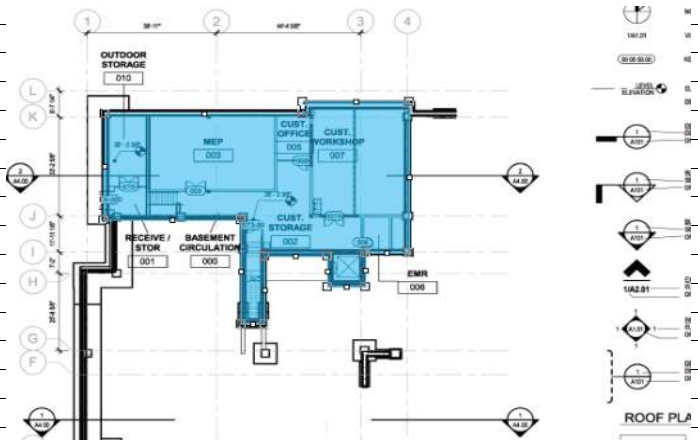
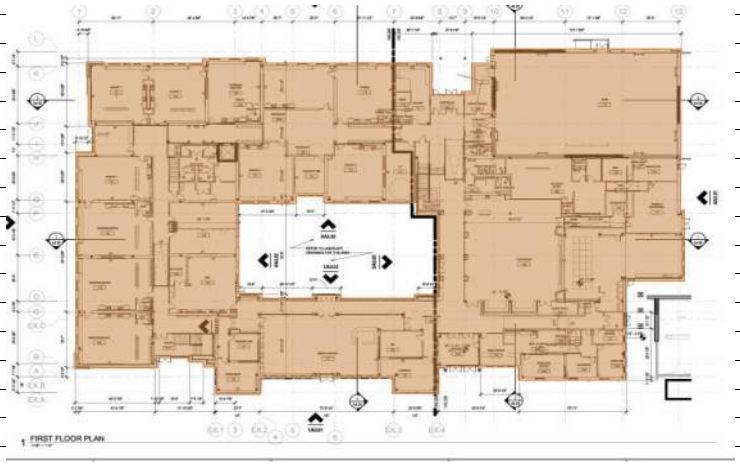
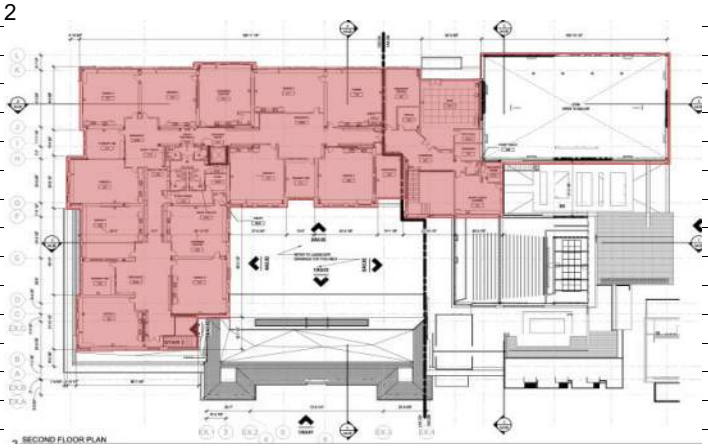
AREA BREAKDOWN

Level	GSF
Basement	4,364 sf
Level 1	52,582 sf
Level 2	24,356 sf
Total	**81,302 SF**







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ALTERNATE SUMMARY

No	Description	Cost
1	Roofing: Faux Slate Roof Shingles ILO real slate roof tiles on the 1919 building	$ (20,739)
2	Roofing: Faux Slate Roof Shingles on new roofs ILO asphalt roof shingles.	$ 1,419,800
3	Roofing: Aluminum shing roofing shingles ILO asphalt roof shingles.	$ 1,048,468
4	Site Wall: Concrete segmented wall (BOD: Versa-Lok or Unilok Commercial) ILO of Natural Stone Wall Solutions	$ (203,401)
5	Lightning Prevention System ILO Lightning Protection System	$ (29,627)
6	Roof Deck at 1919 Roof: T&G ILO metal roof deck.	$ 236,423
7	Ceiling: 2x2 ACT ILO GWB ceilings at Toilet Rooms Boys 111 and Girls 113.	$ (4,307)
8	Flooring: Resilient Linoleum Sheet Flooring ILO Terrazzo in the Main Lobby/Main Hall	$ (198,814)
9	Flooring: Large Format Porcelain Floor Tile ILO Terrazzo in the Main Lobby/Main Hall	$ (29,686)
10	Flooring: Resilient Linoleum Sheet Flooring ILO porcelain floor tile in the Cafeteria	$ (147,793)
11	Walls: FRP ILO Wall Tile in the Kitchen.	FRP in base
12	Walls: Porcelain Wall Tile Wainscot 4' ht. ILO FRP wainscot at all Toilet Rooms	$ 21,554
13	Walls: FRP 4' wainscot ILO wall tile wainscot in the Gym Toilet Rooms Boys #111 and Girls #113	$ (7,692)
14	Walls: FRP Wainscot 4' ht. ILO wall tile 4' ht. wainscot at all Corridor walls	$ (71,361)
15	Outdoor Service Court: Utility screen enclosure wall ILO of Masonry Wall enclosure	$ (6,764)
16.1	Plant Beds and Tree Irrigation on Huckins Ave	$ 2,165
16.2	Lawn Irrigation around building	$ 90,449
16.3	Tree Irrigation around Building	$ 9,991
17	Fiberglass Windows triple-glaze (Manuf: Cascadia) ILO Aluminum Windows (triple-glaze)	$ (55,892)
18	Fiberglass Curtainwall triple-glaze (Manuf: Cascadia) ILO Alum. Curtainwall (triple-glaze)	$ (55,038)
19	Roof Structure 1919 Roof: Metal truss with lowered acoustical GWB ceiling (11' ht.) ILO of exposed wood truss with vaulted acoustical GWB ceiling	TBD
20	Park: Existing Ballfield as is ILO new ballfield in new location	$ (299,690)
21	Flooring: Terrazzo ILO porcelain floor tile in the Cafeteria	$ 32,191
22	Flooring: Carpet Tile ILO of Broadloom carpet at Media Center	$ (7,839)
23	Kallwall insulated panel fenestration at the Gym East Façade ILO of alum and glass curtainwall	$ (15,235)
24 a	4" ILO 3" under slab XPS insulation	$ 119,834
24 b	6" ILO 4" continuous board insulation at EWA-2A/2B, EWA-3A/3B/3C, EWA-4A, and EWA-5A/5B. Note that masonry ties will need to be increased from 4" to 6" ties.	$ 478,114
24 c	10" ILO 7.5" of spray cellulose under the metal deck at ERA-2	$ 131,058
25	Lighting Alternates: a. Refer to HLB's Budget Hierarchy ALT A b. Refer to HLB's Budget Hierarchy ALT B	Omit
26	Add Alternate: 30 Year Roof Warranty ILO 20 Year Warranty	$ 17,093
27	Add Alternate: Impact Resistant Windows/Storefront/Curtainwall Systems ILO standard rated windows/storefront/curtainwall systems. Triple glazing shall remain	$ 153,833
28	Stage Lighting: Reduce scope to simplified light fixtures and controls.	$ (34,185)
29	Mock Up: In-situ ILO stand-along mockup (including testing In-situ).	$ (120,986)
30	Schoolguard SG5 glass: double glazed units ILO of triple glazed units.	In Base
31	Media Center: full glass double door (alum. Interior) ILO of folding glass door system.	$ (11,395)
32	Fire Alarm Control Panel (Enabling Package): Relocate existing FA control panel from existing wall to nearby wall (approximately 20-30 feet) ILO new FA control panel.	N/A

Note: See Introduction for Assumptions and Qualifications
Breakouts are for accounting purposes only and are not considered separate projects

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Squantum School - Alternate Detail

1	**Roofing: Faux Slate Roof Shingles ILO real slate roof tiles on the 1919 building**						
	Add:						
	ALT ERA-2: Faux Slate Roof Shingles	3,640	SF	$	95.00	$	345,800
	Deduct:						
	ERA-3 Real Slate Roof Tiles	(3,640)	SF	$	100.00	$	(364,000)
					Sub Total		**$ (18,200)**
					% Based Mark Up's	14.0%	$ (2,539)
					Roofing: Faux Slate Roof Shingles ILO real slate roof tiles on the 1919 building	**Total**	**$ (20,739)**

2	**Roofing: Faux Slate Roof Shingles on new roofs ILO asphalt roof shingles.**						
	Add:						
	ALT ERA-2: Faux Slate Roof Shingles	19,169	SF	$	95.00	$	1,821,055
	Deduct:						
	ERA-2: Asphalt Roof Shingles	(19,169)	SF	$	30.00	$	(575,070)
					Sub Total		**$ 1,245,985**
					% Based Mark Up's	14.0%	$ 173,815
					Roofing: Faux Slate Roof Shingles on new roofs ILO asphalt roof shingles.	**Total**	**$ 1,419,800**

3	**Roofing: Aluminum shing roofing shingles ILO asphalt roof shingles.**						
	Add:						
	Aluminum Roofing Shingles	19,169	SF	$	78.00	$	1,495,182
	Deduct:						
	ERA-2: Asphalt Roof Shingles	(19,169)	SF	$	30.00	$	(575,070)
					Sub Total		**$ 920,112**
					% Based Mark Up's	14.0%	$ 128,356
					Roofing: Aluminum shing roofing shingles ILO asphalt roof shingles.	**Total**	**$ 1,048,468**

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Squantum School - Alternate Detail

4	**Site Wall: Concrete segmented wall (BOD: Versa-Lok or Unilok Commercial) ILO of Natural Stone Wall Solutions**					
	Deduct Stone and Concrete Walls	1	LS	$ (280,500.00)	$ (280,500)	
	Versalock Walls	1,020	SF	$ 100.00	$ 102,000	
					Sub Total	**$ (178,500)**
					% Based Mark Up's 14.0%	$ (24,901)
	Site Wall: Concrete segmented wall (BOD: Versa-Lok or Unilok Commercial) ILO of				**Total**	**$ (203,401)**

5	**Lightning Prevention System ILO Lightning Protection System**					
	Deduct	1	LS	$ (26,000.00)	$ (26,000)	
					Sub Total	**$ (26,000)**
					% Based Mark Up's 14.0%	$ (3,627)
	Lightning Prevention System ILO Lightning Protection System				**Total**	**$ (29,627)**

6	**Roof Deck at 1919 Roof: T&G ILO metal roof deck.**					
	Add:					
	T&G Roof Deck	3,640	SF	$ 65.00	$ 236,600	
	Deduct:					
	Metal Roof Deck	(3,640)	SF	$ 8.00	$ (29,120)	
					Sub Total	**$ 207,480**
					% Based Mark Up's 14.0%	$ 28,943
	Roof Deck at 1919 Roof: T&G ILO metal roof deck.				**Total**	**$ 236,423**

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Squantum School - Alternate Detail

7	**Ceiling: 2x2 ACT ILO GWB ceilings at Toilet Rooms Boys 111 and Girls 113.**						
	Add:						
	2x2 ACT	378	SF	$	10.00	$	3,780
	Deduct:						
	GWB Ceilings	(378)	SF	$	18.00	$	(6,804)
	Paint Ceilings	(378)	SF	$	2.00	$	(756)
					Sub Total	**$**	**(3,780)**
					% Based Mark Up's 14.0%	$	(527)
					Ceiling: 2x2 ACT ILO GWB ceilings at Toilet Rooms Boys 111 and Girls 113. Total	**$**	**(4,307)**

8	**Flooring: Resilient Linoleum Sheet Flooring ILO Terrazzo in the Main Lobby/Main Hall**						
	Add:						
	Resilient Sheet Flooring	3,458	SF	$	15.00	$	51,870
	Base	500	LF	$	4.00	$	2,000
	Floor Prep	3,458	SF	$	4.25	$	14,697
	Deduct:						
	Terrazzo Flooring	(3,458)	SF	$	55.00	$	(190,190)
	Base	(500)	LF	$	40.00	$	(20,000)
	Moisture Testing/ Crack suppression membrane	(3,458)	SF	$	9.50	$	(32,851)
					Sub Total	**$**	**(174,475)**
					% Based Mark Up's 14.0%	$	(24,339)
					Flooring: Resilient Linoleum Sheet Flooring ILO Terrazzo in the Main Lobby/Main Hall Total	**$**	**(198,814)**

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Squantum School - Alternate Detail

9	**Flooring: Large Format Porcelain Floor Tile ILO Terrazzo in the Main Lobby/Main Hall**						
	Add:						
	Porcelain Floor Tile and Base	3,458	SF	$	48.00	$	165,984
	Floor Prep	3,458	SF	$	8.00	$	27,664
	Waterproofing	3,458	SF	$	6.75	$	23,342
	Deduct:						
	Terrazzo Flooring	(3,458)	SF	$	55.00	$	(190,190)
	Base	(500)	LF	$	40.00	$	(20,000)
	Moisture Testing/ Crack suppression membrane	(3,458)	SF	$	9.50	$	(32,851)
					Sub Total		**$ (26,052)**
					% Based Mark Up's 14.0%		$ (3,634)
					Flooring: Large Format Porcelain Floor Tile ILO Terrazzo in the Main Total		**$ (29,686)**

10	**Flooring: Resilient Linoleum Sheet Flooring ILO porcelain floor tile in the Cafeteria**						
	Add:						
	Resilient Sheet Flooring	3,000	SF	$	15.00	$	45,000
	Base	200	LF	$	4.00	$	800
	Floor Prep	3,000	SF	$	4.25	$	12,750
	Deduct:						
	Porcelain Floor Tile and Base	(3,000)	SF	$	48.00	$	(144,000)
	Floor Prep	(3,000)	SF	$	8.00	$	(24,000)
	Waterproofing	(3,000)	SF	$	6.75	$	(20,250)
					Sub Total		**$ (129,700)**
					% Based Mark Up's 14.0%		$ (18,093)
					Flooring: Resilient Linoleum Sheet Flooring ILO porcelain floor tile in the Cafeteria Total		**$ (147,793)**

Squantum School - Alternate Detail

11	**Walls: FRP ILO Wall Tile in the Kitchen.**					
	TBD					
				Sub Total		**$ -**
				% Based Mark Up's	14.0%	$ -
				Walls: FRP ILO Wall Tile in the Kitchen.	**Total**	**$ -**

12	**Walls: Porcelain Wall Tile Wainscot 4’ ht. ILO FRP wainscot at all Toilet Rooms**					
	Add:					
	Porcelain Wall Tile (4' Height)	1,261	SF	$ 30.00	$ 37,830	
	Tile Backer Board	1,261	SF			
	Deduct:					
	FRP (4' Height)	(1,261)	SF	$ 15.00	$ (18,915)	
				Sub Total		**$ 18,915**
				% Based Mark Up's	14.0%	$ 2,639
				Walls: Porcelain Wall Tile Wainscot 4’ ht. ILO FRP wainscot at all Toilet Rooms	**Total**	**$ 21,554**

13	**Walls: FRP 4’ wainscot ILO wall tile wainscot in the Gym Toilet Rooms Boys #111 and Girls #113**					
	Add:					
	FRP (4' Height)	450	SF	$ 15.00	$ 6,750	
	Deduct:					
	Porcelain Wall Tile (4' Height)	(450)	SF	$ 30.00	$ (13,500)	
	Tile Backer Board	(450)	SF			
				Sub Total		**$ (6,750)**
				% Based Mark Up's	14.0%	$ (942)
				Walls: FRP 4’ wainscot ILO wall tile wainscot in the Gym Toilet Rooms Boys #111 and	**Total**	**$ (7,692)**

Squantum School - Alternate Detail

14	**Walls: FRP Wainscot 4' ht. ILO wall tile 4' ht. wainscot at all Corridor walls**					
	Add:					
	FRP (4' Height)	4,175	SF	$ 15.00	$ 62,625	
	Deduct:					
	Porcelain Wall Tile (4' Height)	(4,175)	SF	$ 30.00	$ (125,250)	
	Tile Backer Board	(4,175)	SF			
					Sub Total	**$ (62,625)**
					% Based Mark Up's 14.0%	$ (8,736)
					Walls: FRP Wainscot 4' ht. ILO wall tile 4' ht. wainscot at all Corridor walls Total	**$ (71,361)**

15	**Outdoor Service Court: Utility screen enclosure wall ILO of Masonry Wall enclosure**					
	Deduct Masonry Screen	1	LS	$ (72,080.00)	$ (72,080)	
	Deduct Masonry Screen	848	SF	$ 78.00	$ 66,144	
					Sub Total	**$ (5,936)**
					% Based Mark Up's 14.0%	$ (828)
					Outdoor Service Court: Utility screen enclosure wall ILO of Masonry Wall enclosure Total	**$ (6,764)**

16.1	**Plant Beds and Tree Irrigation on Huckins Ave**					
	Irrigation	475	SF	$ 4.00	$ 1,900	
					Sub Total	**$ 1,900**
					% Based Mark Up's 14.0%	$ 265
					Plant Beds and Tree Irrigation on Huckins Ave Total	**$ 2,165**

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Squantum School - Alternate Detail

16.2	**Lawn Irrigation around building**						
	Irrigation	19,844	SF	$ 4.00	$ 79,376		
					Sub Total	**$**	**79,376**
					% Based Mark Up's 14.0%	$	11,073
					Lawn Irrigation around building Total	**$**	**90,449**
16.3	**Tree Irrigation around Building**						
	Irrigation	2,192	SF	$ 4.00	$ 8,768		
					Sub Total	**$**	**8,768**
					% Based Mark Up's 14.0%	$	1,223
					Tree Irrigation around Building Total	**$**	**9,991**
17	**Fiberglass Windows triple-glaze (Manuf: Cascadia) ILO Aluminum Windows (triple-glaze)**						
	Deduct:						
	Aluminum Windows	(4,905)	SF	$ 10.00	$ (49,050)		
					Sub Total	**$**	**(49,050)**
					% Based Mark Up's 14.0%	$	(6,842)
					Fiberglass Windows triple-glaze (Manuf: Cascadia) ILO Aluminum Windows (triple- Total	**$**	**(55,892)**

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Squantum School - Alternate Detail

18	**Fiberglass Curtainwall triple-glaze (Manuf: Cascadia) ILO Alum. Curtainwall (triple-glaze)**					
	Deduct:					
	Aluminum Curtainwall	(4,830)	SF	$ 10.00	$ (48,300)	
					Sub Total	**$ (48,300)**
					% Based Mark Up's 14.0%	$ (6,738)
					Fiberglass Curtainwall triple-glaze (Manuf: Cascadia) ILO Alum. Curtainwall (triple-glaze) Total	**$ (55,038)**

19	**Roof Structure 1919 Roof: Metal truss with lowered acoustical GWB ceiling (11' ht.) ILO of exposed wood truss with vaulted acoustical GWB ceiling**					
	TBD					
					Sub Total	**$ -**
					% Based Mark Up's 14.0%	$ -
					Roof Structure 1919 Roof: Metal truss with lowered acoustical GWB ceiling (11' ht.) Total	**$ -**

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Squantum School - Alternate Detail

20	**Park: Existing Ballfield as is ILO new ballfield in new location**						
	Deduct:	1	LS	$ (261,341.00)	$ (261,341)		
	Player Benches	2	EA	$ (800.00)	$ (1,600)		
	Pitchers Rubber	1	EA	$ (30.00)	$ (30)		
	Home Plate	1	EA	$ (30.00)	$ (30)		
					Sub Total	**$**	**(263,001)**
				% Based Mark Up's	14.0%	$	(36,689)
				Park: Existing Ballfield as is ILO new ballfield in new location	**Total**	**$**	**(299,690)**

21	**Flooring: Terrazzo ILO porcelain floor tile in the Cafeteria**						
	Add:						
	Terrazzo Flooring	3,000	SF	$ 60.00	$ 180,000		
	Base	200	LF	$ 40.00	$ 8,000		
	Moisture Testing/ Crack suppression membrane	3,000	SF	$ 9.50	$ 28,500		
	Deduct:						
	Porcelain Floor Tile and Base	(3,000)	SF	$ 48.00	$ (144,000)		
	Floor Prep	(3,000)	SF	$ 8.00	$ (24,000)		
	Waterproofing	(3,000)	SF	$ 6.75	$ (20,250)		
					Sub Total	**$**	**28,250**
				% Based Mark Up's	14.0%	$	3,941
				Flooring: Terrazzo ILO porcelain floor tile in the Cafeteria	**Total**	**$**	**32,191**

Lee Kennedy Co. Inc.,
Lee Kennedy Co. Inc.,
122 Quincy Shore Drive, Quincy, MA 02171
PROJECT: Squantum School
LOCATION: Quincy, MA
OWNER:
ARCHITECT:
DATE: 12/18/2024 Rev. 3

Squantum School - Alternate Detail

22	**Flooring: Carpet Tile ILO of Broadloom carpet at Media Center**						
	Add:						
	Carpet Tile	2,293	SF	$	6.00	$	13,758
	Carpet Tile Floor Prep	2,293	SF	$	4.25	$	9,745
	Deduct:						
	Broadloom Carpet	(2,293)	SF	$	9.00	$	(20,637)
	Carpet Floor Prep	(2,293)	SF	$	4.25	$	(9,745)
					Sub Total		**$ (6,879)**
					% Based Mark Up's	14.0%	$ (960)
					Flooring: Carpet Tile ILO of Broadloom carpet at Media Center	**Total**	**$ (7,839)**

23	**Kallwall insulated panel fenestration at the Gym East Façade ILO of alum and glass curtainwall**						
	Deduct Curtainwall	382	SF	$	(195.00)	$	(74,490)
	Kalwall	382	SF	$	160.00	$	61,120
					Sub Total		**$ (13,370)**
					% Based Mark Up's	14.0%	$ (1,865)
					Kallwall insulated panel fenestration at the Gym East Façade ILO of alum and glass	**Total**	**$ (15,235)**

24 a	**4" ILO 3" under slab XPS insulation**						
	Sub Slab Insulation	52,582	SF	$	2.00	$	105,164
					Sub Total		**$ 105,164**
					% Based Mark Up's	14.0%	$ 14,670
					4" ILO 3" under slab XPS insulation	**Total**	**$ 119,834**

Squantum School - Alternate Detail

24 b	**6" ILO 4" continuous board insulation at EWA-2A/2B, EWA-3A/3B/3C, EWA-4A, and EWA-5A/5B. Note that masonry ties will need to be increased from 4" to 6" ties.**					
	Increase Insulation	34,734	SF	$ 4.00	$ 138,936	
	Masonry Ties	13,372	SF	$ 8.00	$ 106,976	
	Nightwall Premium	34,734	SF	$ 5.00	$ 173,670	
				Sub Total		**$ 419,582**
				% Based Mark Up's	14.0%	$ 58,532
				6" ILO 4" continuous board insulation at EWA-2A/2B, EWA-3A/3B/3C, EWA-4A,	**Total**	**$ 478,114**

24 c	**10" ILO 7.5" of spray cellulose under the metal deck at ERA-2**					
	Insulation	19,169	SF	$ 6.00	$ 115,014	
				Sub Total		**$ 115,014**
				% Based Mark Up's	14.0%	$ 16,044
				10" ILO 7.5" of spray cellulose under the metal deck at ERA-2	**Total**	**$ 131,058**

25	**Lighting Alternates:** a. Refer to HLB's Budget Hierarchy ALT A b. Refer to HLB's Budget Hierarchy ALT B					
	TBD					
				Sub Total		**$ -**
				% Based Mark Up's	14.0%	$ -
				Lighting Alternates: a. Refer to HLB's Budget Hierarchy ALT A	**Total**	**$ -**

Lee Kennedy Co. Inc.,
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PROJECT: Squantum School
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Squantum School - Alternate Detail

26 **Add Alternate: 30 Year Roof Warranty ILO 20 Year Warranty**

Add:					
30 Year Roof Warranty	1	LS	$ 15,000.00	$	15,000

Sub Total		**$ 15,000**
% Based Mark Up's	14.0%	$ 2,093
Add Alternate: 30 Year Roof Warranty ILO 20 Year Warranty	**Total**	**$ 17,093**

27 **Add Alternate: Impact Resistant Windows/Storefront/Curtainwall Systems ILO standard rated windows/storefront/curtainwall systems. Triple glazing shall remain**

Add:					
Impact Resistant Exterior Glass Systems	9,000	SF	$ 15.00	$	135,000
Deduct:					
Standard Exterior Glass Systems		SF	$ -	$	-

Sub Total		**$ 135,000**
% Based Mark Up's	14.0%	$ 18,833
Add Alternate: Impact Resistant Windows/Storefront/Curtainwal	**Total**	**$ 153,833**

Squantum School - Alternate Detail

28 **Stage Lighting: Reduce scope to simplified light fixtures and controls.**

Allowance for Stage Lighting Reduction	1	AL	$ (30,000.00)	$ (30,000)	
				Sub Total	**$ (30,000)**
				% Based Mark Up's 14.0%	$ (4,185)
				Stage Lighting: Reduce scope to simplified light fixtures and controls. Total	**$ (34,185)**

29 **Mock Up: In-situ ILO stand-along mockup (including testing In-situ).**

Delete Mock Up	1	LS	$ (106,175.00)	$ (106,175)	
				Sub Total	**$ (106,175)**
				% Based Mark Up's 14.0%	$ (14,811)
				Mock Up: In-situ ILO stand-along mockup (including testing In-situ). Total	**$ (120,986)**

30 **Schoolguard SG5 glass: double glazed units ILO of triple glazed units.**

Double Glazed in lieu of Triple Glazed	240	SF	$ (30.00)	In Base	
				Sub Total	**$ -**
				% Based Mark Up's 14.0%	$ -
				Schoolguard SG5 glass: double glazed units ILO of triple glazed units. Total	**In Base**

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Squantum School - Alternate Detail

31	**Media Center: full glass double door (alum. Interior) ILO of folding glass door system.**					
	Full Glass in lieu of folding	1	LS	$ (10,000.00)	$ (10,000)	
				Sub Total		**$ (10,000)**
				% Based Mark Up's	14.0%	$ (1,395)
				Media Center: full glass double door (alum. Interior) ILO of folding glass door	**Total**	**$ (11,395)**

32	**Fire Alarm Control Panel (Enabling Package): Relocate existing FA control panel from existing wall to nearby wall (approximately 20-30 feet) ILO new FA control panel.**					
					TBD	
					Sub Total	**$ -**
				% Based Mark Up's	14.0%	$ -
				Fire Alarm Control Panel (Enabling Package): Relocate existing FA control panel from	**Total**	**$ -**

6A.4 APPENDICES

A. District's Responses to MSBA SD Review Comments

ATTACHMENT A
MODULE 4 – SCHEMATIC DESIGN REVIEW COMMENTS

District: City of Quincy
School: Squantum Elementary School
Owner's Project Manager: PCA360, LLC
Designer Firm: Arrowstreet, Inc.
Submittal Due Date: August 29, 2024
Submittal Received Date: August 29, 2024
Review Date: August 29, 2024 – October 3, 2024
Reviewed by: A. Israel, L. Winston, C. Forde, K. Brown

MSBA REVIEW COMMENTS

The following comments[1] on the Schematic Design submittal are issued pursuant to a review of the project submittal document for the addition and renovation of the proposed project and presented as a Schematic Design submission in accordance with the MSBA Module 4 Guidelines.

4.1 SCHEMATIC DESIGN SUBMITTAL

Overview of the Schematic Design Submittal	Complete	Provided; *Refer to comments following each section*	Not Provided; *Refer to comments following each section*	Receipt of District's Response; *To be filled out by MSBA Staff*
Schematic Design Submittal Notification	☒	☐	☐	☐
OPM Certification of Completeness and Conformity	☒	☐	☐	☐
4.1.1 DESE Submittal	☒	☐	☐	☐
4.1.2 Schematic Design Binder	☐	☒	☐	☐
4.1.3 Schematic Design Project Manual	☐	☒	☐	☐
4.1.4 Schematic Design Drawings	☐	☒	☐	☐

Note that Module Four states that "MSBA will not accept incomplete submittals, submittals that have not been reviewed by the OPM or submittals for which the estimated project costs exceed the District's project budget. Updates to the Total Project Budget that do not reflect the scope and schedule represented in the Schematic Design submittal will not be accepted. All value engineering activities must be complete, and the results incorporated into the Schematic Design documentation prior to being submitted to the MSBA."

[1] The written comments provided by the MSBA are solely for purposes of determining whether the submittal documents, analysis process, proposed planning concept and any other design documents submitted for MSBA review appear consistent with the MSBA's guidelines and requirements, and are not for the purpose of determining whether the proposed design and its process may meet any legal requirements imposed by federal, state or local law, including, but not limited to, zoning ordinances and by-laws, environmental regulations, building codes, sanitary codes, safety codes and public procurement laws or for the purpose of determining whether the proposed design and process meet any applicable professional standard of care or any other standard of care. Project designers are obligated to implement detailed planning and technical review procedures to effect coordination of design criteria, buildability, and technical adequacy of project concepts. Each city, town and regional school district shall be solely responsible for ensuring that its project development concepts comply with all applicable provisions of federal, state, and local law. The MSBA recommends that each city, town and regional school district have its legal counsel review its development process and subsequent bid documents to ensure that it is in compliance with all provisions of federal, state and local law, prior to bidding. The MSBA shall not be responsible for any legal fees or costs of any kind that may be incurred by a city, town or regional school district in relation to MSBA requirements or the preparation and review of the project's planning process or plans and specifications.

4.1.1 DESE SUBMISSION

Provide the following Items		Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	Cover Letter	☒	☐	☐	☐
2	Special Education Delivery Methodology Letter	☒	☐	☐	☐
3	Signed Educational Space Summary	☒	☐	☐	☐
4	Floor Plans	☒	☐	☐	☐
5	Special Education Adjacency Table	☒	☐	☐	☐

MSBA Review Comments:

No review comments for this section.

4.1.2 SCHEMATIC DESIGN BINDER

Provide the following Items		Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response *To be filled out by MSBA Staff*
1	Introduction				
	a) Summary of the MSBA approved Preferred Schematic	☒	☐	☐	☐
	b) Community outreach overview	☒	☐	☐	☐
	c) The District's Total Project Budget for the proposed project	☒	☐	☐	☐
	d) Updated description of the project	☒	☐	☐	☐
	e) Site Plan, Floor Plans, and Elevations	☒	☐	☐	☐
	f) A copy of the MSBA Preferred Schematic Report review and corresponding District response	☒	☐	☐	☐
2	Final Design Program				
	a) General and specific architectural characteristics desired	☒	☐	☐	☐
	b) Educational space summary spreadsheets	☐	☒	☐	☐
	c) Narrative of how the proposed educational space summary supports the educational program	☒	☐	☐	☐
	d) Instructional technology (existing and proposed)	☒	☐	☐	☐
	e) Functional relationships and critical adjacencies that informed the basis of design	☐	☒	☐	☐
	f) and visual access requirements	☒	☐	☐	☐
	g) Site development requirements	☒	☐	☐	☐
	h) Description of desired features of the school	☒	☐	☐	☐
3	Traffic Analysis	☒	☐	☐	☐

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response *To be filled out by MSBA Staff*
4	State Site Permit Tracking Worksheet	☒	☐	☐	☐
5	Updated site vulnerability risk assessment evaluation for the selected site including a description of specific identified site resiliency concerns, design mitigation options and resulting design decisions by the District	☒	☐	☐	☐
6	Environmental and Existing Building Assessment	☒	☐	☐	☐
7	Geotechnical and Geo-environmental Analysis	☐	☒	☐	☐
8	Code Analysis and List of Permitting and other Regulatory Filing Requirements	☐	☒	☐	☐
9	Utility Analysis and Soils Analysis for on-site septic/sewage treatment facilities	☒	☐	☐	☐
10	Massing Study	☒	☐	☐	☐
11	Narrative Building Systems Descriptions				
	a) Sustainable design elements	☒	☐	☐	☐
	b) Building structure	☒	☐	☐	☐
	c) Plumbing and HVAC	☐	☒	☐	☐
	d) Fire Protection	☒	☐	☐	☐
	e) Verify adequate water capacity for new system	☒	☐	☐	☐
	f) Confirm if a fire pump will be required	☒	☐	☐	☐
	g) Electrical	☒	☐	☐	☐
	h) Information Technology	☒	☐	☐	☐
12	Sustainable Building Design Guideline Documents	☒	☐	☐	☐
13	Analysis of the design's compliance with ADA and the MAAB	☐	☒	☐	☐
14	Timeline associated with filing the Project Notification Form with Massachusetts Historical Commission ("MHC") and obtaining MHC approval prior to construction bids.	☒	☐	☐	☐
15	Room Data Sheets	☐	☒	☐	☐
16	Proposed construction methodology (DBB / CMR)	☒	☐	☐	☐
17	District's anticipated reimbursement rate w/ incentive points	☐	☒	☐	☐
18	Total Project Budget spreadsheet and summary of cost reconciliation of the Designer's and OPM's estimates.	☒	☐	☐	☐
19	Designer's Construction Cost Estimate	☐	☒	☐	☐
20	Independent OPM Construction Cost Estimate	☐	☒	☐	☐
21	Updated Project Work Plan – indicating changes	☒	☐	☐	☐

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response *To be filled out by MSBA Staff*
	a) Project Directory	☒	☐	☐	☐
	b) Roles and Responsibilities	☒	☐	☐	☐
	c) Communications and Document Control Procedures	☒	☐	☐	☐
	d) Designer's Work Plan Project Schedule	☐	☒	☐	☐
22	Local Actions and Approvals Certification				
	a) Completed and signed certification	☒	☐	☐	☐
	b) SBC meeting dates, agendas, and attendees	☒	☐	☐	☐
	c) Certified SBC meeting notes with vote language and vote results	☒	☐	☐	☐
	d) Description of materials presented at such SBC meetings and where those materials may be viewed	☒	☐	☐	☐

MSBA Review Comments:

2b) Please refer to detailed comments in 'Attachment B'.

2e) The information provided in 'The Temporary Condition' narrative on page 39 of the submittal states: "An early package is envisioned to prepare the 1971 wing to stand alone with a connected modular addition in the Summer of 2025." As the project develops further, please include the early package for DD, 60% CD and 90% CD submittal reviews.

Project Team Response: Our plan for submissions of the early packages are as follows:

MSBA DD Submission on December 18, 2024 shall include:

100% DD Main Package

50% CD Early Enabling Package

50% CD Geothermal Package

50% CD Demolition Package

MSBA 60% CD Submission on March 4, 2024 shall include:

60% CD Main Package

100% CD Early Enabling Package

100% CD Geothermal Package

100% CD Demolition Package

MSBA 90% CD Submission on May 28, 2024 shall include:

90% Main Package

7) The information provided in the 'Geo-environmental Analysis' narrative states the following:

> *"The soil results showed less than a Class RCS-1 (clean non-regulated), therefore the project has budgeted for clean soil disposal at $25 per ton of soil. The earthwork and soil management should be performed under a Soil Management Plan (SMP) providing guidelines for testing and for segregation and management of soils that will be disturbed and/ or displaced during construction. Soil pre-characterization will occur during construction."*

Additionally, the information provided in the 'Geotechnical Analysis' narrative states:

> *"Further test pits are planned for DD phase to confirm the density of the potential rock in the area of the proposed basement, behind the existing 1949 gym wing."*

In response to these review comments, please note and acknowledge that all cost increases subsequent to a Project Scope and Budget Approval from the MSBA's Board of Directors will be the sole responsibility of the District and considered ineligible for reimbursement.

Project Team Response: Acknowledged.

8) The information provided in the 'Code Analysis & Permitting Requirements' narrative notes that a plumbing variance is anticipated for the temporary condition at the 1971 buildings. In response to these review comments, please include the timeline associated with plumbing variance in the project schedule. Also, please note and acknowledge that all cost increases subsequent to a Project Scope and Budget Approval from the MSBA's Board of Directors will be the sole responsibility of the District and considered ineligible for reimbursement.

Project Team Response: Acknowledged.

11c) The information provided in the 'Plumbing' narrative on page 83 of the submittal states:

> *"The plumbing systems that will serve the new building are cold water, hot water, sanitary waste and vent system, grease waste system, storm drain system and natural gas."*

However, the information provided in the 'Utility' narrative on page 57 of the submittal states: "The school building is planned to be all-electric eliminating the need for gas services."

In response to these review comments, please confirm whether there will be gas services provided for the proposed project and update the documentation accordingly.

Project Team Response: A correction will be made to page 83, to strike out "natural gas"

13) The information provided on page 94 of the submittal states: "It is not anticipated that the 1971 wing will require interim accessibility upgrades for the temporary use condition prior to full demolition. This may require a variance from MAAB. In response to these review comments, please include a timeline associated with the MAAB variance in the project schedule. Please note and acknowledge that all cost increases subsequent to a Project Scope and Budget Approval from the MSBA's Board of Directors will be the sole responsibility of the District and considered ineligible for reimbursement.

Project Team Response: Acknowledged.

15) The information provided in the room data sheets does not align with the information in the floor plans or space summary. In response to these review comments, please review the floor plans, space summary, and room data sheets and update as necessary to ensure the documentation aligns. For reference, below are several discrepancies noted during the review:

- *The net area information provided on 1.05 General Classroom – Grade 1 lists 950 nsf (805 nsf excluding footprint of cubbies). However, the District is proposing 1,000 nsf for Grade 1 General Classroom in the proposed space summary. Please confirm the proposed square footage for Grade 1 General Classroom and update the information accordingly.*
  Project Team Response: Grade 1 General Classrooms are being planned as 1,000 nsf. The Room Data sheet note is incorrect.

- *The information provided on 2.01 IEP room data sheet identifies a window as required. However, there is no window shown on the IEP enlarged floor plan on the room data sheet. Please confirm if the window is required for this room and update the information accordingly.*
  Project Team Response: Correction should be made to the Room Data Sheet to indicate no window is required for IEP room.
- *The information provided on 2.02 Self Contained Classroom – Toilet lists (2) 60 nsf Self Contained Classroom Toilet. However, the District is proposing (5) 60 nsf Self Contained Classroom-Toilet in the proposed space summary. Please verify the proposed number of Self-Contained Classroom-Toilet and update the information accordingly.*
  Project Team Response: Correction should be made to the Room Data Sheet to indicate (5) toilets.

- *The information provided on 2.03 Resource room data sheet shows (1) 375 nsf Resource Room. However, the District is proposing (1) 375 nsf and (1) 360 nsf Resource Room in the proposed space summary. Please provide the room data sheet for the proposed (1) 360 nsf Resource room.*
  Project Team Response: Please find added room data sheet for 2nd Resource Room- Exhibit C

- *The information provided on 2.04 Learning Center room data sheet shows (3) 1,000nsf Learning center spaces. However, the District is proposing (1) 1,000 nsf and (2) 950 nsf in the space summary. Please verify the proposed area for the Learning Center and update the information accordingly.*
  Project Team Response: Correction should be made to the Room Data Sheet to indicate (1) 1,000 nsf Learning Center and (2) 950 nsf Learning Center.

- *Please provide the room data sheet for the proposed (1) 230 nsf Therapy Rooms (OT/Reading/ Speech/ BCBA/ Other Services) per the proposed space summary.*
  Project Team Response: Please find added room data sheet for 230 nsf Therapy Room- Exhibit C

- *The information provided in the educational program design response notes the art room is planned with two sinks as well as a trough style sink, all with plaster traps. Please*

confirm the plaster traps are provided in the art room sinks.
Project Team Response: Yes, a plaster trap is being provided.

- *There is no plumbing information provided on 3.03 General Music Classroom room data sheet. However, there are sinks shown on General Music Classroom enlarged floor plan. Please verify and update the information accordingly.*
  Project Team Response: Sink is planned to be added in DD submission.

- *The plumbing information provided on 3.04 Music Storage room data sheet lists two sinks (one ADA accessible, one deep and wide large for larger containers). However, there are no sinks shown on the Music Storage room enlarged floor plan. Please verify if the plumbing information is applicable to the proposed music storage room and update accordingly.*
  Project Team Response: Correction, no sinks shall be in the Music Storage Room.

- *The window information provided on 4.03 Health Instructor's Office listed as none. However, there is a window shown on the Health Instructor's Office enlarged floor plan. Please verify if the window is required and update the information accordingly.*
  Project Team Response: Correction, a window is provided in the health instructor's office.

- *The information provided on 4.04 Showers room data sheet lists (1) 100 nsf Shower. However, the District is proposing (2) 100 nsf Shower (for resiliency shelter use) in the proposed space summary. Please confirm the number of proposed shower rooms and the net area and update the information accordingly. Additionally, please verify if the proposed adult toilet and shower are ADA accessible compliance.*
  Project Team Response: Correction, there are (2) 100 nsf shower rooms. Both shower rooms are fully ADA accessible.

- *The information provided on 6.02 Platform room data sheet lists (2) platforms with 1,000 net area. However, the District is proposing (1) 1,000 nsf Stage in the proposed space summary. Please confirm the number of proposed platforms and the net area and update the information accordingly.*
  Project Team Response: Correction, only (1) Plastorm at 1000 nsf is being provided.

- *The information provided on 6.03 Chair Storage room data sheet lists (2) Chair storage rooms. However, the District is proposing (1) 327 nsf Chair/ Table/ Equipment Storage in the proposed space summary. Please confirm the number of proposed Chair Storage room and the proposed sq.ft and update the information accordingly.*
  Project Team Response: (2) Chair Storage Rooms are being provided with a total nsf of the two Chair Storage Rooms is 327 nsf.

- *The information provided on 7.03 Rest Area room data sheet lists (1) 100 nsf rest area. However, the District is proposing for (2) Examination Room/ Resting in the proposed space summary. Please confirm the number of the proposed Resting and update the information accordingly.*
  Project Team Response: The District noted that (2) beds are desired but only (1) resting room and (1) behind curtains. Plans will be updated for DD submission.

- *The window information provided on 8.08 Conference Room, room data sheet lists optional. However, there are three windows shown on the Conference Room enlarged floor plan. Please clarify if the windows are required and update the information accordingly.*
  Project Team Response: Corrections windows are being provided in the Conference Room.
- *The window information provided on 8.09 Guidance room data sheet shows interior. However, there is no window shown on the enlarged floor plan of the guidance office on the room data sheet. Please verify if the window is required at the guidance room and update the information accordingly.*
  Project Team Response: No window is required for the Guidance Room.
- *The window information provided on 9.01 Custodian's Office room data shows optional. Please verify if the window is required.*
  *Project Team Response: No window is required for the **Custodial** Room.*

- *The net area provided in the 9.04 Trash and Receiving room data sheet shows 400 nsf of Trash + 350 nsf Receiving and Supply. However, the proposed space summary lists 400 nsf of Recycling Room/ Trash and 227 nsf Receiving and General Supply. Please verify the proposed nsf of the receiving and general supply area and coordinate the space summary and room data accordingly.*
  Project Team Response: Space summary has the correct nsf information.

- *There are doors shown on the enlarged floor plan provided on the 9.04 Trash and Receiving room data sheet. However, there is no door and hardware information provided in the room data sheet. Please provide an updated room data sheet that includes the door and hardware information.*
  Project Team Response: Door and hardware information has been added. See Exhibit C for update pages.

- *The enlarged floor plan provided on the 10.01 Afterschool room data sheet does not show a sink. However, there is one adult height, accessible sink listed in the plumbing data. Please confirm if the sink is required at the after-school room and coordinate the drawings and room data accordingly.*
  Project Team Response: Sink is not required and has been removed.

17) The District's base reimbursement rate for calendar year 2024 is 60.40%, which will be utilized when establishing the MSBA's potential grant. No response required.

Project Team Response: Acknowledged.

19, 20) The information provided indicates the project includes several add and deduct alternates. In the subsequent phases of design, the District must clearly describe any adjustments to the scope of work established at schematic design including the potential incorporation of add and/or deduct alternates and how these may impact the approved scope and budget established at schematic design. Any associated increase in cost established at schematic design as a result will be considered ineligible for reimbursement. Please acknowledge.

Project Team Response: Acknowledged.

21d) In response to these review comments, provide an updated schedule that includes the following the dates:

- *Sustainable Design Building Milestones:*
  - *USGBC/LEED Project registration date;*
  - *Provisional review submittal; and,*
  - *Final review submittal.*
- *Release/ advertisement of filed sub-bids;*
- *Receipt of filed sub-bids;*
- *Receipt of general contractor bids or execution of the guaranteed maximum price ("GMP");*
- *Notice to proceed for construction; and,*
- *Final Completion.*

Project Team Response:

- *Sustainable Design Building Milestones:*
  - *USGBC/LEED Project registration date: August 2025*
  - *Provisional review submittal: December 2027*
  - *Final review submittal: April 2028*
- *Release/ advertisement of filed sub-bids: July 16, 2025*
- *Receipt of filed sub-bids: August 5, 2025*
- *Receipt of general contractor bids or execution of the guaranteed maximum price ("GMP"): GMP September 8, 2025*
- *Notice to proceed for construction: September 8, 2025*
- *Final Completion: November 2027*

Refer to Exhibit D for Project Schedule

No further review comments for this section.

4.1.3 SCHEMATIC DESIGN PROJECT MANUAL

	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	Outline specifications in Uniformat Divisions	☐	☒	☐	☐
2	Itemization of all proprietary items (if any) with an explanation of each, explanation of the public	☐	☒	☐	☐

	interest for each item, and certification of local authorization that each item complies with state and local regulations, policies and guidelines.				

MSBA Review Comments:

1) The MSBA notes several sections of the specifications do not provide a minimum of three source items/products and/or basis of design. In subsequent phases of design please ensure that a minimum of three named manufacturers are provided. Please acknowledge.

Project Team Response: Acknowledged.

2) Based on the information provided, the District determined that proprietary products for fire alarm system, door hardware, interactive short throw projectors, access control, wireless access points, video surveillance and network switches will be considered.

However, there are some discrepancies in the network switches proprietary information. The attached SBC meeting minutes on June 20, 2024 (page 213 of the submittal) and on page 9 Project Manual listed HP ProCurve Network Switches. However, the information provided in Appendix Q Proprietary Items Letter listed Cisco Network Switches as the District's proposed network switches. In response to these review comments, please confirm which network switches will be listed as proprietary items and coordinate the information accordingly.

The District and Design team is reminded that for each proprietary item, the District will have to provide an affidavit which shall indicate that an elected body of the District (school committee, city or town council, or selectmen, but not ad-hoc building committee) has been presented with proposals for proprietary requirements approval action, has had an opportunity to investigate, or to require staff or consultant investigation upon each item so proposed, and has majority voted in an open public session that it is in the public interest to do so. Provide the MSBA with a certified copy of the vote of the elected body in subsequent submittals. For each item of material or equipment, the specifications shall provide for a minimum of three named brands of material or equipment and the words "or equal" or a description of material or equipment which can be met by a minimum of three manufacturers or producers, and the words "or equal". Proprietary products shall not be specified except as provided by M.G.L. c. 30, § 39M; however, when they are specified, proprietary specifications are subject to the "or equal" provisions of c. 30, § 39M.

Additionally, please confirm that all system controls are being coordinated with the Designer's sub-consultants.

Project Team Response: The Cisco Network Switches per the Proprietary Items Letter is the correct desired network switches for the project. Acknowledges the requirements for each proprietary item specified for the project. Design Team will coordinate all system controls with the sub-consultants.

No further review comments for this section.

4.1.4 SCHEMATIC DESIGN DRAWINGS

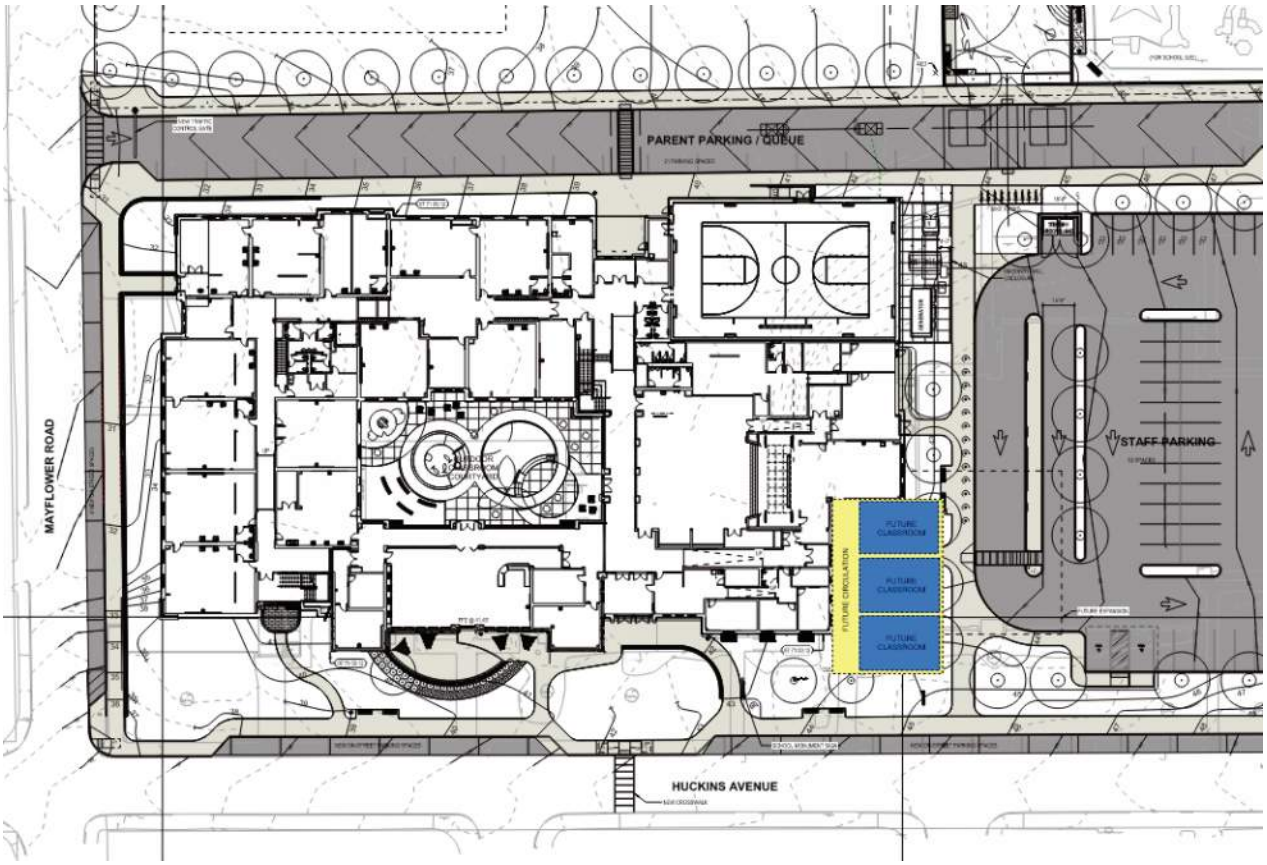
	Provide the following Items	Complete; *No response required*	Provided; *District's response required*	Not Provided; *District's response required*	Receipt of District's Response; *To be filled out by MSBA Staff*
1	Existing site plan	☒	☐	☐	☐
2	Site development plan	☐	☒	☐	☐
3	Schematic building floor plans	☐	☒	☐	☐
4	Interior elevations of a typical general classroom, and typical Pre-K/K Classroom and typical Science Classroom/Lab as applicable.	☐	☒	☐	☐
5	Schematic exterior building elevations	☒	☐	☐	☐

MSBA Review Comments:

2) In response to these review comments, please review and respond to the following:

- *Confirm all work is within zoning setbacks;*
- *Note that setbacks should be included in future submittals*; *and,*
- *Future areas of expansion are not specifically identified on the site development plans. Please clarify.*

Project Team Response: All work is within zoning setbacks. Setback dimensions will be noted on all future submittals. Refer to following image for potential future expansion.



3) In response to these review comments, please provide the following:

- *Updated floor plans that include the square footage for each space on the schematic design floor plans and coordinate the floor plans to align with the numbers provided in the space summary and the room data sheets. Please revise the documentation accordingly and coordinate the square footage on each proposed floor plan with the proposed space summary.*
- *The building floor plans do not include the gross square footage for each floor or overall dimensions. Please note this information should be included in future submittals.*
- *Include slope annotation to indicate the up/down at interior ramps and sloped floor on proposed first floor plans and confirm if the running slope of the proposed sloped floor meets the requirements of 521 CMR 22.00 Walkways.*
- *A narrative that describes the proposed roof access for the proposed project.*
- *Confirm that roof access provisions have been discussed with the District's maintenance, facilities, custodial personnel, and local safety officials to ensure an appropriate level of access and safety has been incorporated in the proposed project. Clarify and confirm that walkway pads will be provided from all roof access points to all roof top mechanical units, skylights, and other parts of the roof that require access for maintenance and service.*

Project Team Response: See Exhibit A for Net SF and Gross SF, and ramping information.

Roof access for maintenance and fire is located with a swing-door from the 2nd floor Staff Room. The access to the roof is direct walk-out onto the roof surface, and from there access to other roof areas is via metal roof stairs. The stairs and access to service roof equipment are appropriated located for safety and ease of access. Refer to Exhibit B for update of Walkway pads on the roof.

4) All the interior elevation of the Kindergarten, Grade 1 and Grade 2-5 General Classrooms show 34"H countertop with base cabinets at the sinks provided in the general classroom. However, on drawing A0.02 Typical Mounting Heights for the plumbing fixtures K-12 indicates the mounting height for Lavatory Pre-K, K-Grade 6 is 2'6" H maximum. In response to these review comments, please confirm if the proposed 34" countertop height at the grade K-5 general classrooms meets the typical plumbing fixtures mounting height indicated on drawing A0.02.

Project Team Response: ***We are planning to have classroom sinks meet heights for K-5 grades, and will be set to 2'-6". The 2'-6" will meet ADA accessible in a side approach for adults.***

No further review comments for this section.

Additional Comments:

- *On February 28, 2024, the MSBA Board of Directors approved the District's Preferred Option C.2 for an 82,197 square foot addition and renovation option with an estimated total project cost of $106,940,898. This Schematic Design submittal under review shows this same option currently as a 78,801 square foot addition and renovation option with an estimated total project cost of $108,712,832. This represents a decrease of 2,396 square feet and an increase of $1,771,934.*

Project Team Response: Please note a correction to the above statement. The current square feet for addition and renovation in the SD submittal is 79,801 GSF.

- *As previously communicated to the District and project team the MSBA has developed 'Project Advisory #88' associated with State Site Permit Tracking and site resiliency, including a MEPA guideline checklist. Project Advisory #88 was posted to MSBA's website on July 1, 2024. As with all MSBA Project Advisories, please be sure to review this advisory and understand the specific submittal expectations associated with Modules 3, 4, and 6 in your future submittals, effective July 1, 2024. Please note, subsequent submittals following the Schematic Design submittal must include the items associated with Module 6 as outlined in Project Advisory #88. Please acknowledge.*

Project Team Response: Acknowledged.

End

ATTACHMENT B
MODULE 4 – SCHEMATIC DESIGN SPACE SUMMARY REVIEW

District: City of Quincy
School: Squantum Elementary School
Owner's Project Manager: PCA360, LLC
Designer Firm: Arrowstreet, Inc.
Submittal Due Date: August 29, 2024
Submittal Received Date: August 29, 2024
Review Date: August 29, 2024 – October 3, 2024
Reviewed by: L. Winston, C. Forde, K. Brown

The following comments[1] on the Schematic Design submittal are issued pursuant to a review of the project submittal document for the addition and renovation of the proposed project and presented as a Schematic Design submission in accordance with the MSBA Module 4 Guidelines.

The MSBA considers it critical that the Districts and their Designers aggressively pursue design strategies to achieve compliance with the MSBA guidelines for all proposed projects in the new program and strive to meet the gross square footage allowed per student and the core classroom space standards, as outlined in the guidelines. The MSBA also considers its stance on core classroom space critical to its mission of supporting the construction of successful school projects throughout the Commonwealth that meet current and future educational demands. The MSBA does not want to see this critical component of education suffer at the expense of larger or grander spaces that are not directly involved in the education of students.

Additionally, the MSBA recognizes the benefits and the challenges associated with saving or renovating existing spaces, and may consider variations in the guidelines for renovation projects beyond those included below. Please note that any spaces in new construction or substantially renovated spaces must be compliant with MSBA space standards for both allotted area and room quantity unless otherwise approved in writing by the MSBA.

The following review is based on an addition and renovation construction project with an agreed upon design enrollment of 380 students in kindergarten through grade 5.

[1] The written comments provided by the MSBA are solely for purposes of determining whether the submittal documents, analysis process, proposed planning concept and any other design documents submitted for MSBA review appear consistent with the MSBA's guidelines and requirements, and are not for the purpose of determining whether the proposed design and its process may meet any legal requirements imposed by federal, state or local law, including, but not limited to, zoning ordinances and by-laws, environmental regulations, building codes, sanitary codes, safety codes and public procurement laws or for the purpose of determining whether the proposed design and process meet any applicable professional standard of care or any other standard of care. Project designers are obligated to implement detailed planning and technical review procedures to effect coordination of design criteria, buildability, and technical adequacy of project concepts. Each city, town and regional school district shall be solely responsible for ensuring that its project development concepts comply with all applicable provisions of federal, state, and local law. The MSBA recommends that each city, town and regional school district have its legal counsel review its development process and subsequent bid documents to ensure that it is in compliance with all provisions of federal, state and local law, prior to bidding. The MSBA shall not be responsible for any legal fees or costs of any kind that may be incurred by a city, town or regional school district in relation to MSBA requirements or the preparation and review of the project's planning process or plans and specifications.

The MSBA review comments are as follows:

- **Core Academic** – The District is proposing a total of 21,400 net square feet ("nsf") which exceeds the MSBA guidelines by 3,300 nsf. The proposed area in this category has not changed since the Preferred Schematic Report ("PSR") submittal. The District is proposing the following:
    - **Kindergarten Classrooms (with Toilet)** – The District is proposing (3) 1,200 nsf Kindergarten Classrooms totaling 3,600 nsf, which is (1) Kindergarten Classroom and 1,200 nsf below the MSBA guidelines. Based on the information provided, the MSBA accepts this variation to the guidelines. No further action required.
    - **General Classrooms (Grades 1-5)** – The District is proposing (3) 1,000 nsf General Classrooms for grade 1, totaling 3,000 nsf; and (12) 950 nsf General Classrooms for grades 2-5, totaling 11,400 nsf. This results in a total of (15) General Classrooms totaling 14,400 nsf, which exceeds the MSBA guidelines by (1) General Classroom and 1,100 nsf. Based on the information provided, the MSBA accepts this variation to the guidelines. No further action required.
    - **Breakout Spaces (Grades 2-5)** – The District is proposing (4) 300 nsf Breakout Spaces for grades 2-5 totaling 1,200 nsf, which exceeds MSBA guidelines. The information provided indicates the District is proposing (12) 950 nsf General Classrooms for grades 2-5, which are 50 nsf below the MSBA's allowable maximum classroom size of 1,000 nsf. This results in 600 nsf that could be allocated to the Breakout Spaces for grades 2-5; however, the remaining 600 nsf associated with the Breakout Spaces will be considered ineligible for reimbursement. Please acknowledge.

      Project Team Response: Acknowledged.
    - **Science, Technology, Engineering (STE) Room** – The District is proposing (1) 1,080 nsf STE Room which exceeds the MSBA guidelines. Please note that MSBA does not object to the additional square footage; however, the MSBA will consider this square footage ineligible for reimbursement based on the proposed staffing scenario. Please acknowledge. For additional information, please refer to the attached memo regarding MSBA's Staff Recommendation for 2018 STE Area Guidelines.
    - **STE Storage Room** – The District is proposing (1) 120 nsf STE Storage Room associated with the STE Room which exceeds the MSBA guidelines. Please note that MSBA does not object to the additional square footage; however, the MSBA will consider this square footage ineligible for reimbursement. Please acknowledge.

      Project Team Response: Acknowledged.

- **English Language Learners ("ELL") Classroom** – The District is proposing (2) 500 nsf ELL Classrooms totaling 1,000 nsf, which exceeds the MSBA guidelines. Based on the information provided, the MSBA accepts this variation to the guidelines. No further action required.

- **Special Education** – The District is proposing a total of 9,805 nsf which exceeds the MSBA guidelines by 5,275 nsf. The proposed area in this category has decreased by 345 nsf since the PSR submittal. Please note that the Special Education program is subject to approval by the Department of Elementary and Secondary Education ("DESE") and that formal approval of the District's proposed Special Education program is a prerequisite for executing a Project Funding Agreement with the MSBA. Please acknowledge.

  Project Team Response: Acknowledged.

- **Art & Music** – The District is proposing a total of 2,575 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PSR submittal. No further action required.

- **Health & Physical Education** – The District is proposing a total of 6,500 nsf which exceeds the MSBA guidelines by 200 nsf. The proposed area in this category has decreased by 100 nsf since the PSR submittal. The MSBA does not object to the District including this additional space in the project; however, all square footage exceeding the MSBA guidelines will be considered ineligible for reimbursement. Please acknowledge.

  Project Team Response: Acknowledged.

- **Media Center** – The District is proposing a total of 2,361 nsf which is 19 nsf below the MSBA guidelines. The proposed area in this category has decreased by 19 nsf since the PSR submittal. Based on the information provided, the MSBA accepts this variation to the guidelines. No further action required.

- **Dining & Food Service** – The District is proposing a total of 6,057 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PSR submittal. No further action required

- **Medical** – The District is proposing a total of 510 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PSR submittal. No further action required.

- **Administration & Guidance** – The District is proposing a total of 2,095 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PSR submittal. No further action required.

- **Custodial & Maintenance** – The District is proposing a total of 1,980 nsf which meets the MSBA guidelines. The proposed area in this category has not changed since the PSR submittal. No further action required.

- **Other** – The District is proposing a total of 240 nsf which exceeds the MSBA guidelines. The proposed area in this category has decreased by 300 nsf since the PSR submittal. The District is proposing the following:
    - **Extended Day Program Office / Storage** – The District is proposing (1) 120 nsf Extended Day Program Office/Storage which exceeds MSBA guidelines.
    - **Mother's Room** – The District is proposing (1) 120 nsf Mother's Room which exceeds MSBA guidelines.

  The MSBA does not object to the District including these additional spaces in the project; however, all square footage exceeding the MSBA guidelines will be considered ineligible for reimbursement. Please acknowledge.

  Project Team Response: Acknowledged.

- **Total Building Net Floor Area** – The District is proposing a total of 53,523 nsf which exceeds the MSBA guidelines by 8,996 nsf. The proposed area has decreased by 764 nsf since the PSR submittal. The MSBA accepts this variation to the guidelines; however, limits of participation associated with the 'Core Academic', 'Health & Physical Education', and 'Other' categories, which will be applied to the MSBA grant calculation. Please acknowledge.

- **Total Building Gross Floor Area** – The District is proposing a total of 79,801 gross square feet ("gsf") which exceeds the MSBA guidelines by 13,011 gsf with a proposed grossing factor of 1.49. The proposed area has decreased by 2,396 gsf since the PSR submittal. The MSBA accepts this variation to the guidelines; however, limits of participation associated with the 'Core Academic', 'Health & Physical Education', and 'Other' categories, which will be applied to the MSBA grant calculation. Please acknowledge.

  Project Team Response: Acknowledged.

Please note that upon moving forward into subsequent phases of the proposed project, the Designer will be required to provide, with each submission, a signed, updated space summary that reflects the design and demonstrates that the design remains, except as agreed to in writing by the MSBA, in accordance with the guidelines, rules, regulations and policies of the MSBA. Should the updated space summary demonstrate changes to the previous space summary include a narrative description of the change(s) and the reason for the proposed changes to the project.

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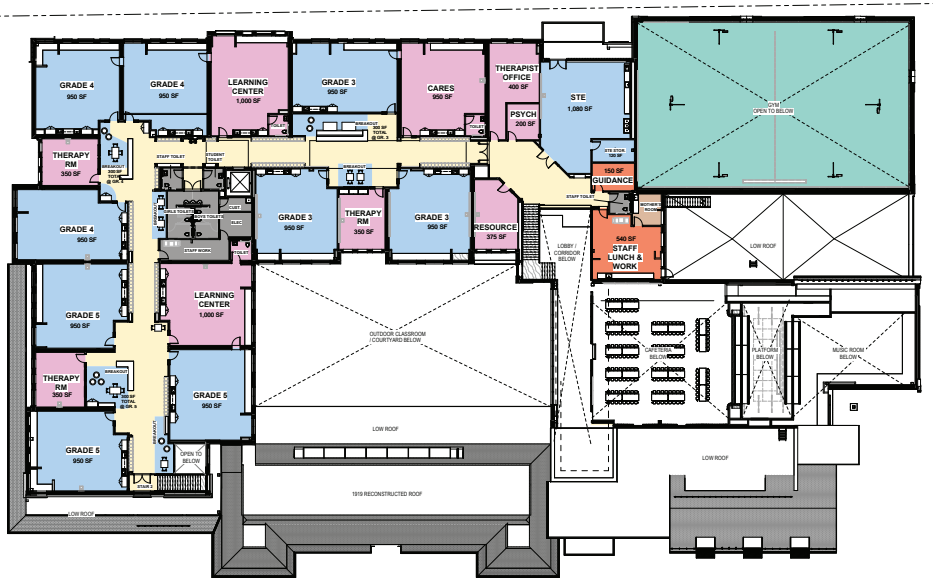
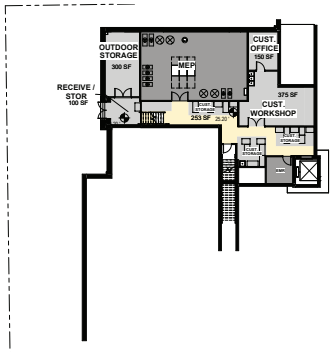


Second Floor: 24,073 GSF

2 SECOND FLOOR - PROGRAMMING PLAN
1/16" = 1'-0"



Basement Floor: 3,180 GSF

3 BASEMENT - PROGRAMMING PLAN
1/16" = 1'-0"

First Floor: 52,548 GSF

1 FIRST FLOOR - PROGRAMMING PLAN
1/16" = 1'-0"

DEPARTMENT LEGEND
- 01_CORE ACADEMIC
- 02_SPECIAL EDUCATION
- 03_ART & MUSIC
- 04_HEALTH & PE
- 05_MEDIA CENTER
- 06_FOOD & DINING
- 07_MEDICAL
- 08_ADMIN
- 09_CUSTODIAL
- 10_OTHER
- GROSS_CIRCULATION
- GROSS_MEP
- GROSS_SUPPORT
- GROSS_TOILETS

EXHIBIT A

CLIENT
City of Quincy
1305 Hancock Street
Quincy, MA 02169
(617) 376 - 1000

ARCHITECT
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 700N
BOSTON MA 02109
617.623.5555
arrow@street.com

CONSULTANT

PROJECT INFORMATION
SQUANTUM SCHOOL
50 HUCKINS AVENUE, QUINCY MA

ISSUANCE
SCHEMATIC DESIGN

STAMP
NOT FOR CONSTRUCTION

REVISIONS

No.	Date	Description

PROJECT NORTH / TRUE NORTH

KEY PLAN

DRAWING TITLE
PROGRAMMING PLANS

Project No.	23008
Drawn By	Author
Date	6/21/24
Scale	1/16" = 1'-0"

DRAWING NUMBER:
A1.12

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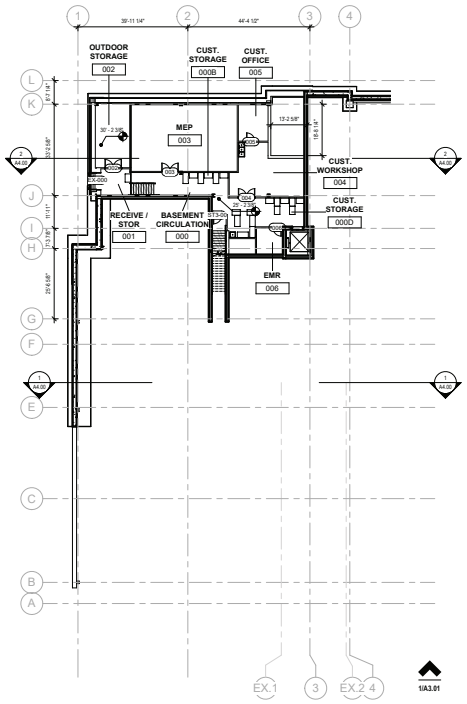
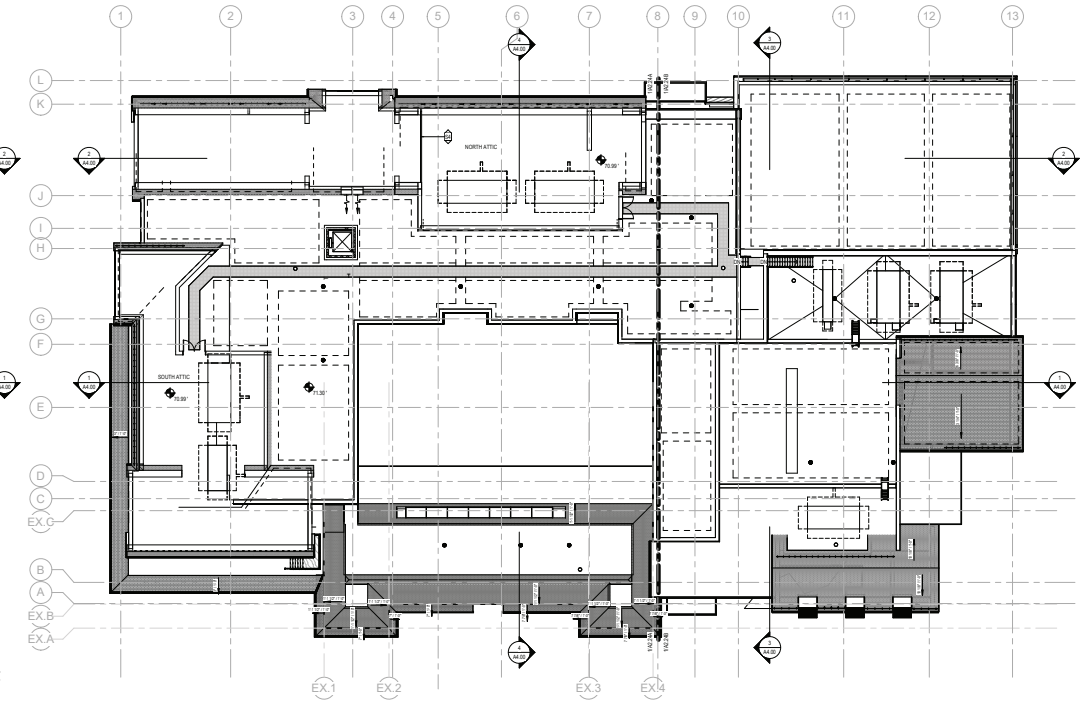
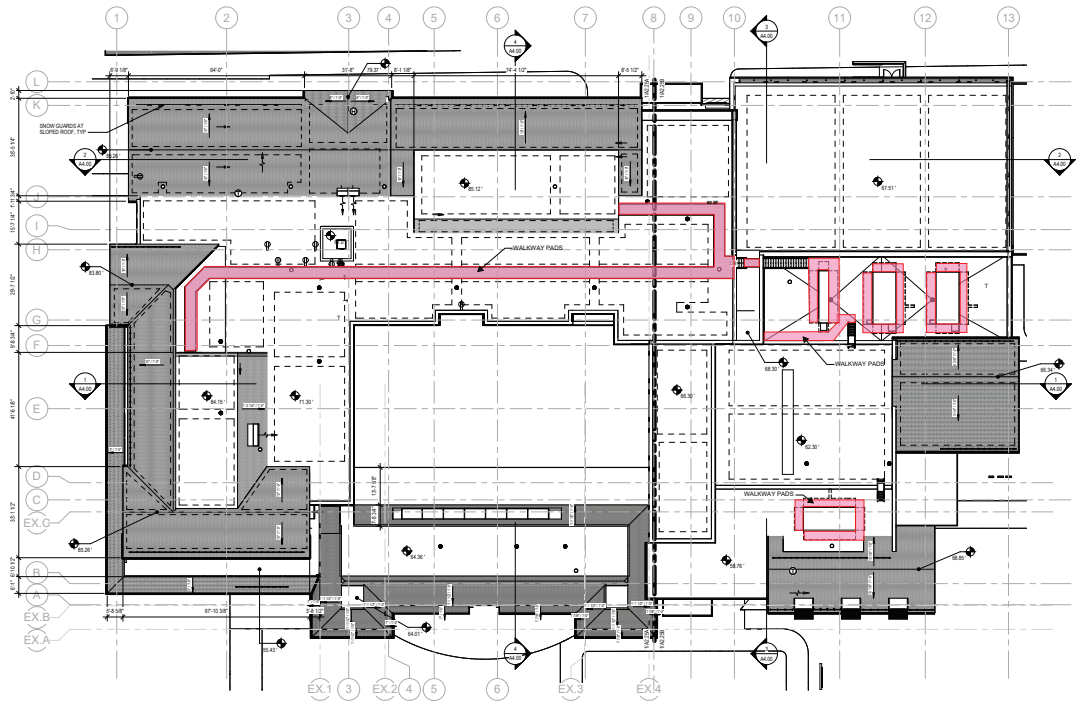


1 BASEMENT FLOOR PLAN
1/16" = 1'-0"



2 LOW ROOF PLAN
1/16" = 1'-0"



3 HIGH ROOF PLAN
1/16" = 1'-0"

CONSTRUCTION PLAN NOTES

1. ALL WORK IS TO COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL BUILDING CODES AND REGULATIONS.
2. DETAILS OF FIRE-RATED PARTITIONS AT ALL ENCLOSED STAIR AND ELEVATOR SHAFTS.
3. DETAILS OF TYPICAL CONSTRUCTION ASSEMBLIES ARE SHOWN AT SPECIFIC LOCATIONS. DETAILS NOTED AS TYPICAL IMPLY ALL CONDITIONS TREATED SIMILARLY; MODIFICATIONS TO BE MADE BY CONTRACTOR TO ACCOMMODATE MINOR VARIATION.
4. ALL DIMENSIONS AND CONDITIONS SHALL BE FIELD VERIFIED, AND THE ARCHITECT SHALL BE NOTIFIED OF INCONSISTENCIES IMMEDIATELY UPON DISCOVERY AND BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, OBTAIN CLARIFICATION FROM THE ARCHITECT.
5. PLAN DIMENSIONS ARE TO FINISHED FACE OF WALL U.O.N. NOT INCLUDING WALL TILE OR DECORATIVE TRIM. DIMENSIONS TO ROOF EAVES ARE TO THE FINISHED FACE OF FACSIA, EXCLUDING THE GUTTER.
6. PLAN DIMENSIONS ARE TO FACE OF FINISH, AND COLUMN CENTERLINES, U.O.N. SYMMETRICAL AREAS DIMENSIONED ONE SIDE ONLY WITH OTHER SIDE OPPOSITE HAND, U.O.N. PARTITIONS SHOWN ON COLUMN LINES ARE TO BE CENTERED ON COLUMN LINE, U.O.N. EXTERIOR COLUMN LINES ARE 8" FROM INTERIOR FACE OF EXTERIOR STUDS, U.O.N.
7. GRIDS NAMES WITH AN "EX" ARE LOCATED AT THE INTERIOR FACE OF EXISTING TO REMAIN BRICK. FIELD VERIFY ALL DIMENSIONS RELATED TO THE EXISTING CONDITIONS. NOTIFY ARCHITECT OF EXISTING CONDITIONS THAT VARY FROM DOCUMENTED CONDITIONS.
8. DRAWINGS ARE NOT TO BE SCALED. VERIFY ANY MISSING OR CONFLICTING WRITTEN INFORMATION WITH ARCHITECT PRIOR TO CONSTRUCTION.
9. NOTIFY ARCHITECT OF CONDITIONS WHERE CLEAR OR CRITICAL DIMENSIONS ARE DESIGNATED BUT CANNOT BE MET OR WHERE THE CORRIDOR / AISLE WIDTH CANNOT MEET THE MINIMUM REQUIREMENTS.
10. MAINTAIN FINISHED FLOOR BASE ELEVATION THROUGHOUT THE CONTRACT AREA, SUCH THAT ALL DIMENSIONS INDICATED AS ABOVE FINISHED FLOOR ARE AT THE SAME ELEVATION. BUILDING LEVEL ELEVATIONS REFER TO TOP OF STRUCTURAL SLAB/DECK.
11. ALL DOORS TO BE A MINIMUM OF 4 INCHES FROM THE NEAREST PERPENDICULAR PARTITION, U.O.N.
12. PROVIDE TEMPERED GLASS IN LOCATIONS REQUIRED BY CODE.
13. REVIEW LAYOUTS FOR PARTITIONS IN FIELD WITH ARCHITECT PRIOR TO THE START OF CONSTRUCTION.
14. PATCH AND REPAIR ALL FIRE PROOFING AT BUILDING STRUCTURE, WHERE MISSING OR DAMAGED, TO MAINTAIN REQUIRED FIRE RATING. SEE CODE SUMMARY NARRATIVE.
15. PENETRATIONS IN GYPSUM BOARD CONSTRUCTION ABOVE FINISHED CEILING SHALL BE EFFECTIVELY SEALED TO PREVENT SOUND LEAKAGE AT ACOUSTICAL PARTITIONS, U.O.N.
16. PROVIDE VERTICAL CONTROL JOINTS IN GWB EVERY LINEAR 30'-0". VERIFY LOCATION WITH ARCHITECT, U.O.N.
17. PROVIDE FIRE EXTINGUISHERS (WITH RECESSED CABINETS WHERE INDICATED) IN QUANTITIES AND LOCATIONS ON DRAWINGS (MIN 1/6000 SQ. FT. AND 75'-0" MAX TRAVEL DISTANCE). REVIEW FINAL LOCATIONS WITH THE ARCHITECT PRIOR TO START OF CONSTRUCTION. PARTITION DEPTH AT FIRE EXTINGUISHER CABINET LOCATIONS TO ACCOMMODATE FULL CONCEALMENT OF RECESSED CABINETS, U.O.N. FOR CONTINUITY OF RATED CONSTRUCTION.
18. THE CONSTRUCTION SHALL PROVIDE AND COORDINATE PLACEMENT OF FIRE RATED BLOCKING AT ALL LOCATIONS OF ITEMS TO BE MOUNTED TO WALLS OR CEILING THROUGHOUT LIMIT OF WORK, PRIOR TO CLOSING WALLS, U.O.N.
19. ALIGN CENTERLINES OF ALL FIRE EXTINGUISHER CABINETS AND MEP-FP DEVICES ON WALLS ON THE SAME LOCATIONS.
20. INDICATED PARTITION TYPES ARE CONTINUES ABOVE/BELOW DOOR AND WINDOW OPENINGS AND AROUND CORNERS UNTIL INTERSECTING WITH A DIFFERENT TYPE. WHERE PARTITIONS INTERSECT AT "T", THE INDICATED TYPE RUNS ACROSS THE "T" UNLESS NOTED OTHERWISE.

GENERAL MARKS/SYMBOLS

- SOLAR READY ROOF ZONE
- MATCHLINE
- EWA — EXTERIOR WALL ASSEMBLY TYPE
- ERA — ROOF ASSEMBLY TYPE
- PARTITION TYPE
- 103 — DOOR NUMBER
- W — WINDOW TYPE
- REVISION TAG
- PROJECT NORTH / TRUE NORTH — NORTH ARROW
- 1/A1.01 — VIEW REFERENCE
- 00.00.00.00 — KEYNOTE
- LEVEL 1E ELEVATION — ELEVATION DATUM
- DETAIL IDENTIFICATION
- 1 / A101 — DETAIL INDICATOR: DETAIL IDENTIFICATION, DRAWING NUMBER
- WALL SECTION INDICATOR: SECTION IDENTIFICATION, DRAWING NUMBER
- BUILDING SECTION INDICATOR: SECTION IDENTIFICATION, DRAWING NUMBER
- 1/A2.01 — EXTERIOR ELEVATION INDICATOR: ELEVATION IDENTIFICATION, DRAWING NUMBER
- INTERIOR ELEVATION INDICATOR: ELEVATION IDENTIFICATION, DRAWING NUMBER
- DETAIL REFERENCE INDICATOR: DETAIL IDENTIFICATION, DRAWING NUMBER

EXHIBIT B

CLIENT
City of Quincy
1305 Hancock Street
Quincy, MA 02169
(617) 376 - 1000

ARCHITECT
ARROWSTREET
ARCHITECTURE & DESIGN
10 POST OFFICE SQUARE
SUITE 7000
BOSTON MA 02109
617.623.5555
arrow@street.com

CONSULTANT

PROJECT INFORMATION

SQUANTUM SCHOOL

50 HUCKINS AVENUE, QUINCY MA

ISSUANCE

SCHEMATIC DESIGN

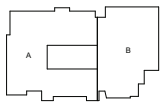
STAMP

NOT FOR CONSTRUCTION

REVISIONS

No.	Date	Description

PROJECT NORTH / TRUE NORTH



KEY PLAN

DRAWING TITLE

OVERALL ROOF & BASEMENT PLAN

Project No.	23008
Drawn By	---
Date	6/21/24
Scale	As indicated

DRAWING NUMBER:

A2.12

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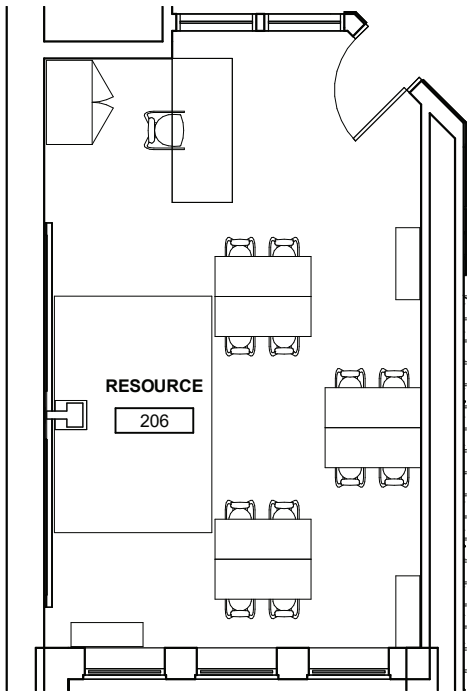
2.03 Resource 2



0' 4' 8' 16'

Function

Description:	Special education small group instructional classroom
Net Area:	360 SF
Occupancy:	13 (12 students, 1 teachers/ paraprofessionals)
Quantity:	1

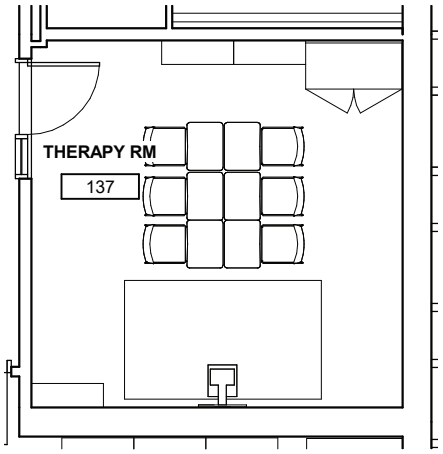
Location

Users:	Teachers, students
Adjacency:	Core classrooms, central
Orientation & Views:	Exterior Window

Fixtures/Furnishings

Casework:	Base Cabinets Upper Cabinets
Specialties:	Markerboards Tackboards Display Rail Acoustic Wall Panels
Furnishings:	1 Teacher Desk 1 Task Chair 6 Student Desks 1 Area Rug 1 Storage Wardrobe 3 Bookcases 12 Student Chairs
Equipment:	None

2.08 Therapy Room 2



Function

Description:	Small group instructional space
Net Area:	230 SF
Occupancy:	8
Quantity:	5

Location

Users:	Teachers, Students
Adjacency:	Core Classrooms
Orientation & Views:	Internal to corridor

Fixtures/Furnishings

Casework:	None
Specialties:	Markerboards Tackboards Acoustic Wall Panels
Furnishings:	2 Storage Cabinets 6 Student Stacking Chairs 6 Stacking Desks 1 Area Rug
Equipment:	None

Architecture

Windows:	Required
Doors:	Glazed door with sidelight
Lockset Hardware:	Function compatible with District's lockdown protocol
Room Signage:	Room name & number on adjacent wall
Floor Loading:	Standard
Floor Config:	Flat
Floor Finish:	Linoleum
Wall Finish:	Paint
Ceiling Finish:	Acoustical ceiling tiles 90% light reflectance
Acoustics:	Walls: STC 50 Ceiling: NRC 0.7, CAC 35

HVAC

Temperature:	Standard range
Zone Controls:	Individual room control
Pressure:	Positive
CO_2 Sensor:	Yes
Other:	N/A

Fire Protection

Sprinklered:	Yes

Electrical

Outlets:	Standard duplex on perimeter walls
Room Lighting:	LED linear pendant
Special Controls:	Occupancy sensor

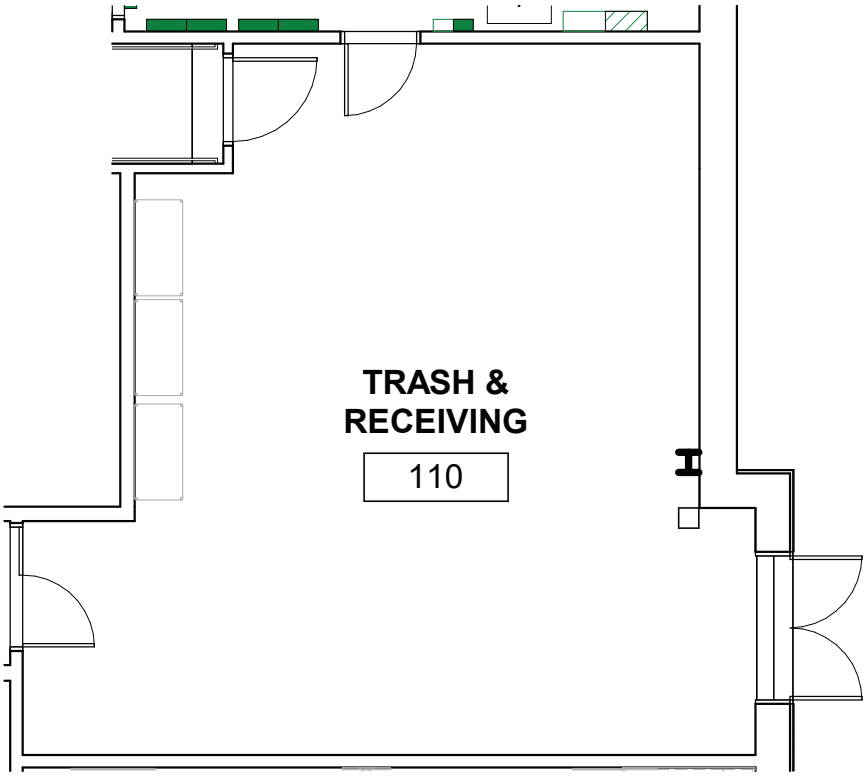
Plumbing

Sinks:	None
Other:	N/A

Technology

Communications:	Wall mounted telephone
Data:	WiFi and wall outlets
A/V:	Short-throw projector
Clock/Speaker:	Masterclock, ceiling- mounted speakers

9.04 Trash & Receiving



0' 4' 8' 16'

Function

Description:	Area for recycling and trash collection
Net Area:	400 SF+ 227 SF
Occupancy:	-
Quantity:	1

Location

Users:	Teachers, Staff, Students
Adjacency:	Loading
Orientation & Views:	Loading & Dumpsters

Fixtures/Furnishings

Casework:	None
Specialties:	None
Furnishings:	3 Metal Shelves
Equipment:	None

Architecture

Windows:	None
Doors:	solid double doors, flush, hollow metal
Lockset Hardware:	keyed
Room Signage:	Room name & number on adjacent wall
Floor Loading:	Standard
Floor Config:	Flat
Floor Finish:	Sealed Concrete
Wall Finish:	Paint
Ceiling Finish:	Exposed
Acoustics:	Standard construction

HVAC

Temperature:	Standard range
Zone Controls:	As part of service corridor
Pressure:	As part of service corridor
CO_2 Sensor:	No
Other:	N/A

Fire Protection

Sprinklered:	Yes

Electrical

Outlets:	None
Room Lighting:	None
Special Controls:	Occupancy sensor

Plumbing

Sinks:	None
Other:	N/A

Technology

Communications:	None
Data:	None
A/V:	None
Clock/Speaker:	None

Architecture

Windows:	Exterior desired if possible
Doors:	Glazed door with sidelight
Lockset Hardware:	Function compatible with District's lockdown protocol
Room Signage:	Room name & number on adjacent wall
Floor Loading:	Standard
Floor Config:	Flat
Floor Finish:	Linoleum
Wall Finish:	Paint
Ceiling Finish:	Acoustical ceiling tiles 90% light reflectance
Acoustics:	Walls: STC 50 Ceiling: NRC 0.7, CAC 35

HVAC

Temperature:	Standard range
Zone Controls:	Individual room control
Pressure:	Positive
CO_2 Sensor:	Yes
Other:	N/A

Fire Protection

Sprinklered:	Yes

Electrical

Outlets:	Standard duplex on perimeter walls
Room Lighting:	LED linear pendant
Special Controls:	Occupancy sensors

Plumbing

Sinks:	None
Other:	N/A

Technology

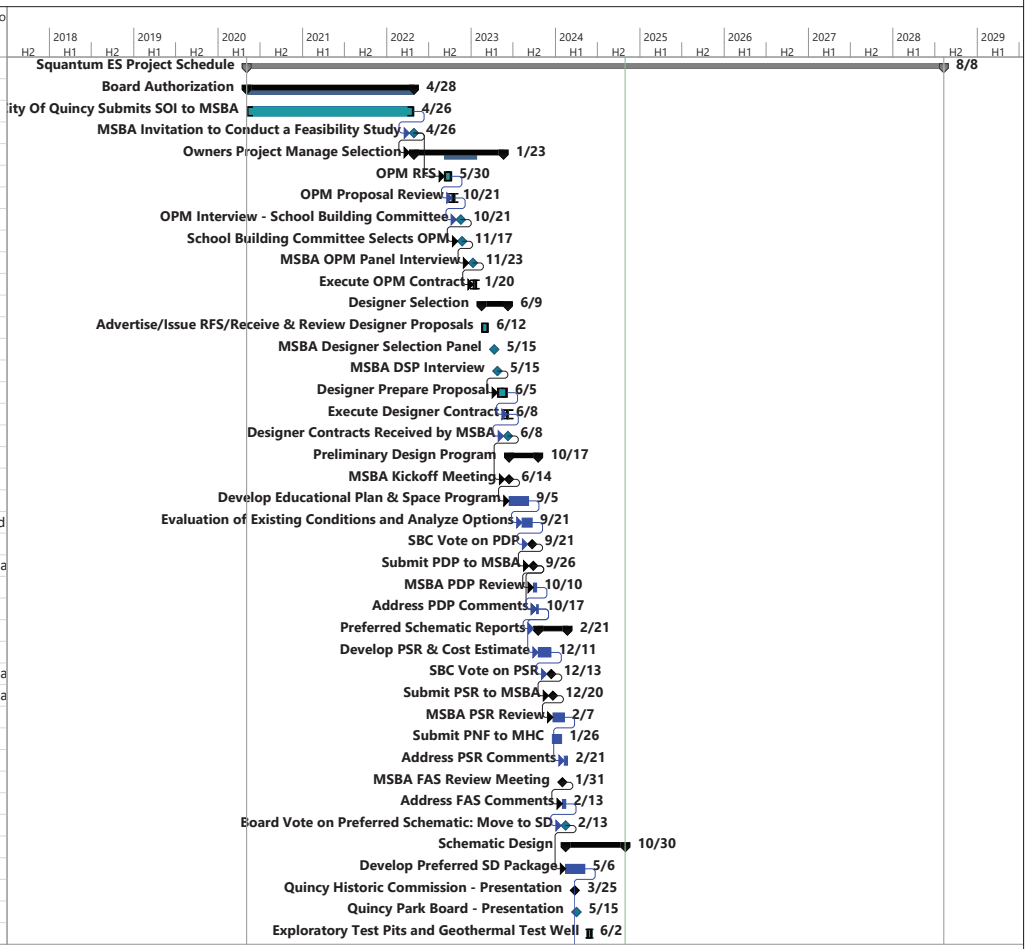
Communications:	Wall-mounted telephone
Data:	WiFi and wall outlets
A/V:	Short-throw projector
Clock/Speaker:	Masterclock, ceiling-mounted speakers

Squantum School Project Schedule

EXHIBIT D

PCA360

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
0		**Squantum ES Project Schedule**	**2157 days?**	**Mon 5/4/20**	**Tue 8/8/28**	
1		**1 Board Authorization**	**518 days?**	**Mon 5/4/20**	**Wed 4/27/22**	
2		1.1 City Of Quincy Submits SOI to MSBA	517 days	Mon 5/4/20	Tue 4/26/22	
3		1.2 MSBA Invitation to Conduct a Feasibility Study	0 days	Thu 4/28/22	Thu 4/28/22	2
4		**2 Owners Project Manage Selection**	**278 days**	**Thu 4/28/22**	**Sat 5/20/23**	**3**
5		2.1 OPM RFS	23 days	Wed 9/7/22	Fri 10/7/22	3
6		2.2 OPM Proposal Review	10 days	Mon 10/10/22	Fri 10/21/22	5
7		2.3 OPM Interview - School Building Committee	0 days	Thu 11/17/22	Thu 11/17/22	6
8		2.4 School Building Committee Selects OPM	0 days	Wed 11/23/22	Wed 11/23/22	7
9		2.5 MSBA OPM Panel Interview	0 days	Mon 1/9/23	Mon 1/9/23	8
10		2.6 Execute OPM Contract	10 days	Tue 1/10/23	Mon 1/23/23	9
11		**3 Designer Selection**	**82 days**	**Wed 2/15/23**	**Fri 6/9/23**	
12		3.1 Advertise/Issue RFS/Receive & Review Designer Proposals	21 days	Wed 2/15/23	Wed 3/15/23	
13		3.2 MSBA Designer Selection Panel	0 days	Tue 4/11/23	Tue 4/11/23	
14		3.3 MSBA DSP Interview	0 days	Tue 4/25/23	Tue 4/25/23	
15		3.4 Designer Prepare Proposal	30 days	Tue 4/25/23	Mon 6/5/23	14
16		3.5 Execute Designer Contract	3 days	Tue 6/6/23	Thu 6/8/23	15
17		3.6 Designer Contracts Received by MSBA	0 days	Fri 6/9/23	Fri 6/9/23	16
18		**4 Preliminary Design Program**	**90 days**	**Wed 6/14/23**	**Tue 10/17/23**	
19		4.1 MSBA Kickoff Meeting	0 days	Wed 6/14/23	Wed 6/14/23	17
20		4.2 Develop Educational Plan & Space Program	60 days	Wed 6/14/23	Tue 9/5/23	19
21		4.3 Evaluation of Existing Conditions and Analyze Options	32 days	Wed 8/9/23	Thu 9/21/23	20FS-20 d
22		4.4 SBC Vote on PDP	0 days	Thu 9/21/23	Thu 9/21/23	21
23		4.5 Submit PDP to MSBA	0 days	Tue 9/26/23	Tue 9/26/23	22FS+3 da
24		4.6 MSBA PDP Review	2 wks	Wed 9/27/23	Tue 10/10/23	23
25		4.7 Address PDP Comments	1 wk	Wed 10/11/23	Tue 10/17/23	23,24
26		**5 Preferred Schematic Reports**	**91 days**	**Wed 10/18/23**	**Wed 2/21/24**	**25**
27		5.1 Develop PSR & Cost Estimate	39 days	Wed 10/18/23	Mon 12/11/23	25
28		5.2 SBC Vote on PSR	0 days	Wed 12/13/23	Wed 12/13/23	27FS+2 da
29		5.3 Submit PSR to MSBA	0 days	Wed 12/20/23	Wed 12/20/23	28FS+5 da
30		5.4 MSBA PSR Review	7 wks	Thu 12/21/23	Wed 2/7/24	29
31		5.5 Submit PNF to MHC	30 days	Mon 12/18/23	Fri 1/26/24	
32		5.6 Address PSR Comments	2 wks	Thu 2/8/24	Wed 2/21/24	30
33		5.7 MSBA FAS Review Meeting	0 days	Wed 1/31/24	Wed 1/31/24	
34		5.8 Address FAS Comments	2 wks	Wed 1/31/24	Tue 2/13/24	33
35		5.9 Board Vote on Preferred Schematic: Move to SD	0 days	Wed 2/14/24	Wed 2/14/24	34
36		**6 Schematic Design**	**185 days**	**Wed 2/14/24**	**Wed 10/30/24**	
37		6.1 Develop Preferred SD Package	59 days	Wed 2/14/24	Mon 5/6/24	35
38		6.2 Quincy Historic Commission - Presentation	0 days	Mon 3/25/24	Mon 3/25/24	
39		6.3 Quincy Park Board - Presentation	0 days	Mon 4/1/24	Mon 4/1/24	
40		6.4 Exploratory Test Pits and Geothermal Test Well	15 days	Fri 5/17/24	Thu 6/6/24	

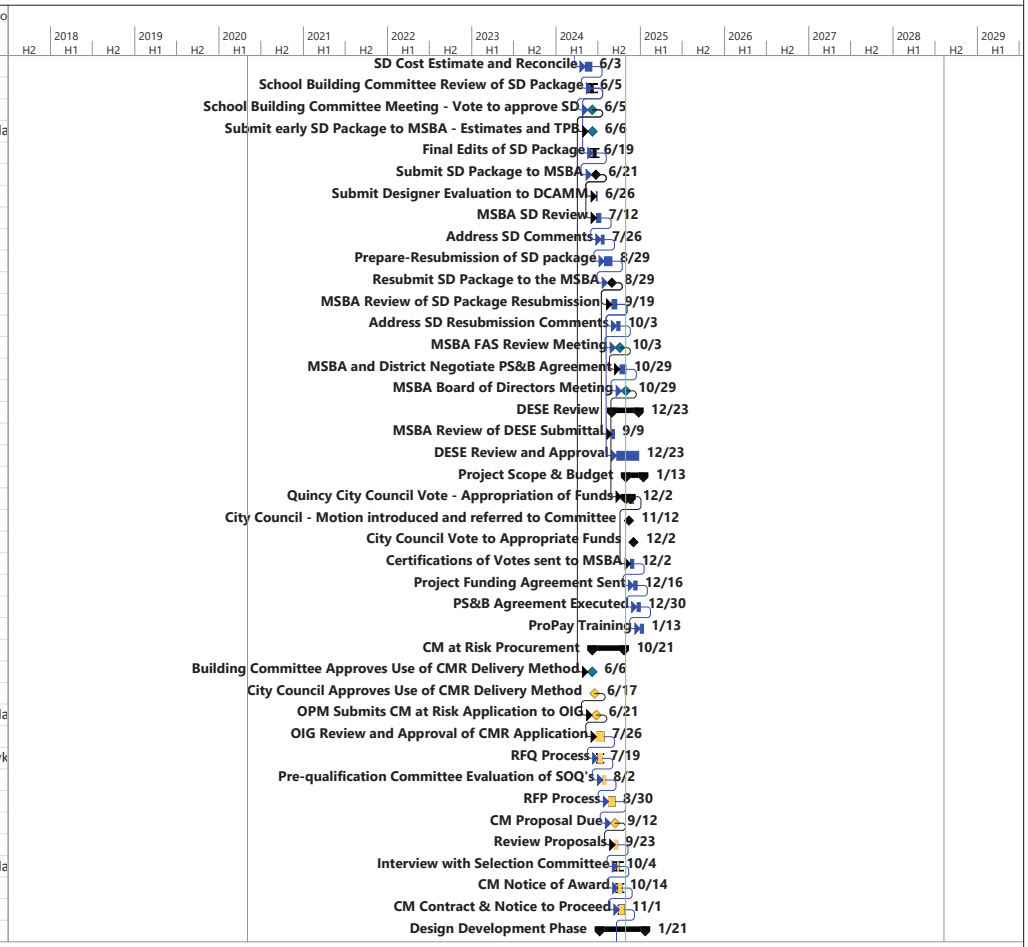


Project: Squantum ES Project S
Date: Tue 10/29/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task	
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task	
Milestone	Rolled Up Progress	Duration-only	Path Predecessor Summary Task	Path Driving Predecessor Summary Task	
Summary	External Tasks	Manual Summary Rollup	Path Predecessor Normal Task	Path Driving Predecessor Normal Task	
Project Summary	External Milestone	Manual Summary	Path Successor Milestone Task	Critical	
Group By Summary	Inactive Task	Start-only	Path Successor Summary Task	Critical Split	
Rolled Up Task	Inactive Milestone	Finish-only	Path Successor Normal Task	Progress	

Squantum School Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
41		6.5 SD Cost Estimate and Reconcile	4 wks	Tue 5/7/24	Mon 6/3/24	37
42		6.6 School Building Committee Review of SD Package	2 days	Tue 6/4/24	Wed 6/5/24	41
43		6.7 School Building Committee Meeting - Vote to approve SD	0 days	Thu 6/6/24	Thu 6/6/24	42
44		6.8 Submit early SD Package to MSBA - Estimates and TPB	0 days	Fri 6/7/24	Fri 6/7/24	43FS+1 da
45		6.9 Final Edits of SD Package	2 wks	Mon 6/10/24	Fri 6/21/24	42
46		6.10 Submit SD Package to MSBA	0 days	Fri 6/21/24	Fri 6/21/24	45
47		6.11 Submit Designer Evaluation to DCAMM	3 days	Mon 6/24/24	Wed 6/26/24	46
48		6.12 MSBA SD Review	3 wks	Mon 6/24/24	Fri 7/12/24	46
49		6.13 Address SD Comments	2 wks	Mon 7/15/24	Fri 7/26/24	48
50		6.14 Prepare-Resubmission of SD package	24 days	Mon 7/29/24	Thu 8/29/24	49
51		6.15 Resubmit SD Package to the MSBA	0 days	Thu 8/29/24	Thu 8/29/24	50
52		6.16 MSBA Review of SD Package Resubmission	3 wks	Fri 8/30/24	Thu 9/19/24	51
53		6.17 Address SD Resubmission Comments	2 wks	Fri 9/20/24	Thu 10/3/24	52
54		6.18 MSBA FAS Review Meeting	0 days	Fri 10/4/24	Fri 10/4/24	53
55		6.19 MSBA and District Negotiate PS&B Agreement	18 days	Fri 10/4/24	Tue 10/29/24	54
56		6.20 MSBA Board of Directors Meeting	0 days	Wed 10/30/24	Wed 10/30/24	55
57		**7 DESE Review**	**82 days**	**Fri 8/30/24**	**Mon 12/23/24**	
58		7.1 MSBA Review of DESE Submittal	7 days	Fri 8/30/24	Mon 9/9/24	51
59		7.2 DESE Review and Approval	67 days	Fri 9/20/24	Mon 12/23/24	52
60		**8 Project Scope & Budget**	**54 days**	**Wed 10/30/24**	**Mon 1/13/25**	
61		**8.1 Quincy City Council Vote - Appropriation of Funds**	**14 days**	**Wed 10/30/24**	**Mon 11/18/24**	**56**
62		8.1.1 City Council - Motion introduced and referred to Committee	0 days	Tue 11/12/24	Tue 11/12/24	
63		8.1.2 City Council Vote to Appropriate Funds	0 days	Mon 12/2/24	Mon 12/2/24	
64		8.2 Certifications of Votes sent to MSBA	2 wks	Tue 11/19/24	Mon 12/2/24	61
65		8.3 Project Funding Agreement Sent	2 wks	Tue 12/3/24	Mon 12/16/24	64
66		8.4 PS&B Agreement Executed	2 wks	Tue 12/17/24	Mon 12/30/24	65
67		8.5 ProPay Training	2 wks	Tue 12/31/24	Mon 1/13/25	66
68		**9 CM at Risk Procurement**	**98 days**	**Thu 6/6/24**	**Mon 10/21/24**	
69		9.1 Building Committee Approves Use of CMR Delivery Method	0 days	Thu 6/6/24	Thu 6/6/24	43
70		9.2 City Council Approves Use of CMR Delivery Method	0 days	Mon 6/17/24	Mon 6/17/24	
71		9.3 OPM Submits CM at Risk Application to OIG	0 days	Mon 6/24/24	Mon 6/24/24	70FS+5 da
72		9.4 OIG Review and Approval of CMR Application	5 wks	Mon 6/24/24	Fri 7/26/24	71
73		9.5 RFQ Process	3 wks	Mon 7/1/24	Fri 7/19/24	72FS-4 wk
74		9.6 Pre-qualification Committee Evaluation of SOQ's	10 days	Mon 7/22/24	Fri 8/2/24	73
75		9.7 RFP Process	4 wks	Fri 8/16/24	Thu 9/12/24	74
76		9.8 CM Proposal Due	0 days	Thu 9/12/24	Thu 9/12/24	75
77		9.9 Review Proposals	7 days	Fri 9/13/24	Mon 9/23/24	76
78		9.10 Interview with Selection Committee	3 days	Tue 9/24/24	Thu 9/26/24	77FS+6 da
79		9.11 CM Notice of Award	12 days	Thu 9/26/24	Fri 10/11/24	78
80		9.12 CM Contract & Notice to Proceed	3 wks	Tue 10/1/24	Mon 10/21/24	79
81		**10 Design Development Phase**	**142 days**	**Mon 7/8/24**	**Tue 1/21/25**	



Project: Squantum ES Project S
Date: Tue 10/29/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task	
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task	
Milestone	Rolled Up Progress	Duration-only	Path Predecessor Summary Task	Path Driving Predecessor Summary Task	
Summary	External Tasks	Manual Summary Rollup	Path Predecessor Normal Task	Path Driving Predecessor Normal Task	
Project Summary	External Milestone	Manual Summary	Path Successor Milestone Task	Critical	
Group By Summary	Inactive Task	Start-only	Path Successor Summary Task	Critical Split	
Rolled Up Task	Inactive Milestone	Finish-only	Path Successor Normal Task	Progress	

Squantum School Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
82		10.1 DD Documents Development (incl. early release package set)	85 days	Mon 7/8/24	Fri 11/1/24	
83		10.2 DD Cost Estimate & Reconciliation	4 wks	Mon 11/4/24	Fri 11/29/24	82,80
84		10.3 OPM and District Review of DD Documents	2 days	Mon 12/2/24	Tue 12/3/24	83
85		10.4 DD Cost Estimate Submitted to MSBA	0 days	Fri 12/6/24	Fri 12/6/24	83FS+5 da
86		10.5 DD Documents Submitted to MSBA (incl 50% CD's for early enablemer	0 days	Tue 12/17/24	Tue 12/17/24	84FS+10 d
87		10.6 MSBA Review DD Documents (incl 60% CD for enablement set)	3 wks	Wed 12/18/24	Tue 1/7/25	86
88		10.7 OPM & Designer to Address MSBA DD Review Comments	2 wks	Wed 1/8/25	Tue 1/21/25	87
89		**11 Contact Documents Phase**	**180 days**	**Wed 12/18/24**	**Tue 8/26/25**	
90		11.1 CD 60% Documents	30 days	Wed 12/18/24	Tue 1/28/25	86
91		11.2 CD 60% Cost Estimate Development & Reconciliation	4 wks	Wed 1/29/25	Tue 2/25/25	90
92		11.3 OPM & District Review of 60% Documents	5 days	Wed 2/26/25	Tue 3/4/25	91
93		11.4 60% Documents Submitted to MSBA (100% CD for Early Enablement)	0 days	Tue 3/4/25	Tue 3/4/25	92
94		11.5 60% Cost Estimate Submitted to the MSBA	0 days	Tue 3/4/25	Tue 3/4/25	93
95		11.6 MSBA Review of 60% Documents	3 wks	Wed 3/5/25	Tue 3/25/25	94
96		11.7 Address 60% Review Comments	2 wks	Wed 3/26/25	Tue 4/8/25	95
97		11.8 CD 90% Document Development	38 days	Wed 1/29/25	Fri 3/21/25	90
98		11.9 CD 90% Cost Estimate Development	4 wks	Mon 3/24/25	Fri 4/18/25	97
99		11.10 OPM & District Review of 90% documents	5 days	Mon 4/21/25	Fri 4/25/25	98
100		11.11 90% documents submitted to MSBA	21 days	Mon 4/28/25	Mon 5/26/25	99
101		11.12 90% Estimate Submitted to MSBA	1 day	Tue 5/27/25	Tue 5/27/25	100
102		11.13 MSBA Review of 90% Documents	3 wks	Wed 5/28/25	Tue 6/17/25	101
103		11.14 OPM & Designer 90% Review Comments Response	2 wks	Wed 6/18/25	Tue 7/1/25	102
104		11.15 CD 100% Complete	10 days	Wed 7/2/25	Tue 7/15/25	103
105		11.16 100% Bid Documents Submitted to MSBA	0 days	Tue 7/15/25	Tue 7/15/25	104
106		11.17 Submit Designer Evaluation to DCAMM	3 days	Wed 7/16/25	Fri 7/18/25	105
107		11.18 Building Permit Filled	30 days	Wed 7/16/25	Tue 8/26/25	104
108		11.19 NPDES General Permit Filling	30 days	Wed 7/16/25	Tue 8/26/25	104
109		**12 Bidding**	**606 days**	**Mon 5/15/23**	**Mon 9/8/25**	
110		12.1 Geothermal Well Package - Bidding, Award and Mobilization	60 days	Fri 12/20/24	Thu 3/13/25	126FS-12(
111		12.2 Bid out Enablement work	25 days	Mon 5/15/23	Fri 6/16/23	
112		12.3 Trade Sub-Contractor Pre-Qualification	45 days	Wed 4/16/25	Tue 6/17/25	104FS-65
113		**12.4 Bidding Main Package Due (Trade/Non-trade Subcontractors)**	**15 days**	**Wed 7/16/25**	**Tue 8/5/25**	**104**
114		12.4.1 Filed Sub Bid Advertisement / Start of GC sub Bidding	15 days	Wed 7/16/25	Tue 8/5/25	
115		12.4.2 Receipt of Filed Sub-Bids and Receipt of GC sub Bids	0 days	Tue 8/5/25	Tue 8/5/25	114
116		12.5 GMP Development by Construction Manager	19 days	Wed 8/6/25	Mon 9/1/25	113
117		12.6 Execution of GMP	5 days	Tue 9/2/25	Mon 9/8/25	116
118		12.7 Notice to proceed for Construction (New School)	0 days	Mon 9/8/25	Mon 9/8/25	117
119		**13 Construction**	**1160 days**	**Mon 6/19/23**	**Fri 11/26/27**	
120		**13.1 Enablement Work (City of Quincy)**	**97 days**	**Thu 4/18/24**	**Fri 8/30/24**	
121		13.1.1 Remove abandoned UST Tanks	2 days	Thu 4/18/24	Fri 4/19/24	
122		13.1.2 Replace water line in Huckins Street	*8 wks*	Mon 7/8/24	Fri 8/30/24	

Project: Squantum ES Project S
Date: Tue 10/29/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task	
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task	
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Squantum School Project Schedule

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82		10.1 DD Documents Development (incl. early release package set)	85 days	Mon 7/8/24	Fri 11/1/24	
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93		11.4 60% Documents Submitted to MSBA (100% CD for Early Enablement)	0 days	Tue 3/4/25	Tue 3/4/25	92
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98		11.9 CD 90% Cost Estimate Development	4 wks	Mon 3/24/25	Fri 4/18/25	97
99		11.10 OPM & District Review of 90% documents	5 days	Mon 4/21/25	Fri 4/25/25	98
100		11.11 90% documents submitted to MSBA	21 days	Mon 4/28/25	Mon 5/26/25	99
101		11.12 90% Estimate Submitted to MSBA	1 day	Tue 5/27/25	Tue 5/27/25	100
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120		**13.1 Enablement Work (City of Quincy)**	**97 days**	**Thu 4/18/24**	**Fri 8/30/24**	
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Project: Squantum ES Project S
Date: Tue 10/29/24

Task	Rolled Up Critical Task	Inactive Summary	Deadline	Critical Task	
Split	Rolled Up Milestone	Manual Task	Path Predecessor Milestone Task	Path Driving Predecessor Milestone Task	
Milestone	Rolled Up Progress	Duration-only	Path Predecessor Summary Task	Path Driving Predecessor Summary Task	
Summary	External Tasks	Manual Summary Rollup	Path Predecessor Normal Task	Path Driving Predecessor Normal Task	
Project Summary	External Milestone	Manual Summary	Path Successor Milestone Task	Critical	
Group By Summary	Inactive Task	Start-only	Path Successor Summary Task	Critical Split	
Rolled Up Task	Inactive Milestone	Finish-only	Path Successor Normal Task	Progress	

B. Passive House Initial WUFI Model Summary

Thornton Tomasetti

Memorandum

TO	Arrowstreet Architects	DATE	December 20, 2024
RE	Passive House Status Update	PROJECT NAME	Squantum Elementary School

Thornton Tomasetti (TT) has been evaluating the Squantum Elementary School project for Phius 2024 Passive House performance in coordination with Arrowstreet. TT is issuing this memo as a status update to summarize the process, project's current performance, recommended / required measures to achieve a Phius-level building, and next steps.

1.0 Background and Process

Per Massachusetts 10th Edition Stretch Energy Code requirements (225 CMR 23), the Squantum ES project must either achieve Phius Final Certification or comply via the TEDI (thermal energy demand intensity) pathway. In addition, TT considered ASHRAE 227 as a potential pathway to comply with Phius requirements, since Phius will be utilizing this standard for non-residential projects in the future but determined that the Non-Residential Ventilation section of ASHRAE 227 is not yet sufficiently developed for use.

Accordingly, the project team has been pursuing the Phius pathway, which focuses on reducing heating and cooling energy while maintaining comfort. The process began with a feasibility study in April 2024, assessing the project within the framework of the Phius 2024 standards. From that initial stage, the project team then continued to develop the project's approach and evaluate against Phius 2024 criteria, with the latest update at 60% Design Development (DD) phase. The next steps for the project are a 100% DD set review and Phius compliance model update in January, with a subsequent submission to Phius for third-party review. This review requires detailed documentation for all elements of the building, including but not limited to envelope and HVAC.

Passive House Principles (Image Inspiration: Passive House Accelerator)

2.0 Phius Metrics & Pathways

Phius sets thermal metrics based on the envelope area, interior floor area, and occupancy density. These metrics are based on occupancy and unit density, floor area, and envelope area. Revised geometry and programing may alter these metrics.

Metric	Phius 2024 Threshold
Heating Demand (kBtu/ft^2-yr)	7.6
Cooling Demand (kBtu/ft^2-yr)	5.6
Heating Load (Btu/hr-ft^2)	5.3
Cooling Load (Btu/hr-ft^2)	3.3
Source Energy (kWh/person-yr)	24.5 kBtu/ft^2-yr (assuming pursuing CORE)

Table 1. Phius Metrics

As discussed with the project team, there are two Phius 2024 pathways, CORE and ZERO. It is currently assumed based on discussions with the team that the project will pursue Phius 2024 CORE. Below is a table outlining the key differences between these pathways.

ITEMS OF INTEREST	CORE	ZERO
Source Energy Offset	A portion of source energy to offest (to meet Phius Source Energy Target)	All of the source energy to offset (to meet 0 kBtu/ft^2-yr)
Source energy offset type	Only on-site renewable energy	On-site, off-site, or renewable energy credits (RECs are de-rated by 80% and contract is for 20 years) and can use energy or RECs generated by owned off-site systems
Domestic Hot water	Can use natural gas	Must be all-electric
Space Conditioning System	Can use natural gas	Must be all-electric
Electrification Readiness	Must meet electrification readiness *(as per DOE ZERH)*	All systems must be all-electric
PV Readiness	Must be PV-ready *(as per DOE PV Ready checklist)*	
EV Charging Readiness	Must have portion of parking spots EV Ready	

3.0 Prescriptive Requirements

It is important to note that in addition to the performance metrics discussed in this memo, there are also several co-requisite programs the project must align with for Phius certification listed below. Requirements from these programs have been previously provided to the project team.

1. EPA ENERGY STAR Multifamily New Construction (MFNC):
   Phius requires National Version 1.2, regardless MA is still under Version 1.1, which includes Energy Star appliances
2. EPA Indoor airPLUS Version 1 (Rev. 04) Checklist
3. DOE Zero Energy Ready Home (ZERH) National Program Requirements MF Version 2

  - PV-Ready Checklist Version 2
  - EV-Ready Checklist Version 2 applies to non-residential commercial buildings: Infrastructure for the current and future charging of electric vehicles (EVs) is required for all buildings where parking spaces are planned and depends on the building's parking requirements

4. Encouraged, but not required: EPA Water Sense Home Certification Version 2.0

In addition to the co-requisite programs, the following Phius requirements must be met:

5. Infiltration Requirement: 0.06 CFM/sf at 50 Pa (guarded blower door test)
6. Glazing Comfort and Condensation Criteria: project-specific
7. Thermal Bridge Free Construction: < 0.006 BTU/hr-ft-°F
8. Envelope Hygrothermal Requirements: Phius will review the envelope assemblies and comment on any needed adjustments
9. Radon Mitigation Strategy: Zone 2 with moderate potential; average indoor radon levels may be between 2 and 4 pCi/L

4.0 Phius Update & Current Results

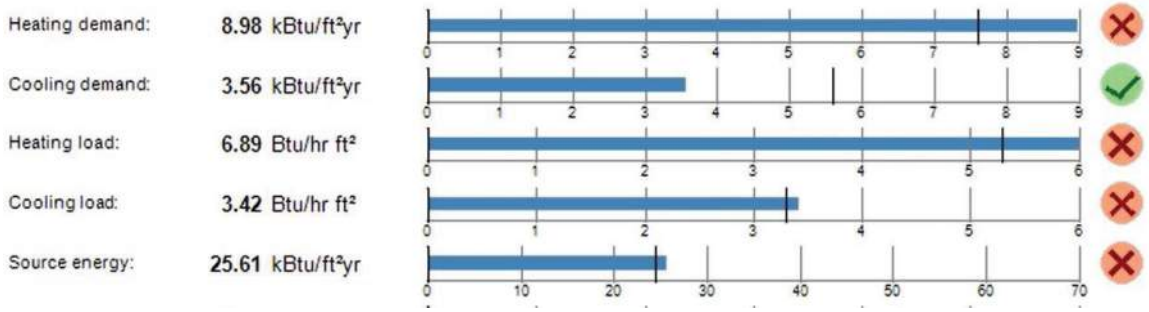
TT based the latest comprehensive Phius model updates and set review on information provided by Arrowstreet and GGD at 60% DD phase. During early stages of design, key design items listed below were discussed at length to determine the best pathway for the project. It was determined that ventilation, wall, and window performance have the largest impact to the project's ability to meet Phius criteria.

- Flat roof vs pitched roof: The Phius thermal boundary discussion involved accounting for the impact on Phius criteria, Arrowstreet's detailing and best practices for AVB, and constructability. Ultimately the project will move forward with the pitched roofs as the Phius thermal boundary.
- Insulation types and thicknesses: The impact of insulation on heating/cooling loads including the point of diminishing returns, and embodied carbon impact, has been explored by the team, and will continue to evolve into the next stage of the project.
- Window selection: Glazing area and selections are critical to Phius performance, and the team has discussed various options, including aluminum vs fiberglass windows and including SHGC by orientation.
- Ventilation: The project team deeply explored ventilation both in the airflow rates and utilization pattern of the building. Ventilation is complex for school projects (vs typical Phius residential projects) as the types of systems and occupancy patterns are more complex. Measures that the team considered included reducing ventilation airflow, increasing energy recovery ventilation (ERV) efficiency, and understanding and refining typical operating conditions for various space types.
- Thermal bridging: Thermal bridging mitigation is critical in Phius projects for energy efficiency, comfort, and moisture / durability. TT evaluated Arrowstreet's details and commented, and BET is in process on thermal analysis to refine the psi value inputs.

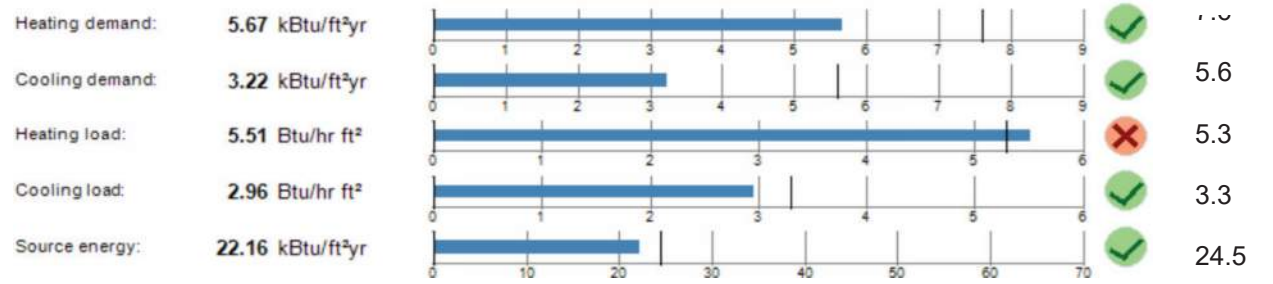
Based on these considerations, the team developed the 60% DD Phius Benchmarks, utilizing the WUFI Passive energy model. The following chart shows the project status with those assumptions. At the benchmark, the project was not meeting the space conditioning metrics (other than cooling demand) and source energy target. Based on the initial results, the team collaboratively discussed areas of impact that could be considered, including an iterative process of architectural and mechanical energy conservation measures. The final iteration from that process is included below (60% DD with Phius 2024 Recommendations), and includes the following design measures required to reach the Phius performance levels shown:

1. Increase ERV sensible efficiency to 80% (from 75%)
2. Use alternate of fiberglass windows with better thermal performance
3. Incorporate interior blinds with 0.7 reduction factor (to help with cooling load)
4. Increase slab insulation to R-20 (from R-15)
5. Reduce SHGC to 0.239
6. Remove dryer exhaust (plenum strategy to account for this)
7. Reduce thermal bridging (requires thermal analysis, in progress by BET)
8. Increase roof ERA-2 assemblies to R-60 (all other roofs are already R-60)

60% DD Phius Benchmark



60% DD with Phius 2024 Recommendations



Disclaimer: *The results from the energy analysis must be used for comparative evaluations of energy optimization measures with the assumptions indicated in this report. The results should not be construed as an absolute prediction of future building energy use as several Phius and WUFI Passive limitations exist, including monthly climate data, static simulation, exclusion of latent load calculations, and restricted temperature setpoints and occupancy patterns.*

It is important to note that ALL Phius criteria must be met, and to achieve compliance, the project would require one of the following pathways in addition to the previously incorporated measures:

- Ventilation efficiency improvements. This could be accomplished with a ventilation system with 80% sensible recovery efficiency and a 25% reduction in airflow rates, or with 84% ventilation sensible recovery efficiency and a 10% reduction in airflow rates. TT understands from GGD that the current ventilation design does not allow for either of these improvements due to the MA ventilation requirements for schools and the "3 equal" availability of equipment. The design team has already appealed to Phius for a variance without success; though it is possible to request a variance again, the design team will need to present a robust case explaining why a more efficient ventilation system is infeasible, and even then a variance is not guaranteed.
- Wall insulation improvements: This could be accomplished with increasing wall insulation to R-35 (adding 2" of insulation at all new walls). The design team has decided to pursue this option, and will consider the point of diminishing returns and embodied carbon impact relative to the Phius requirements.

The project currently plans to pursue the Phius 2024 CORE pathway. However, if the project exceeds the source energy value of 24.5 kBtu/ft2-yr, the project must offset any source energy exceeding that target with on-site PV; if on-site PV is not feasible or there is not enough roof space, off-site PV, a power purchase agreement, or RECs may be used to offset ALL source energy and follow Phius ZERO. If a power purchase agreement is utilized, the associated RECs must be retained.

A summary of the latest WUFI Passive energy model inputs has been provided in Appendix A. It is important to note that throughout the Phius process, as the design shifts, these values fluctuate in response, thus Thornton Tomasetti recommends a 5-10% buffer on each metric to allow for adjustments in the results based on the Phius review process. Projects unable to maintain a 5% minimum buffer typically require additional Passive House consulting work in the form of review and optimization of design changes that occur during construction due to shop drawing development, and/or constructability and supply chain issues.

5.0 Next Steps

The Phius certification process includes an iterative review process. Arrowstreet is currently working towards the 100% DD set, which will be issued by the end of 2024, and Construction Documents (CDs) phase will begin in early 2025. Next steps will include a model update incorporating the following information Arrowstreet will include in the 100% DD set:

- Geometry updates to account for shifted window sizes and locations
- Envelope updates to include the latest insulation types and configurations
- Glazing selection and related updates, including detailed performance information
- Thermal bridging updates based on thermal analysis
- Mechanical updates to account for the latest selections for mechanical systems and ventilation schemes, including ERV effectiveness,
- Plumbing / DHW updates

- Latest PV approach and information

In addition to the above information needed for the performance aspects of the building, Arrowstreet should continue reviewing prescriptive requirements, discussing cost estimates of items, pricing inputs based on energy analysis inputs and prescriptive checklists, and engaging a Phius Verifier as early as possible.

APPENDIX A. WUFI PASSIVE ENERGY MODEL INPUT TABLE

General Inputs	Values		Comment
Climate Zone	ASHRAE Climate Zone 5A Phius Climate File: Boston Logan Int Arpt, MA		
Interior Conditioned Floor area (iCFA)	77,650 SF		.
Occupancy	380 students, 25 teachers, 20 office staff, 10 food staff prep, 5 janitors, 120 after school, 245 summer program (student + teachers)		
Average Whole Building Lighting	0.50 W/sf 155,281 kWh/yr		
Average Whole Building Misc. Electric Loads	0.60 W/sf 187,172 kWh/yr		
Renewable Energy	TBD: RECs, on-site, or off-site		Phius requirement depends on other values and updates
Envelope	**60% DD Design**	**Phius 2024 Recommendations**	**Comment**
Roofs	R-42 / R-60	R-60 for all	
Metal Framed Walls	R-28		Increasing all walls to R-35 is one pathway to comply with Phius heating load target
Mass Walls	R-23		
Slab	R-15	R-20	
Opaque Exterior Doors	R-2.7 (U-0.37)	R-2.7 (U-0.37)	
Window shading	9” depth of window reveal 2.5” distance from edge of glazing to reveal		The design team will continue to consider the optimal window reveal depth and SHGC to balance cooling load while reducing heating load
Fixed Windows	Aluminum U-0.20 / SHGC 0.33	Fiberglass U-0.15 / SHGC 0.24	Arrowstreet / TT continue to explore window options
Operable Windows	Aluminum U-0.22 / SHGC 0.33	Fiberglass U-0.15 / SHGC 0.24	
Fixed Windows - Translucent Polycarbonate	U-0.18 / SHGC 0.23		
Curtainwall	Aluminum U-0.20 / SHGC 0.33	Fiberglass U-0.15 / SHGC 0.24	Prescriptive condensation and comfort requirements apply

Glazed Doors	Assembly U-0.49 / SHGC 0.30		Prescriptive condensation requirement applies
Thermal Bridge Allowance	Between 0.05-1.02 with variable lengths	Reduced with BET thermal analysis	
Infiltration rate	0.06 CFM/sf @ 50 Pa		Prescriptive Phius requirement
Ventilation	**60% DD Design**	**Phius 2024 Recommendations**	**Comment**
Ventilation System	Phius demand control ventilation (DCV) proposed ventilation protocol: average of 12,149 cfm		10-25% reduction in airflow is one pathway to comply with Phius heating load target (10% if ERV sensible efficiency is also increased to 84%)
Cafeteria Kitchen Exhaust	3,100 Exhaust CFM with equivalent MAU		Phius requires that balanced supply and exhaust rates are <10%.
Cafeteria Schedule	4 hrs per day, 180 days/yr		
Dryer Exhaust	220 CFM	None	Proposed option uses plenum strategy to eliminate 220 CFM of exhaust
Mechanical Systems	**60% DD Design**	**Phius 2024 Recommendations**	**Comment**
Ventilation AHRI 1060 htg/clg sensible recovery effectiveness	75%	80%	84% needed to comply with Phius heating load target
Latent Recovery Effectiveness	40%		
Electric Efficiency	1.5 W/cfm		
GSHP	Heating/DHW COP: 2.5 Cooling COP: 2.0		
Hot Water Storage	1,080 gallons		