AGENDA PACKET

SPECIAL MEETING OF THE CITY COUNCIL
MONDAY, AUGUST 19, 2024 6:00 PM

EVERETT CITY HALL, 484 BROADWAY, CITY COUNCIL CHAMBERS, 3RD FLOOR
EVERETT, MA 02149

AGENDA

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EVERETT, MA 02149

ROLL CALL

PLEDGE OF ALLEGIANCE

PUBLIC PARTICIPATION

UNFINISHED BUSINESS

1. **C0237-24** Order/s/ Councilor Robert J. Van Campen, as President

   An order requesting approval to expend $10,000,000 from ARPA funds for Improvements at the Old Everett High School including the replacement of the roof.

2. **C0262-24** Order/s/ Councilor Robert J. Van Campen, as President

   An order requesting approval of an appropriation by borrowing in the amount of $72,000,000 for building improvements, equipment, and furnishings at the Old Everett High School, located at 548 Broadway

ADJOURNMENT

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(All agendas and reports can be obtained on City of Everett Website)

Respectfully submitted:

Michael J. Mangan

Legislative Aide
Everett City Council Office

City of Everett Massachusetts

C0237-24

To: **Mayor and City Council**

From: **Councilor Robert J. Van Campen**

Date: June 24, 2024

Agenda Item:

An order requesting approval to expend $10,000,000 from ARPA funds for Improvements at the Old Everett High School including the replacement of the roof.

Background and Explanation:

Attachments:

CARLO DeMARIA
MAYOR

CITY OF EVERETT - OFFICE OF THE MAYOR
484 Broadway Everett, Massachusetts 02149
☎ 617-394-2270
✎ mayorcarlo.demaria@ci.everett.ma.us

June 18, 2024

Honorable City Council
484 Broadway
Everett, MA 02149

Dear Honorable Members:

I hereby submit for your consideration an order to expend $10,000,000 from ARPA funds for Improvements at the Old Everett High School including the replacement of the roof.

Similar to the Council's previous approval of my request to use ARPA dollars to preserve learning space for Everett students at the Devens School, this proposal is another example of using federal funding to support education. This particular request is a proposal to preserve one of the city's assets to create additional classroom space for the Everett Public Schools while preserving existing widely utilized community space that supports families from across Everett.

I recommend your favorable passage of this order.

Respectfully submitted,

Carlo DeMaria
Mayor

June 18, 2024

City of Everett, Massachusetts

CITY COUNCIL

Offered By: _____
Councilor Robert VanCampen, as President

Bill Number:
Bill Type: Order

Be it
Ordered: BY City Council OF THE CITY OF EVERETT, as follows:

to expend $10,000,000 of ARPA funds for improvements at the Old Everett High School including the replacement of the roof.

CITY OF EVERETT
Office of the Mayor

Carlo DeMaria
Mayor

Everett City Hall
484 Broadway
Everett, MA 02149-3694
Phone: (617) 394-2270
Fax: (617)381-1150

July 17, 2024

Honorable City Council
484 Broadway
Everett, Massachusetts 02149

RE: C0237-24 Order/s/ Councilor Robert J. Van Campen, as President

An order requesting approval to expend $10,000,000 from ARPA funds for Improvements at the Old Everett High School including the replacement of the roof.

Dear Honorable Members,

I respectfully share further information in support of my previously submitted order to utilize ARPA funding to preserve and expand the educational and community use of the former Everett High School.

My initial request to this Council in February 2024 was for funding to replace the roof of the former Everett High School to preserve the existing uses of the building for the Webster School Extension, the Health and Wellness Center, the Eliot Family Resource Center, the boxing program, and the Facilities Maintenance equipment and storage space. My request was limited to the investment needed to maintain these compelling community needs by preserving the continued use of this property.

During the course of the Council's deliberations, I was asked by members of the Council to consider the potential additional use of the former high school. Superintendent Hart also was asked to appear before the Council to discuss existing and foreseeable space needs for the Everett Public School District. In order to respond to the Council on these items, Superintendent Hart and I have engaged in substantive and collaborative conversations about municipal space and the educational needs of our students.

As a result of these series of conversations, I am submitting information that Superintendent Hart and I have reviewed to support a proposal for the reuse of the former Everett High School for the expanded educational purposes of creating middle school space for 7th & 8th grade students, in addition to the existing Webster School Extension program. The creation of additional classroom space at this location will alleviate classroom sizes in

other schools in the district and will prevent the disruption that would result if we lost the use of the current Webster School extension program.

Enclosed you will find a facility assessment study and feasibility report that includes illustrations of proposed reuse of spaces; the components of the project to reuse the space, including project costs. The plan also will renovate the space to ensure the security of the students in the property, including having separate spaces for the different ages of students that would occupy the space.

This proposed project will address the important primary objective of alleviating constraints in our current classrooms. It also will allow for the continued use of the parcel for the public health of our residents through the availability of the health and wellness center. It will preserve the space needed to support the essential city functions of maintaining municipal facilities. It also will give us the opportunity to work with the Eliot Family Resource Center to help them continue to service over 7,000 families and provide them with critical human and social service needs conveniently in our community. It would return to the city the benefit of having the Rockwood Auditorium space for educational and community cultural purposes. These are all purposes that have a direct, positive impact on Everett families. The former Everett High School is the only municipal asset that will accommodate all these public purposes.

In order to offer these critical services to our residents, I am once again requesting that the City Council vote in favor of using $10M of our ARPA funds for the purposes of replacing the roof of the former Everett High School. This is money that I originally had recommended for the purposes of modular structures to create additional educational space, but now recommend be used to not lose the Webster School Extension space and to also create additional classroom space.

Additionally, I am submitting in a separate order for your consideration a request to appropriate the amount of $72M by borrowing for the total expected costs of this project, including soft costs. Please note that Superintendent Hart and his team are working to identify funding available to the schools, including a request to reprogram the use of up to $6M in ESSER funds, to reduce the amount of borrowing we would have to do to support this effort. The amount being requested is intended to provide you a full cost perspective in the event other funds were not available.

I ask for your favorable consideration in this matter.

Respectfully submitted,

Carlo DeMaria, Mayor

cc: Superintendent Hart
Members of the Everett School Committee

Enclosure

City of Everett Massachusetts

C0262-24

To: **Mayor and City Council**

From: **Councilor Robert J. Van Campen**

Date: July 22, 2024

Agenda Item:

An order requesting approval of an appropriation in the amount of $72,000,000 by borrowing for building improvements, equipment, and furnishings at the Old Everett High School, located at 548 Broadway

Background and Explanation:

Attachments:

CITY OF EVERETT
Office of the Mayor

Carlo DeMaria
Mayor

Everett City Hall
484 Broadway
Everett, MA 02149-3694
Phone: (617) 394-2270
Fax: (617)381-1150

July 17, 2024

Honorable City Council
484 Broadway
Everett, MA 02149

Dear Honorable Members:

I hereby request the amount of **$72,000,000** be appropriated by borrowing for building improvements, equipment, and furnishings at the Old Everett High School, located at 548 Broadway.

This funding would be used for the proposed project to address the important primary objective of alleviating constraints in our current classrooms. It also will allow for the continued use of the parcel for the public health of our residents through the availability of the health and wellness center. It will preserve the space needed to support the essential city functions of maintaining municipal facilities. It also will give us the opportunity to work with the Eliot Family Resource Center to help them continue to service over 7,000 families and provide them with critical human and social service needs conveniently in our community. It would return to the city the benefit of having the Rockwood Auditorium space for educational and community cultural purposes. These are all purposes that have a direct, positive impact on Everett families. The former Everett High School is the only municipal asset that will accommodate all these public purposes.

This funding would be in addition to the request I submitted to the Council in **C0237-24** to use $10M in ARPA funding to repair the roof at the former Everett High School.

Please note that Superintendent Hart and his team are working to identify funding available to the schools, including a request to reprogram the use of up to $6M in ESSER funds, to reduce the amount of borrowing we would have to do support this effort. The amount being requested is intended to provide to you a full cost perspective in the event other funds were not available.

Thank you for your favorable consideration.

Respectfully submitted,

Carlo DeMaria
Mayor

July 17, 2024

City of Everett, Massachusetts

CITY COUNCIL

Offered By: _____
Councilor Robert Van Campen, as President

Bill Number:
Bill Type: Order

Be it
Ordered: BY THE CITY COUNCIL OF THE CITY OF EVERETT, as follows:

That the City hereby appropriates the amount of Seventy-Two Million Dollars ($72,000,000) to be funded by borrowing for building improvements, equipment, and furnishings at the Old Everett High School, located at 548 Broadway, including the payment of all other costs incidental and related thereto, and that to meet this appropriation the Treasurer, with the approval of the Mayor, is authorized to borrow said amount under and pursuant to M.G.L. c.44, §8 or pursuant to any other enabling authority, and to issue bonds and notes therefore, provided, that any premium received upon the sale of any bonds or notes approved by this order, less any such premium applied to the payment of the costs of such issuance of bonds or notes, may be applied to the payment of costs approved by this order in accordance with M.G.L. c. 44, §20, thereby reducing the amount authorized to be borrowed to pay such costs by a like amount; and to take any other action relative thereto.

MVG
MOUNT VERNON GROUP
ARCHITECTS

EPS

Everett Public Schools

Middle School Conversion (Former Everett High School)
548 Broadway Street, Everett, MA
Facility Assessment Study - Feasibility Report

July 22, 2024

TABLE OF CONTENTS

Aerial View of Former Everett High School

EXECUTIVE SUMMARY

Overview
The Former High School was constructed nearly 100 years ago. It is structurally sound with an efficient layout. The Everett Building Code at the time regulated the construction of the building, so it may continue its occupancy for school purposes. Used as a high school until approximately 2009, the building has since been occupied by various community organizations and after school programs mostly on the front half of the first floor. As noted below, the major systems and components need extensive upgrades or replacement to function as a modern school facility. This report lists code analyses and physical deficiencies, their remedies, and estimated costs. There is also a conceptual layout for the conversion and reuse as a middle school for 1,100 students. A preliminary cost estimate for this reconstruction is also included.

Code
The former High School was constructed in the 1920's with a large addition being constructed at the rear of the school in the 1970's. It was continuously operated as a high school until approximately 2009. Since that time, it has been periodically occupied as a recreation center, daycare center, and for after school programs. The occupied portion of the building is well maintained, and appears to be structurally sound, with satisfactory egress for a school. The building can be renovated for reuse as a school.

Architectural
Replace/Upgrade site, windows repaired sealed and re-caulked, floor-wall-ceiling finishes, doors and hardware, toilets and locker rooms, kitchen equipment, auditorium seating and stage equipment, handicapped accessibility throughout, fixed equipment and casework, roof replacement and new elevator installation.

Plumbing, Fire Protection, HVAC Systems:

Plumbing
The existing building's plumbing distribution systems appear to be adequate in quantity for continued use as a school with general upgrades and replacements required by the reconstruction. All plumbing fixtures throughout the building should be replaced with efficient, code compliant equipment and fittings.

Fire Protection
There is an existing fire protection system which will be modified as required for the building renovations. The current system is both wet pipe automatic sprinkler and standpipe system. The system will be provided with a new fire department connection of size and type to meet local requirements. Existing sprinklers will be replaced with new and new sprinklers will be installed where required by the renovations.

HVAC
Replace/ Upgrade boilers, chilled and hot water piping, DOAS units will supply conditioned and dehumidified ventilation, heating and colling in classrooms will be provided by IUs part of the VRF system, heat pumps, RTU's, ductwork unit heaters, fin tube radiation, temperature controls, make up air units, exhaust fans, building wide energy management system (EMS).

Electrical Systems
Replace/ Upgrade electrical service, transformer, diesel generator, switchboard, subpanels, feeders, distribution system, light fixtures and lighting control system, receptacles, wiring, fire alarm, CCTV, telecommunications, and security systems.

Structural
All deteriorated structural elements in the existing building and site will require general structural repairs.

Conceptual Design and Preliminary Cost Estimate
The conceptual design of the Former Everett High School for a 1,100-student middle school utilizes the current classroom configuration where possible to minimize construction on floors two and three. A new kitchen and cafeteria created on the ground floor and administration, auditorium renovations, music and locker rooms on the first floor.

The preliminary cost estimate dated June 17, 2024, indicates an estimated construction cost of $60,148, 607. In addition to the construction cost, approximately $12,000,000 (20%) is required for project "soft costs" which include Architecture, Engineering, Owner's Project Management, and other specialized subconsultants. Also included in this amount are costs for furnishings, fixtures, equipment, technology security, testing, commissioning, legal, miscellaneous items and contingency. The total estimated project cost is $72,000,000.

SECTION 1: Architectural Building Assessment

I. BUILDING DESCRIPTION

A. GENERAL DESCRIPTION

The original Everett High School is a four-story, exterior brick, multiple wythe masonry bearing wall system with ornamental soldier course brick arches and ornamental cast stone, with interior concrete masonry structure originally constructed in the early 1920's. In the 1970's an addition/renovation took place at the rear of the existing building including a four-story addition comprised of exterior brick veneer with concrete masonry unit backup bearing walls, window lintels, interior concrete masonry wall structure and steel framed roof structure and metal deck with tar & gravel built up roofing. The entire existing building encompasses an area of approximately 328,000 gross square feet on four levels consisting of general classrooms, auto shops, wood shops, electric shops and mechanical spaces, Cafeteria and Kitchen, toilet rooms and utility spaces on the lower level; General Classrooms, Administration, Health suite, Auditorium and stage, Music rooms, locker rooms, fitness rooms and gymnasium on the first floor; General Classrooms, student activities, teachers rooms, Library and office adjacencies, audio visual and equipment repair, auditorium balcony and toilet rooms on the second floor. And general classrooms, art rooms, science rooms, prep labs, lecture hall and toilets on the third floor.

Overhead view of the Former Everett High School and site.

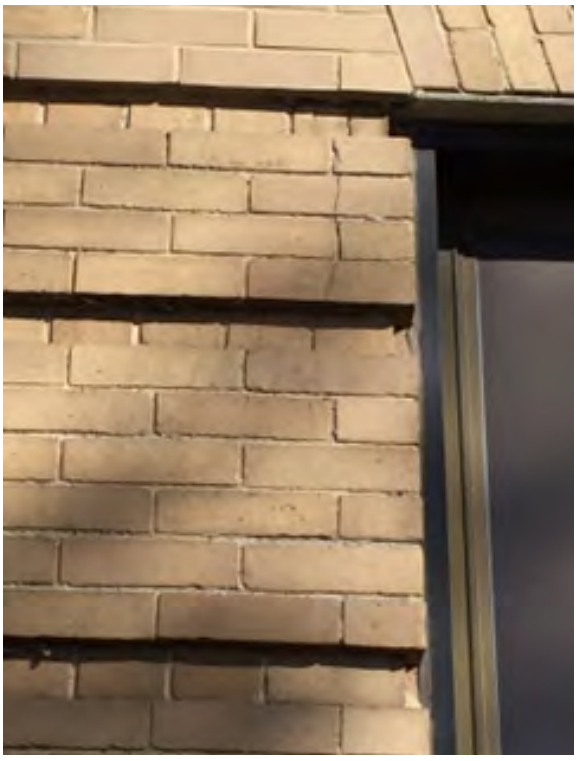
The North & South corridors of the building are single loaded leaving the building plan extremely inefficient, Stairs do serve all levels, though there is only one non- compliant elevator for a 328,000 square foot building. It is in overall poor condition.

II. EXISTING CONDITIONS

A. BUILDING ENVELOPE

1. Exterior Walls

Existing Conditions
Exterior walls of the existing 1920's building are comprised of solid masonry bearing walls, are uninsulated, and have no air circulation cavity within the composite wythes of masonry. There are ornamental cast stone bands and framework at doors, cast stone ornamental balconies along the front of the building facing Broadway. The exterior walls of the 1970 addition are comprised of concrete block with brick masonry veneer, are uninsulated, and have no air circulation cavity within the composite wythes of masonry.

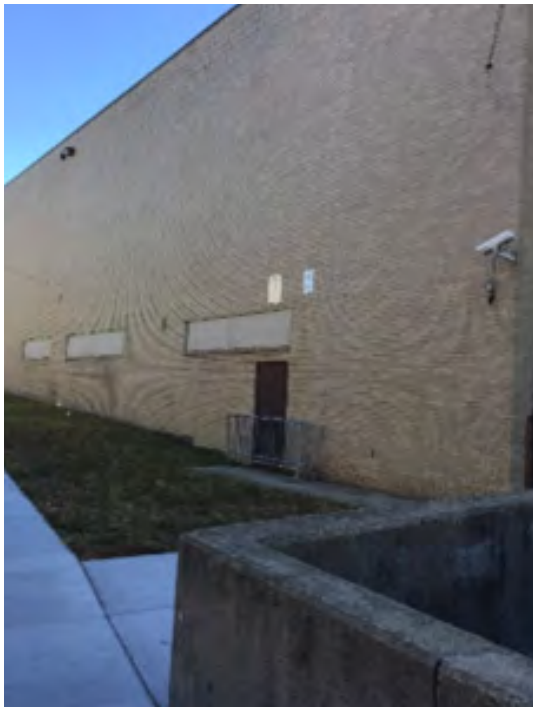


Masonry cracks and re-pointing required

Ornamental cast stone framework

Continuous cast stone bands require repointing

Ornamental cast stone balconies



1970's addition facing Linden Street
Boarded window openings

1970's addition and 1920's original building connection

Deficiencies

The existing exterior masonry walls appear to be in overall fair condition, though on the interior in numerous areas it is evident that water has migrated through the exterior brick masonry façade causing spalling and crumbling of the interior finishes at the exterior wall surfaces. At a minimum masonry cracks and failure should be repaired, replaced and approximately 50% repointed. Ornamental Cast stone balconies retain water, which is deteriorating the material on the underside.

Masonry and window openings require repointing and caulking

Recommendations

As part of any proposed future addition/renovation to the existing building, it is recommended that exterior walls be insulated at the interior face to maximize energy efficiency and 50% of existing exterior masonry be repointed or replaced to minimize ongoing and future masonry deterioration. The steel lintels above all openings are in fair condition and should be replaced as required. See the structural narrative for any additional information.

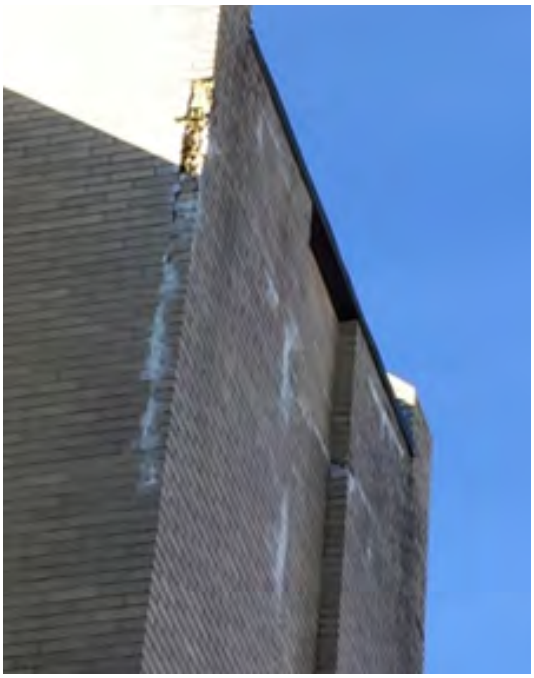
The copper cap at the top of the 1920's original building, along with all related wood blocking, should be replaced in its entirety. The brick veneer of the building should be cleaned in its entirety. The cast stone should be repointed and ornamental balconies should be lined with a membrane or water proof material as the standing water is damaging the integrity of the cast stone.

2. Window and Exterior Door Systems

Existing Conditions

The main and secondary exterior entrance doors of the building are comprised of some replacement aluminum doors and frames and some metal doors with hollow metal frames, along with metal transoms at the head. The aluminum and metal doors, frames and transoms are in fair to poor condition. Exterior windows are replacement aluminum, operable and fixed, double pane glass windows and metal blank out panels in lieu of glazing in various areas. At the main entrance of the 1920's building, the original fan transom and doors appear to be original.

Original main entrance to school



Masonry deterioration at 1970's addition

Ornamental cast stone, metal doors & frames

Elevation facing Maple Street

Copper cornice flashings deteriorating

Aluminum windows w/double pane glazing & metal panels

Deficiencies

All doors in the 1920's building and 1970's are past their longevity showing signs of paint and weather stripping deterioration, hardware deficiencies and backer rod and sealant failure and should be removed in their entirety and substituted with thermally superior and appropriate period style doors. See above picture for example. The building is currently not handicap accessible from any of the exterior entrances. The existing concrete stair systems are in fair condition at the main entrance and side entries, though none of these entries are handicap accessible.

Most windows are in fair condition. All caulking should be replaced in its entirety where the window frame meets its adjacent exterior wall surface. Steel lintels are in fair condition but further investigation would be required, see structural narrative for any additional information.

Recommendations

As part of any addition or renovation project it is recommended all existing doors be replaced in their entirety and all windows replaced and re-caulked on the exterior in their entirety. All deficiencies listed above should be addressed.

3. Roof System

Existing Conditions

The roof of the existing 1920's and 1970's building is a built up tar & gravel roof, with stone ballast, which pitches to internal roof drains via tapered rigid insulation and or pitched structure. The applied rubber membrane roof systems are flashed into parapet walls and counter flashed in copper at the exterior edges of the building. The top of the parapet is capped in copper which overlaps the wood fascia on the exterior face of the walls. The coping stones below the copper cap of the parapet would have to be replaced in its entirety and re-flashed. There are multiple roof fans, skylights, roof top units and the like that have failed and should be all replaced.

The roof of the 1970 addition is an applied rubber roof system with gravel and flashed into vertical walls with copper thru wall flashings and caps.

Tar and gravel roof, continuous thru-wall flashing

Deteriorated flashings, both copper and membrane

Flashings deteriorated and useless

Flashings deteriorated and useless

Original Edge of roof gravel stop & flashings deteriorated

Flashings at skylights, roof fans & equipment deteriorated

Failed and deteriorating mechanical units

Failed and deteriorating mechanical units

Exterior wall light leaking at inside

Flashing deterioratinig

Deficiencies

The entire roof system on the both the original 1920's building and the 1970's addition, are in poor to failed conditions. There are numerous soft spots on the roof, metal and membrane flashings have failed.

Recommendations

As part of any addition/renovation project, it is recommended that all existing roof systems and associated components be replaced in their entirety.

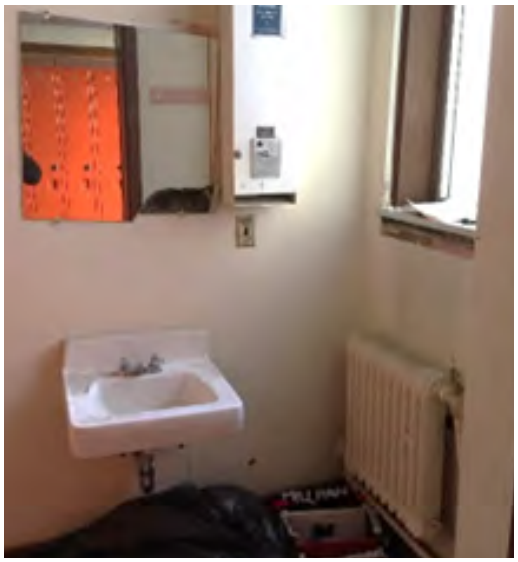
B. INTERIORS

1. Interior Walls

Existing Conditions
Interior walls of the original 1920's building are the original wood framed partitions with plaster finish. The 1970's addition is mostly painted block and finished plaster walls. Corridors are typically glazed masonry or painted block and lockers take up much of the corridor wall area. The toilet rooms on all have ceramic tile wainscoting on the wet wall or painted block and plaster. Classrooms are painted plaster.


Water migration and damge to interior surfaces

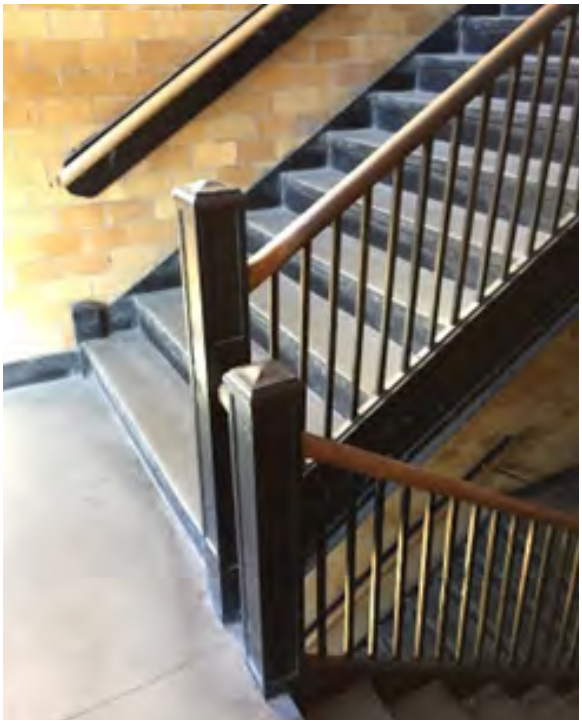

Water infiltration, wall deterioration


Ceramic tile floors, plaster walls, cmu backup


Classroom with painted plaster

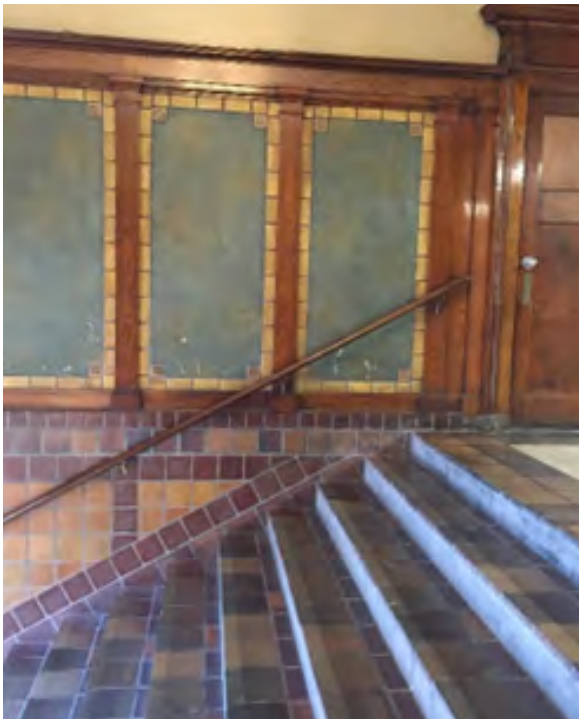
Glazed masonry wall

Existing wood floors typical in 1920's building classrooms



Interior stair rails and nosings non-compliant

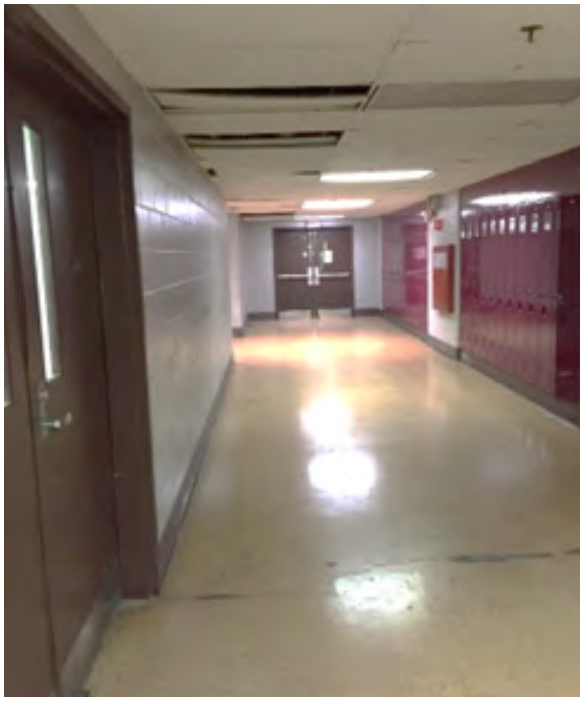
Existing interior door and trims. Hardware non-compliant.



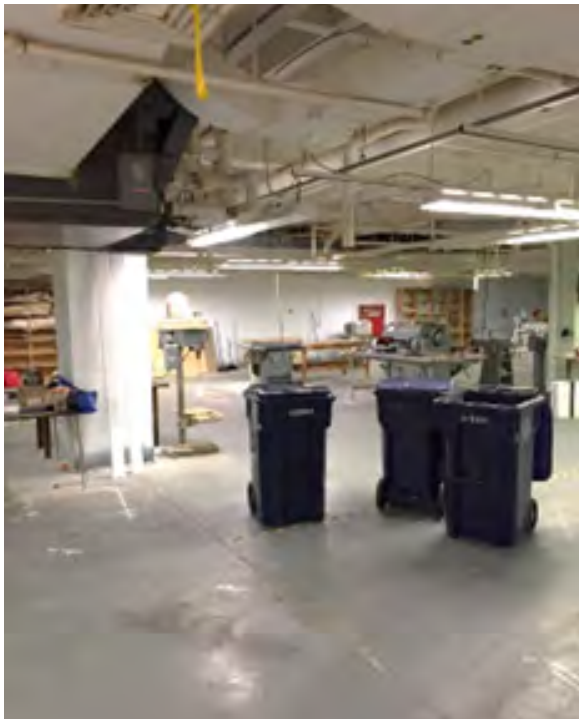
Existing interior main entry stairs non accessible

Tile stair treads main entry stair

Existing terrazzo floors and cracking



Existing VAT flooring materials

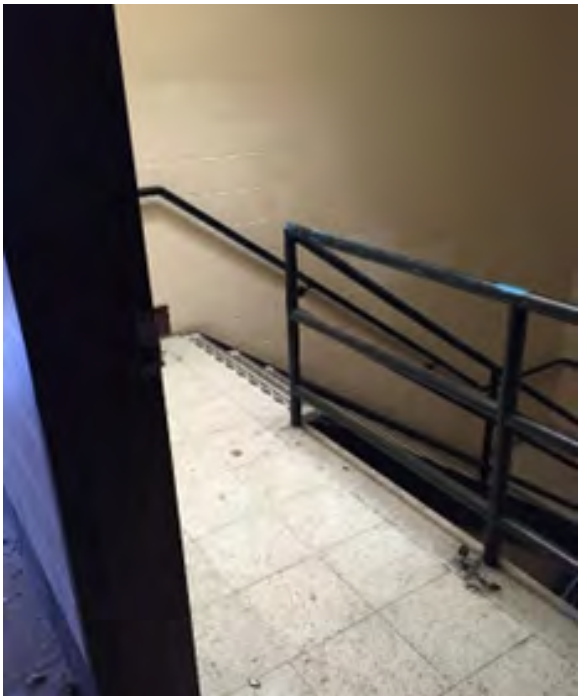


Painted concrete floors in shops

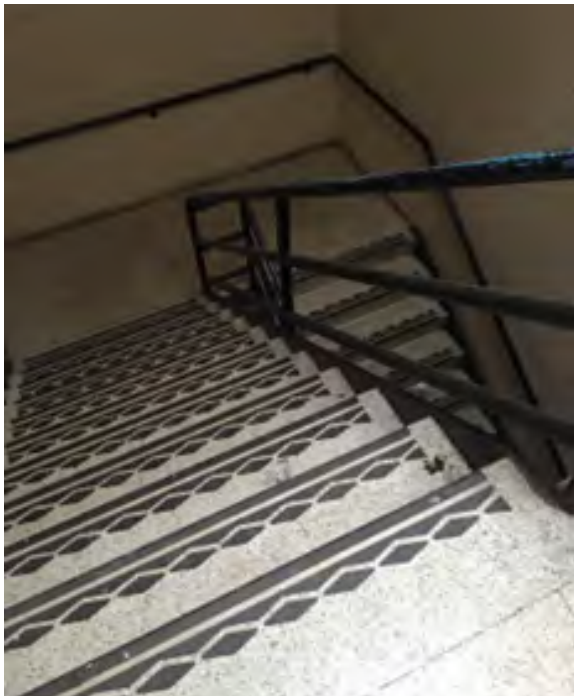
Deteriorated VAT in corridors

Existing doors

Existing Library space, acoustic tile, carpeted floor

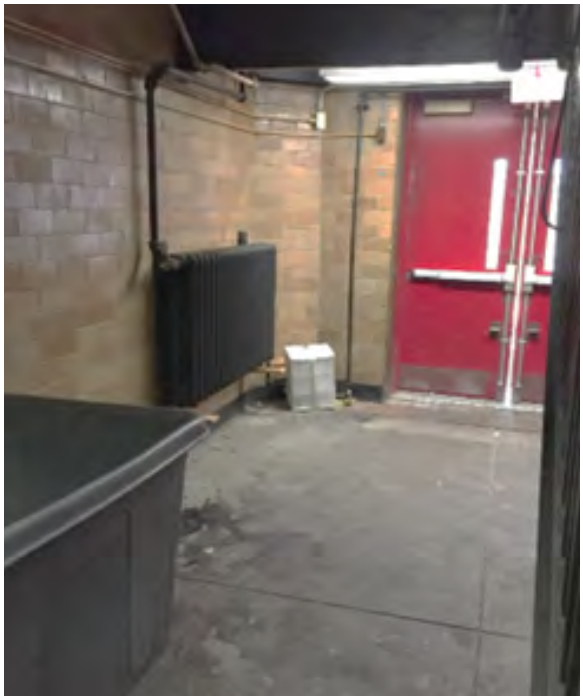


Non-compliant stairwell



Non-compliant rails and guardrails

Non-Compliant rails and stair tread nosings



Stairwell egress, glazed masonry walls

Deficiencies
Interior walls throughout the existing building are in fair condition. With the exception of openings in walls for water leaks, pipe breaks, investigation.

Recommendations
As part of any proposed future addition/ renovation, major modification of the interior partitions will be required to address current educational program requirements. The percentage of interior wall modification designed will require current seismic code issues be addressed. All items listed in 'Deficiencies' should be repaired.

2. Ceilings

Existing Conditions
The school on a whole has plaster ceilings and 2 x 4 acoustical ceiling tiles typically. Large spaces such as the gymnasium have painted deck and structure. The gymnasium is in good condition. The remainder of ceilings are in fair to poor condition. Other areas such as utility spaces and the boiler room have plaster over metal lath ceilings. These ceilings are in fair to poor condition.

Deficiencies
Suspended ceilings located throughout the building are in poor condition with selected individual areas (50%) exhibiting damaged or missing components. Plaster ceilings are in fair to poor condition and areas such as the boiler room exhibit sections where plaster no longer exists.

Recommendations
As part of any proposed addition/renovation existing ceiling systems will require complete removal and replacement. Including all grids and attachments.

Classroom acoustical ceiling tiles

Classroom plaster ceilings

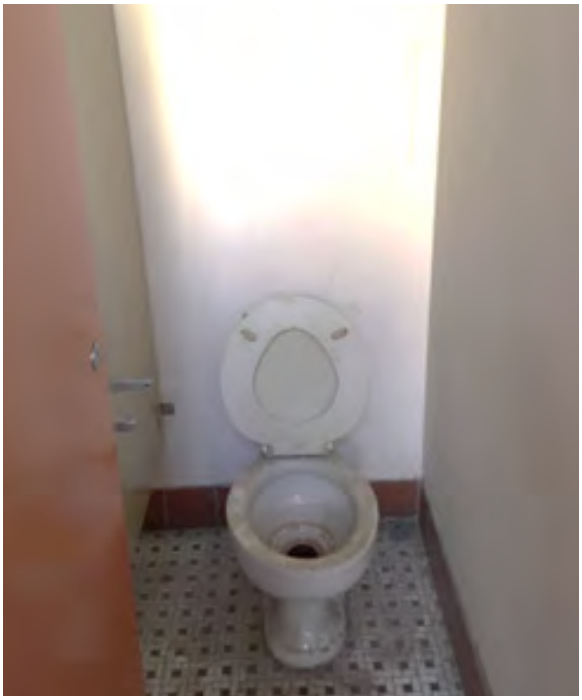
3. Floors

Existing Conditions
Existing floor finishes consist of a variety of materials, including the original wood strip flooring in the Auditorium and Classrooms, along with VAT, carpeting, ceramic tile, replacement vinyl composition tile (VCT), carpet and painted and or sealed concrete found in the boiler room area and shop areas in the basement level.

Deficiencies
Existing floor finishes throughout the existing building are in poor condition, exhibiting varying degrees of deterioration beyond what could be considered normal wear and tear and are at the end of their useful life. See Hazardous Materials study for areas containing asbestos.

Recommendations
As part of any proposed addition/renovation, all existing floor finishes must be removed and replaced in their entirety.

VCT & VAT floor in classroom



Ceramic tile in toilet rooms

Wood flooring in classrooms

Ceramic tile in toilet rooms

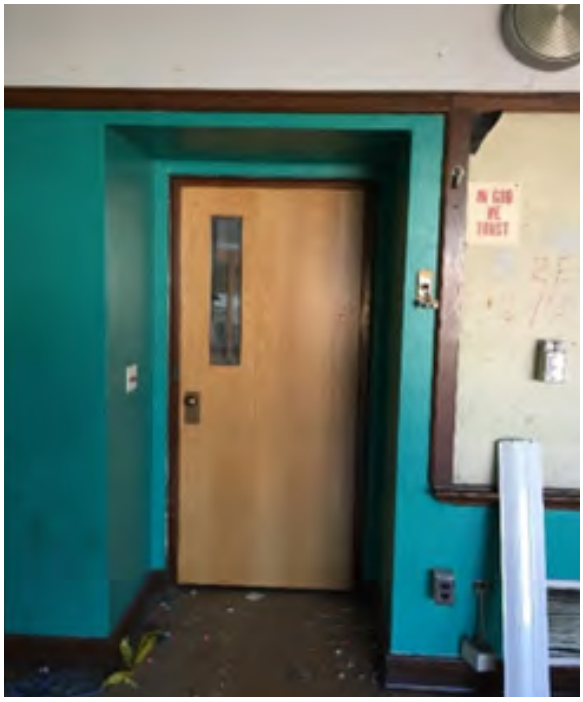
VAT & VCT worn throughout school

4. Interior Doors

Existing Conditions
The large majority of existing interior doors and operating hardware are original construction. Doors are typically solid wood construction with either no lights or have glazed units. Door hardware is a variety of original and replacement units, with lever handles at selected locations. Entrance/exit doors and hardware are non-insulated replacement units constructed of either hollow metal or aluminum from the 1970's renovation.

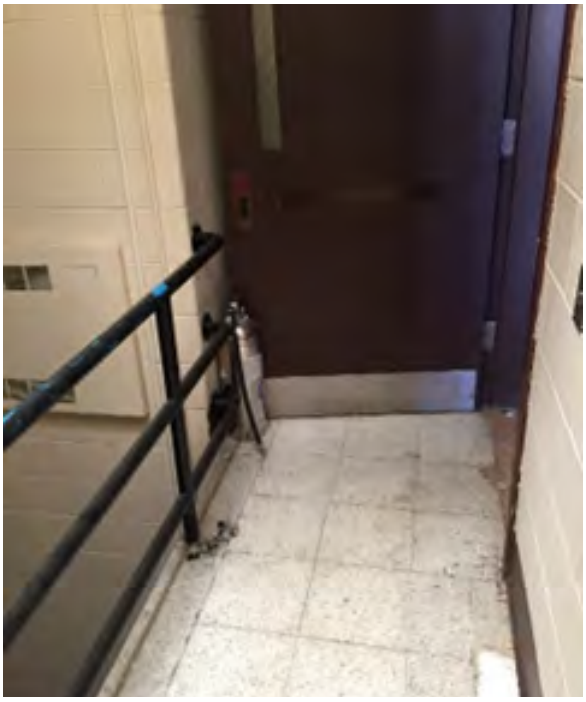
Deficiencies
The majority of interior doors throughout the building are in fair to poor condition, exhibiting varying degrees of functional and operational deficiencies, including damaged, missing, or obsolete hardware. In addition, the non-rated nature of existing doors opening into corridors fail to comply with current building and life safety code requirements. All interior doors and hardware are at the end of their useful life and would require replacement in their entirety. An abundance of interior door configurations would have to be reconfigured for accessibility.

Recommendations
As part of any proposed addition/renovation, all existing interior doors and hardware must be replaced, as required to comply with current ADA, MAAB, and Building code requirements.

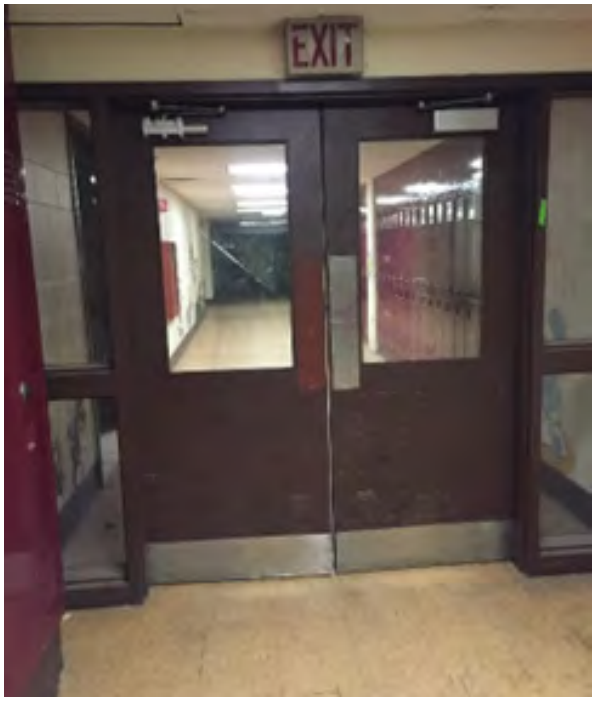


Original wood door systems in corridors and into classrooms with some hardware upgrades required

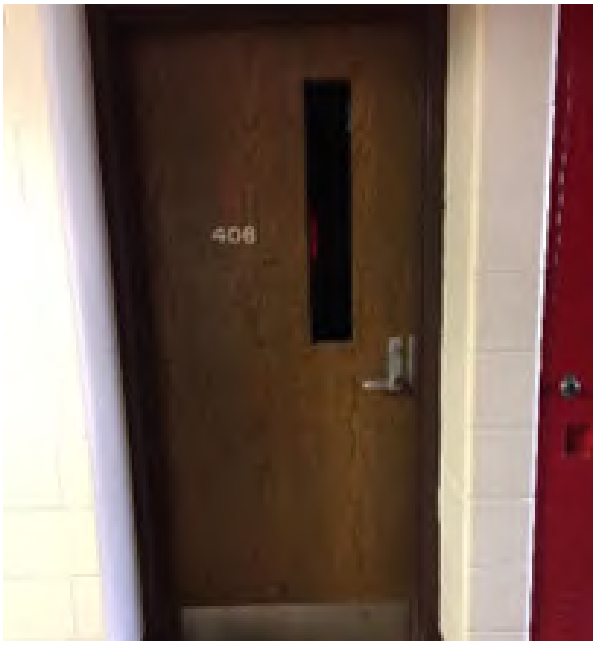
Same as above.



Stairwell door hardware missing



Existing corridor swing doors



Original wood door system with hardware upgrade

SECTION 2: Structural Building Assessment

GENERAL EXISTING BUILDING DESCRIPTION:

The existing Everett High School building consists of the original three-story (plus a basement level) building that was constructed around 1922 and a four-story horizontal addition that was constructed around 1975. The original building appears to consist of wood framed floors supported by 12" wide brick bearing walls at the exterior of the building and structural steel beams / girders at the interior of the building, and concrete framed slabs / floors typically along the 12' foot wide corridor span and at the boiler room area. The 1975 horizontal addition (constructed at the rear of the original building) appears to be constructed with wood framed construction supported by masonry walls at the interior and exterior of the building.

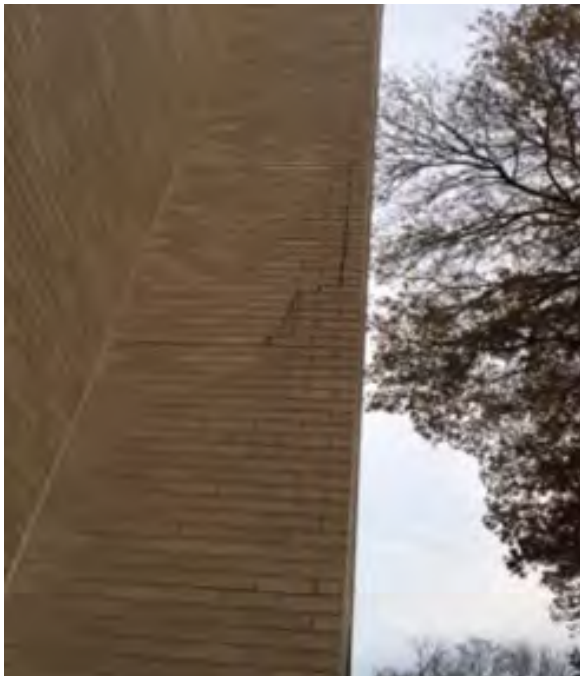
EXISTING STRUCTURAL SYSTEMS:

Existing Conditions:
The original 1922 structure appears to be framed typically with wood planking supported on wood joist construction at the non-corridor bays and a concrete framed slab at the interior 12' wide corridor bays. The framing systems appear to span to and be supported by a three-wythe brick bearing wall system at the exterior perimeter of the building and structural steel beams and columns at the interior areas of the building. Below the gymnasium / multi-purpose room floor of the original building, the framing is supported by steel pipe columns. Long-span structural steel trusses span over the auditorium space at the third-floor level and the roof level.

Although no existing structural drawings were made available for our review of the 1975 addition, the structural system of the 1975 addition appears to consist of a concrete framed slab (with drop panels) at the first floor level and possibly with a rib / slab system in other areas of the first floor level – per our observations during our walk-through of the existing 1975 structure. Portions of the upper-level floors were observed to be constructed with a composite floor slab / steel deck system supported by structural steel beams and girders (with sprayed-on fireproofing material), based on limited site observations. The roof of the field house / gym area is framed with steel roof decking supported by structural steel purlins, which in turn are supported by long-span structural steel trusses. Bottom chord bracing of the steel trusses was observed in order to negate wind uplift forces.

Based on the existing documentation, it appears that the original building and the 1975 addition are founded on conventional spread footings.

Deficiencies:
The existing Everett High School building is in relatively decent structural condition. There are several moderate-sized stress cracks in the building's concrete foundation walls and in the exterior masonry walls, particularly in the original 1922 structure (see photos).



Some of the existing steel lintels were observed to be moderately rusted over window openings and the mortar joints at the ends of the loose steel lintels have spalled and show signs of gaps.

The exterior site walls at the side entrance are severely deteriorated and will require removal and replacement.

The joints between each stone cornice and bands appear to be open, which allows water to infiltrate into the exterior wall system. During the winter months, the water will freeze and may cause jacking stresses resulting in cracking and spalling of the exterior wall system (see photo).

In the 1975 structure, the caulking material in the expansion joints in the exterior brick system is severely deteriorated (see photo below).

These structural deficiencies will require structural repair. Since a visual walk-through (only) of the existing building was performed, no live load capacity check for the roof or floors was performed.

Recommendations:
All structural deficiencies will require repairs in order to comply with the MSBC. If alterations are proposed for this building, structural requirements per the MSBC will be triggered (depending upon the level of work and reconfiguration of space for the building). Any existing structural elements resisting lateral loads whose demand-capacity ratio with the alteration considered is more than 10% greater than its demand-capacity ratio with the alteration ignored shall comply with the seismic and wind requirements noted in the 2015 IEBC and the MSBC Amendments. If new and large openings in the existing masonry walls are required for the proposed architectural layout and the 10% threshold is exceeded, a lateral analysis of the existing building will be required and may result in the need for additional shear walls or bracing elements to resist lateral loads. If more than 50% of the floor area of the existing building is re-configured, the proposed alterations will be considered Level 3 Work (the most stringent of building alterations). If the building alterations are considered Level 3 Work, specific seismic hazards would need to be addressed / improved, such as roof diaphragm and wall connections (to brace unreinforced and unbraced masonry walls), unreinforced masonry parapets and unreinforced masonry chimneys. The existing building may also need to be investigated for wind uplift forces with respect to IBC level wind forces, which may require additional nails, screws, or welding to properly attach the wood roof decking system to the supporting wood roof framing system. Furthermore, where additional gravity loads are imparted on the structure or where the existing gravity members are reduced in capacity, a gravity load check in accordance with the IBC and MSBC will be required, including snow drift loads. In addition, a dollar amount (allowance) to reinforce the existing roof framing in localized areas should be considered to accommodate additional gravity loads from new rooftop mechanical equipment.

PROPOSED ALTERATIONS TO EXISTING BUILDING (Former High School Building)

The existing former high school building will remain (not demolished) and is proposed to be renovated.

New Foundations / New Structural Elements:

- A preliminary geotechnical engineering report dated February 1, 2017, and prepared by LGCI has been executed for the site. Any new foundations, particularly for the new elevator pit, would be founded on conventional shallow concrete footings bearing on well compacted Structural Fill placed over the natural sand and gravel layer. All unsuitable material (fill) shall be removed and replaced with well-compacted Structural Fill placed in 9” deep layers and compacted to 95%. The re-use of onsite materials is not acceptable for structural fill.

- In accordance with the preliminary geotechnical engineering report, any new foundations for the building will be founded on an allowable soil bearing pressure of 5 ksf.

- Where the existing slab-on-grade will require selective removal (to accommodate the new elevator pit), new cast-in-place concrete slabs-on-grade (soil-supported) will include 4" thick minimum and will be reinforced with one layer of 6x6-W2.9xW2.9 welded wire fabric, placed over a minimum of 2" of rigid insulation and a 15-mil vapor barrier over a base course of approximately 12" of well-compacted Structural Fill placed directly on the natural sand and gravel layer.

- The new elevator pit will consist of a 12" thick concrete mat reinforced with #4 at 12" OC top and bottom each way.

- The new elevator walls are anticipated to be 8" wide nominal CMU walls reinforced with #5 at 24" OC vertical (in grout filled cells) and #9 gage horizontal reinforcing spaced at 16" OC.
- Groundwater was encountered in only one boring and could be anticipated during the excavation and construction of the new elevator pit.

- The soil site class for seismic design is indicated to be Site Class D, per the preliminary geotechnical engineering report.

- Structural steel wide-flanged beams may be used to head-off and support the existing framing at the new elevator opening.

- Sprayed-on fireproofing material may not be required at the underside of the new steel roof decking and on the surfaces of new steel beams and columns (since the construction classification of the existing building is anticipated to be Type IIB). The construction classification of the existing building will require additional clarification and confirmation as the design progresses.

- All structural deficiencies within the existing building, which is proposed to be renovated for this option, will require structural repairs in order to comply with the MSBC. Since alterations are proposed for this building, structural requirements per the MSBC will be triggered (depending upon the level of work and reconfiguration of space for the existing building). Any existing structural elements resisting lateral loads whose demand-capacity ratio with the alteration considered is more than 10% greater than its demand-capacity ratio with the alteration ignored shall comply with the seismic and wind requirements noted in the 2009 IEBC and the MSBC Amendments. If new and large openings in the existing masonry walls are required for the proposed architectural layout and the 10% threshold is exceeded, a lateral analysis of the existing building will be required and may result in the need for additional shear walls or bracing elements to resist lateral loads. If more than 50% of the floor area of the existing building is re-configured, the proposed alterations will be considered Level 3 Work (the most stringent of building alterations). If the building alterations are considered Level 3 Work, specific seismic hazards would need to be addressed / improved, such as roof diaphragm and wall connections (to brace unreinforced and unbraced masonry walls), unreinforced masonry parapets and unreinforced masonry chimneys. The existing building may also need to be investigated for wind uplift forces with respect to IBC level wind forces, which may

require additional nails, screws, or welding to properly attach the wood roof decking system to the supporting wood roof framing system. Furthermore, where additional gravity loads are imparted on the structure or where the existing gravity members are reduced in capacity, a gravity load check in accordance with the IBC and MSBC will be required, including snow drift loads. In addition, a dollar amount (allowance) to reinforce the existing roof framing in localized areas should be considered to accommodate additional gravity loads from new rooftop mechanical equipment.

- Structural deficiencies such as cracked masonry, corroded / rusted loose steel lintels, and brick repointing will need to be structurally repaired in order to comply with the MSBC. Several of the existing steel lintels will require removal and replacement with new galvanized steel lintels. Where the brick veneer was observed to be cracked, re-bricking and / or repointing of the brick will be required. There are several moderate stress cracks in the building's concrete foundation walls and in the exterior masonry walls, particularly in the original 1922 structure (see attached photos). Some of the existing steel lintels were observed to be moderately rusted over window openings and the mortar joints at the ends of the loose steel lintels have spalled and show signs of gaps. The exterior site walls at the side entrance are severely deteriorated and will require removal and replacement. The joints between each stone cornice and bands appear to be open, which allows water to infiltrate into the exterior wall system. During the winter months, the water will freeze and may cause jacking stresses resulting in cracking and spalling of the exterior wall system. Furthermore, in the 1975 structure, the caulking material in the expansion joints in the exterior brick system is severely deteriorated. The above-mentioned structural deficiencies will require structural repairs.

SECTION 3: Mechanical, Fire Protection, and Plumbing Assessment

GENERAL

The existing project building is a four-story school building being renovated to accommodate the middle school. The building is use group Education. The interior spaces include classrooms, gymnasium, auditorium, cafetorium, kitchen, administration areas, educational support areas, restrooms, and mechanical spaces.

The planned operating schedule for the classroom portion is 7:00 am to 4:00 pm Monday thru Friday during the school year. The schedule for the administration portion is 7:00 am to 5:00 pm Monday thru Friday year-round.

PLUMBING

General

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 NE-CHPS included in this submission.

The plumbing construction documents, which include the design drawings and mechanical specification section 22 00 00 Plumbing, shall incorporate all plumbing work described within this design narrative. The scope of work shall include the furnishing of all labor and materials and in performing all operations in connection with the installation of the new plumbing work.

1. CODES

   A. All work installed under Division 22 00 00 shall comply with International Building Code (IBC) 2015, International Mechanical Code (IMC) 2015, International Energy Conservation Code (IECC) 2018, Massachusetts Building Code 9th Edition, MA Plumbing Code (248 CMR) and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   A. The work of Division 22.00.00 is described within the narrative report. Plumbing systems shall be new and sized to accommodate the new building. Plumbing work will include furnishing all fixtures, equipment, materials, labor, testing and inspections required for the complete and operational installation of the plumbing systems.

Design Parameters

1. GENERAL

   A. The required plumbing systems include potable hot and cold water, non-potable hot and cold water, hot water recirculation, sanitary, waste and vent system, kitchen grease waste system, and storm drain system. Acid waste and vent piping system will not be provided as it is expected that any chemicals used in the science classrooms will be collected and disposed of.

   B. The new building will be serviced by the municipal water and sewage systems.

   C. All plumbing will conform to applicable accessibility and water conservation codes.

2. DESIGN CRITERIA

   A. Following are the assumptions used to calculate the capacities and parameters for the building components

DESIGN CRITERIA CHART		
1.	Occupancy Type	Educational
2.	Fixture Requirements	248 CMR Table 10.10
		248 CMR 1010 (18)

Plumbing Systems

1. DRAINAGE SYSTEM

   A. Sanitary, waste, and vent piping systems will be provided and will connect to all fixtures and equipment requiring such connections throughout the new building. The buildings drain(s) will extend to a point 10'-0" beyond the building foundation. All plumbing system vents will extend through the roof.

   B. A separate, dedicated kitchen grease waste system will be provided and extend to a 1,000-gallon exterior grease interceptor. A chamber vent for the grease interceptor will be provided and will run independently back in to the building and through the roof. Grease waste piping will serve kitchen equipment and floor drains. Interior grease interceptors will be provided at specific kitchen equipment such as, but not limited to, dishwashers and scullery sinks.

C. A storm drainage system will be provided to drain all flat roofs using roof drains, overflow drains, and interior storm drainage piping routed through the existing building. Downspouts from pitched roofs will be provided with downspout boots to connect to the underground storm drainage system. The roof storm drainage system will extend to a point 10'-0" beyond the building foundation. Overflow drains will discharge at 4' above grade through the exterior walls with downspout nozzles.

D. Sanitary and storm drainage piping will be cast iron.

2. WATER SYSTEM

A. Domestic water service for the new building will be provided from the municipal water system. The water service will include valves, strainers, a water meter, pressure gauge and drain. The water meter will be interfaced with the building management system. Backflow preventers will be installed where required including, but not limited to, HVAC system make-up water connections, kitchen equipment, automatic detergent dispensers, and science classrooms.

B. Potable hot and cold water distribution piping will be provided throughout the new building and connect to each plumbing fixture. Hot water recirculation systems will be provided. Water piping will be Type L copper tube with soldered fittings.

C. Non-potable hot and cold water distribution piping will be provided throughout the new building and connect to each science classroom fixture. Hot water recirculation system will be provided. Water piping will be Type L copper tube with soldered fittings.

D. Water heating will be provided by two (2) electric, storage type water heaters. Thermostatic mixing valves will be installed to provide 140°F hot water to the kitchen fixtures, and 120°F hot water to serve general use fixtures. Hot water at showers and public use lavatories will be further tempered to code allowed maximum temperatures by point-of-use pressure balancing and thermostatic mixing valves. Hot water recirculation pumps and piping will be provided for each system. A submeter will be interfaced with the building management system.

E. 20-gallon electric water heaters will be provided for non-potable hot water serving the science classrooms.

3. FIXTURES

A. The building will be furnished with all new fixtures, including supports, connections, fittings, and any incidental items required for a complete installation. Water closets shall be wall-hung, white vitreous china with flush valves. Urinals shall be wall-hung, white vitreous china with flush valves. Lavatories shall be wall-hung or drop-in white vitreous china with manual faucets. General use sinks shall be stainless steel with

manual faucets. Showers will be furnished with thermostatic and pressure balancing mixing valves. Water coolers shall be stainless steel.

B. The proposed flow rates for the new plumbing fixtures are as follows:

1.	Water closets	1.28 gpf
2.	Urinals	0.125gpf
3.	Lavatories	0.3 gpm
4.	Sinks	1.5 gpm
5.	Showers	1.5 gpm
6.	Water Coolers	0.13 gpm

4. DRAINS

A. Floor drains will be provided where required throughout the new building. Floor drains will be connected to the appropriate drainage and venting system, and will be equipped with automatic trap priming devices where necessary.

5. VALVES

A. Properly sized and accessible valves will be provided to isolate the hot water, cold water and hot water recirculation system piping for maintenance and repair.

6. INSULATION

A. All domestic water piping and storm drainage piping will be insulated as required.

7. CLEANOUTS

A. Cleanouts will be installed at appropriate intervals on the sanitary, waste, grease, storm, and acid waste drainage systems to allow for proper maintenance of these systems.

8. ACCESS DOORS

A. Access doors will be provided at hard ceilings and walls to allow access to valves, cleanouts, and equipment requiring maintenance or adjustment.

FIRE PROTECTION

General

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.

The fire protection construction documents which include the design drawings and mechanical specification section 21 00 00 Fire Suppression shall incorporate all fire sprinkler system work described within this design narrative. The scope of work shall include the furnishing of all labor and materials and in performing all operations in connection with the installation of the new fire sprinkler system work.

1. CODES

   A. All work installed under Division 21 00 00 shall comply with International Building Code (IBC) 2015, Massachusetts Building Code 9th Edition, applicable NFPA Standards, and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   A. Fire Protection system is existing and shall be modified to accommodate the renovations.

   B. Fire Protection work will include furnishing all equipment, materials, labor, testing and inspections required for the complete and operational installation of the fire protection systems.

3. GENERAL

   A. In accordance 780 CMR Section 903, Table 903.2, any educational building with an aggregate building area greater than 12,000 square feet must be protected with an automatic fire sprinkler system.

Design Parameters

1. BASIS OF DESIGN

   A. Loading docks, mechanical rooms, storage rooms, and the kitchen service area are considered Ordinary Hazard Group 1; legitimate stages and library stack room areas are considered Ordinary Hazard Group 2; all other areas are considered light hazard.

B. Required Design Densities:

Light Hazard Areas	0.10 GPM over a design area of 1,500 s.f.
Ordinary Hazard Group 1	0.15 GPM over a design area of 1,500 s.f.
Ordinary Hazard Group 2	0.20 GPM over a design area of 1,500 s.f.

C. Maximum Sprinkler Spacing:

Light Hazard Areas:	225 s.f., maximum 15' between sprinklers
Ordinary Hazard Areas:	130 s.f., maximum 15' between sprinklers

2. HYDRANT FLOW TEST

A. A hydrant flow test will be required.

Fire Protection Systems

1. DESCRIPTION

A. The fire protection system is existing and will be modified as required for the building renovations.

B. The existing system is a combination wet pipe automatic sprinkler and standpipe system providing complete building coverage.

C. The system will be provided with a new fire department connection of a size and type to meet local requirements.

2. FIRE WATER SERVICE

A. Fire water service for the new building is existing and will remain in service. The water service will be equipped with supervised control valves and a backflow preventer.

3. SPRINKLERS

A. All existing sprinklers will be replaced with new. New sprinklers will be installed where required by the renovations.

4. PIPING AND FITTINGS

A. All sprinkler system piping two inches (2") and smaller in size, shall be Schedule 40 threaded black steel, conforming to ASTM Standards A53, A135, and/or A795 as applicable, and listed and approved for use in Fire Suppression Systems.

B. All sprinkler system piping two and one-half inches (2½") and larger in size, unless

otherwise noted, shall be Schedule 10 black steel pipe with rolled groove ends, conforming to ASTM Standards A53, A135 and/or A795 as applicable, and listed and approved for use in Fire Suppression Systems.

C. U.L. listed and F.M. approved groove fittings will be allowed. All fittings shall be approved by Underwriters' Laboratories for use in Sprinkler System and shall be designed and guaranteed for a working pressure of not less than 175-psi cold-water pressure.

5. FIRE PUMP

A. The existing diesel fire pump shall be replaced in kind with new controller, batteries, fuel tank, jockey pump, and jockey pump controller.

HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

General

The following is the HVAC system narrative, which defines the scope of work and Basis of Design. This narrative includes information about pertinent codes, design criteria and proposed systems description.

The project will be a four-story, educational building. The building is use group Education. The space will include classrooms, gymnasium, auditorium, cafeteria, administration areas and educational support areas.

The planned operating schedule for the classroom portion is 7:00 am to 4:00 pm Monday thru Friday during the school year. The schedule for the administration portion is 7:00 am to 5:00 pm Monday thru Friday year-round.

The mechanical construction documents which include the design drawings and mechanical specification section 23 00 00 HVAC will incorporate all HVAC work described within this design narrative. The scope of work will include the furnishing of all labor and materials and in performing all operations in connection with the installation of the new HVAC work.

1. CODES

All work installed under Division 23 00 00 will comply with International Building Code (IBC) 2021, International Mechanical Code (IMC) 2021, International Energy Conservation Code (IECC) 2021, Massachusetts Building Code, and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

The work of Division 23 00 00 is described within the narrative report. The HVAC project scope of work will consist of providing new HVAC equipment and systems and HVAC distribution systems as described herein. 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.

Design Parameters

1. DESIGN CRITERIA

Following are the assumptions used to calculate the capacities and parameters for the building components.

DESIGN CRITERIA CHART		
1.	Occupancy Type	Educational
2.	Summer Outdoor Design Conditions (per ASHRAE Fundamentals 2001)	Design City: Boston, MA
		Dry Bulb - 88° F
		Wet Bulb - 74°F
3.	Summer Indoor Design Conditions	Dry Bulb - 75°F
		Relative Humidity - 55%
		Design City: Boston, MA
4.	Winter Outdoor Design Conditions per ASHRAE Fundamentals - 2001)	Dry Bulb - 7°F
5.	Winter Indoor Design Conditions	Dry Bulb (Occupied) - 70° F
		Dry Bulb (Unoccupied) - 55° F
6.	Ventilation	Per IMC 2021 OR ASHRAE 62.1

Building Systems

All material and work provided will be in accordance with the above-mentioned codes and standards:

1. HEATING and COOLING SYSTEMS

The heating and cooling system for the school will consist of a variable refrigerant flow (VRF) systems associated with dedicated outdoor air units (DOAS) providing ventilation air, packaged heat pump rooftop units (RTU) with auxiliary electric heat, DX split heat pump systems and electric terminal equipment that include unit heaters, wall heaters etc.

The DX equipment shall be provided with variable compressors that will modulate based on actual demand which would result in energy savings. The refrigerant piping will be schedule type L copper based on the size and will be insulated with 1" wall thickness flexible elastomeric closed cell pipe insulation complying with IECC 2021.

The VRF systems include an air-cooled outdoor unit (OU) interlocked with multiple indoor units (IUs). The IUs will include a combination of ceiling cassettes and concealed ducted air handling units.

There shall be a total of fifteen (15) 20-ton cold climate OUs mounted on the roof that would be serving sections of classroom wings, administration wing and media Center.

2. CENTRAL VENTILATION SYSTEMS

Ventilation for the building will be provided by multiple, roof mounted dedicated outdoor air systems (DOAS) that will supply 100% outside air. The DOAS units will supply conditioned/ dehumidified ventilation air to the support areas and classrooms. Each DOAS unit will include a supply fan, exhaust fan, MERV 13 filtration media, DX cooling and heating coils, hot gas re-heat coils, an air-cooled condensing section, auxiliary electric heating coil and an energy recovery wheel. Air will be exhausted from the support areas and classrooms using the DOAS unit where the internal energy recovery wheel will temper the incoming outdoor air by extracting energy from the exhaust air.

There will be four (5) 7,500 cfm heat pump DOAS units.

3. ELECTRONIC AIR FILTRATION

Active electronic air filters will be installed in return ductwork systems served by rooftop air handling units. These filters have a MERV 13 rating and a MERV-NC rating of 15-16.

4. CLASSROOMS

Heating and cooling for the classroom areas will be provided by dedicated IUs part of the VRF systems. The IUs shall be ceiling cassettes. Ventilation air for each classroom will be provided by the DOAS unit which will delivery tempered and dehumidified ventilation air at a neutral temperature to the space. Air will be removed from the classroom via a ceiling mounted exhaust grille. The exhaust air will be used to pre-heat/cool the ventilation air through energy recovery section located on the DOAS unit. Each classroom will have a dedicated thermostat to control the IUs.

Typical classroom will be served by two (2) ceiling cassettes, each sized for 2.0-ton cooling load and a total 400 cfm ventilation air.

5. ADMINISTRATION AND SUPPORT AREAS

The administration and support areas will be served by a VRF systems that would include an OU interlocked with various IUs. The IUs shall include ceiling cassettes and concealed ducted units based on the space requirement and sized for the different zones based on their occupancy and operation. Ventilation for these spaces will be provided by a roof mounted DOAS unit. The DOAS unit will include a supply fan, exhaust fan, MERV 13 filtration media, DX cooling and heating coils, hot gas re-heat coils, an air-cooled condensing section, auxiliary electric heating coil and an energy recovery wheel. Air will be exhausted from the spaces using the DOAS unit where the internal energy recover wheel will temper the incoming outdoor air by extracting energy from the exhaust air.

6. MUSIC ROOMS

Heating and cooling for the Music Rooms will be provided by dedicated IUs part of the VRF systems. The IUs shall be ceiling cassettes. Ventilation air for each classroom will be provided by the DOAS unit which will delivery tempered and dehumidified ventilation air at a neutral temperature to the space. Air will be removed from the classroom via a ceiling mounted exhaust grille. The exhaust air will be used to pre-heat/cool the ventilation air through energy recovery section located on the DOAS unit. Each room will have a dedicated thermostat to control the IUs.

The Music Room will be served by two (2) ceiling cassettes, each sized for 2.5-ton cooling load and a total 400 cfm ventilation air.

7. MEDIA CENTER

Heating and cooling for the Media Center will be provided by dedicated IUs part of the VRF systems. The IUs shall be ceiling cassettes. Ventilation air for each classroom will be provided by the DOAS unit which will delivery tempered and dehumidified ventilation air at a neutral temperature to the space. Air will be removed from the classroom via a ceiling mounted exhaust grille. The exhaust air will be used to pre-heat/cool the ventilation air through energy recovery section located on the DOAS unit. The Media Center will have a dedicated thermostat to control the IUs.

The Media Center will be served by four (4) ceiling cassettes, each sized for 2.5-ton cooling load. The Media Center will have a dedicated VRF system and DOAS unit sized for and a total 1200 cfm ventilation air.

8. CAFETERIA

Heating and cooling for the Cafeteria and Platform spaces will be provided by dedicated packaged air source heat pump RTUs. The RTUs will include a supply fan, exhaust fan, energy recovery wheel, DX cooling and heating coils, hot gas re-heat coils, an air-cooled condensing section, auxiliary electric heating coil and MERV 13 filtration media.

The Cafeteria shall be served by a two (2) 12.5-ton RTUs and the platform shall be served by a 6.0-ton RTU.

9. GYMNASIUM

Heating and cooling for the Cafeteria and Platform spaces will be provided by dedicated packaged air source heat pump RTUs. The RTUs will include a supply fan, exhaust fan, energy recovery wheel, DX cooling and heating coils, hot gas re-heat coils, an air-cooled condensing section, auxiliary electric heating coil and MERV 13 filtration media.

The Gymnasium shall be served by a two (2) 15.0-ton RTUs.

10. AUDITORIUM

Heating and cooling for the Cafeteria and Platform spaces will be provided by dedicated packaged air source heat pump RTUs. The RTUs will include a supply fan, exhaust fan, energy recovery wheel, DX cooling and heating coils, hot gas re-heat coils, an air-cooled condensing section, auxiliary electric heating coil and MERV 13 filtration media.

The Auditorium shall be served by a two (2) 15.0-ton RTUs.

11. KITCHEN

The kitchen area will be served by a roof mounted make-up air unit (MAU) and an exhaust fan for the kitchen hood exhaust. The make-up air unit shall also serve the kitchen food preparation spaces and will provide heating, cooling and ventilation to these spaces. The make-up air unit will supply 100% outside air (tempered) to the kitchen and food preparation spaces and this air will be exhausted by the Kitchen hood exhaust fan. A separate roof mounted exhaust fan will be provided for exhaust from the dishwasher hood. The MAU will include a supply fan, exhaust fan, energy recovery wheel, DX cooling and heating coils, got gas re-heat coils, auxiliary electric heating coil and MERV 13 filtration media.

12. COMMON AND MISCELLANEOUS AREAS

All vestibules and entrances will be heated by electric cabinet unit heaters. Corridors will be served by air handling units part of the VRF systems and DOAS units to provide ventilation.Corridors that have exterior walls or roofs will be heated by electric cabinet unit heaters.

Toilet rooms and janitors closest will be exhausted by DOAS units. Utility, storage, and mechanical rooms will be heated by electric unit heaters and ventilated as needed.

13. SPECIAL EDUCATION ROOMS

Heating and cooling for the classroom areas will be provided by dedicated IUs part of the VRF systems. The IUs shall be ceiling cassettes. Ventilation air for each classroom will be provided by the DOAS unit which will delivery tempered and dehumidified ventilation air at a neutral temperature to the space. Air will be removed from the classroom via a ceiling mounted exhaust grille. The exhaust air will be used to pre-heat/cool the ventilation air through energy recovery section located on the DOAS unit. Each classroom will have a dedicated thermostat to control the IUs.

Typical classroom will be served by two (2) ceiling cassettes, each sized for 2.0-ton cooling load and a total 400 cfm ventilation air.

14. MDF, IDF AND ELECTRIC ROOMS

Each of these rooms shall be served by a dedicated DX spilt system which will include an indoor wall mounted ductless air handling unit and an associated outdoor air-cooled condensing unit located on the roof that shall provide cooling for the space.

15. AUTOMATIC TEMPERATURE CONTROLS

The building will be provided with a new direct digital control (DDC) system which will monitor and control all the major HVAC equipment. The air to water central heat pump chiller will be controlled by the factory installed operating and safety controls and the new DDC system will interface with the factory controllers to allow monitoring and adjustment. All the rooftop units, make-up air units, exhaust fans, and room controls will be controlled by the DDC system. The DDC system will include graphical representation (via. software) for each major piece of equipment. Individual room controls will consist of a wall mounted thermostat with a limited adjustment range.

16. GREEN KIOSK: LEED v4 ‘Innovation (IN)’

IN C1 LEED Educational Display, Green Cleaning Policy Energy savings via high efficiency equipment shall be displayed on the monitor at the “Green Kiosk” from the Building Energy Management System.

- Carbon Dioxide Sensors will be installed in HVAC systems to modulate the amount of ventilation air based on ppm of CO2 which will increase energy savings and to monitor and increase indoor air quality.

- Indoor air temperature set point policy shall be established for all rooms and publicized for occupants to view.

- Electronic Air Filtration (MERV-13) shall be installed in ducted HVAC systems.

- Condensing boilers shall achieve higher efficiency and performance by supplying lower hot water temperature to heating equipment based on the outside temperatures.

- Displacement Ventilation shall be installed in Classrooms. This system increases ventilation effectiveness by supplying air at low velocities toward heat sources, causing supply air temperature to rise and become more buoyant, therefore displacing heat and contaminants up toward the exhaust grilles located at the ceiling.

Miscellaneous:

- Electronic air filters (MERV-13) shall be provided.

- Building shall be provided with dedicated exhaust system for spaces where chemical use occurs. Exhaust shall be provided at a rate of 0.5 cfm/sq.ft and make-up air shall be provided.

- Gas-fired boilers and furnaces for HVAC equipment shall be equipped with electric ignitions.

- Air intakes shall be in accordance to ASHRAE Standard 62.1.

- All systems shall be provided with return ductwork.

- Each classroom shall be provided with an independent temperature sensor for occupant control. Thermostats shall have the ability to adjust +/-3ºF.

- HVAC shall specify an Energy Management System designed to monitor and trend Lighting (via a BAC net connection), Photovoltaics (via a MOD bus connection), HVAC and Domestic Hot Water.

- Electrical and Plumbing shall meter energy sources (electricity, natural gas and domestic/ potable water), the EMS shall trend data with respect to the outside air temperature.

- The DDC system shall be equipped with sensors, point's matrix, trend capabilities, system architecture, data storage and operator interface.

- Project specifications shall include instructions for building operators to analyze energy source trending vs. outside air temperature and adjust equipment operation as required to increase energy efficiency.

Mechanical Loads

Heating and cooling load calculations shall be performed per IECC 2018 requirements for each space to properly size the respective HVAC equipment serving the space during the design development. Based on industry standards the approximate sizes of equipment serving the school shall be,

- Administrative Areas – Cooling: 400 SF/ton, Heating – 20 Btuh/SF.
- Classrooms – Heating: 20 Btuh/SF.
- Cafeteria – Cooling: 300 SF/ton, Heating – 20 Btuh/SF.
- Gymnasium – Cooling: 300 SF/ton, Heating – 20 Btuh/SF.
- Auditorium – Cooling: 300 SF/ton, Heating – 20 Btuh/SF.
- Other areas – Cooling: 350 SF/ton, Heating – 20 Btuh/SF.

SECTION 4: Electrical Assessment

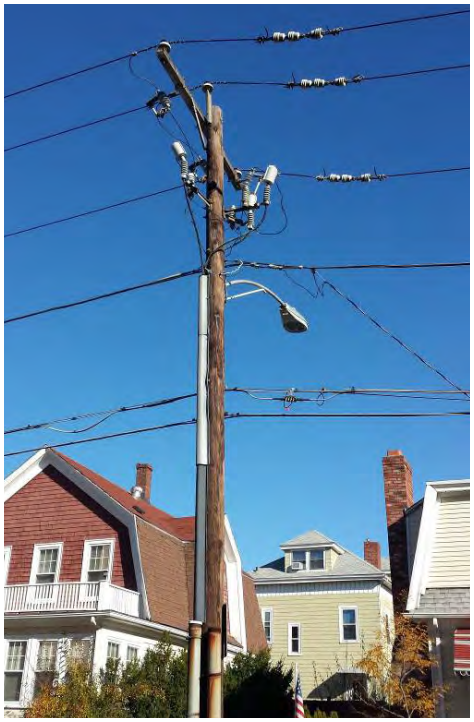
I. BUILDING DESCRIPTION

A. SYSTEMS

The existing systems of this facility are the original vintage equipment from a building addition/renovation project installed over 40 years ago. The electrical service to the building consists of a 277/480 Volt, three phase, 4800 Amp service. The lighting appears to be older fluorescent fixtures in which several throughout the building do not function. The fire alarm system is an addressable, non-voice notification type system.

B. ELECTRICAL DISTRIBUTION SYSTEM

The secondary service originates from a pad mounted utility transformer located on the north side of the property. The utility primary lines enter the transformer via an underground duct bank from a utility pole located at the north perimeter of the property. The secondary service lines enter the main electrical room via an underground duct bank from the exterior utility transformer and connect into a 4800 Amp, 277/480 Volt, three phase main switchboard.



Utility Pole with Incoming Utility Primary Lines

Pad Mounted Utility Transformer

The main switchboard has utility metering and has four feeder circuit breakers with main switches that provide power to four distribution panels respectively. The utility meter is mounted across from the switchboard. The circuit breaker providing power to a distribution panel located on the third floor no longer closes and currently the third floor does not have power as a result of this.

Main Switchboard

Main Switchboard

One of the distribution panelboards is located in the basement mechanical room, two are within electrical rooms on the first floor and the fourth is located in an electrical room on the third floor. The distribution panelboards have feeder circuit breakers that provide power to motor control centers, 277/480V panelboards and dry type transformers, the transformers provide power to 120/208V panelboards.

Both the 277/480V and 120/208V panelboards are located throughout the building in electrical rooms, electrical closets and flush mounted in corridors and the kitchen. The 277/480V panelboards provide branch circuit power to lighting and small mechanical loads, the 120/208V panelboards provide branch circuit power to receptacles, small mechanical motors, and miscellaneous loads.

Distribution Panelboard

Motor Control Center

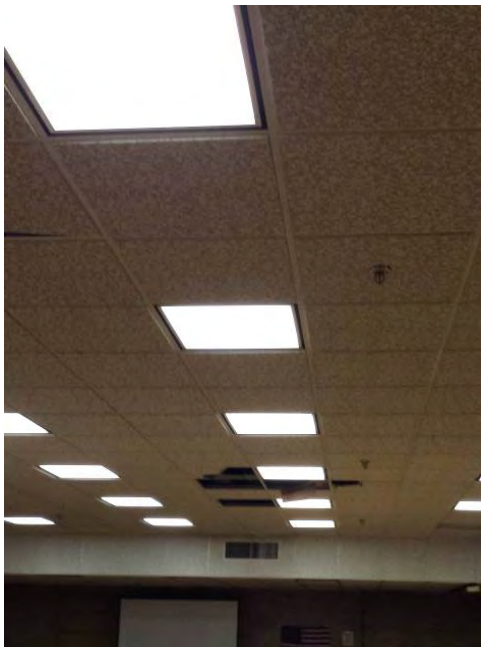
Panelboards in Electrical Room

Panelboards in Kitchen

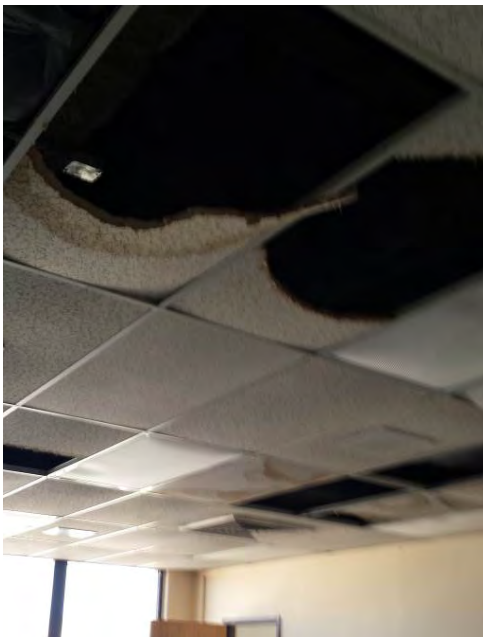
All of the electrical distribution equipment is in poor to fair condition at best and is beyond its useful life period of 25 to 30 years.

C. INTERIOR LIGHTING

The building lighting consists primarily of recessed mounted 2x4 lensed troffer fluorescent light fixtures located in corridors, building addition classrooms, library, bathrooms, cafeteria, and kitchen areas. Pendant-mounted louvered fluorescent light fixtures are located in the original building classrooms. Industrial strip fluorescent light fixtures are located in mechanical, electrical and storage rooms.

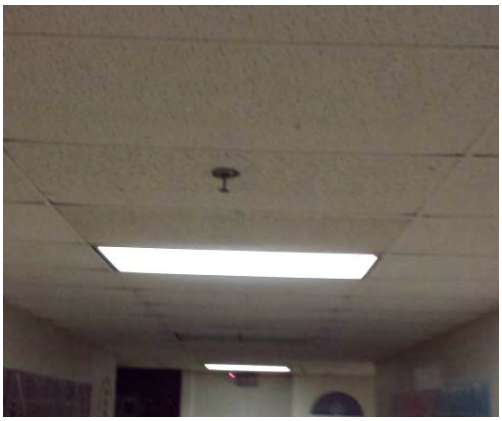


2x4 Lensed Troffer in Library

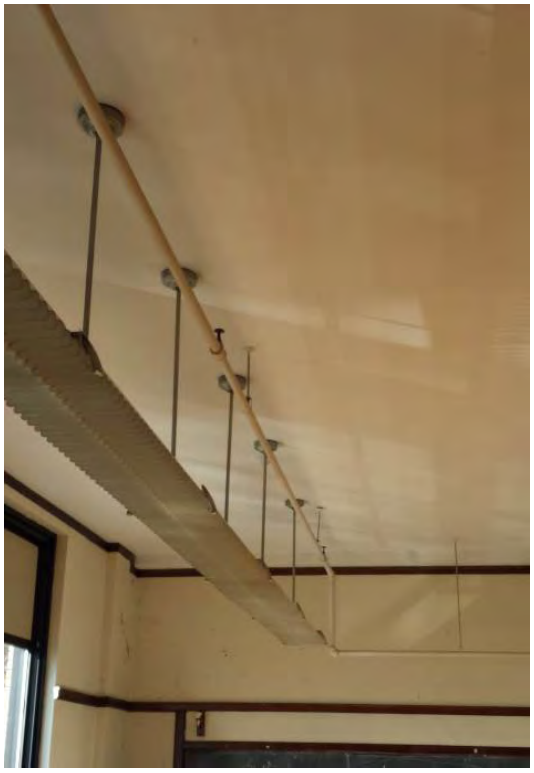


2x4 Lensed Troffer in Library

2x4 Lensed Troffer in Library



2x4 Lensed Troffer in Library

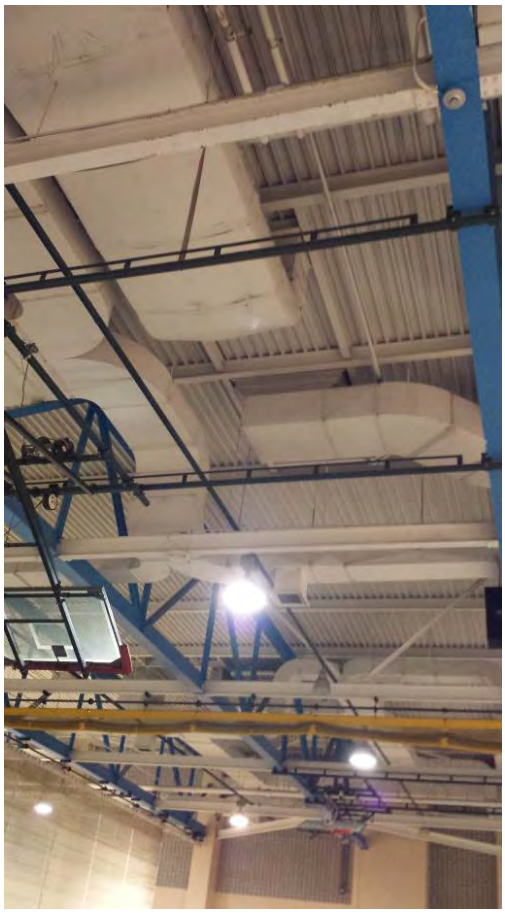


2x4 Lensed Troffer in Library

2x4 Lensed Troffer in Library

Tandem mounted surface mounted 2x4 small cell parabolic fluorescent fixtures are located in the auditorium and what appear to be high bay HPS light fixtures are located in the gymnasium.

Tandem 2x4 Parabolic in Auditorium



High Bay HPS in Gymnasium

Local wall mounted switches are used for lighting control; there was no occupancy sensor control observed in any of the spaces.

In general, the interior lighting system is in poor condition in which many of the fixtures either have broken lenses or no lenses at all, the fixtures have passed their useful life period of 20 to 25 years. The older fluorescent technology that is installed is no longer considered energy efficient compared to today's LED fixtures.

D. EXTERIOR LIGHTING

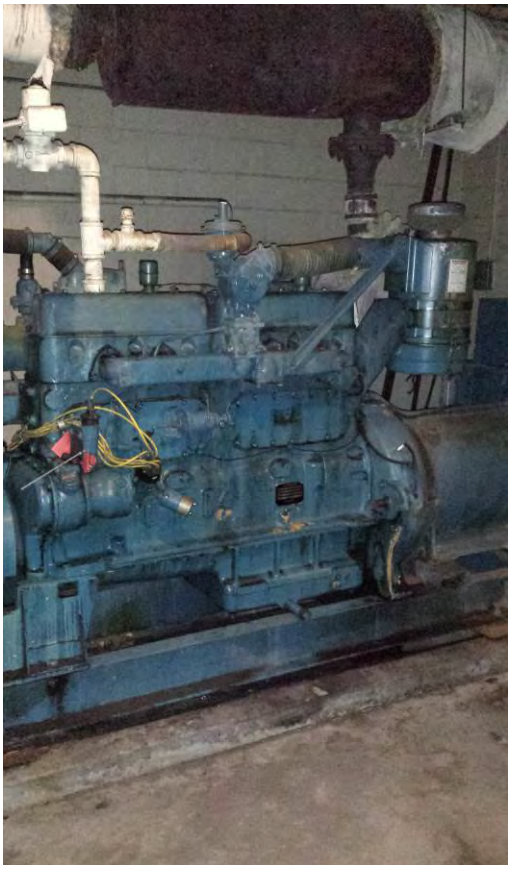
There are a few building-mounted wall pack lights that provide perimeter lighting around the building, these fixtures appear to be in poor condition. The front street entrance to the original building has architectural streetlights on either side of the entrance stairs, these appear to be in fair to good condition.

Building Mounted Wall Pack

Architectural Street Light at Front Street Entrance

E. EMERGENCY SYSTEM

The building has a 170KW, 277/480V, 3-phase gas engine generator located in the basement mechanical room just adjacent to the main electrical room. The generator provides power through a 400 Amp automatic transfer switch located within this same location. The transfer switch provides power to an emergency power distribution panel which has feeder circuit breakers that provide power to 277/480V panelboards located on each of the floor levels. The panelboards provide power to dry-type transformers and light fixtures. These light fixtures are designated as emergency lighting fixtures which provide code-required emergency egress lighting. The 120/208V panelboards provide power to various heating equipment, refrigeration equipment and miscellaneous loads. The system is not separated into an emergency power and standby power system and the equipment does not appear to be located in two-hour fire rated rooms as required by today's electrical code.



Generator

Generator Control Panel

The emergency power system is in poor condition and is beyond its useful life period of 25 to 30 years. The gas generator is not properly vented. The system does not comply with current electrical and life safety code requirements. Separation between Life Safety and Standby power is required.

F. FIRE ALARM SYSTEM

The fire alarm system consists of an addressable non-voice notification system manufactured by Simplex. The system infrastructure appears to be original to the building addition/ renovation but looks to have had front-end equipment and horn/strobe devices replaced within the last 10 years or so. The main fire alarm control panel could not be located via the site investigation but is assumed to be in the original building occupied by the charter school. Within the basement mechanical room where the original control panel was located, the equipment has been replaced with newer notification extenders that tie into the original existing circuity. The fire alarm remote annunciator panel is located in the main front entrance of the original building. Existing drawings indicate that the system communicates with a master box to provide city fire department notification.

Original Control Panel with new Equipment

Annunciator in Man Entrance Lobby

Pull stations and horn/strobes appear to be adequately located throughout the corridors and large gathering areas, but not located within classrooms. There were no smoke detectors observed to be installed in the building.

The fire alarm notification is inadequate for a school building with no notification devices within classrooms and is not compliant with current codes for voice notification. The maintenance staff indicated that the system is having many issues with ground faults and equipment is constantly tripping and parts must be replaced.

Horn Strobe and Pull Station

G. WIRING DEVICES

Receptacle coverage appears to be inadequate within the classrooms of the original building and slighlty less than adequate for classrooms in the building addition compared to the requirements of a modern technology-based classroom.

H. SECURITY SYSTEM

- The intrusion detection system consist of door contacts on all exterior doors. A keypad and control panel was located at the rear door to arm and disarm the system.
- The CCTV cameras where observed at a few locations on the exterior of the building and within the building. There was no evidence that the cameras images where being recorded or where they could be monitored.
- A access control system was not observed wihtin the building.

I. RECOMMENDATIONS

All of the electrical systems in the building have passed their useful life period and at best are in fair condition, in which more than half of the systems are in poor condition. If the existing systems were to be utilized as is, it would be insufficient to support a modern school with the latest technologies and meet current code requirements. The following are recommendations if the building was to be utilized for a new or renovated school.

- Upgrade the complete electrical distribution system including main switchboard, distribution panelboards, branch circuit panelboards, dry type transformers and all associated feeders.
- The lighting system should be upgraded to LED style. Lighting controls must be added to meet Article 13 of the Massachusetts Building Code and standards of the Illuminating Engineering Society (IES).
- Replace the emergency power system with an exterior diesel fueled generator with proper separation between emergency and standby power.
- Replace the entire fire alarm system with a new addressable voice evacuation notification system and annunciator panels with microphones. Smoke detector detection would be added within all corridors and large gathering areas. New automatic detection and signal detection would be new.
- Replace all receptacles with tamper proof receptacles and add at least 4 to 5 receptacles per classroom.
- Replace the intrusion detections system with an addressable intrusion detection system to monitor all exterior doors and have motion sensors in corridors and high-value rooms with windows.
- Replace the CCTV system with a larger web accessible system what will record for 30 days; this will include adding both interior corridor cameras and exterior perimeter cameras.
- Provide an access control system for selected entry doors.

RENOVATIONS OF SELECTED AREAS: PROPOSED MIDDLE SCHOOL GROUND FLOOR, FIRST FLOOR, SECOND FLOOR AND THIRD FLOOR

Exterior:

- Coordinate with National Grid Company to have the existing pad-mount transformer disconnected, removed and replaced with a new pad-mount Transformer with CT and meter. Disconnect, removed and replace the secondary conduits from the new pad-mount transformer to the new 2000A-277/480V-3Ph-4W Main Distribution Board located in the new Ground Floor Main Electric Room.

- Furnish and install a new 300-KW Diesel Generator with a weather-tight, sound-attenuated enclosure on the property, ideally near the new Ground Floor Electric Room. The generator is intended to protect Life Safety emergency and Standby emergency circuits. Emergency systems include lighting at all means of egress, selective lighting throughout the areas of renovation, exit signs, fire alarm system, telephone system, generator system. Standby systems include the security system, camera system, sound/clock system, energy management system, all freezers & coolers, selective administrative power and heat, selective exterior site lighting, any heaters in remote areas where pipes could freeze and main water pumps.

- Furnish and install new exterior lighting to properly illuminate entrances and parking areas.

Ground Floor:

- Disconnect and remove the existing Main distribution Board, CT compartment and Utility Company meter.

- Create a new Main Electric Room. Furnish a new 2000A-MCB-277/480V-3Ph-4W Distribution Board with circuit breakers. Furnish and install new feeders to existing distribution boards and sub-panels in areas of the building that remain and are not part of this renovation project. Furnish and install a new 260A-3P Standby Automatic Transfer Switch in the room. Furnish and install a new 250A-MCB-277/480V-3Ph-4W standby emergency distribution panel, a 112.5KVA step-down transformer and a new 400A-MCB-120/208V-3Ph-4W standby emergency panel.

- Create a new two-hour rated Main Life Safety Emergency Electric Room. Furnish and install a new 260A-3P Emergency Automatic Transfer Switch in the room. Furnish and install a new 250A-MCB-277/480V-3Ph-4W emergency distribution panel, a 112.5KVA step-down transformer and a new 400A-MCB-120/208V-3Ph-4W emergency panel.

- Disconnect and remove the existing Main distribution Board

- Furnish and install a new 400A-480V-3Ph-4W sub-panel in the new Electric Room near the Kitchen; furnish and install a new 200A-3P feeder from the new Kitchen Panel to the new main distribution board on the Ground Floor. Furnish and install a new 1125.KVA step-down transformer in the room. Furnish and install a new 400A-120/208V-3Ph sub-panel for the Café and Kitchen power loads. Furnish and install a new standby emergency sub-panel in room. Connect power to selective kitchen equipment.

- Furnish and install a new time delay heavy duty disconnect switch in the new Elevator Machine Room. Provide a new 100A-3P-480V feeder to the new 1600A main distribution board in the new main electric room on the ground floor. Furnish and install all equipment and devices in the pit, elevator machine room, elevator lobbies and elevator shaft to meet current Code. NOTE: the elevator shall come equipped with battery operated lowering device and will not be connected to the generator power.

- Furnish and install both 277/480V and 120/208V circuitry and connections to new Kitchen equipment.

- Furnish and install new lighting in the Café and Kitchen. Maintain a minimum of 50-footcandles.

- Provide emergency power feeds to selective lighting in the Café and Kitchen areas.

- Furnish and install new tamper-resistant receptacles, approximately 25’ apart in Café. Connect circuitry to new 120/208V panel.

- Furnish and install new Fire Alarm devices (pull stations, smoke detectors, heat detectors, CO detectors, Ansul System connections, speaker-visual devices, etc.) where required by Code.

- Provide electrical support to Mechanical, Plumbing and Fire Protection equipment. Coordinate work with each Trade.

First Floor:

- Create a new Electric Room, preferably near the areas of renovation. Furnish a new 400A-3P-277/480V sub-panel to serve the lighting and miscellaneous 277/480V mechanical loads; provide 400A-3P feeder and circuit breaker to the main distribution board on the ground level. Furnish and install a new 75-KVA step-down transformer and 150A-MCB-120/208V-3Ph-4W two-section sub-panel to serve receptacles and small power loads. Furnish and install a new 100A-MLO-120/208V standby emergency sub-panel in room; furnish and install a new 70A-3P feeder and circuit breaker to the 120/208V standby emergency panel in on the ground level.

- Furnish and install a new Lighting Control Panel for the entire area of renovation. Furnish and install sub-relay panels in each floor electric room. The new control system will monitor

and manage daylight harvesting, time scheduling, individual room control and energy consumption of all lights to be tracked and recorded.

- Create a new two-hour rated Emergency Electric Closet. Furnish and install a new 100A-3P-277/480V sub-panel to serve selective light fixture circuits. Furnish and install a new 70A-3P-480V-3Ph feeder and circuit breaker to the main emergency distribution board on the ground level.

- Furnish and install a new Fire Alarm Control Panel (FACP), Silent Knight Company (or equal) #6820EVS series with voice evacuation. Locate panel, communicator and batteries in the Administration Suite. Furnish and install a 120V feed from the FACP to the 120/208V emergency panel in the ground level emergency electric room. The FACP shall connect to all new manual pull stations, automatic fire detectors, speaker/visual and flashing only strobes, elevator recall connections, connections to the motorized dampers in the Elevator shaft, duct smoke detectors and supervision of the sprinkler system, kitchen Ansul System, Music, Gymnasium, Cafeteria, and Theater sound systems.

- Furnish and install a new remote Fire Alarm Annunciator in the vestibule at the school entry. On the exterior of the building locate a fire alarm red beacon light, fire fighters' key box and fire alarm master box. Connect to the new FACP.

- Furnish and install selective standby emergency power feeds in the Administration, Health and Guidance areas and connect to the new 120/208V standby emergency sub-panel in first floor electric room.

- Provide emergency power feeds to selective lighting on the first floor; furnish and install branch circuitry to new emergency closet on first floor.

- Furnish and install new tamper-resistant receptacles throughout, spaced to accommodate the various needs of each program. Connect circuitry to new 120/208V panel in new electric room on first floor.

- Provide empty raceway for telecommunication systems, CATV/CCTV, audio/visual systems.
- Furnish and install j-hooks every 5' in corridors for telecommunication cabling.

- Furnish and install new Fire Alarm devices (pull stations, smoke detectors, heat detectors, CO detectors, speaker-visual devices, etc.) where required by Code. Connect to new FACP in the Administration area.

- Provide electrical support to Mechanical, Plumbing and Fire Protection equipment. Coordinate work with each Trade.

- Furnish and install a new Theatrical Lighting System for the renovated Auditorium. Provide a new Stage Dimming Rack, Stage lighting control devices, theatrical lighting, receptacles, etc., for a complete system. Furnish and install a new 45 KVA step-down transformer and 150A-3P-12/208V sub-panel in the vicinity of the Theater. Provide a new 70A-3P feeder to the 277/480V distribution board in the new ground floor electric room. Provide emergency power from the new Theatrical Dimming Panel to the Emergency panel in the Ground Floor Emergency Room.

- Assess the existing Gym conditions to ensure that the lighting and power are adequate for the space. Furnish and install new fire alarm devices (pull stations and speaker-visual devices) throughout the space.

- Furnish and install new lighting, power and fire alarm devices in all corridors, Lockers, Theatre Arts, Music areas, etc. Connect to the sub-panels in the new first floor electric room.

Second Floor and Third Floor:

- Create a new Electric Room. Furnish a new 400A-3P-277/480V sub-panel to serve the lighting and miscellaneous 277/480V mechanical loads; provide 400A-3P feeder and circuit breaker to the main distribution board on the ground level. Furnish and install a new 75-KVA step-down transformer and 225A-MLO-10/208V-3Ph-4W two-section sub-panel to serve receptacles and small power loads. Furnish and install a new 600A-3P-277/480V panel on the Third Floor to serve the Rooftop equipment. Furnish and install new 100A-MLO-120/208V standby emergency sub-panel in each room; furnish and install new 70A-3P feeders and circuit breakers to the 120/208V standby emergency panel in on the ground level.

- Create a new two-hour fire rated Emergency Electric Closet. Furnish and install a new 100A-3P-277/480V sub-panel to serve selective light fixture circuits. Furnish and install a new 70A-3P-480V-3Ph feeder and circuit breaker to the main emergency distribution board on the ground floor.

- Furnish and install selective standby emergency power feeds in the in the Second Floor Media Center and connect to the new 120/208V standby emergency sub-panel in first floor electric room.

- Provide emergency power feeds to selective lighting on the second/third floor; furnish and install branch circuitry to new emergency closet on second/third floor.

- Furnish and install new tamper-resistant receptacles throughout. Connect circuitry to new 120/208V panel in new electric room on second/third floor.

- Provide empty raceway for telecommunication systems, CATV/CCTV, audio/visual systems.

- Furnish and install j-hooks every 5’ in corridors for telecommunications cabling.

- Furnish and install new Fire Alarm devices (pull stations, smoke detectors, heat detectors, CO detectors, speaker-visual devices, etc.) where required by Code. Connect to the new FACP in the Administration area on the first floor.

- Provide electrical support to Mechanical, Plumbing and Fire Protection equipment. Coordinate work with each Trade.

- Furnish and install new lighting, power and fire alarm devices in all corridors, Toilet Rooms, Media Center, Classrooms, etc. Connect to the sub-panels in the new second/Third floor electric rooms.

- Typical Classroom:
  - Furnish and install two rows of new pendant-mount LED style dimmable linear light fixtures. Maintain a minimum of 35-footcandles per room.
  - Furnish and install lighting controls. Provide vacancy/occupancy sensors, photocell control (for day-light dimming) and a dimming station with three zone controls. The lighting system shall adjust the lighting in response to the varying ambient light levels from outside. Each classroom lighting system shall be connected to the networked lighting control system.
  - Furnish and install new tamper-resistant receptacles, a minimum of two per wall. NOTE: the power design will be coordinated closely with the telecommunications design, architectural design and Owner equipment.
  - Provide empty raceways for telecommunication devices and projectors. 1 ¼" conduit to rise up classroom wall and out to corridor.
  - Provide electrical support for clock & sound system.
  - Furnish and install a speaker/visual device; connect to the signal circuit loop on each floor.
  - Provide electrical support for mechanical equipment.

Existing Building:

- It shall be the responsibility of the Electrical Contractor to ensure that the electrical systems in the building that are not within the area of renovations have not been affected by demolition. In the event that a device being removed causes another device remaining not to operate, it shall be the contractor's responsibility to reconnect the equipment remaining back to its source.

- It shall be the responsibility of the Electrical Contractor to coordinate phasing of work with the General Contractor prior to commencement of work.

- Disconnect and remove the existing secondary power coming into the building. Disconnect and remove the existing main distribution board in the ground floor electric room. See above for new work on the ground floor.

- Furnish and install new Fire Alarm devices throughout the existing areas of the building (ground floor; existing charter school; existing gymnasium) that are not affected by the renovation project. The existing fire alarm system shall remain in place until the new fire alarm system is installed, operational, tested and approved by the fire department. The new devices shall be connected to the new Fire Alarm Control Panel with voice evacuation.

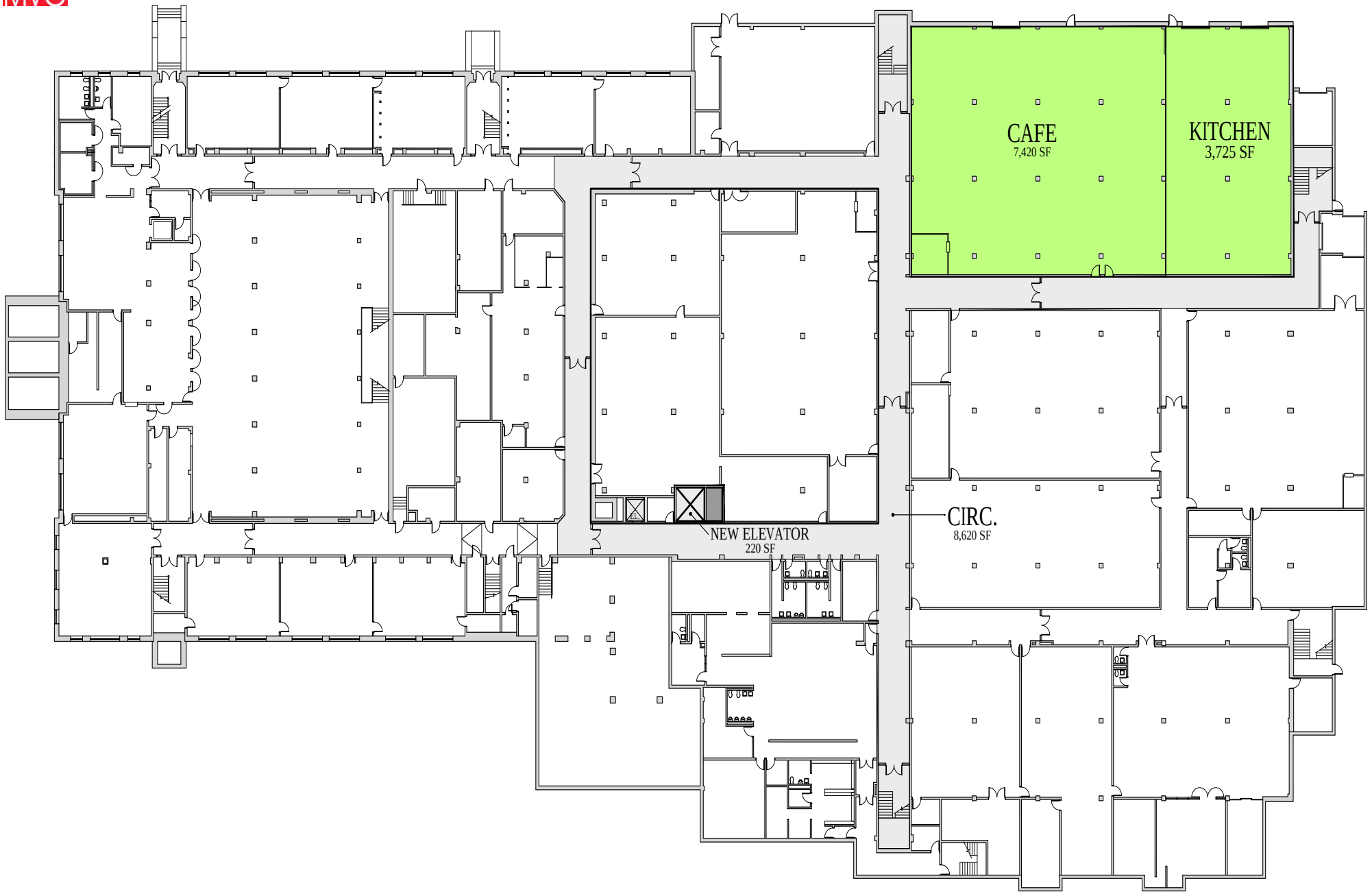
- Disconnect and remove power to all Rooftop equipment. Furnish and install new power feeds from new units to new main distribution board in the new electric room on the third floor and in the new main distribution board on the ground floor.

- The following work must be completed in the Charter School space and Public Gymnasium:
  - Disconnect power from sub-panels feeding the spaces to the existing main distribution board. Furnish and install new feeders to the new 2500A board in the new Ground Floor Main Electric Room. The Electrical Contractor shall provide standby generator power to the space so that the building remains energized while power is disconnected.
  - Furnish and install new addressable Fire Alarm initiating and signaling devices. When the new devices are installed, operational and tested, the EC shall disconnect the existing devices in the spaces.
  - At each entry, furnish and install remote fire alarm annunciators. Connect to the new fire alarm system.

END OF REPORT

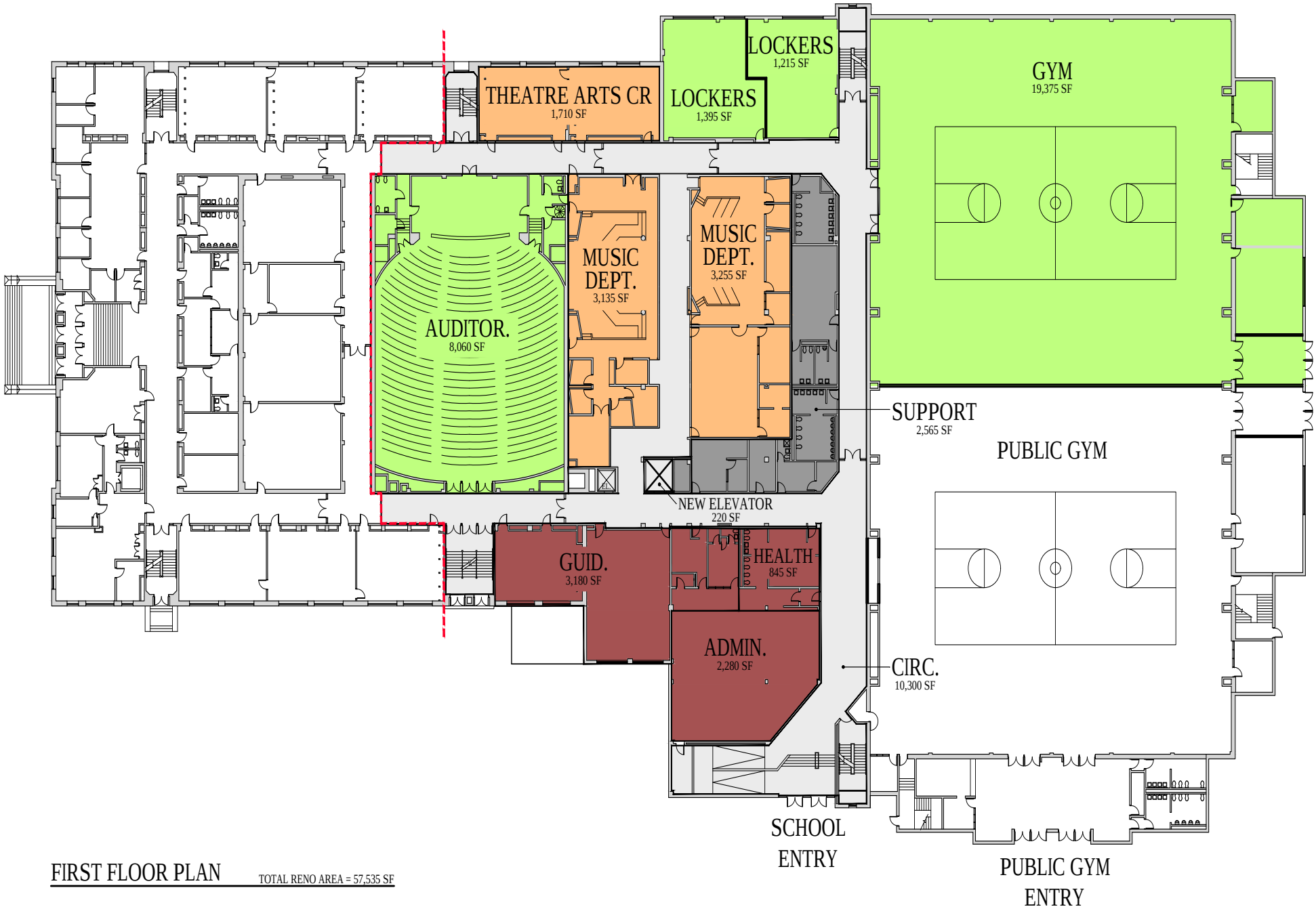
APPENDIX

CONCEPTUAL DESIGN FLOOR PLANS



GROUND FLOOR PLAN

TOTAL RENO AREA = 19,985 SF



FIRST FLOOR PLAN TOTAL RENO AREA = 57,535 SF

SECOND FLOOR PLAN TOTAL RENO AREA = 51,565 SF

THIRD FLOOR PLAN TOTAL RENO AREA = 54,075 SF

FEASIBILITY DESIGN
CONSTRUCTION COST REPORT

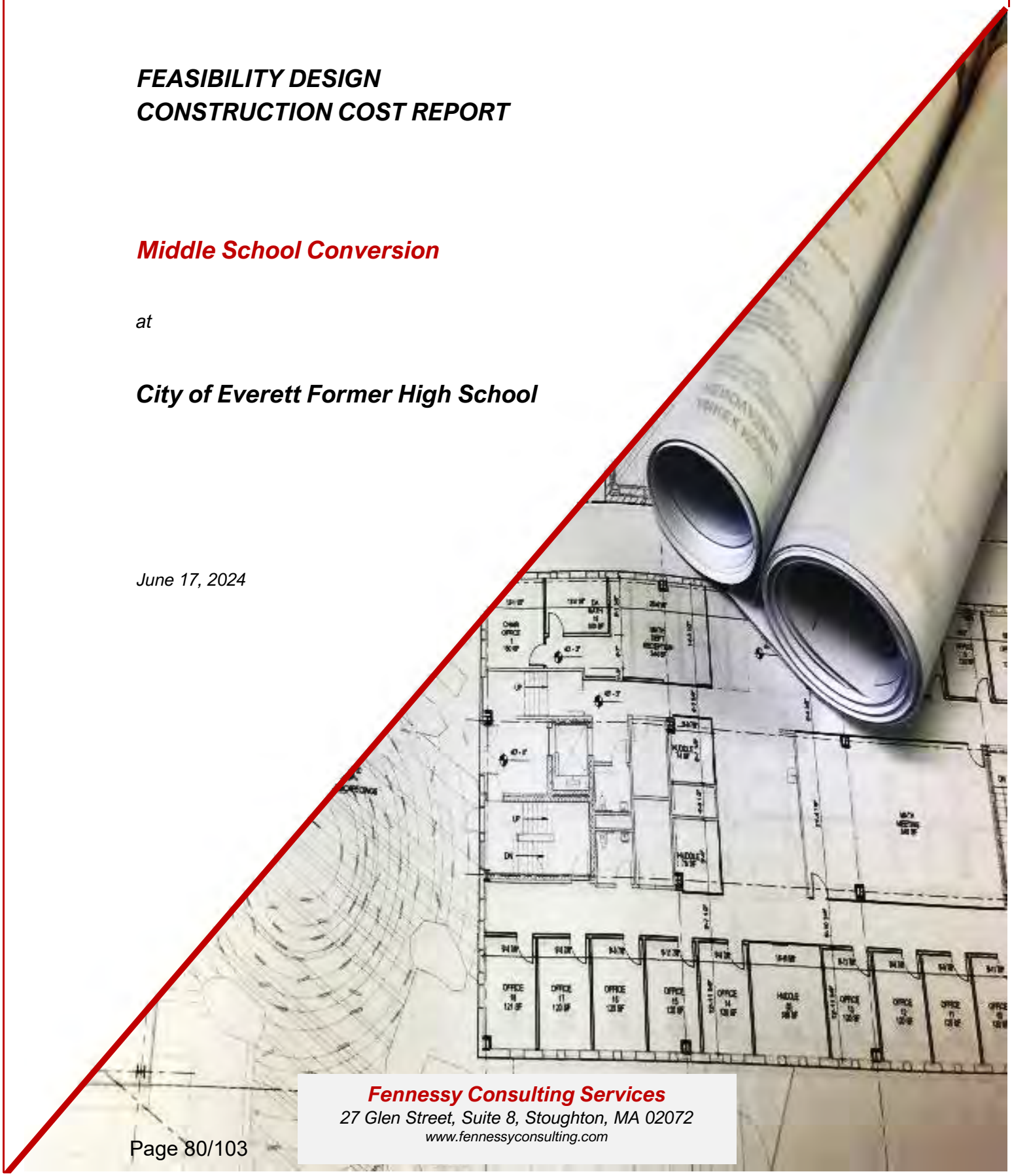
FEASIBILITY DESIGN CONSTRUCTION COST REPORT

Middle School Conversion

at

City of Everett Former High School

June 17, 2024



Fennessy Consulting Services
27 Glen Street, Suite 8, Stoughton, MA 02072
www.fennessyconsulting.com

June 17, 2024

Bill Peters
Mount Vernon Group Architects Inc.
178 Albion Street
Suite 240
Wakefield, MA 01880

CITY OF EVERETT FORMER HIGH SCHOOL - Middle School Conversion, Everett, MA

Dear Bill:

Please find enclosed our Construction Cost Model for the above referenced project based on feasibility design information prepared by your office and design team, dated June 7, 2024.

The financial summary of this cost model is outlined below, however we recommend you review the Executive Summary to fully understand the basis of this report and the included and excluded financial impacts contained therein.

	Const. Start	Gross Floor Area	$/sf	Estimated Cost
Building Work	*Aug-25*	*182,978*	*$323.78*	*$59,244,663*
Site Work	*Aug-25*			*$903,944*
ESTIMATED CONTRACT AWARD		***182,978***	***$328.72***	***$60,148,607***

Alternates
None considered at this time

Bidding conditions are expected to reflect competitive bidding to pre-qualified general contractors, open bidding to prequalified sub-contractors, open specifications for materials and manufactures.

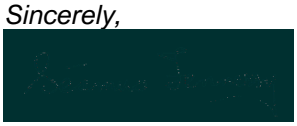
This estimate includes all direct construction costs, general contractor's overhead and profit and design contingency. Cost escalation impacts have been included in this report.

Excluded from the estimate are: construction contingency, loose furnishings and equipment, architect's and engineer's fees, moving, administrative and financing costs. Please refer to Exclusions section of the attached report for further information.

Contractors are not required to be signatory to any labor union, however they will be required to pay prevailing wage rates as set forth by the Commonwealth of Massachusetts for construction at this project location. This cost report 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.

If you have any questions or require further analysis please do not hesitate to contact us.

Sincerely,



Seamus Fennessy MRICS
Principal/Owner

Enclosures

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CITY OF EVERETT FORMER HIGH SCHOOL
Middle School Conversion
Everett, MA
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June 17, 2024

The Project

This project in Everett, Massachusetts comprises of renovations to approximately gsf of the existing building to provide a new middle school. A portion of the existing building will remain un-renovated.

The program includes, 40# regular classrooms, 8# science classroom; 3# music room, 2# theater arts classrooms, 2# art room, 10# special ed classrooms, , 13# small group rooms, gymnasium , media center, cafe, kitchen, and all associated support facilities.

Allowances have been included for site preparation and development.

Financial Status

Our construction cost model for the entire project is in the order of ***$60.15MM****. Within this total we are including $5.18MM of design contingency, and $3.21MM of future price escalation reflecting the construction schedule outlined herein.*

Risk

A formal risk analysis has not been performed for this project. Some risk factors to be considered at this time include:

- *Design Contingency*
- *Escalation/Market risk*
- *Construction/Payment default*
- *Approvals process/Funding*

<u>Design Contingency</u>

This construction cost model is based on feasibility study information. Due to this incomplete nature of the design we have utilized historic data and personal experience to complete this cost model. To help alleviate possible cost increases as a result of design completion we recommend a ***design contingency of 10%.*** *We have included this contingency in our cost model. As design progresses this contingency will reduce.*

<u>Escalation/Market Risk</u>

The nation has come through the worst of the economic impact that materialized with Covid 19. However it is still with us and still having major impacts on construction costs. The well documented issues relating to the supply chain and labor shortages remain with us and will continue to be problematic for the foreseeable future. Industry demand is slowing. Economic growth is expected to be only 0.7% during the next 12 months. Construction starts are expected to flatten during this same time period.

The impact will vary across the different segments of the construction marketplace. Non-residential projects , especially commercial projects will reduce, residential will remain as is, manufacturing will drop significantly and non-building projects will increase dramatically. This will affect escalation rates differently across project locations.

Continued shipping and other logistical issues (primarily driven by piracy at the Suez Canal and a drought restricting shipping at the Panama Canal) will continue to put upwards pressures on material prices A national construction materials distributor has recently announced a 5 - 10% increase in material prices. The bridge collapse in Baltimore, which impacts gypsum, aluminum and veneer plywood deliver is not expected to these costs unless the re-opening is significantly delayed.

Some projects will not experience the same inflationary pressures as these projects will be viewed by the market place as more desirable. These projects typically will encompass more straightforward less complex new construction projects that limit risk/exposure and maximize profit generation potential.

For these reasons we are continuing to recommend an annual escalation factor of 5 - 6% for the next twelve months dropping to 4 - 5% thereafter. We have ***included an escalation factor of 5.6%*** *in this cost report. As we move closer to bid date we will continue to review and adjust the escalation factor as appropriate. It is possible that a higher escalation factor will be required for later years.*

Construction/Payment Default
There is a real risk of contractors, subcontractors and material suppliers ceasing to exist due to their inability to honor low bids as material and labor prices increase. We highly recommend that each project has adequate protection in the form of sub guard (preferred) or bonding for both performance and payment. The current estimate includes for subcontractor bonding within the unit rates.

Approvals Process/Funding.
For the purpose of this report we have included both of these categories together. The risk here is that the funding and approvals process will take significantly longer than expected and hence subject this project to increases in price escalation. We have not included any such pressures in this cost model.

Peer/Comparable Projects
We at Fennessy Consulting Services do not like to compare individual projects against some perceived cost/sf. Our reasoning for this is based on the fact that no two projects are the same and as such a typical cost/sf is not all that applicable or reliable. We treat each project as a unique entity.

As a quality control measure we make comparisons of the various building component costs in this estimate against others. We make this comparison to verify that nothing is out of the ordinary. If we come across an abnormal component cost we double check this cost to ensure its accuracy.

Cost Estimate Prepared From	*Dated*	*Received*
Feasibility design documentation assembled by Mount Vernon Group and their design team that includes:		
Architectural drawings	*06/07/24*	*06/11/24*
Structural narrative	*?*	*06/11/24*
Mechanical, plumbing and fire protection narrative	*06/10/24*	*06/11/24*
Electrical narrative	*?*	*06/11/24*
Hazardous materials abatement report	*01/01/17*	*06/11/24*
Discussions with the Project Architect and Engineers		

Conditions of Construction

The pricing is based on the following general conditions of construction

A start date of August 2025
A construction period of 14 months
The general contract will be competitively bid to qualified general contractors and subcontractors.
There will not be small business set aside requirements.
Contractors are not required to be signatory to labor unions, however they will be required to pay prevailing wage rates as set forth by the Commonwealth of Massachusetts for construction at this project location.
There are no phasing requirements.
Contractors will have full access to the site during normal business hours.

The Cost Plan is based on the following conditions:

The costs in this report covers construction costs only calculated at current bidding price level (reflecting the current projected construction schedule) with a separate allowance for cost escalation.

Cost escalation is included to the mid point of the construction schedule. Unit rates in the body of the report include appropriate escalation allowances to deliver specific trades within the prescribed schedule if the project were to commence today.

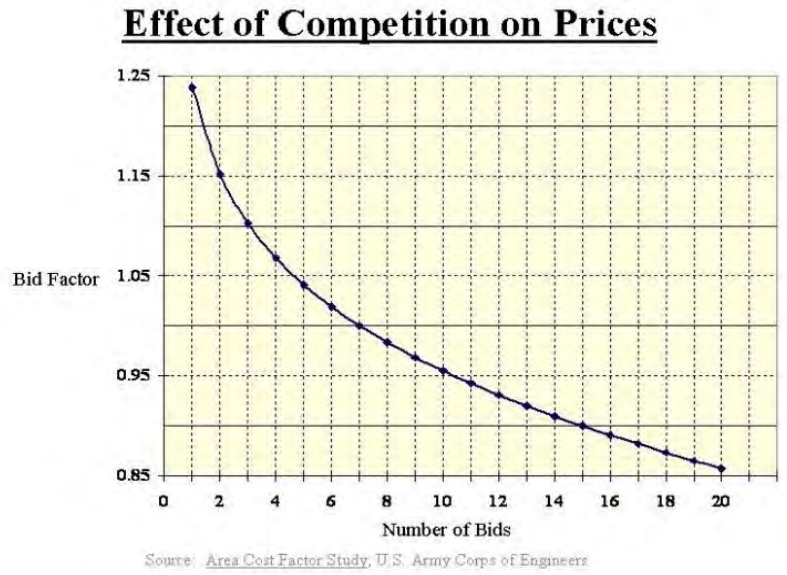
Cost associated with additional escalation required for future start date are included as a below the line markup. This report has included this additional escalation to the scheduled start date of construction noted in this report.

Bidding Process - Market Conditions

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been obtained from historical records and/or discussion with contractors. The unit rates reflect current bid costs in the area.

All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated. The mark-ups cover the costs of field overhead, home office overhead and profit and range from 15% to 25% of the cost for a particular item of work.

Pricing reflects probable construction costs obtainable in the project locality on the date of this statement of probable costs. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors and general contractors, with a minimum of 5 bidders for all items of work. Experience and research indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.



Exclusions

The following cost items have been excluded from this report. Many of these will in fact be required and should be budgeted within the "Soft Cost" component of the project budget

- *Owner supplied and installed furniture, fixtures and equipment*
- *Loose furniture and equipment except as specifically identified*
- *Security head-end equipment*
- *Tele/data head end equipment*
- *Audio visual equipment*
- *Compression of schedule, premium or shift work, and restrictions on the contractor's working hours*
- *Design, testing, inspection or construction management fees*
- *Architectural and design fees*
- *Scope change and post contract contingencies*
- *Assessments, taxes, finance, legal and development charges*
- *Environmental impact mitigation*
- *Builder's risk, project wrap-up and other owner provided insurance program*
- *Land and easement acquisition*
- *Cost escalation beyond a start date of August 2025*
- *Sales tax*

		Existing	***Total***
BUILDING WORK			
Ground Level		*19,985*	
Level 1		*57,353*	
Level 2		*51,565*	
Level 3		*54,075*	
Ground Level (not in GFA)	*88,649*		
Level 1 Charter School (not in GFA)	*23,578*		
Level 1 Public Gym (not in GFA)	*22,848*		
Level 4 (not in GFA)	*14,406*		
TOTAL GROSS FLOOR AREA	*149,481*	*182,978*	***182,978***

	Preparation	***Development***
SITE AREAS		
Complete	*72,866*	*72,866*

Overall Summary

CITY OF EVERETT FORMER HIGH SCHOOL
Middle School Conversion
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		Building Work	Site Work	Total
A10 FOUNDATIONS		$168,164	$0	$168,164
A20 BASEMENT CONSTRUCTION		$0	$0	$0
B10 SUPERSTRUCTURE		$953,105	$0	$953,105
B20 EXTERIOR CLOSURE		$2,061,883	$0	$2,061,883
B30 ROOFING		$212,500	$0	$212,500
C10 INTERIOR CONSTRUCTION		$4,541,165	$0	$4,541,165
C20 STAIRCASES		$371,950	$0	$371,950
C30 FINISHES		$6,038,274	$0	$6,038,274
D10 CONVEYING SYSTEMS		$274,500	$0	$274,500
D20 PLUMBING		$3,032,217	$0	$3,032,217
D30 HVAC		$10,477,975	$0	$10,477,975
D40 FIRE PROTECTION		$1,109,223	$0	$1,109,223
D50 ELECTRICAL		$10,266,135	$0	$10,266,135
E10 EQUIPMENT		$1,153,000	$0	$1,153,000
E20 FURNISHINGS		$2,422,845	$0	$2,422,845
F10 SPECIAL CONSTRUCTION		$0	$0	$0
F20 SELECTIVE BUILDING DEMOLITION		$1,958,746	$0	$1,958,746
Total Building Construction		**$45,041,682**	**$0**	**$45,041,682**
G10 SITE PREPARATION		$0	$91,083	$91,083
G20 SITE IMPROVEMENTS		$0	$396,114	$396,114
G30 SITE MECHANICAL UTILITIES		$0	$115,040	$115,040
G40 SITE ELECTRICAL		$0	$85,000	$85,000
G90 OTHER SITE CONSTRUCTION		$0	$0	$0
Total Site Construction		**$0**	**$687,237**	**$687,237**
TOTAL BUILDING & SITE		**$45,041,682**	**$687,237**	**$45,728,919**
MARKUPS		**$5,946,470**	**$90,730**	**$6,037,200**
General conditions and project requirements	7.8%	$3,490,730	$53,261	$3,543,991
Bond and insurance	2.0%	$970,648	$14,810	$985,458
Building permit	0.0%	$0	$0	$0
Prime contractor's head office overhead and profit (Fee)	3.0%	$1,485,092	$22,659	$1,507,751
PLANNED CONSTRUCTION COST	**Jun-24**	**$50,988,152**	**$777,967**	**$51,766,119**
CONTINGENCIES/ESCALATION		**$8,256,511**	**$125,977**	**$8,382,488**
Design and pricing contingency	10.0%	$5,098,815	$77,797	$5,176,612
Gmp contingency	0.0%	$0	$0	$0
Escalation to start date (August 2025)	5.6%	$3,157,696	$48,180	$3,205,876
ESTIMATED CONTRACT AWARD	**Aug-25**	**$59,244,663**	**$903,944**	**$60,148,607**
	GFA	182,978	72,866	255,844
	$/sf	$323.78	$12.41	$235.10

Building Work - Summary

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	Total	GFA $/sf	182,978 %
A10 Foundations	***$168,164***	***$0.92***	***0.33%***
A1010 Foundations	$0	$0.00	0.00%
A1020 Special Foundations	$49,500	$0.27	0.10%
A1030 Slab on Grade	$118,664	$0.65	0.23%
A20 Basement Construction	***$0***	***$0.00***	***0.00%***
A2010 Basement Earthwork	$0	$0.00	0.00%
A2020 Basement Walls	$0	$0.00	0.00%
B10 Superstructure	***$953,105***	***$5.21***	***1.87%***
B1010 Floor Construction	$738,605	$4.04	1.45%
B1020 Roof Construction	$214,500	$1.17	0.42%
B20 Exterior Closure	***$2,061,883***	***$11.27***	***4.04%***
B2010 Exterior Walls	$1,377,963	$7.53	2.70%
B2020 Windows	$567,510	$3.10	1.11%
B2030 Exterior Doors	$116,410	$0.64	0.23%
B30 Roofing	***$212,500***	***$1.16***	***0.42%***
B3010 Roof Covering	$200,000	$1.09	0.39%
B3020 Roof Openings	$12,500	$0.07	0.02%
C10 Interior Construction	***$4,541,165***	***$24.82***	***8.91%***
C1010 Partitions	$1,815,100	$9.92	3.56%
C1020 Interior Doors	$1,140,750	$6.23	2.24%
C1030 Specialties	$1,585,315	$8.66	3.11%
C20 Staircases	***$371,950***	***$2.03***	***0.73%***
C2010 Stair Construction	$235,450	$1.29	0.46%
C2020 Stair Finishes	$136,500	$0.75	0.27%
C30 Finishes	***$6,038,274***	***$33.00***	***11.84%***
C3010 Wall Finishes	$1,811,482	$9.90	3.55%
C3020 Floor Finishes	$2,351,267	$12.85	4.61%
C3030 Ceiling Finishes	$1,875,525	$10.25	3.68%
D10 Conveying Systems	***$274,500***	***$1.50***	***0.54%***
D1010 Elevators and Lifts	$274,500	$1.50	0.54%
D1020 Escalators and Moving Walkways	$0	$0.00	0.00%
D1030 Other Conveying Systems	$0	$0.00	0.00%
D20 Plumbing	***$3,032,217***	***$16.57***	***5.95%***
D2010 Plumbing Complete	$3,032,217	$16.57	5.95%
D30 Heating, Ventilation and Air Conditioning	***$10,477,975***	***$57.26***	***20.55%***
D3010 HVAC, Complete	$10,477,975	$57.26	20.55%
D40 Fire Protection	***$1,109,223***	***$6.06***	***2.18%***
D4010 Fire Protection, Complete	$1,109,223	$6.06	2.18%
D50 Electrical	***$10,266,135***	***$56.11***	***20.13%***
D5010 Electrical, Complete	$10,266,135	$56.11	20.13%
E10 Equipment	***$1,153,000***	***$6.30***	***2.26%***
E1010 Commercial Equipment	$0	$0.00	0.00%
E1020 Institutional Equipment	$202,500	$1.11	0.40%
E1030 Vehicular Equipment	$0	$0.00	0.00%
E1090 Other Equipment	$950,500	$5.19	1.86%
E20 Furnishings	***$2,422,845***	***$13.24***	***4.75%***
E2010 Fixed Furnishings	$2,422,845	$13.24	4.75%
E2020 Loose Furnishings	$0	$0.00	0.00%

Building Work - Summary

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		Total	GFA $/sf	182,978 %
F10 Special Construction		***$0***	***$0.00***	***0.00%***
F1010 Special Structures		*$0*	*$0.00*	*0.00%*
F1020 Integrated Construction		*$0*	*$0.00*	*0.00%*
F1030 Special Systems and Facilities		*$0*	*$0.00*	*0.00%*
F20 Selective Building Demolition		***$1,958,746***	***$10.70***	***3.84%***
F2010 Building Elements Demolition		*$1,308,746*	*$7.15*	*2.57%*
F2020 Hazardous Components Abatement		*$650,000*	*$3.55*	*1.27%*
TOTAL BUILDING CONSTRUCTION		***$45,041,682***	***$246.16***	***88.34%***
Total Site Construction		*See Separate Section*		
TOTAL BUILDING & SITE		***$45,041,682***	***$246.16***	***88.34%***
Markups		***$5,946,470***	***$32.50***	***11.66%***
General Conditions				
General conditions and project requirements	*7.8%*	*$3,490,730*	*$19.08*	*6.85%*
Bond and insurance	*2.0%*	*$970,648*	*$5.30*	*1.90%*
Building permit	*0.0%*	*$0*	*$0.00*	*0.00%*
Overhead and profit				
Prime contractor's head office overhead and profit (Fee)	*3.0%*	*$1,485,092*	*$8.12*	*2.91%*
PLANNED CONSTRUCTION COST	***Jun-24***	***$50,988,152***	***$278.66***	***100.00%***
Contingencies/Escalation		***$8,256,511***	***$45.12***	
Contingencies				
Design and pricing contingency	*10.0%*	*$5,098,815*	*$27.87*	
Gmp contingency	*0.0%*	*$0*	*$0.00*	
Escalation				
Escalation to start date (August 2025)	*5.6%*	*$3,157,696*	*$17.26*	
ESTIMATED CONTRACT AWARD	***Aug-25***	***$59,244,663***	***$323.78***	

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	Quantity	Unit	Rate	Total
A1020 SPECIAL FOUNDATIONS				
Underpinning				
Underpinning at elevator shaft	*11*	*CY*	*4,500.00*	*49,500*
Subtotal				***$49,500***
A1030 SLAB ON GRADE				
Standard slab on grade				
Patching at elevator pit	*196*	*SF*	*42.50*	*8,330*
Trenching in kitchen	*144*	*LF*	*256.00*	*36,864*
Patch surface after demolition	*19,985*	*SF*	*2.00*	*39,970*
Elevator pit in existing building	*1*	*EA*	*31,000.00*	*31,000*
Added cost for elevator sump	*1*	*EA*	*2,500.00*	*2,500*
Subtotal				***$118,664***
B1010 FLOOR CONSTRUCTION				
Steel construction				
Steel framing at new elevator shaft	*3*	*LOC*	*6,000.00*	*18,000*
Existing floor slabs				
Infill existing penetrations	*162,993*	*SF*	*0.50*	*81,497*
Patching existing surfacing after demolition	*162,993*	*SF*	*2.00*	*325,986*
Miscellaneous				
Seismic bracing and clip angles, including in existing building outside renovated area	*158,053*	*SF GFA*	*1.50*	*237,080*
Fireproofing to new steel at elevator	*3*	*LOC*	*1,500.00*	*4,500*
Fire stopping	*182,978*	*SF*	*0.35*	*64,042*
Equipment pads	*1*	*LS*	*7,500.00*	*7,500*
Subtotal				***$738,605***
B1020 ROOF CONSTRUCTION				
Roof framing				
Framing at elevator overrun	*4*	*LOC*	*3,000.00*	*12,000*
Reinforce existing structure at mechanical equipment (assumed 0.5 tn/loc)	*27*	*LOC*	*7,500.00*	*202,500*
Subtotal				***$214,500***
B2010 EXTERIOR WALL				
Interior backup - existing				
Metal stud furring with thermal/air barrier and new drywall (abuse resistant)	*38,201*	*SF*	*22.50*	*859,523*
Exterior skin - masonry				
Allow for masonry, cleaning, repointing and repairs	*38,201*	*SF*	*10.00*	*382,010*
Miscellaneous				
Scaffolding/staging to exterior wall	*54,572*	*SF*	*2.50*	*136,430*
Subtotal				***$1,377,963***

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	Quantity	Unit	Rate	Total
B2020 WINDOWS				
Windows				
Aluminum windows and storefront, triple glazed	*Existing to remain*			
Allow for select replacement/repairs	*1*	*LS*	*300,000.00*	*300,000*
Sealant with backer	*12,278*	*LF*	*7.50*	*92,085*
Interior sills	*2,339*	*LF*	*75.00*	*175,425*
Subtotal				***$567,510***
B2030 EXTERIOR DOORS				
Hollow metal				
Hollow metal doors, frame and hardware - single lea	*2*	*EA*	*3,500.00*	*7,000*
Aluminum doors				
Double leaf	*6*	*PR*	*10,000.00*	*60,000*
Door operators	*3*	*EA*	*6,750.00*	*20,250*
Overhead doors	*3*	*EA*	*9,720.00*	*29,160*
Subtotal				***$116,410***
B3010 ROOF COVERING				
Membrane roofing				
Roof, complete with flashings, coping, etc.	*By others*			
Allowance for patching/curbs etc.	*1*	*LS*	*200,000.00*	*200,000*
Subtotal				***$200,000***
B3020 ROOF OPENINGS				
Elevator dog-house	*1*	*LS*	*10,000.00*	*10,000*
Roof hatch/ vents	*1*	*LS*	*2,500.00*	*2,500*
Subtotal				***$12,500***
C1010 PARTITIONS				
Partitions				
Drywall (assumed 30% new)	*182,978*	*SF GFA*	*6.83*	*1,249,740*
Masonry (assumed 30% new)	*182,978*	*SF GFA*	*0.77*	*140,893*
Glass partitions (assumed 50% new)	*182,978*	*SF GFA*	*1.50*	*274,467*
Folding partitions	*2*	*EA*	*75,000.00*	*150,000*
Subtotal				***$1,815,100***
C1020 INTERIOR DOORS				
Interior metal or wood doors (100% new)				
Single leaf	*255*	*EA*	*3,000.00*	*765,000*
Double leaf	*53*	*EA*	*3,000.00*	*159,000*
Aluminum				
Double leaf	*5*	*PR*	*10,000.00*	*50,000*
Door operators	*2*	*EA*	*6,750.00*	*13,500*
Overhead doors, complete	*2*	*EA*	*10,800.00*	*21,600*
Ancillary costs				
Wood blocking, sealant and paint	*308*	*LOC*	*400.00*	*123,200*
Paint to existing doors and frames	*26*	*EA*	*325.00*	*8,450*
Subtotal				***$1,140,750***

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Building Work - Estimate Detail

	Quantity	Unit	Rate	Total
C1030 SPECIALTIES				
Specialties				
Restroom partitions and accessories	182,978	SF GFA	1.50	274,467
Markerboards and tackboards	182,978	SF GFA	1.75	320,212
Lockers	182,978	SF GFA	2.10	384,254
Signage/Directories	182,978	SF GFA	0.65	118,936
Building signage	1	LS	30,000.00	30,000
Miscellaneous specialties	182,978	SF GFA	0.25	45,745
Miscellaneous				
Allowance for miscellaneous metals not identifiable at this stage	182,978	SF	1.75	320,212
Miscellaneous sealants throughout building	182,978	SF	0.50	91,489
Subtotal				**$1,585,315**
C2010 STAIR CONSTRUCTION				
Feature staircase				
New rails	58	LF	450.00	26,100
Handrails	58	LF	75.00	4,350
Egress staircases				
Rails and handrails	20	FLT	10,000.00	200,000
Miscellaneous steps and ladders	1	LS	5,000.00	5,000
Subtotal				**$235,450**
C2020 STAIR FINISHES				
Stair finishes				
Staircases	21	FLT	6,500.00	136,500
Subtotal				**$136,500**
C3010 WALL FINISHES				
Wall finishes	182,978	SF GFA	9.90	1,811,482
Subtotal				**$1,811,482**
C3020 FLOOR FINISHES				
Floor finishes	182,978	SF GFA	12.85	2,351,267
Subtotal				**$2,351,267**
C3030 CEILING FINISHES				
Ceiling finishes	182,978	SF GFA	10.25	1,875,525
Subtotal				**$1,875,525**
D1010 ELEVATORS AND LIFTS				
Passenger elevator				
Passenger elevators, 4 stops	1	EA	253,000.00	253,000
Cab finishes	1	EA	18,000.00	18,000
Sills, ladders, etc.	1	LS	3,500.00	3,500
Subtotal				**$274,500**

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	Quantity	Unit	Rate	Total
D2010 PLUMBING				
Plumbing				
Equipment	1	LS	247,000.00	247,000
Fixtures	298	FIX	2,650.00	789,700
Domestic water piping	298	FIX	3,800.00	1,132,400
Sanitary and vent system, including floor drains	298	FIX	2,600.00	774,800
Storm drainage system (100% replacement)		EA	9,000.00	
Miscellaneous coordination, testing, commissioning coring etc.	1	LS	88,317.00	88,317
Subtotal				**$3,032,217**
D3010 HVAC				
Equipment				
Heating / Cooling equipment				
VRF condensing unit (20 Tons)	15	EA	60,000.00	900,000
VRF indoor fan coil unit	220	EA	2,500.00	550,000
Branch selector box	8	EA	6,800.00	54,400
Heaters				
Electric cabinet unit heater	15	EA	1,900.00	28,500
Air distribution equipment				
Air handling units				
Dedicated outside air units, 7,500 cfm	4	EA	187,500.00	750,000
Dedicated outside air units, 1,200 cfm	1	EA	30,000.00	30,000
Rooftop unit, DX cooling / heating / energy wheel, 5,000 cfm	2	EA	125,000.00	250,000
Rooftop unit, DX cooling / heating / energy wheel, 6,000 cfm	4	EA	150,000.00	600,000
Make-up air unit (assumed (6,000 cfm)	1	EA	114,000.00	114,000
Roof curb / dunnage	27	EA	4,500.00	121,500
Fans				
Misc. exhaust fans (elec./mech rms)	1	LS	60,000.00	60,000
Split systems				
Complete	6	EA	12,500.00	75,000
Refrigerant piping				
Mains	6,025	LF	50.00	301,250
Branch	18,075	LF	38.00	686,850
Insulation	24,100	LF	14.00	337,400
Condensate drain piping				
Piping	4,820	LF	40.00	192,800
Insulation	4,820	LF	8.00	38,560
Sheet metal				
Ductwork, galvanized	137,000	LBS	20.00	2,740,000
Kitchen exhaust	1	LS	40,000.00	40,000
Misc. duct accessories	1	LS	45,000.00	45,000
Grilles, registers and diffusers	665	EA	300.00	199,500
Sound attenuation	1	LS	12,500.00	12,500
Insulation				
Duct insulation and acoustical lining	82,200	SF	6.50	534,300

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	Quantity	Unit	Rate	Total
Balancing				
Testing and balancing	*182,978*	*SF*	*1.40*	*256,169*
Direct digital controls				
Allowance	*182,978*	*SF*	*7.00*	*1,280,846*
Miscellaneous				
Coordination and management	*1*	*LS*	*81,600.00*	*81,600*
Commissioning	*1*	*LS*	*51,000.00*	*51,000*
Pipe and duct identification, equipment tagging	*1*	*LS*	*10,200.00*	*10,200*
Shop drawings	*1*	*LS*	*30,000.00*	*30,000*
Seismic bracing & vibration control	*1*	*LS*	*20,400.00*	*20,400*
Coring, sleeves & firestopping	*1*	*LS*	*25,000.00*	*25,000*
Rigging & equipment rental	*1*	*LS*	*61,200.00*	*61,200*
Subtotal				***$10,477,975***
D4010 FIRE PROTECTION				
Equipment & Valves				
Fire pump	*1*	*EA*	*75,000.00*	*75,000*
Fire department connection		*Existing*		
Fire alarm test header		*Existing*		
Double check valve assembly, 8"		*Existing*		
Wet alarm check valve		*Existing*		
Zone control valve assembly	*4*	*EA*	*2,200.00*	*8,800*
Miscellaneous valves	*1*	*LS*	*15,000.00*	*15,000*
Sprinkler head	*1,743*	*EA*	*125.00*	*217,875*
Branch sprinkler pipe with fittings & hangers	*13,944*	*LF*	*42.00*	*585,648*
Main sprinkler pipe with fittings & hangers	*2,615*	*LF*	*60.00*	*156,900*
Sprinklers outside middle school area		*Assumed adequate*		
Miscellaneous				
Coordination & management	*1*	*LS*	*20,000.00*	*20,000*
Engineering/hydraulic calculations	*1*	*LS*	*10,000.00*	*10,000*
Shop drawings	*1*	*LS*	*10,000.00*	*10,000*
Coring, sleeves & firestopping	*1*	*LS*	*10,000.00*	*10,000*
Subtotal				***$1,109,223***
D5010 ELECTRICAL				
Electrical installation				
Electrical, installation, complete in middle school areas, complete (includes security and tele/data etc.	*182,978*	*SF GFA*	*51.00*	*9,331,878*
Additional switchboard and generator up-sizing, panelboards and feeders to serve Charter School and Public Gym Areas.	*149,481*	*SF*	*3.50*	*523,184*
New fire alarm in Charter School and Public Gym	*149,481*	*SF*	*2.75*	*411,073*
Subtotal				***$10,266,135***

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		Quantity	Unit	Rate	Total
E1020 INSTITUTIONAL EQUIPMENT					
Theater and stage equipment		1	LS	150,000.00	150,000
Laboratory equipment					
Fume hood, 4'		2	EA	15,000.00	30,000
Goggle sterilization cabinet		9	EA	2,500.00	22,500
	Subtotal				**$202,500**
E1090 OTHER EQUIPMENT					
Food service equipment		1	LS	800,000.00	800,000
Residential appliances		1	LS	20,000.00	20,000
Audio-visual equipment					
Classroom short throw projectors, etc.,			FF&E		
Art equipment					
Kiln		1	EA	5,500.00	5,500
Athletic equipment		1	LS	125,000.00	125,000
	Subtotal				**$950,500**
E2010 FIXED FURNISHINGS					
Miscellaneous casework		182,978	SF	10.00	1,829,780
Entry mat		200	SF	50.00	10,000
Window treatment		16,371	SF	15.00	245,565
Seating					
Telescoping bleachers		150	EA	250.00	37,500
Auditorium seating - allowance		600	EA	500.00	300,000
Library shelving			FF&E		
	Subtotal				**$2,422,845**
E2020 LOOSE FURNISHINGS					
Loose furnishings					
By owner					
	Subtotal				**$0**
F1010 SPECIAL STRUCTURES					
No work anticipated					
	Subtotal				**$0**
F2010 BUILDING ELEMENTS DEMOLITION					
Interior demolition		182,978	SF GFA	7.00	1,280,846
Roofing demolition			By others		
Exterior demolition					
Windows, including temporary weather enclosures			Not required		
Structural demolition					
Remove existing concrete slab on grade		556	SF	25.00	13,900
Remove elevated slab		300	SF	35.00	10,500
Remove roof slab		100	SF	35.00	3,500
	Subtotal				**$1,308,746**

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Building Work - Estimate Detail

	Quantity	Unit	Rate	Total
F2020 HAZARDOUS COMPONENTS ABATEMENT				
Hazardous materials abatement				
Remove hazardous building materials	1	LS	650,000.00	650,000
Subtotal				**$650,000**
MARKUPS				
General conditions and project requirements				
General conditions and requirements	7.75%		45,041,682	3,490,730
Bond and Insurance	2.00%		48,532,412	970,648
Building permit	0.00%		49,503,060	
Overhead and Profit				
Prime contractor's head office overhead and profit (Fee)	3.00%		49,503,060	1,485,092
Subtotal				**$5,946,470**
CONTINGENCIES/ESCALATION				
Contingencies				
Design contingency	10.00%		50,988,152	5,098,815
GMP contingency	0.00%		56,086,967	
Escalation				
Escalation to Start Date (August 2025)	5.63%		56,086,967	3,157,696
Subtotal				**$8,256,511**

Site Work - Summary

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		Total	GFA $/sf	72,866 %
G10 Site Preparation		***$91,083***	***#DIV/0!***	***#REF!***
G1010 Site Clearing and Demolition		*$54,650*	*$0.75*	*7.02%*
G1030 Site Earthwork		*$36,433*	*$0.50*	*4.68%*
G1040 Hazardous Waste Remediation		*$0*	*$0.00*	*0.00%*
G20 Site Improvement		***$396,114***	***$5.44***	***#REF!***
G2010 Roadways and Parking Lots		*$109,299*	*$1.50*	*14.05%*
G2030 Pedestrian Paving		*$122,866*	*$1.69*	*15.79%*
G2040 Site Development		*$91,083*	*$1.25*	*11.71%*
G2050 Landscaping		*$72,866*	*$1.00*	*9.37%*
G30 Site Mechanical		***$115,040***	***$1.58***	***14.79%***
G3010 Mechanical Utilities		*$115,040*	*$1.58*	*14.79%*
G40 Site Electrical		***$85,000***	***$1.17***	***10.93%***
G4010 Electrical Utilities and Site Lighting		*$85,000*	*$1.17*	*10.93%*
G90 Other Site Construction		***$0***	***$0.00***	***0.00%***
G9010 Service and Pedestrian Tunnels		*$0*	*$0.00*	*0.00%*
G9090 Other Site Systems		*$0*	*$0.00*	*0.00%*
Total Site Construction		***$687,237***	***$9.43***	***88.34%***
TOTAL BUILDING & SITE		***$687,237***	***$9.43***	***88.34%***
Markups		***$90,730***	***$1.25***	***11.66%***
General Conditions				
General conditions and project requirements	*7.8%*	*$53,261*	*$0.73*	*6.85%*
Bond and insurance	*2.0%*	*$14,810*	*$0.20*	*1.90%*
Building permit	*0.0%*	*$0*	*$0.00*	*0.00%*
Overhead and profit				
Prime contractor's head office overhead and profit (Fee)	*3.0%*	*$22,659*	*$0.31*	*2.91%*
PLANNED CONSTRUCTION COST	***Jun-24***	***$777,967***	***$10.68***	***100.00%***
Contingencies/Escalation		***$125,977***	***$1.73***	
Contingencies				
Design and pricing contingency	*10.0%*	*$77,797*	*$1.07*	
Gmp contingency	*0.0%*	*$0*	*$0.00*	
Escalation				
Escalation to start date (August 2025)	*5.6%*	*$48,180*	*$0.66*	
ESTIMATED CONTRACT AWARD	***Aug-25***	***$903,944***	***$12.41***	

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	Quantity	Unit	Rate	Total
G1010 SITE CLEARING AND DEMOLITION				
Site preparation				
Allowance for site clearance and demolition, including site fencing	*72,866*	*SF*	*0.75*	*54,650*
Subtotal				***$54,650***
G1030 SITE EARTHWORK				
Site earthwork				
Site earthwork, including stripping topsoil and site cut to fill	*72,866*	*SF*	*0.50*	*36,433*
Subtotal				***$36,433***
G1040 HAZARDOUS WASTE REMEDIATION				
Hazardous waste remediation				
Remove contaminated soils		*EXCLUDED*		
Subtotal				***$0***
G2010 ROADWAYS AND PARKING LOTS				
Roadways				
Park areas	*72,866*	*SF*	*1.50*	*109,299*
Subtotal				***$109,299***
G2030 PEDESTRIAN PAVING				
Pedestrian paving				
Pedestrian paving, complete,	*72,866*	*SF*	*1.00*	*72,866*
Access ramps	*1*	*LS*	*50,000.00*	*50,000*
Subtotal				***$122,866***
G2040 SITE DEVELOPMENT				
Site development				
Allowance for site walls, furnishings and site development, including repairs to existing	*72,866*	*SF*	*1.25*	*91,083*
Subtotal				***$91,083***
G2050 LANDSCAPING				
Topsoils and plantings				
Allow for topsoil preparation, plantings and lawns	*72,866*	*SF*	*1.00*	*72,866*
Subtotal				***$72,866***
G3010 MECHANICAL UTILITIES				
Mechanical utilities				
Water supply	*1*	*LS*	*40.00*	*40*
Sanitary sewer	*1*	*LS*	*50,000.00*	*50,000*
Storm drainage, connected to city/town system	*1*	*LS*	*65,000.00*	*65,000*
Subtotal				***$115,040***

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	Quantity	Unit	Rate	Total
G4010 ELECTRICAL UTILITIES AND SITE LIGHTING				
Electrical utilities and site lighting				
Electrical service (primary, secondary and low voltag	*1*	*LS*	*55,000.00*	*55,000*
Site lighting	*1*	*LS*	*30,000.00*	*30,000*
Subtotal				***$85,000***
MARKUPS				
General conditions and project requirements				
General conditions and requirements	*7.75%*		*687,237*	*53,261*
Bond and Insurance	*2.00%*		*740,498*	*14,810*
Building permit	*0.00%*		*755,308*	
Overhead and Profit				
Prime contractor's head office overhead and profit (Fee)	*3.00%*		*755,308*	*22,659*
Subtotal				***$90,730***
CONTINGENCIES/ESCALATION				
Contingencies				
Design contingency	*10.00%*		*777,967*	*77,797*
GMP contingency	*0.00%*		*855,764*	
Escalation				
Escalation to Start Date (August 2025)	*5.63%*		*855,764*	*48,180*
Subtotal				***$125,977***

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