



**CITY OF EVERETT
REQUEST FOR BIDS NO. MUN-26-97
ADDENDUM NO. 01**

Date Issued: April 1, 2026

Project: Pope John – Hazmat Inspection, Remediation & Removal Plan

NOTICE TO ALL BIDDERS

This Addendum is issued to modify the Invitation for Bids for **MUN-26-97 Pope John – Hazmat Inspection, Remediation & Removal Plan**

1. RFI Responses

Question #1: Please share any available floor plans.

Answer: Please see the attached Facility Assessment Study completed October 7, 2022 by Mount Vernon Group

Question #2: When operating as a school, the facility was subject to the requirement to maintain an asbestos Management Plan. Please provide a copy of the Management Plan if available.

Answer: When this building was operated as a school it was not owned by the City and at this time this information is not currently available.

Question #3: Please confirm whether City of Everett plans to use the building as a school in the future. Recent MassDLS guidance requires more expensive Transmission Electron Microscopy (TEM) analysis for nonfriable materials in schools (unless the material tests positive by Polarized Light Microscopy/PLM). If future school occupancy is planned it may be advantageous to submit samples of nonfriable materials for TEM analysis.

Answer: Although the ultimate use of the building has not yet been determined, a K-12 educational use is an option and testing and remediation will need to be done to meet educational standards.

2. Sign-In Sheet from Site Visit

(Attached)

3. Submission Requirements

Sealed Hard responses to the IFB must be clearly labeled and must be delivered on or before April 8, 2026, to:

Kiara M. Freeman, Chief Procurement Officer
City of Everett
484 Broadway, Room 14
Everett, MA 02149

Late submissions will not be accepted. Proposals that are not clearly labeled or are received after the deadline may be rejected as non-responsive. The completed **Vendor Reference Form (Attachment ii)** must be included in the proposer's submission package.

Bids must be received at Everett City Hall, Purchasing Dept, 484 Broadway, Room 14, Everett, MA 02149 on or before **April 8, 2026 at 2:00PM**. Timely delivery of a Bid to the location designated shall be the full and sole responsibility of Bidder.

This Addendum modifies and becomes part of the original bid documents for **MUN-26-97 Pope John – Hazmat Inspection, Remediation & Removal Plan**. All other terms and conditions of the Request for Bids for **MUN-26-97 Pope John – Hazmat Inspection, Remediation & Removal Plan** remain unchanged. Proposers must acknowledge receipt of this Addendum with their submission.

Kiara M. Freeman, MCPPO
Chief Procurement Officer
City of Everett

CITY OF EVERETT

WALK-THRU SIGN-IN SHEET | 3-25-26 at 11:00am

Project No: MUN-26-97

Project Name: POPE JOHN REHABILITATION + STABILIZATION

Due Date: APRIL 8, 2026

Time Due: 2:00pm

Name	Company	Email
Carmina Palustre	EnviroMed Services, Inc.	cpalustre@enviromedservices.com
Matt Tate	Pennon	mtate@pennon.com
George Bezreh	Universal Environmental	gbezreh@uec-env.com
Ricardo Nunes	Apex Companies, Inc	ricardo.nunes@apexcos.com
Jeremy Boucher	Four Brothers Environmental	jeremy@4beconsulting.com
Kiara Freeman	Everett	
Angelo Febbo	Everett	
Derek Cipriano	Everett	

FACILITY ASSESSMENT STUDY POPE JOHN HIGH SCHOOL 888 BROADWAY, EVERETT, MA



FEASIBILITY REPORT

October 7, 2022



City of Everett

Mayor Carlo DeMaria



Facility Assessment Study Pope John XXIII High School Feasibility Report

PROJECT TEAM:

Architect: Mount Vernon Group Architects, Inc.

Structural Engineer: Sousa True & Partners

Mechanical/Electrical/Plumbing/Fire Protection: Seaman Engineering

Electrical Engineer: Shepherd Engineering

Codes & Permits: WBA Associates





POPE JOHN XXIII HIGH SCHOOL
888 BROADWAY
EVERETT, MA

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TAB 1 EXECUTIVE SUMMARY



Executive Summary

Overview:

Pope John XXIII High School was constructed nearly 60 years ago. It is structurally sound with an efficient layout. The 1957 Everett Building Code regulated the construction of the building, so it may continue its occupancy for school purposes. Used as a high school until 2019, it has since been occupied by various community organizations and after school programs. 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 of the classroom tower for reuse as a middle school for 900 students. A preliminary cost estimate for this reconstruction is also included.

Code:

Pope John High School was designed in 1964 and constructed in 1965. It was continuously operated as a high school until 2019. Since that time, it has been periodically occupied as a recreation center, daycare center, and for after school programs. 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, assuming the 5th floor convent sleeping rooms and chapel are reconstructed and repurposed for classrooms.

Architectural:

Replace/ Upgrade site, windows, 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.

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 no fire suppression system within the building except for a 1.5" fire hose station in the stage area and a partial chemical-based suppression system within the kitchen hood. The fire hose appears to be connected to the potable water supply with no backflow prevention.

It is recommended that a fire suppression (sprinkler) system be installed throughout the structure.

HVAC

Replace/ Upgrade boilers, chilled and hot water piping, chillers and air handlers, heat pumps, unit ventilators, ductwork unit heaters, fin tube radiation, temperature controls, exhaust fans, building wide energy management system (EMS).

Electrical Systems:

Replace/ Upgrade electrical service, 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 building and site require general structural repairs.

Conceptual Design and Preliminary Cost Estimate:

The conceptual design of the 5-story classroom tower for a 900-student middle school utilizes the current classroom configuration where possible to minimize construction on floors one through four. The fifth floor, however, will require more extensive renovations to convert it from the present convent layout.

The preliminary cost estimate assumes total replacement of all systems and components. These upgrades should probably be implemented at the outset for student health, safety, accessibility, and equity.

TAB 2 SUMMARY OF BUILDING CODE EGRESS REQUIREMENTS



Codes & Permits

Since 1988

WBA Associates

Walter Blair Adams • AIA
Architecture • Code Consulting Services
36 River Ridge • Wellesley MA • 02481
Phone (781) 237-8188 • Fax (781) 237-7271
eMail • codes.permits@mac.com

Frank Tedesco, AIA, LEED
Mount Vernon Group, Inc.
200 Harvard Mill Square
Wakefield MA 01880

September 23, 2022

Summary of 1957 Everett Building Code Egress Requirements

RE: Former Pope John XXIII High School, Egress Study to Reuse for Public School
888 Broadway, Everett, MA

Dear Mr. Tedesco:

This is a summary of my research and findings concerning the possibility of reusing the building as an elementary, middle, or high school. The building was constructed in the mid 1960's, as a mixed occupancy 5-story building, with four floors of high school classrooms, labs., gymnasium, and cafeteria. The fifth floor was used as a convent with sleeping rooms, bathroom facilities, and a chapel. This unsprinklered building is constructed of non-combustible concrete and masonry construction and has an automatic fire signaling system. This study assesses the building's egress compliance for use as a school. It is not intended to be a comprehensive code review.

In 1965, when the building was constructed, the 1957 Everett City Building Code regulated construction in the city. To determine if the existing egress stairway configuration would be deemed a pre-existing, non-conforming condition that should be allowed to remain, I review a copy of the 1957 Everett Building Code, kindly provided by the Everett Building Department.

As a result of my review of the 1957 Everett Building Code, I made the following determinations:

the subject building was constructed during 1964 and 1965 pursuant to a building permit issued in 1964. the building was constructed under the city of Everett building code revised ordinance ordinances of 1957. Selected Sections From the revised ordinances of 1957 chapter 20 Everett building code.

Appendix B building laws, MGL 143, Section 3, every city and town for the prevention of fire and preservation life, and health... may regulate the inspection, materials, construction, alteration, repair, demolition, removal, height, area, location, and use, and may require permits or licenses therefor of places of Assembly.

Per section 3A, the building inspector is charged with the duty of inspecting or issuing permits for the construction, alteration, repair, height, area, location, or use of a building or other structures within the limits of such city shall be authorized to enforce such laws relating to places of assembly as he may under various sections of the by-law.

Per Section 3D, the building inspector may inspect at any time any theater, special hall, public hall, schoolhouse, church, or any building, portion of a building or room in which any place of assembly is located for the purpose of ascertaining whether or not there is or has been a violation of any law rule regulation ordinance or bylaw relative to places of assembly and shall report any such violation to the officer or board charged with the duty of enforcing thereof.

The officer or board charged with the duty of issuing permits for their construction alteration repair height area location or use of buildings or other structures within the city within the limits of a city town or district shall be responsible for approving building permits, inspection the progress of construction and issuing an occupancy permit a completion of the work.

Per Section 15: No new building which is designed to be used or in which alterations shall be made for the purpose of using it or continue its use and whole learn part as a public building or others as such as a factory workshop mercantile or other establishment and to have accommodations for 10 or more employees or as hospital sanatoriums convalescent home nursing homes, Infirmary no building more than two stories in height shall be designed above the second story or which alteration shall be made for the purpose of using it in whole or in part as an office building, dormitory, hotel, apartment house, boarding house, or tenement house, and no construction or alteration shall be made therein, until a copy of the plans and specifications thereof has been deposited with the supervisor of plans by the person causing the erection of alteration, or by the architect thereof.

Such plans and specifications shall include heating, ventilation, and sanitation, if a supervisor of plans so requires. Such building shall not be so erected or altered without sufficient egress, and other means of escape from fire, properly located and constructed. A supervisor of plans may require that stairways shall be enclosed, that they shall have suitable landings, that they shall be provided with hand rails, that egress doors and windows shall open outward and have approved hardware, that place is of egress shall be properly lighted and designated, and that proper firestops shall be provided in the floors, walls, partitions, and stairways of such building. If the proposed construction or alteration is found to be in compliance with the building code , a certificate of approval by the supervisor of plans of such plans and specifications , endorsed with the approval of the chief of inspections of the department, shall be issued. After a certificate of approval has been issued, no change shall be made in the plans or specifications or in the building without the written permission of a supervisor of plans.

Per Section 28: inspector shall from time to time examine all buildings or structures within their respective jurisdiction which are used as places of assembly or which are subject to section sections 15 to 66 of this building code, inclusive if in the judgment of any such inspectors such building or structure conforms to the requirements relative to places of assembly or to the requirements of said sections for buildings or structures of its class as the case may be he shall issue to the owner, lessee or occupant thereof a certificate to that effect specifying the number of persons for whom the egress and means of escape from a fire are sufficient. Such certificate shall continue in force for two years for the institution as defined in section one for the other and for the other buildings and structures for not more than five years after its date but while in force it shall be conclusive evidence of a compliance with said sections of the of the person to whom it is issued.

Per Section 52: no person shall occupy or use any building or part thereof as a theater, special hall, public hall, miscellaneous hall or schoolhouse until a license thereunder has been issued by the commissioner or a certificate therefore by an inspector, whichever is required under this chapter a certificate of the inspector, so long as it continues in force shall be conclusive evidence of a compliance with the section 15 to 66, inclusive for such use of a hall as he shall set forth in the certificate and shall be conspicuously posted near the main entrance of the hall. Should the City of Everett want to further explore the feasibility of converting this building into a Elementary, Middle or High School, the permit file for 888 Broadway should be reviewed to determine if these required periodic inspections were conducted during its use as a high school, and if Certificates of Inspection were issued on a periodic basis.

Per Miscellaneous, Section 20: Item 2013 provides that every room having an occupancy of more than 75 person shall have at least two doorways remote from each other leading to exits.

Item 2014 provides that hallways or corridors at the street or court level furnishing exit from stairways, shall not be less in width than the aggregate width of the required stairways which they serve. Every hallway or corridor which may serve as an exit for 50 or more persons shall have at least 44 inches of width for the first 50 persons and six inches for each additional 50 persons to be accommodated there by. Except for the 5th floor Convent, served by two 45" wide stairways and 6'-2" wide corridors, the subject building has minimum 7'-4" stairways and 8'-0" corridors.

Item 2021 provides that every building shall have, in reference to its height, condition, construction, surroundings, character of occupation and number of occupants, sufficient means of egress in the case of fire, and such means of egress shall be satisfactory to the inspector of buildings.

In summary, the subject building was designed in 1964 as a high school and constructed in 1965. It was continuously operated as a high school until 2019. Since that time, it has been periodically occupied as a recreation center, daycare center, and for after school programs. The building is well maintained, and appears to be structurally sound, with satisfactory egress for a school. In my opinion, this building could be renovated for reuse as a school, assuming the 5th floor convent sleeping rooms and chapel are reconstructed and repurposed for classrooms.

Please let me know if you have any questions about this assessment of the 888 Broadway for continued use as a school building.

Respectfully yours,
WBA Associates



Walter Blair Adams, AIA



**POPE JOHN XXIII HIGH SCHOOL
FEASIBILITY STUDY**

TAB 3 ARCHITECTURAL BUILDING ASSESSMENT



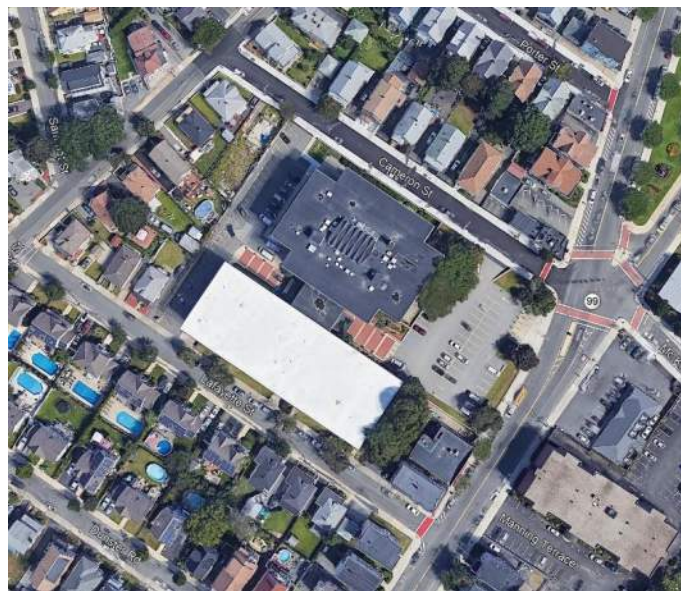
POPE JOHN XXIII HIGH SCHOOL BUILDING ASSESSMENT

I. BUILDING DESCRIPTION

A. GENERAL DESCRIPTION

The approximately 144,130 square foot Existing Pope John XXIII High School sits on a parcel bordered by Cameron Street to the North, Lafayette Street to the South, and Broadway to the East. The site consists of the school building, parking to the East on Broadway and to the West, along with plaza area in between the main classroom wing (Part B, approximately 101,000sf) and Auditorium and Gymnasium wing (Part A at approximately 43,000 sf). Plantings and grassed areas are throughout the site. Originally built in 1965, the building is constructed in two wings as a three & five-story structure, with an exterior brick wall system and concrete block backup at the 3-story gymnasium, and auditorium wing and vertical and horizontal concrete structure with curtainwall infill at the 5-story Cafeteria and Classroom wing. The main roof of the classroom wing facility has access per roof hatch, and the upper chapel roof is accessed by manual ladder. The mechanical equipment for the building is located on the main roof of the classroom wing.

The grade around the entire perimeter alternates with concrete stairs providing access as you walk the site. Cameron Street is at a higher grade than the school having a retaining wall along this roadway creating an areaway space. From Broadway there is a concrete stair to access the grade and parking area.



888 Broadway, Everett, MA

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888 BROADWAY
EVERETT, MA

II. EXISTING CONDITIONS

A. BUILDING ENVELOPE

1. Exterior Walls

Existing Conditions:

Exterior walls of the existing building at the 2-story gymnasium/auditorium wing are comprised of a standard 2 3/8 x 8 red colored brick masonry and vertical concrete columns, with block backup. At the 5-story classroom wing vertical & horizontal concrete headers, spandrels and metal curtainwall system at the classroom addition.



East elevation at main parking lot

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North elevation along Cameron Street



West elevation at rear of building/additional parking



West elevation of Auditorium and gymnasium



Concrete soffit spalling



Exterior stairs to stair well

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Exterior vertical concrete column cracked at base



Concrete site stair and rail

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Mechanical louver in brick masonry



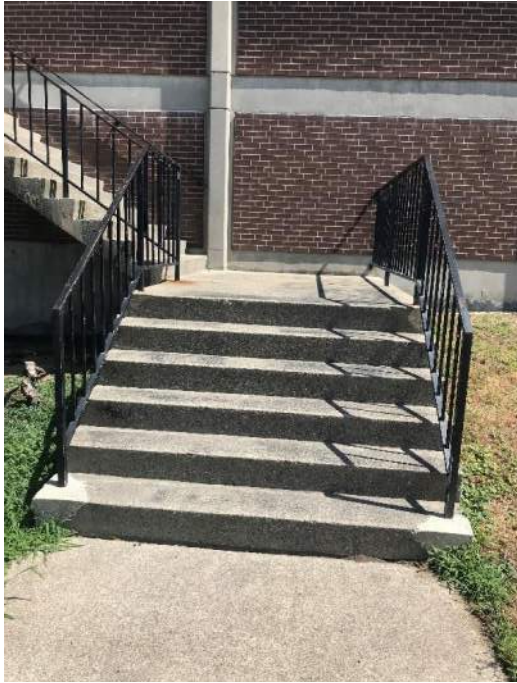
Exterior concrete stair & Railing Lafayette Street

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Exterior concrete egress/entry stair not accessible

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Exterior concrete egress/entry stair not accessible



Exterior site stair/wall needs repair

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Concrete site stair/Accessibility



Concrete site stair Broadway/ Accessibility

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Deficiencies:

The existing exterior masonry walls appear to be in overall fair condition, with some areas of broken or chipped masonry. There are some areas where concrete columns are cracked or spalling, some metal curtainwall porcelain panels deteriorating, mechanical louvers in poor shape on face of building, concrete site stairs and rails are in poor to fair condition with some masonry walls damaged and deteriorating.

Recommendations:

As part of an exterior renovation, it would be recommended to patch and repair all brick masonry currently chipped, broken, missing or with holes through it. All Vertical and Horizontal concrete structures cracking and or spalling concrete along the Classroom wing should be repaired. All brittle and cracked or missing sealants along the exterior walls at windows, doors, control joints and anywhere dissimilar materials meet should be replaced. All damaged or spalling soffits and overhangs should be repaired. All cracks in foundations should be repaired. Window system porcelain panels which are deteriorating should be replaced

2. Window and Exterior Door Systems

Existing Conditions:

The entry doors and frames all appear to be painted metal. Access/Egress doors are painted metal frame with painted metal doors. Window Systems throughout seem to be metal frame with single pane glazing and porcelain panel at base.

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EVERETT, MA**



Feathered concrete sills at entry doors



Door sill deteriorating at exterior covered walk

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Doors at base of exterior stair rusting and dented



Doors and frame in poor condition/no accessibility

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*Metal door and frame in poor condition, concrete pad exit
No accessibility.*



Metal door and frame and louver in poor condition, concrete pad exit

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Existing entry boarded



Metal egress door, windows and frames in poor condition

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Existing metal doors and frames in poor condition



*Existing windows original to building, sealants
To be replaced*

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*Typical single pane metal windows and panel base
At covered patio area*



*Original metal frame, porcelain panel and single
pane glazed curtainwall system*

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Metal frame and porcelain base panel with integral louver



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Deficiencies:

All exterior doors and frames in the existing building are in poor to fair condition, there is some weather-stripping inefficiencies along with metal frames and doors rusting and corroding at base, damaged sills and transom louvers. Many of the entry doors have built up feathered concrete sills, because of the finish floor to exterior slab drop. Accessibility is an issue at all entry and egress doors and at concrete pads. The full height metal frame window and porcelain base infill panel system has some deterioration. Window glazing is single pane. Window and door systems are original to the building constructed in 1965. There is no handicap accessible hardware at the doors.

Recommendations:

As part of a renovation project, it would be recommended to replace all exterior metal frames and metal doors which are original to the building. New metal insulated core doors could be installed along with new painted metal frames. All doors should have an aluminum or metal sill, weatherstripping, handicap hardware and sealants. There are doors that have a metal panel or louver transom above and all should be replaced.

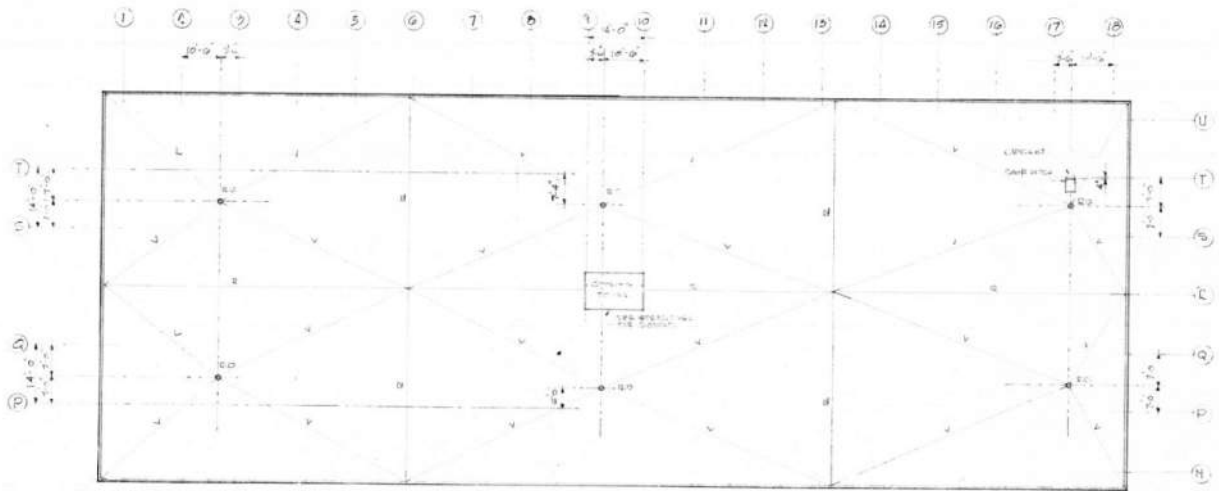
The metal window system is original to the building along with the single pane glazing and porcelain panel infill at the base. Though the system seems to be in fair to good condition, the energy efficiency of the system is poor. There are no thermal breaks in the frame and the glazing is single pane. The porcelain panels do not appear to be insulated. If the entire window system is not replaced, at a minimum, deteriorated porcelain panels and exterior sealants should be replaced.

3. Roof System

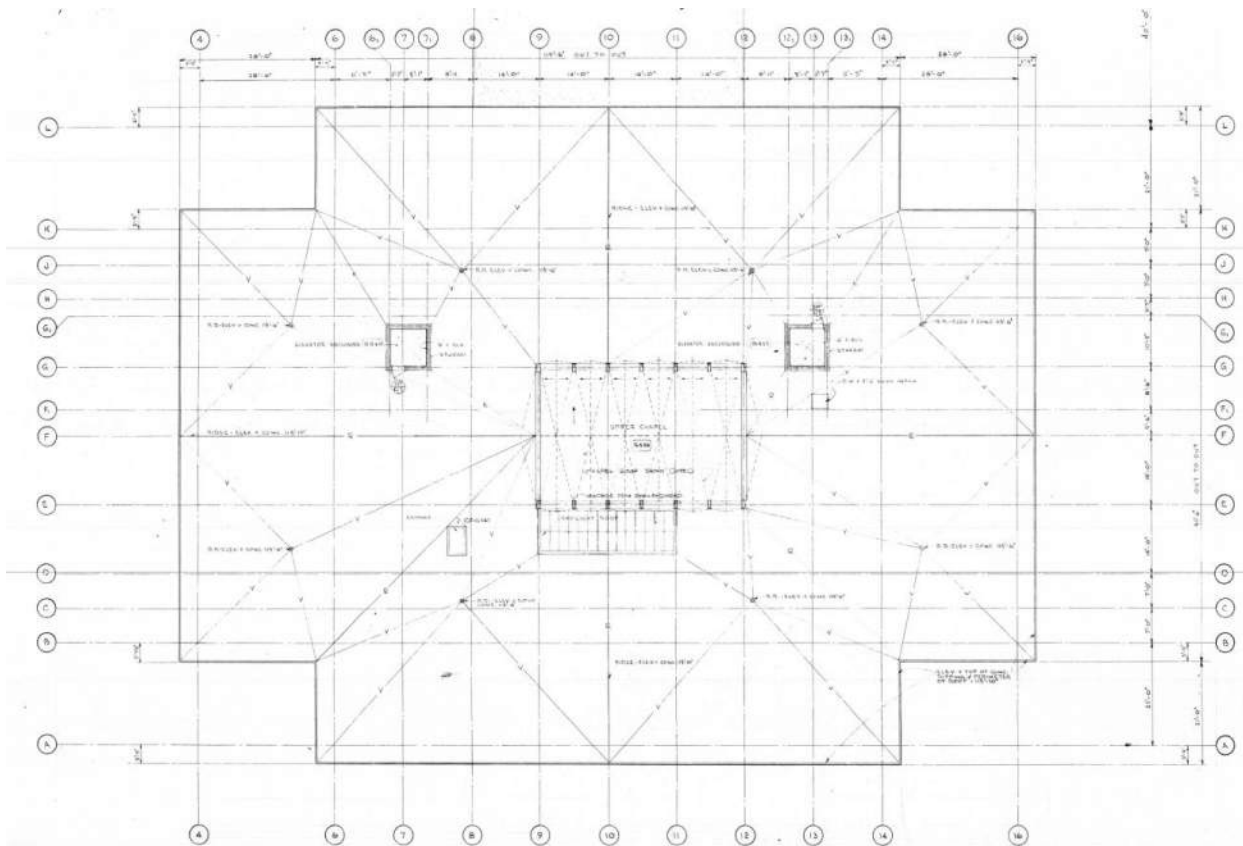
Existing Conditions:

On the day of our visit, we had access to the roof of the classroom wing. We were able to observe that there is a white EPDM or PVC roof that has been installed on the Auditorium/Gymnasium wing of the building. It was not known when this roof was replaced, but it is not original to the construction of the building. Access and further review of this roof will be required. The roof of the classroom wing is constructed with a black EPDM roof on insulation board. There were no records at the time of visit which would indicate when the roof was installed and if there is any remaining warranty.

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PART "A" ROOF PLAN



PART "B" ROOF PLAN



*EPDM membrane patch held down with
Concrete blocks*



Puddling and areas of ballooning



Roofing buckling at wall termination



*Roofing buckling at wall termination
and metal broken from wall*



EPDM temporary patch



Termination bar/membrane failing



Insulation and membrane ballooning



Puddling, insulation telegraphing thru



Downspout deteriorating, plaster spalling



Corner downspout between windows



Steps to penthouse



Boiler chimney, requires repointing and Structural repairs



Original skylight



Original skylight

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Deficiencies:

The roof above the auditorium and gymnasium would need further investigation and review as we did not get to walk the roof. The existing EPDM roof on the classroom wing has flashings that are failing, termination bars are coming loose, insulation boards are lifting, EPDM is not secure in some areas and moisture below could be a problem because these areas are ballooning. EPDM patch work is held down with concrete blocks in the field while the joints are adhered. Fascia's around the building would need further review. Repointing and structural repairs should be made to the chimney

Recommendations:

Paperwork for any standing roof warranty would be advantageous on some of the repairs to the EPDM roof. Otherwise, it would be the recommendation to replace the existing roof in its entirety, as indicated in the deficiencies paragraph above. This roof is in poor condition, from EPDM and insulation not adhered in places, flashings and terminations failing and possibility of trapped moisture. Again further investigation will be required at the auditorium/Gymnasium wing.

B. INTERIORS

1. Interior Walls

Existing Conditions:

The existing school was constructed in 1965. The interior painted block walls and structural glazed walls appear in good condition other than the few cases of cracks following the mortar joints. These areas can be repaired. The gymnasium walls are constructed of an acoustic type concrete stack bond block. There are areas of painted gypsum board, brick masonry in the Lobby, Wood wall panels in the Auditorium Lobby, and ceramic tile in some of the toilet facilities. All areas need some minor repairs.



Stack bond structural glazed block



*Stack bond structural glazed block
Entrance to toilets not handicap accessible*



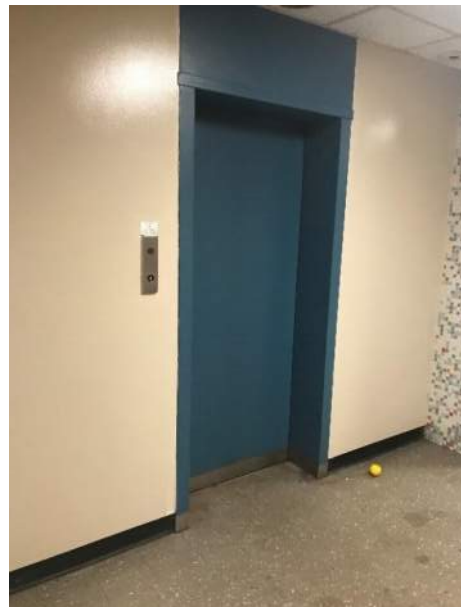
*Stack bond block and acoustical treatment
Meeting room*



Stack bond glazed block @ toilet



Stack bond in Classroom



Painted plaster or gypsum finish at elevator



Stack bond glazed block in stairwell



Painted stack bond concrete block in gymnasium



1 x 1 ceramic tile at main stairwells in the center of the classroom wing



Painted stack bond in classroom

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Deficiencies:

Interior walls throughout the existing building are in good condition. Minimal cracking was observed at concrete block walls and structural glazed block walls. Gypsum board/Plaster walls are in good condition. Ceramic tile where installed appeared to be in good condition. Wood paneling and acoustical treatments located in the Theatre Arts area of the building appeared to be in good condition.

Recommendations:

Repair of any masonry cracks and patching of any gypsum board/plaster walls are recommended. Painting of all walls could be a phased project. It would be recommended to use epoxy paint in areas of moisture and high use (including toilet rooms, locker rooms, Kitchen and cafeteria areas).

2. Ceilings

Existing Conditions:

Ceilings throughout the building appear in poor condition with most of the tiles and ceiling grid being original to the building.



2 x 4 ceiling tile in corridor area



2 x 4 tile appears to have been painted



2 x4 tile with 1 x 4 surface mounted lights



*2x2 Acoustic tile and metal grid
1 X 4 Surface mounted lights*



*1 x 1 glue on tile and gypsum board ceiling
1 x 4 surface mounted lights*



Plaster ceiling w/ 1x surface mount lights



*Exposed concrete beam and panel
Ceiling between*



Typical ceiling tiles



Water damaged tiles



*Typical classroom tiles with surface
mounted fixtures. Water damage*

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2 x 4 tiles and grid in toilets. Tiles missing



Exposed structure at covered area

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Deficiencies:

All ceilings and grid appear to be original and in very poor shape

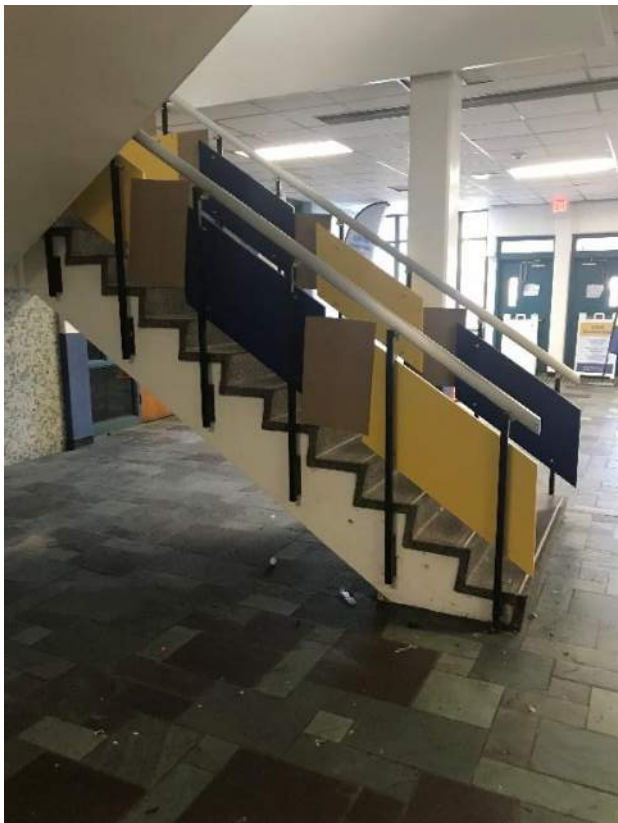
Recommendations:

It would be a recommendation to replace all existing 2 x 4 and 2 x 2 acoustical tile ceilings and grid with new acoustical NRC rated tiles and grid. New tiles provide more sound absorption properties to help with acoustics within the classrooms and corridors. Exposed structure and deck could be painted.

3. Floors

Existing Conditions:

Existing floor finishes consist of a variety of materials, including wood flooring in the gymnasium, random stone pavers in Lobbies/Entry areas, Cafeteria, corridors and classrooms have VCT/VAT and some areas have carpeting. Typically, but not in all cases, the floor finishes abut each other with sills or transition strips at doors and at corridor material transitions. The kitchen has a quarry tile floor and there is carpet in the auditorium, with wood at the front of the stage and Masonite floor at the main stage area.



Random pattern bluestone pavers in Lobby



Ceramic tile pattern in toilet rooms



VCT in meeting room

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Concrete floors in Mechanical spaces



VCT flooring

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VAT flooring



VAT flooring abutting newer composite wood floor system

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Composite flooring, aluminum sill & ceramic tile toilet floor



Random pattern bluestone

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Random bluestone pavers and VAT abut, no transition strip



VAT tiles abut

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VAT at stair landings and stair treads, treads with nosing



1 x 2 ceramic floor tile pattern

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Shower stall curb/ not handicap accessible



1 x 1 ceramic tile pattern

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Original Wood Gym floor and aluminum sill

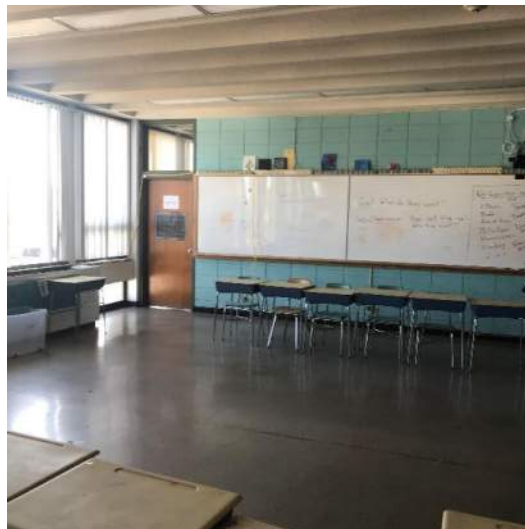


VAT at stair w/ nosing

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Wood gym floor, and original bleachers





VAT flooring typical



Water damaged VAT flooring



Stone pavers at exterior covered area



Composite flooring



Carpeting in convent areas

Deficiencies:

Existing floor finishes throughout the existing building are in fair to poor condition. Gymnasium wood floor appears to be original and in fair condition. Random pattern bluestone paver areas are in fair to good condition. Some joints to be repaired. Classrooms and corridors vary with newer VCT tiles in areas, but the majority being VAT tiles. Many water damaged VAT floors on the fourth floor from roof leaks should be replaced. Carpeting is minimal in areas but should be removed and replaced with carpet tile or new VCT flooring. Ceramic tile toilet room and shower floors appear in good condition. Stone pavers at the exterior covered walkway areas on the fifth floor have many stones that are loose or popping.

Recommendations:

All VAT floors should be removed in their entirety and replaced with new VCT flooring and base. All toilet room areas should have marble thresholds installed at each entry. All dissimilar materials that abut each other should have transition strips or aluminum sills installed. All existing carpeting should be replaced with carpet tile. A new gymnasium floor should be installed with all door sills being replaced. All stone pavers at covered walkways on the fifth floor should have loose pavers rest and joints repointed. All stairwells should be replaced with rubber stair treads and risers.

4. Interior Doors

Existing Conditions:

All the doors in the school interior are wood and appear to be in working condition. All doors, frames and hardware are original to the construction. None of the Door hardware is handicap accessible



Typical glazed light corridor door



Glazed and louvered door



*Typical classroom and storage door
No handicap hardware*



Typical knob type hardware



Typical knob type hardware, wire glazed



Pocketed door classroom entry, not handicap accessible



*Door to convent room, no handicap hardware,
not accessible on pull side*



Corridor doors



Door swing and egress not acceptable

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Deficiencies:

The interior doors and hardware throughout the building are original and in fair to poor condition. Hardware throughout is not the lever type so is not handicap accessible. The current door hardware is of the knob type. All closers, hinges and accessory kick plate and push plate should be reviewed in more detail as well. Typical classroom doors are wood with a tall wire glass vision light, Corridor doors are wood with wire glass lights. Classroom doors that are pocketed are not handicap accessible. Other doors in small vestibule type entries to toilet rooms and exits from stage are cramped at stair exits.

Recommendations:

It would be our recommendation that all doors, frames and hardware be replaced. All classroom door pockets would also need to be reconstructed to provide handicap accessibility to the room itself and the required push/pull clearances per code.

5. Toilet Facilities

Existing Conditions:

Typically, all toilet room fixtures appear in working condition within single user toilet rooms as well as multiple user toilet rooms and stalls. The walls are typically a glazed block or painted concrete block. Floors in all toilet rooms are ceramic tile with structural glazed block base. Ceilings are 2 x 4 acoustic tile type.



Entry to toilet rooms / Not a handicap accessible entry



*Sinks, no mirrors, and soap dispenser
Drain pipes below handicap sink should have
protective coverings*



*Toilet stall, typical not handicap accessible
No grab bars, accessory heights not accessible*



Typical urinal stall, one should be set at handicap height



Single user stall not handicap accessible



Sink faucets, height, height of mirror and accessories not Handicap accessible



*Sinks, mirrors, and soap dispenser
Drain pipes below handicap sink should have protective coverings. No handicap accessibility*



Not handicap accessible



Not handicap accessible



Not handicap accessible



*Existing boys gang showers. No longer used
Not handicap accessible*



Existing girls dressing/shower areas. Not handicap accessible



Stall Not handicap accessible



Single user toilet not handicap accessible

Deficiencies:

All of the toilet facilities do not meet handicap requirements for toilets, urinals, grab bars, accessories and space requirements. All HCAP sinks should have drainpipes covered per HCAP requirements. All gang toilets with more than one urinal, should have one at HCAP height. If there is only one urinal in a stall it should be HCAP accessible. At least one water closet in every gang toilet room should be handicap accessible. All single user toilet facilities should be handicap accessible. Accessories in toilet rooms need to be installed at handicap reach heights.

Recommendations:

As indicated above the toilet facilities must be handicap accessible and meet requirements for HCAP codes. All toilet rooms will require reconstruction to provide handicap accessible facilities. Both locker rooms will require reconstruction to provide a handicap accessible facility.

6. Stairs, Lockers, Sink/casework, Drinking Fountains

Existing Conditions:

The existing monumental stair has metal risers with concrete and rubber treads, risers and landings. Steel guardrails are secured to concrete curb at the landings. Steel handrail supports are secured to main posts and a wood cap handrail secured to structure.

The existing Stairs in the 1967 original building are terrazzo tread, risers and landing w/ steel guardrails, handrails and ballasts.

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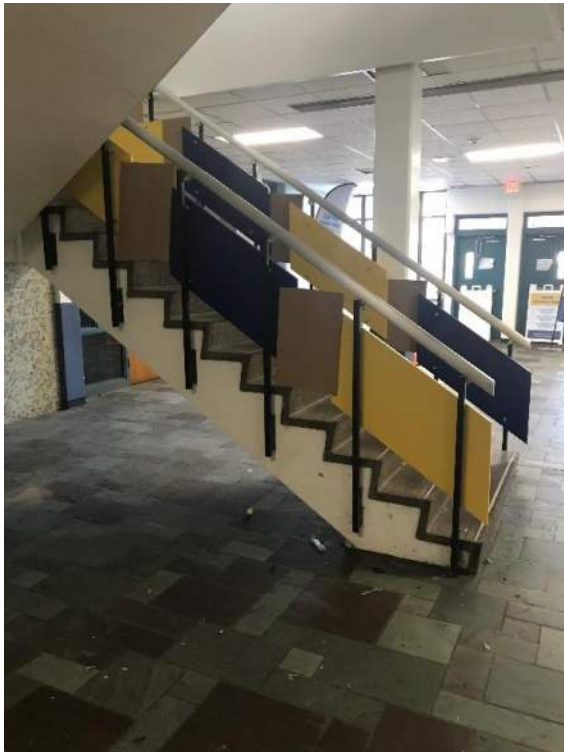
Stairs in the 2002 addition are concrete on metal pan with rubber treads, risers and landings. Steel guardrails, handrails and ballasts make up the remainder of the stair.

Lockers throughout the building appear in good condition but did not notice areas for handicap access to any of the lockers

All replacement fountains and bottle fills appear to meet handicap requirements

Ramps have handrails and non-slip surfaces and slope appears to meet handicap requirements

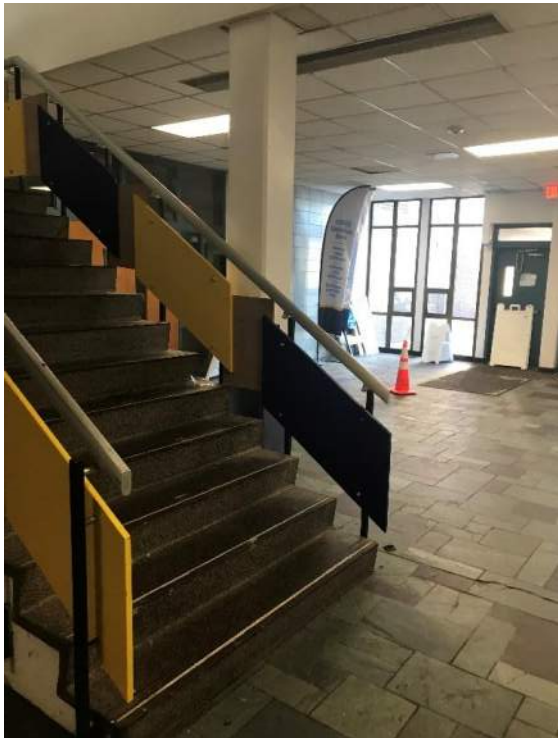
Many of the wood window sills are water stained and damaged



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treads and risers, non slip nosing



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VAT treads, non slip nosing



VAT treads nonslip nosing



Aluminum handrails and ballasts



VAT treads non slip nosing



Wood stairs and risers at stage



Existing drinking fountains throughout should be replaced with new and handicap accessible units



Existing drinking fountains to be replaced

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*Dressing unit and sink in the convent area
Sink should comply w/ ADA if it is to remain*



Sink to be ADA if it is to remain

Deficiencies:

There appears to be proper egress capacity provided with the stairwells and exterior egress doors as currently located for the occupant load of the existing school.

Recommendations:

During any renovation project, items which are required to be addressed for handicap accessibility and code compliance **will include A new or renovated elevator complying with standards of new elevator codes.** If not installed, provide handicap lockers in any new renovation. All new drinking fountains and bottle fill stations should comply with handicap height standards. Stair rails to comply with current codes for rails and ballasts

TAB 4 STRUCTURAL BUILDING ASSESSMENT





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POPE JOHN XXIII HIGH SCHOOL BUILDING ASSESSMENT

I. BUILDING DESCRIPTION

A. GENERAL DESCRIPTION

The former Pope John XXIII High School, which was originally constructed as the Regional Catholic High School in Everett, consists of two wings (Part A and B). Part A essentially consists of two stories, while Part B consists of five stories, with a total of approximately 110,000 square feet. According to the existing original structural drawings, the school building was constructed circa 1964 and was designed by Edward J. Tedesco Associates (architect) and Souza True (structural engineers).

Part A of the building, which is occupied by the gymnasium and auditorium, is as much as 240' long in the east-west direction and approximately 86' wide in the north-south direction. Based on our structural walk-through of the existing building and our review of the existing original documents, it appears that this section of the building (Part A), in general, consists of one-way reinforced concrete rib slab construction supported by reinforced concrete girders and concrete columns (at the second floor level). The roof framing of Part A consists of precast concrete single-tees that span approximately 84' (over the gymnasium and auditorium) to exterior reinforced concrete columns. Per the existing structural drawings, the first floor level of Part A is a soil-supported 4" deep concrete slab-on-grade reinforced with welded wire fabric.



Part B of the building, which is occupied by classrooms, is as much as 170' long in the east-west direction and approximately 170' wide in the north-south direction with a cruciform-shaped footprint. Based on our structural walk-through of the existing building and our review of the existing original documents, it appears that this section of the building (Part B), in general, consists of one-way reinforced concrete rib slab construction supported by reinforced concrete girders and concrete columns (at the typical floor levels 2 through 5, and the roof level). A higher saw-toothed roof area over the chapel of Part B consists of poured in place gypsum concrete supported by structural steel beams and girders that span to hollow structural shape steel columns. Similar to Part A, the first floor level of Part B is a soil-supported 4" deep concrete slab-on-grade reinforced with welded

wire fabric.

Per the existing documents, each part of the building is founded on conventional spread and strip footings bearing on undisturbed soil with an allowable soil bearing pressure of 5 tons per square foot, unless otherwise noted to bear on 3 TSF.

The exterior of the building consists of a combination of non-bearing brick veneer, precast elements, and a curtain wall system.

There is a two-story link that connects Part A to Part B, which also has exterior canopies at the east and west sides of the link. This portion of the building is constructed with reinforced concrete elements, similar to the other parts of the building.

In general, the existing building is in relatively decent structural condition. Structural deterioration was observed at the exterior concrete canopies, at the underside of concrete elements at the exterior “porch” areas of Part B, at exposed vertical and horizontal concrete elements at the exterior of the building, and at the exterior site retaining walls. Substantial deterioration of existing exterior concrete members was observed. Please refer to the photos taken during our site walk-through for observed structural deficiencies.

II. EXISTING CONDITIONS

A. STRUCTURAL SYSTEMS

Existing Conditions:

Based on existing documentation, Part A of the existing building is constructed with reinforced concrete elements. The first floor level consists of a 4” deep soil-supported concrete slab-on-grade. Portions of level 1 slope downward at the large auditorium and at a previous small tiered lecture room. However, the small tiered lecture room appears to have been infilled with some form of framing (but not with a concrete infill) to achieve a flat / level floor.

Reinforced concrete columns uphold the structure at levels 2, 3, and the roof. Spacing of the columns range from 14’ OC to 28’ OC up to level 2. Floor to floor heights



are 14', 16'-8", and 13' at the first, second and third floor respectively.

At level 2, the structure of Part A typically consists of 8" wide by 12" deep one-way reinforced concrete joists (ribs) spaced at 2'-4" OC with a 4" deep concrete topping slab reinforced with welded wire fabric.



Per the existing drawings, the roof level of Part A consists of 36" deep precast prestressed concrete single tee beams that span 84' to reinforced concrete columns at the exterior. A cast-in-place reinforced concrete varying thickness topping slab (sloped) is placed over the single tees that interlocks the precast tees.

At the main roof level of Part A, there are remnants of previous steel pipe columns that had supported a structural steel dunnage platform for a previous cooling tower. The dunnage and cooling tower no longer exist.

Based on existing documentation, Part B of the existing building is constructed similarly to Part A with reinforced concrete elements. The first floor

level consists of a 4" deep soil-supported concrete slab-on-grade. The east portion of level 1 consists of a large mechanical room with several concrete housekeeping pads to support mechanical equipment (see photo at lower right).

Reinforced concrete columns, some as large as 16" by 32", uphold the structure at levels 2, 3, 4, 5 and the roof. Similar to Part A, the spacing of the concrete columns ranges from 14' OC to 28' OC. Floor to floor heights are 14' (at level 1), while floors 2 through 5 have floor heights of 11'-4", as indicated on the existing structural drawings.



The floor construction at levels 2 through 5 of Part B typically consists of 6" wide by 12" deep one-way reinforced concrete joists (ribs) spaced at 2'-0" OC with a 4" deep concrete topping slab reinforced with welded wire fabric.



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Per the existing drawings, the roof level of Part B consists of 6" wide by 12" deep one-way reinforced concrete joists (ribs) spaced at 2'-0" OC with a 4" deep concrete topping slab reinforced with welded wire fabric. A lightweight concrete non-structural fill slab (with a varying thickness) is placed over the concrete roof slab to create a slope / pitch to the roof drains.

A saw-toothed profile higher roof area above the chapel appears to be constructed with poured in place gypsum concrete supported by bulb tees and W8 structural steel beams spaced about 4'-8" OC that in turn are upheld by W12 girders that clear-span approximately 28' to HSS columns.

Based on existing documentation, both parts of the building are supported on conventional spread and strip footings on undisturbed soil with an allowable soil bearing pressure of 3 or 5 TSF. Some of the footing sizes are as much as 6'-6" by 8'-0" under Part B of the existing building.

Exterior canopies constructed of 6" deep two-way concrete slabs spanning to reinforced concrete beams supported by concrete columns are present along the east and west sides of the building.



The exterior of the building consists of curtain wall glazing system (see photo at left).

All of the interior and exterior stairs appear to be reinforced concrete stair slabs supported by reinforced concrete walls, beams, and columns.

Loose steel lintels are used to frame over wall openings thru non-bearing masonry walls.

Per Code requirements, the roof framing must be designed and constructed to sustain a design snow load of 30 psf (minimum), while the typical floor levels must be designed and constructed to withstand a design live load of at least 40 psf (at classrooms), 60 psf (at auditorium), 100 psf (at first floor corridors, and gymnasium), 150 psf (at mechanical equipment rooms), and 80 psf at corridors above the first floor.

Per our site observations, the existing roofing system above the roof slab system consists of a



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rubber membrane roof (no stone ballast).

Lateral resistance to wind loads appears to consist of reinforced concrete moment frames (concrete beams and columns) within the building that provide lateral stiffness in both directions of each part of the building. Seismic loads were not invoked at the time the building was designed / constructed in 1964.

According to the existing structural drawings, the auditorium and stage area is designed to support a design live load of 90 psf and 150 psf respectively, while the gymnasium floor is designed to withstand a design live load of 120 psf. Typical classroom floors are designed to support a design live load of 80 psf. Roofs are designed to sustain a snow load of 30 psf. Therefore, the existing structural design meets all minimum design floor and roof loads per code.

Deficiencies:

At several locations around the perimeter of the building, the exterior steel lintels (over window and door openings) were observed to be moderately to severely rusted with a noticeable downward deflection. In some locations at the bearing ends of the loose steel lintels, the mortar is dislodged and loose as a result of jacking forces from the rusted steel lintels.

Moderate sized cracks and concrete spalls in the exterior foundation walls (slightly above the exterior grade level) were observed at a few locations at the perimeter of the building. The base of some exterior cast-in-place concrete columns were deteriorated and spalled.

Delaminated and deteriorated reinforced concrete retaining wall conditions were observed at several locations and will require structural repair or removal and replacement.

Spalled precast concrete elements along exterior of building will require structural repairs / replacement.

All of the above-mentioned structural deficiencies and the items depicted in the photos below should be addressed with either completing the required structural repairs or replacement.



View of previous roof repairs and loose flashing adjacent to base of Chapel wall, skylights, elevator over-run, and at other areas of main roof level.



View of significant cracks, spalls, and delaminating sections of concrete elements and exposed rebar at entrance canopies, which will require structural repairs.



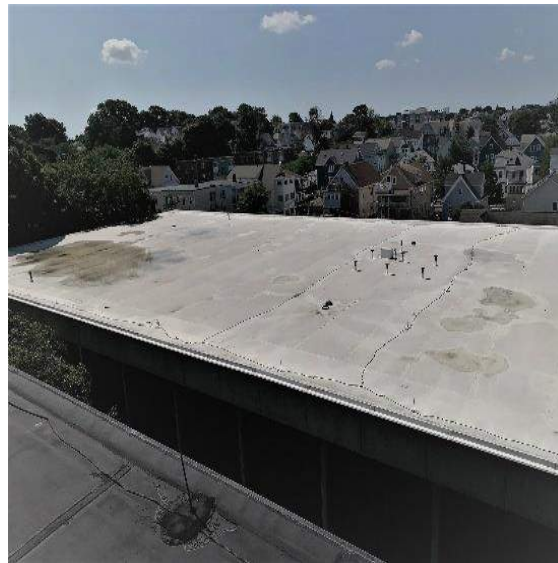
View of area of slab in Part B of building, adjacent to skylight area, where it appeared that floor slab Delaminated concrete and exposed rebar at underside of concrete beam at canopy.



Water damage / mold along interior stair wall.



Signs of water staining on first floor slab-on-grade, which is evident of a previous leak.



View of roof of Part A where previous steel dunnage platform for cooling towers was removed, but remnants of steel pipe columns remain in place. Roof should be checked for leaks and existing stub columns should be addressed to ensure they are capped at top to prevent water infiltration.



View of brick chimney that will require structural repairs / repointing.



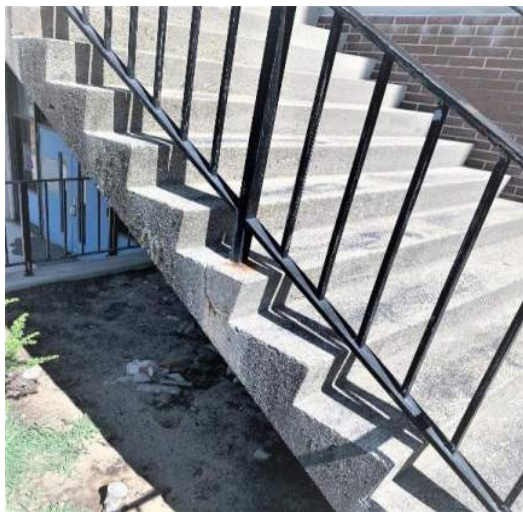
View of precast prestressed single-tees at roof over gymnasium that will require structural repairs at localized areas where spalls / exposed rebar are present.



Spalled concrete at base of concrete column and at exposed concrete canopy.



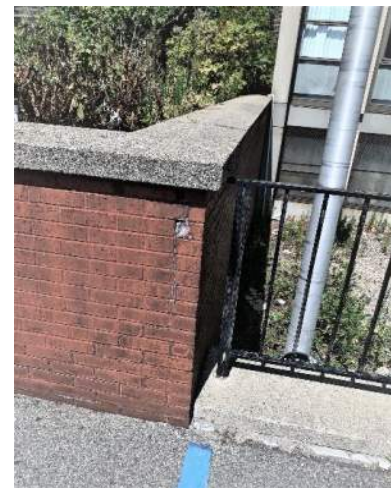
View of exposed concrete elements at underside of outside porch areas. Exposed rebar and spalled concrete were observed in a few areas, which will require structural repairs.



Spalled concrete at exterior concrete stair along south side of Part A. Structural concrete repairs will be required at these deteriorated locations.



View of exposed rebar and delaminated concrete elements that will require concrete repairs.



Clockwise from upper left: View of connector between Part A and B, elevator over-run, chapel wall and saw-tooth roof, exterior masonry site retaining wall, and front elevation of school building (with school name) showing brick veneer system.



View of exterior masonry site retaining wall at north side of site that shows deteriorated / spalled brick.



View of site retaining wall that has deteriorated and appears bowed, which will require structural repairs.



View of exterior masonry wall adjacent to gymnasium in Part A that shows cantilevered precast prestressed concrete single-tees at the roof level.

Recommendations:

All deteriorated structural elements will require structural repairs. Additionally, all structural deficiencies will require structural strengthening in order to comply with the MSBC.

With respect to building alterations / renovations, we understand that the existing building is being considered to be converted to a K through 8 school. If alterations are executed 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 IEBC and the MSBC. **If modifications or removal of any existing lateral resisting system (such as moment frame concrete columns) are proposed, and the 10% threshold is exceeded, a lateral analysis of the existing building will be required and may result in the need for additional X-bracing elements (or new shear walls) 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). Alterations with less than 50% of the floor area of the existing building planned to be



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reconfigured would need to conform to Level 2 Work only (which is not as stringent as Level 3 Work). If the building alterations are considered Level 3 Work, specific seismic hazards would need to be addressed / improved, such as roof / floor diaphragm and wall connections in order to brace any existing unreinforced and unbraced masonry walls and unreinforced masonry chimneys / masonry projections above the roof level. The existing building may also need to be investigated for wind uplift forces with respect to IBC level wind forces, which may require structural strengthening (although this would seem unlikely for a concrete roof slab 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 to the IEBC and MSBC will be required, including any snow drift loads. Structural reinforcement to the existing roof framing system may also be required to accommodate any additional loads from new mechanical rooftop equipment. Where new mechanical rooftop equipment is proposed to bear on the existing roof slab and where the new equipment is longer than 15' in length, additional snow drift loads will be imposed on the existing roof slab and must be taken into consideration. At these specific locations of the roof, structural strengthening may be required.

For any proposed horizontal additions to the existing building (if planned), we recommend that all new additions be structurally-detached, but contiguous, from the existing building with an approximate 2" +/- wide expansion joint. If the new addition is detached from the existing building, fewer structural upgrades to the existing building would be necessary. If the new addition is structurally-attached to the existing building, all existing lateral force resisting elements within the existing building affected by the new addition would need to comply with full IBC wind forces and full IBC seismic forces, unless the story shear force is not increased by more than 10% as a result of the new horizontally-attached addition.

If a relatively new small horizontal addition is proposed, it could be structurally-attached since the imposed lateral loads to the existing building would most likely be minimal and not require structural strengthening for increased seismic loads.

A vertical addition to the existing building (if proposed) would require the existing building to conform to full IBC wind and seismic forces, which would most likely consist of major structural reinforcement / strengthening to the existing lateral resisting system of the building to negate increased lateral loads.

However, at this time, no vertical or horizontal additions are being proposed. Furthermore, at this time, we understand that alterations to the existing building will involve less than 50% reconfiguration of space. Therefore, if this turns out to be the case, the proposed building alterations will be considered Level 2 Work (not Level 3).



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FEASIBILITY STUDY

TAB 5 MECHANICAL/PLUMBING/FIRE PROTECTION ASSESSMENT





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EXISTING MECHANICAL CONDITIONS INSPECTION & RECOMMENDATIONS

Several weeks ago we performed a site inspection of the existing building. Our visual observations along with information provided by facility personnel, when applicable, regarding the current building systems operating status were used extensively in assembling this report. As such, most systems are in fair to good condition being approximately 16 years old.

Condition of existing system segments has been classified in three (3) ways as follows:

Rating - Good: System segment appears to be in good operational condition and complies with most current codes and standards and is well suited for present and future use.

Rating - Fair: System segment appears to be in fair operational condition with some aspects which may not comply with current codes and/or standards and may not be well suited for present and future use.

Rating - Poor: System segment appears to be in poor operational condition, may not comply with many current codes and standards and is not suited for present and future use. In general, these systems have exceeded their useful expected service life.

FIRE PROTECTION Rating = Poor

Existing Conditions and Deficiencies:

There is no fire suppression system within the building with the exception of a 1.5" fire hose station in the stage area and a partial chemical-based suppression system within the kitchen hood. The fire hose appears to be connected to the potable water supply with no backflow prevention.

Recommendations:

Any addition would mandate a **complete building wide fire suppression system**. In addition, depending on the level of renovation a partial or full fire suppression system may be required. Regardless of planned renovations or addition, we highly recommend a fire suppression system be installed throughout the structure.

If the stage area is greater than 1,000 SF in size than fire hose are required on either side of the stage. These fire hoses must be connected to a fire service once one is brought into the building.

PLUMBING

Existing Conditions and Deficiencies:

Fixtures: Rating = Fair to Poor

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The existing buildings plumbing systems appear to be adequate in quantity for continued use as a school with the allowance of some grandfathering of codes. However, if the school is to be used for children under high school age some fixture height adjustments may be required. This would be especially true if kindergarten or pre-school age children were introduced to the schools program. Review of intended future use and occupant age moving forward would be required to comment on proper fixture density and type.

None of the restrooms surveyed complied with ADA/MAAB guidelines for accessible fixtures. Depending on overall cost of proposed renovations, a minimum number of accessible fixtures may need to be added to the school to achieve code compliance.

Existing water closets and urinals are primarily of the wall hung flush valve type. Student restroom lavatories are primarily of the wall hung style. Lavatory fixtures however most are of the two handle non-metered (non-self-closing) type. Most fixtures appear to be a mixed vintage with more modern flush valves and faucets however, most appear to be non-water conserving type typical of fixture types of the circa 1965 and pre-1995 vintage.



Typical 2-handle Lav. & Urinals



Dinking Fountains

There are several other sinks in classrooms. The science room also had fixtures however it appears from



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review of the existing drawings the waste does not tie to the acid waste system nor to a central acid neutralizing tank. The chemistry rooms tie to an existing pipe system labeled on the existing drawings as acid waste however, it simply ties into the main sewer line outside the building. If these science and chemistry rooms are going to be used for chemicals proper acid neutralizing waste system must be provided. In addition, emergency eye wash and/or showers may also be required.

There are several water drinking fountains located throughout the school. These are all built-in vitreous china types with manual drinking spigot control. None of the fixtures comply with current accessibility regulations.

There are floor drains located in the gang restrooms. Floor drains are required by code in all restrooms containing more than one water closet. It is unclear if the floor drains are primed as required by current code however, based on the vintage they presumably are not. Priming the drains prevents traps from drying out and discharging sewer gas odors. Any substantial bathroom renovation may need to address this.

The main kitchen appears to have the minimum configuration and number of fixtures to satisfy current code and Board of Health requirements for a commercial kitchen with the exception of the absence of a hand sink. The fixtures consist of a 3-bay pot sink with grease trap and a 2-bay sink which may have been used as a food preparation sink.

The 2-bay prep. sink also has an adjacent garbage disposer. Both the sink and disposer waste through a grease trap. The garbage disposer must not discharge through a grease trap and the prep. sink is directly connected to the sanitary waste system which is should not be as current code requires an indirect connection.

There is also a second kitchen area which has a 3-bay pot sink and what appears to be a 2-bay prep. sink. This prep. sink is also not indirectly wasted as required by code.



Prep. Sink with PVC repair (not indirectly wasted)

Showers in the boys locker rooms were gang style however the fixtures, although old were of decent quality being stainless steel with individual handle control. The control type would need to be checked but if pressure balanced they offer some scald preventing tempering qualities. Showers in the girls locker room were of the individual stall type with the shower control fixture similar in quality and configuration to the boys locker room shower fixture.

Not all janitors sinks were inspected during our walk-thru however, the few that were appeared to comply with current code having a faucet with backflow preventing vacuum breaker.

Most of the fixtures are original vintage circa 1965 or at a minimum pre-1995 and as such not of the water saving type. Apparently maintenance is routinely performed on faucets, flush valves, etc.. as needed. If a renovation requires removal of the fixtures, upgrade of these fixtures to water conserving type shall be required.

Cold Water Service: Rating = Fair to Poor

A 6" water main enters the building in a lower-level boiler room, reduces to a 4" prior to running through what appears to be a check valve or strainer assembly, water meter and gate valves prior to serving the



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buildings domestic water loads. There is no pressure reducer which would only be required if the incoming water supply pressure exceeded 80 psi.

Besides what appears to be simple check valve, there is no backflow preventer installed on the incoming water service. In facilities such as this where there could be numerous potential sources of cross contamination, a backflow preventer may be required to protect the municipal water supply. Local requirements should be confirmed with the water department and plumbing inspector. In addition, water supply to science and/or chemistry room sinks should also be separated from the potable water supply with reduced pressure zone (RPZ) backflow preventers. We were not able to verify if this type of isolation exists.

We noted most of the piping in the building appears to be copper. However, due to the age of the building there is a high probability that the water service could have lead containing brass pipe or solder in the fittings. Although not a large source of lead contamination it should be tested and monitored and if found to be a problem, components should be replaced. In general, there were no outward signs of failure during the day of our site inspection however, it appears much of the system may be isolated as the school is not in current use.

As much of the cold-water piping system is suspected to be original vintage at near 57 years old we highly recommend a pipe sample be taken and tested for wall thickness and integrity. A phased replacement of the piping should commence if found to be in poor condition.

Domestic Hot Water Service: Rating = Fair to Poor

The domestic hot water needs of most of the building are supported by one (1) Raypak copper tube gas-fired boiler. The boiler is connected to four (4) hot water storage tanks, two (2) manufactured by Wessels and two (2) manufactured by Lochinvar. All tanks appear to be close to 200-gallon capacity making the combined hot water storage volume near 800-gallons. There also appears to be a heat exchanger for heating domestic hot water from the main boiler plant however it does not appear to be active.

The Lochinvar tanks appear to be of slightly newer vintage than the Wessels tanks. The condition of the system is unknown however we did notice that one of the Wessel tanks isolation valves were closed.



Domestic Hot Water Tanks

Signs of an old central mixing valve were present however its functionality was questionable. Current code would require differing water temperatures at different types of fixtures. Lavatory sinks and sinks for student use must not discharge hot water at a temperature exceeding 110-112°F for safety reasons, whereas service fixtures (janitor's sinks) are required to have hot water temperatures in excess of 120°F for sanitation reasons. We did detect a mixing valve under one set of lavatory sinks however most did not have such a valve which, with the current 2-handle control faucets could lead to scalding of users. A proper operating central mixing valve is required at the tanks to provide a steady 125°F +/- temperature water to the main building to support general sanitation needs, but also to address the preferred higher temperature water needed to maintain sanitation in the domestic hot water tanks. Water heaters should be kept at temperatures of approximately 140°F so as to prevent the possibility of bacteria growth within the tanks.

There is a recirculation pumps on the existing system as one would be required due to the distance of fixtures from the hot water source.



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A water-to-water heat exchanger with pump (motor removed) was located in the boiler room and may have supported the domestic hot water system at one time. The device appears to be abandoned in place and no longer active.

Typical life expectancy of hot water storage tanks and heaters of this type and configuration varies greatly based on water quality however, 10 to 15 years is a reasonable expectation. As such, we would highly recommend the water heater plant would be a good candidate for replacement during a renovation with high efficiency condensing gas equipment.

As much of the hot water piping system is suspected to be original vintage at near 57 years old we highly recommend a pipe sample be taken and tested for wall thickness and integrity. A phased replacement of the piping should commence if found to be in poor condition.

Drainage Systems: Rating = Fair

Most of the sanitary drainage piping is concealed from view, however what we were able to see was primarily of the hub and spigot or no-hub cast iron type. We did notice some PVC used in a repair under one of the kitchen prep. sinks. PVC waste piping is not allowed per the plumbing code in commercial buildings such as this. The sanitary sewer lines run below the slab and exit the building to a municipal sewer system.

Much of the roof storm water is drained via perimeter gutters running either to grade or to an underground storm system. The storm drainage lines presumably exit the building and connect to a municipal storm water system. We noted several wet ceiling tiles in the building. These leaks should be investigated, and repairs made.

The boys shower area drain configuration would not meet current code as waste shower water from one person can travel to another person or through the walk path of another person. A renovation of this area should address this drainage issue.



Boys Shower with central drains

The science room fixtures appear, to not tie into the acid waste system per the existing drawings nor to a central acid neutralizing tank. The chemistry rooms tie to an existing pipe system labeled on the existing drawings as acid waste however, that system simply ties into the main sewer line outside the building according to the original drawings. If these science and chemistry rooms are going to be used for chemicals proper acid neutralizing waste system must be provided. In addition, acid waste and vent piping should be reviewed and replaced if found to be in poor condition as acid waste piping of this vintage was often just a different type of cast iron.

Besides those items noted herein and elsewhere in this report, we noticed no other outward signs of failure in either the sanitary sewer system or the storm drainage system during our site inspection.

Natural Gas Service: Rating = Fair

A natural gas service does supply the building however its configuration or size was not verified during our site inspection. The gas service feeds the gas loads in the building include the heating boilers, domestic water heater and kitchen cooking equipment. The gas is distributed to the building by Eversource.



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Recommendations:

Pending final master plan programming the proposed tiered recommendations are as follows:

1. Provide electronic central mix tempering valve on main hot water system.
2. Provide tempering mixing valves on lavatory sinks as needed to ensure occupant safety.
3. Replace domestic hot water boiler and storage tanks with new. Note: Newer tanks may be reused if found to be in good condition.
4. Replace water fountains with new ADA compliant type coolers where needed. High consideration should be given to coolers with bottle fill capabilities.
5. Where restrooms are renovated, replace original vintage water closet fixtures with new low flush 1.6 gallon per flush or ultra-low flush (1.28 GPF) water conserving units with automatic battery-powered flush valves. Note: Ultra-low flush should only be used if existing sanitary system is proven to have good pitch and has not been prone to blockages.
6. Where restrooms are renovated, Replace original vintage urinals with new ultra-low flush (0.125 GPF) water conserving units with automatic battery-powered flush valves.
7. Where restrooms are renovated, replace original vintage lavatories with low flow style with automatic battery-powered faucets with mixing adjustment (tempering valves noted in #2 may not be required if this options is taken pending proper fixture selection).
8. Provide indirect waste connections for both prep. sinks in kitchens.
9. Separate garbage disposer from grease trap.
10. During renovations, replace original vintage cold water and hot water piping with new type with 0 lead materials.
11. Provide backflow prevention on building water service, lab water supplies and at other fixtures requiring such.
12. Provide acid neutralizing system for acid waste and expand to science rooms if required. In addition, acid waste and vent piping should be reviewed and replaced if found to be in poor condition.
13. Provide emergency eye wash and possibly shower fixtures in chemistry rooms as well as science rooms pending verification of space use. Emergency fixtures shall require a tempered water supply system.
14. Renovate boys locker room showers to support improved drainage as noted within the report.
15. Optional: Provide emergency roof drains where required and dictated by structural review.

HVAC

Existing Conditions and Deficiencies:



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Boiler Plant: Rating = Fair

Much of the heating for the building is supported by two (2) Weil McLain model #88 cast iron sectional hot water boilers. The boilers are each fitted with gas-fired burners manufactured by Power Flame with a rated maximum input capacity of 5,124,000 BTUH. The unit age is unknown but appears to be installed within the last 20 years old and as such are approximately 2/3 way through its normal expected service life of 30 years as defined in the ASHRAE HVAC Applications Handbook.

The boiler is flue vented into a masonry chimney. The condition of the masonry chimney is unknown. Combustion air for the boiler room is supplied from ducted 100% outside air HV unit.

According to original plans the design hot water temperature for most heating terminals is in excess of 220°F with a design water temperature drop of 40°. This is an extremely high design temperature and temperature drop and may limit the options in the future with regards to the use of high efficiency condensing boilers which typically cannot exceed 180°F.

Controls for the plant appear to be very simple enabling either manually or based on and outdoor air temperature.

Chilled Water Plant: Rating = Poor

Certain sections of the building are supported by an air-cooled water chiller model #33AOCM110 manufactured by Technical Systems Incorporated with an estimated nominal cooling capacity of 110-tons (original 1964 plans reflect an 80-ton chiller). The chiller has semi-hermetic style compressors which are older technology and generally not efficient. The chiller is piped to an exterior air-cooled condenser that is in poor condition. The chiller also uses R-22 refrigerant which has been phased out of production due to its ozone depletion level.

The chiller appears to be over 30 years old, in poor condition and uses a banned refrigerant as such, this machine should be replaced.

The chiller plant is required to have a refrigerant leak monitor and evacuation system to alarm and purge the room if there is a refrigerant leak. In addition, being that the chiller is located within the main boiler/mechanical room, the refrigerant leak detection system must also shutdown all gas-fired equipment within the room. Although we noted some ventilation ductwork we did not see an active refrigerant detection system.



Remote Air-Cooled Chiller

Hydronic Distribution: Fair to Poor

Hot water and chilled water from the plant is distributed to the building via separate supply and return distribution systems which run above ceilings. There is also a combined chilled/hot change over loop which according to the original plans served hot/chilled fan coil units in 5th floor former bedroom spaces. The hot water system circulates hot water to hot water coils in air handlers, classroom unit ventilators, cabinet unit heaters and fin-tube radiation located throughout the building.

The chilled water system circulates chilled water to chilled water coils in air handlers located in mechanical spaces throughout the building. Per the original drawings the chiller appears to support the following spaces: administration, common room, chapel, refectory, language lab, physic lab, biology lab, chemistry lab and general science room.

The pumps and their current service are as follows (pump numbers are from original plans based on service and may vary from current designation):

- P-1: Bldg. A heating loop; Taco FE base mounted end-suction style.
- P-2: Bldg. B heating loop; Taco FE base mounted end-suction style.
- P-3: Stand-by heating loop; Taco FE base mounted end-suction style.
- P-5: Chilled Water loop; Taco FE base mounted end-suction style.
- P-7: Hot/Chilled Taco base mounted end-suction style.

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- P-8: Stand-by Hot/Chilled Taco base mounted end-suction style.
- P-#: HV unit pump in boiler room.

* P-4 and P-6 are no longer applicable as they were related to an original water-cooled chiller that was replaced with the current air-cooled chiller.

The pumps are all manufactured by Taco and appear to be in fair operational order with signs of bearing assembly and motor replacement. Some pumps do show signs of external corrosion. P-1 through P-3 appear to have been replaced within the last 20 years whereas the chilled and chilled/hot pumps appear to be of older vintage (40 +/- years). All the pumps are at or nearing the end of their useful service life of 20-years as defined in ASHRAE and as such are prime candidates for replacement. We would recommend serious consideration be given to upgrading the pumps for variable flow to save pump energy.



Heating Pumps

System water expansion is accommodated through the use of multiple captive air tanks. These types of tanks can flood overtime requiring routine bleeding of water as well as allow air to enter the water thereby accelerating pipe corrosion. We recommend bladder type expansion tanks be used in the future.

Ventilation & Misc. HVAC: Rating = Poor

Classroom unit ventilators are located throughout the classroom segments of the building. These units are located along exterior walls and each is connected to an outdoor air louver with the units having pneumatic control dampers to allow outdoor air to enter the classroom space through the unit ventilator. The units are also fitted with pneumatic control valves for control of hot water through the coils. The existing outdoor air louvers have limited free area and appear to be only large enough to bring in minimum outside air with no ability for 100% outside for free cooling cycle.

The original units are primarily of the blow thru style with the coil located downstream of the fans whereas several of the replacement units were of the draw thru style. None of the units appear to have face & bypass dampers which are often used for improved control and added freeze protection of the heating coils. Blow thru type coils tend to be more resistant to stratified air freezing as the blowers mix the air better prior to impacting the coil. According to facility personnel many of the coils froze over the last winter and they were in the process of replacing them. Most unit ventilators were manufactured by Herman Nelson.



Unit Vent – Draw Thru Style (coil in process of being replaced)



Unit Vent – Blow Thru Style

During occupied periods, the unit fans are intended to run continuous to provide space ventilation and dampers and control valves modulate to maintain space temperature. Many of the unit fans were not operating during our inspection and units should be checked to ensure proper operation prior to occupancy.

Classroom exhaust in much of the building is supported by central roof mounted exhaust fans serving multiple classrooms. Many of the exhaust systems appear to only support the code required minimum outdoor air. As such, when unit ventilators attempt to bring in 100% outside air during economizer cooling modes, the spaces shall over pressurize limiting the effectiveness of this mode as well as potentially causing issues with exterior door operation.

Many other non-classroom areas of the building are supported by ducted air handling units. According to original plans the current air handling units and their service area are as follows:



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<u>Unit ID</u>	<u>Service Area</u>	<u>Notes</u>
HV-1	Cafeteria	Heat & Vent
HV-2	Nuns Lounge	Heat & Vent
HV-3	Boiler Room	100% OA Heat & Vent
HV-4	Kitchen	100% OA Heat & Vent
HV-5	Auditorium	Heat & Vent
HV-6	Audio – Visual	Heat & Vent
HV-8	Band Choral	Heat & Vent
HV-9	Boys Exercise	Heat & Vent
HV-10	Boys Locker Rm	Heat & Vent
HV-11	Girls Exercise	Heat & Vent
HV-12	Girls Locker Rm	Heat & Vent
HV-13	Practice Rooms	Heat & Vent
HV-14	Gym	Heat & Vent
HV-15	Gym	Heat & Vent
MZ-1	Admin. Area	Cooling and Heating
AC-1	Gen Science	Cooling and Heating
AC-2	Biology	Cooling and Heating
AC-3	Chem Lab	Cooling and Heating
AC-4	Physics Lab	Cooling and Heating
AC-5	Science Lab	Cooling and Heating
AC-6	Language Lab	Cooling and Heating
AC-7	Refectory	Cooling and Heating
AC-8	Chapel	Cooling and Heating
AC-9	Common Rm	Cooling and Heating



Air Handling Unit (Cooling and Heating)

The operating condition of the units is unknown as many were not running during our inspection. However, the units are showing signs of significant aging and wear and should be replaced. Ventilation requirements for science and chemistry labs is much higher than typical classrooms. These type rooms do have dedicated ventilation systems but reflect a mixed air condition. As such higher consistent fresh air and exhaust for these rooms may be required if reused as such.

Due to the age of the air handling systems and unknown filter replacement schedule we highly recommend the ductwork be internally cleaned. The cafeteria system has a section of underground Transite (cement/asbestos) ductwork which should be inspected to ensure the product is not friable and has no accumulation or water or debris. Lining or decommissioning and rerouting this duct may be considered.



Roof Fans and Intakes



Damaged Roof Fan, Fan off Curb and Gooseneck Duct Broken



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There are several centrifugal exhaust fans located on the roof as well as within the building which support the various exhaust needs of the building. Most appear to be of original vintage and their current operational status is unknown. Some were found to be damaged and in one case off the roof curb. Repairs should be made immediately to avoid storm water infiltration and damage. Fan for chemistry fume hoods is not of the type required for such use and should be replaced with appropriate type with vertical stack.

The kitchen hoods over the ranges and oven equipment appear to be compliant in some level with NFPA 96 and IMC standards with the exception that one of the hoods does not have suppression over the cook equipment. The other has suppression in a section however the cook line equipment in that area was removed. Condition of exhaust ductwork is not known however it should be inspected as it is required to be fully welded. None of the fans we surveyed on the roof complied with kitchen hood use. Hood fans must be UL 762 listed for kitchen hood duty.

On the 5th floor there are numerous small rooms formerly used as bedrooms. Each room is served by 4-pipe chilled water / hot water fan coil units. None of these rooms have active fresh air ventilation other than what is provided for through operable windows. Although the windows may meet natural ventilation codes it does not provide a positive means of continuous ventilation. Either now or if these rooms are to be converted in the future to other uses, an active ventilation system should be considered.

Fin-tube radiation is located throughout the building and in many classrooms along the exterior window walls. The radiation is typically enclosed within a cover and appears to be of the steel tube/fin type.

Most of the mechanical equipment, unit ventilators, HV units and exhaust fans are of original 1965 vintage with some limited replacements and as such are all well beyond their useful expected service life of 20 to 25 years as defined by ASHRAE. As such, any renovation should plan on replacement of these units.

Controls: Rating = Poor

The controls within the building are primarily limited to pneumatic (air) driven type and simple time clocks and such. The overall functional condition of the controls is unknown however these types of systems are known to be plagued with leaks causing excessive compressor operation and erratic control. Loss of air may result in many building heating valves opening and the OA dampers closing. This results in no outdoor ventilation air getting into the spaces and little active control of space temperature. In addition, the current pneumatic system has limited control strategies.

As such, we highly recommend a complete electronic energy management be installed. This type of control system can fully control all HVAC systems and incorporate many energy saving routines such as intelligent start/stop, demand ventilation reset, hot water reset to name just a few.

Recommendations:

The below proposed measures will lead to improved reliability and energy efficiency of the system:



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1. Perform pipe sample of chilled and hot water piping and confirm wall thickness and pipe integrity for possible reuse. If pipe is in poor condition, it should be replaced. As a minimum during a renovation project replace all valves and accessories. Note: See alternate cooling option in #3 below as it pertains to the chilled water system.
2. Within the next 5-years replace the existing boilers. New boilers should be high efficiency condensing gas-fired type with boilers pump and piped in primary/secondary fashion.
3. Replace existing chiller with new high efficiency chiller. Provide mechanical room refrigerant monitoring and purge system. Alternate: Depending on the extent of the areas desired to be cooled, consideration could be given to eliminating the chiller and using air cooled DX coils in relevant air handlers. For the 5th floor fan coils as well as other areas consideration for VRF heat pump heating and cooling systems may be considered.
4. Replace all pumps with new variable speed type with ECM motors (as available) configured to vary flow based on system pressure.
5. Internally clean all existing ductwork and seal and reinsulate. Test underground Transite ductwork for condition and if found to be poor consider lining or decommission and reroute options.
6. Replace all existing unit ventilators and provide with new. Unit ventilators (UV) shall include high efficiency variable speed ECM motors and be fitted with controls to vary outdoor air based on space CO2 levels. In addition, occupancy controls shall be included to place units in an idle mode during normally occupied periods should the space be unoccupied.
7. Replace all existing air handling units and associated return fans with new. New units shall include high efficiency variable speed ECM motors (or motors with VFD drives) and be fitted with controls to vary outdoor air based on space CO2 levels. In addition, occupancy controls shall be included to place units in an idle mode during normally occupied periods should the space be unoccupied. Science and chemistry lab system shall be designed for proper air exchange with consideration of energy recovery.
8. Replace all cabinet unit heaters and fin-tube radiation (if damaged or pipe condition poor) with equivalent new with associated EMS controls.
9. Replace all general exhaust fans and modify if needed to ensure all exhaust is at least 10 feet from intakes.
10. Replace existing grease filters on kitchen hoods with louvered type. Inspect all existing ductwork to verify proper gauge and welded joint status and correct as needed. Replace roof fans with UL listed upblast style kitchen hood fans.
11. Replace roof exhaust fan for fume hoods with fume hood duty fan with vertical stack. In addition, fume hoods should be tested in accordance with ASHARE 110 to ensure proper and safe performance. Provide required flow alarm devices on hoods.



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12. Provide a building wide energy management system (EMS) to communicate and control all HVAC systems. System shall be web accessible through any web-based computer via password protection. The control system shall incorporate many energy-saving features such as 1) hot water temperature reset, 2) demand ventilation reset and 3) optimized start/stop to name just a few.

TAB 6 ELECTRICAL BUILDING ASSESSMENT



POPE JOHN XXIII HIGH SCHOOL - ELECTRICAL EVALUATION

I. BUILDING DESCRIPTION

A. SYSTEMS

The existing systems of this facility are mostly original to the building. The main service equipment is located in the Main Electric Room, located on the first floor Level. The switchboard is rated for 2500 ampere, 120/208V volt, three phase, four wire, manufactured by ITE Company. The lighting throughout is a mixture of fluorescent and LED lamps (retrofitted fixtures), mostly installed surface-mount and recessed in Classrooms, Corridors, Cafeteria, Gymnasium and Auditorium. There are a minimal number of receptacles throughout the facility. The fire alarm system appears to have been upgraded in the last ten years. The addressable fire alarm system is manufactured by Fire Control Instruments (FCI) Company and is equipped with voice evacuation notification. The building is not equipped with a sprinkler system. The communications systems consist of a stand-alone sound system and telephone system. There is minimal security throughout the building.

B. ELECTRICAL DISTRIBUTION SYSTEM

The primary service originates from Shute Street. The primary cable runs underground along the back of the property to an exterior utility company pad-mount transformer located on the side lawn adjacent to the building, near Cameron Street. The secondary service feeders run underground to the ground level/first floor electrical room directly from the pad-mount utility company transformer and connect into the main switchboard. There was originally a Utility Company Vault Room located in the building. The room was locked but it is assumed that the Utility Company has removed the transformers and used the space to run the secondary feeder from the exterior Transformer to the main switchboard .



Utility Company Pad-mount Transformer

The secondary service feeders enter the main electrical room directly from the pad-mount transformer and connect into an ITE Company, 2500 Amp, 120/208 Volt, three phase, three-section main switchboard. The main switchboard has a 1600-ampere main circuit breaker and distribution section with feeder circuit breakers and a 500-ampere main circuit breaker distribution board that provide

power to sub-panelboards located throughout the building. The utility meter is mounted adjacent to the switchboard.

The panelboards, located throughout the building, provide power to lighting, receptacles, mechanical equipment, and miscellaneous loads. Most panels appeared to have very little spare capacity for future circuit breakers.



Main 2500Amp Distribution Board



Utility Company Meter



Typical Older Style Sub-Panels



Typical Corridor Flush Sub-Panels

The main switchboard and most of the sub-panels appear to be in fair to poor condition. Some panels have been added recently to accommodate IT upgrades. Further investigation is required to determine if spare power capacity is available in the board and/or sub-panels.

C. INTERIOR LIGHTING

The lighting consists of a mixture of surface-mount and pendant-2-lamp, acrylic or caged lenses, recessed 2' X 4' and 2'x2' panel light fixtures, fluorescent and LED style light fixtures. The

fixtures throughout appeared to be in fair to poor condition. Classrooms and Corridors appeared to be dark. The lighting does not meet the energy conservation code, as stipulated in Article 13 of the Massachusetts State Building Code, 9th Edition.

Local wall mounted switches are used for lighting control. In most of the Classrooms, Ceiling-mount occupancy sensor controls were observed in the Classrooms.

Gymnasium: light fixtures have been retrofitted with LED-style lamps. LED High Bay light fixtures were added to supplement the existing light levels in the space. Manual wall-mount light switches turn the lights on and off.

D.

Cafeteria: Light fixtures have been retrofitted with LED-style lamps. Fixtures are recessed 2' x 4'-3 lamp lensed fixtures. Lights are turned on and off from wall switches and ceiling-mount occupancy sensors.

Corridors: Lighting is a mixture of recessed and surface throughout the building. Some lights have been retrofitted with LED-style lamps. Manual switches are on each end of the Corridors.



Typical Classroom Lighting



Stage Lighting

Classrooms: Lighting is a mixture of recessed 2' X 4' lens fixtures and recessed 1' X 4' (continuous rows) lens fixtures. It appeared that most of the lights have been retrofitted with LED-style lamps. Manual switches are at each entry of the Classrooms; some of the Classrooms have ceiling-mount occupancy sensor devices. The fifth floor consists of residence rooms. The lighting was in poor condition.



Typical Retrofitted LED Light Fixture



Typical Corridor Lighting



Gymnasium Lighting



Typical Residence Room Lighting



Chapel Lighting



Stage Lighting Control System

E. EXTERIOR LIGHTING

There are exterior light poles in the parking lots off of Broadway Street and Shute Street. Wall-mount LED style building lights are installed approximately 20'-0" above the finished grade. The exterior light fixtures are controlled via time clocks, located in the main electric room.



Typical LED Exterior Wall Mounted Light



Typical Exterior Site Parking Lot Light Pole

F. EMERGENCY SYSTEM

Code required emergency lighting and exit signs are provided via the emergency generator. Illuminated exit signs mark egress paths. The Generator is in the Main Boiler Room. The unit appeared to be original to the building. The generator is 125-KW, powered by natural gas and it has a manual start. The Exit Signs and remote Emergency Units appeared to be in fair to poor condition. It is unknown if the equipment is working properly. A more comprehensive survey of the emergency lighting system is needed to properly assess what the emergency lighting illuminates during a power loss.



Manual 125-KW Natural Gas Generator

G. FIRE ALARM SYSTEM

The fire alarm system consists of an addressable system, manufactured by Fire Control Instruments (FCI) Company, series FireEvac #7208. The system is equipped with a voice evacuation feature. It appears fairly new. Pull stations are installed at egress doors. In most locations, the height of devices meet ADA requirements. Horn/strobe and evacuation speaker devices are on the walls in the corridors, lobbies, Classrooms, Cafeteria and Gymnasium. Smoke detectors are located in all Classrooms, Corridors and public spaces. Heat detectors are

installed in the Kitchen, Storage Rooms and Boiler Rooms. The building is not protected with a sprinkler system.



Main Fire Alarm Control Panel



Master Box & Fire Fighter's Key Box



Typical Classroom Smoke Detector



*Fire Alarm Annunciator & Typical Pull Station w/
Plastic Guard*



Typical Horn/Strobe & Voice Evacuation Devices

The fire alarm device coverage and system appears adequate for a school building and is compliant with current codes for voice evacuation and notification. A more comprehensive review of the fire alarm system is required to determine coverage and functionality.

H. WIRING DEVICES

There are receptacles installed on all walls in typical Classrooms. Some Classrooms had surface plug mold or surface conduit installed along the walls. The number of receptacles throughout the facility appeared to be inadequate for their needs.

Tamper-resistant receptacles are not installed in the Classrooms and/or public areas.

Ground-fault interrupter receptacles are not installed within 6'-0" of all sinks.



Figure 1 Typical wall receptacle & Surface raceway

I. BUILDING SOUND, BELL, & CLOCK SYSTEMS

The sound system is located at the main reception suite. The main panel appeared to be old.

The building is equipped with a sound system. All-call paging and announcements can be achieved from the Main Administration Office. All paging to individual staff is achieved through the telephone system.

All Classrooms are equipped with wall-mounted telephones.

There is a local sound system installed in the Auditorium. The main sound amplifier is located on the platform stage. It is unknown if the main Building Sound System overrides the Auditorium Sound system in the event of an emergency.

There is a clock system, manufactured by Simplex Company, which appeared old. The clocks were not functioning at the time of my visit.



Auditorium Sound System



Admin Public Address System



Admin Building Sound & Clock System



Typical Classroom Sound Speakers, Clock, & Telephone

J. TELECOMMUNICATIONS

The IT equipment throughout the building has been disconnected and removed. There were no smartboards or projectors installed. There were no data rack patch panels. Most devices were in poor condition. Most Classrooms and most Corridors did not have Wireless Access Point (WAP) Devices installed.



Typical Classroom Telecomm. Devices



Main IT Room

II. RECOMMENDATIONS

Overall, the existing electrical systems appear to be in fair to poor condition; many of the existing systems are inadequate and will require updating and/or replacement to support a modern style school with the latest technologies, energy efficient opportunities and meet current codes and standards. The following are recommendations if the school were to undertake any type of renovation or addition.

- Replace the electrical service for more capacity, which would incorporate replacing the main switchboard, the sub-panels and all associated feeders. At a minimum, the main board and branch sub-panels should have an infrared scan performed to ensure that the components are not showing signs of overloading as well as deterioration. Each sub-panel should be properly balanced per phase. It is highly recommended that the distribution system throughout the building be replaced with new.

- It is recommended that the Exit Signs be replaced with new to meet the requirements of NEC Article 700 Emergency Systems. New remote emergency battery units should be installed throughout the building to provide Life Safety emergency power for egress lighting. Emergency lighting throughout the means of egress should not be less than one footcandle. The existing manual gas generator should be disconnected and removed from the Boiler Room. It is recommended that a new exterior automatic emergency generator with sound-attenuated enclosure be installed on the property. A 250-KW Diesel Generator is recommended for a building of this size. Two transfer switches are recommended: one for Life Safety power; one for Standby power. Life Safety power will need to be separated into two-hour fire-rated rooms.
- Incorporate occupancy/vacancy sensor controls in all areas of the building. Add photo-control sensor controls near perimeter windows for day-light harvesting. Replace all light fixtures with more energy efficient light fixtures to meet the energy conservation code, as stipulated in Article 13 of the Massachusetts State Building Code and the standards of the Illuminating Engineering Society (IES). The fixtures should be dimmable and controlled locally, as well as globally. The lighting system shall adjust the light levels in each room in response to the varying ambient light levels from the outside. All light fixtures can be programmed through the main software program.
- Provide a networked lighting control system (wireless) to control and monitor all of the light fixtures in the building. The web-based system monitors and manages: Daylight Harvesting; Time Scheduling; Individual Room Control; Energy Consumption; and de-energization of lights during non-occupied hours for all light fixtures.
- Replace all lighting with LED type light fixtures. Incorporate low voltage lighting system to the public space lighting circuits for optimum energy efficiency. Increase the light levels within the public spaces, and many of the classrooms, for better illumination. The lighting and controls should be designed with consideration towards the Utility Company Rebates Programs to achieve the highest rebate monies available.
- Add receptacles and associated wiring throughout the facility. Feed to new branch circuit sub-panels. The power design should be coordinated closely with the telecommunications design, architectural design and Owner equipment. All power connections to Mechanical, Plumbing and all other Trades will be coordinated and connected.

- Upgrade or replace the fire alarm system with a new code compliant addressable voice notification ADA system that meets NFPA standards, National Electric Code, Massachusetts State Building Code and local fire department requirements. Install devices to meet ADA requirements and provide better coverage of the facility. If a sprinkler system is required, the fire alarm system must connect to it.
- Disconnect and remove the existing Auditorium Stage Lighting System. The system is antiquated, and replacement parts are difficult to find. A new Stage Dimming System is recommended for the Auditorium. Design and install a complete new Theatrical Lighting System. New Auditorium House Lights should be installed with new LED style lights. It is recommended that auditorium seat lights (selected aisle seats) be installed for egress lighting.
- Design and install a new telecommunications system. Configure the backbone of system. Redesign the MDF and IDF Rooms; provide fiber cables between rooms. Redesign new devices throughout to accommodate the needs of the staff, teachers and students.
- Design and install the Security system. Determine the current condition of any existing equipment and anticipate the future needs of the community within the building. Upgrade the Access Control System, CCTV System, and Intrusion Alarm System.
- Design and install an intrusion detection system with a high-end commercial addressable system. Intrusion detection system shall consist of a main control panel, control master keypad located at main entrance and rear janitor entrance, door monitoring switches, and motion sensors in all corridors and first floor computer rooms. System will be able to zone portions of the school which can be armed and disarmed via the keypad to monitor the intrusion detection devices. The system shall provide signals to lighting control panels to turn on building lights during an intrusion alarm. The system shall include panic pushbutton under selected administration office desk and duress pushbuttons located at selected locations in the building.
- Design and install an Access control system consisting of card readers and electrical locks at the main entrance and staff entrance doors. Doors shall remain locked based on a time schedule or if a card reader is presented with the proper card credentials. The main lobby and select doors shall have a camera intercom door station that shall communicate to a master video intercom station located in the main office that shall allow the office attendee view the door station camera image, audio communicate with the door station and open the locked door via an integral push button.



POPE JOHN XXIII HIGH SCHOOL
888 BROADWAY
EVERETT, MA

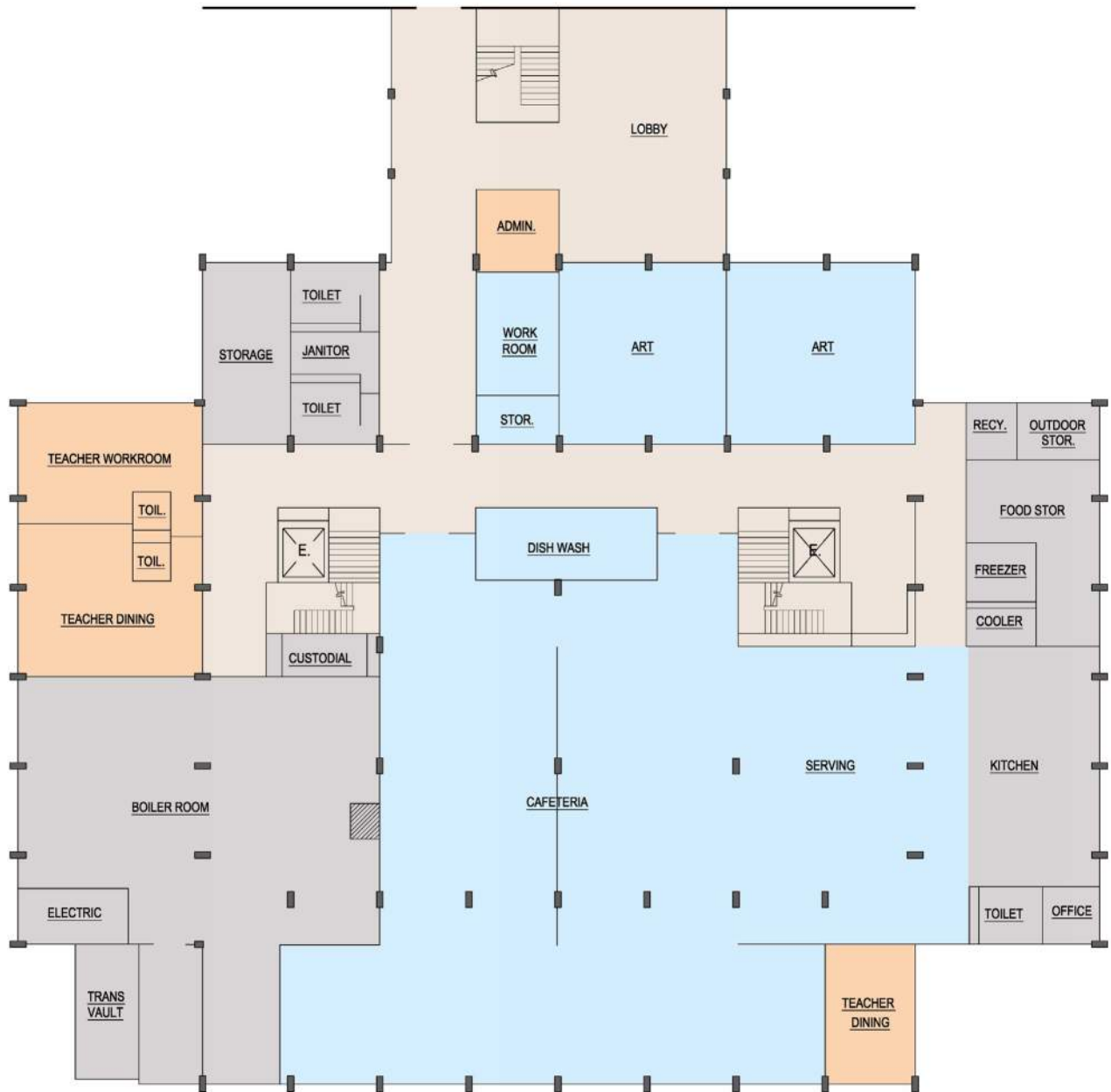
- Design and install a CCTV system with a web accessible system that will record for a minimum of 30 days. Add interior and exterior cameras for full visibility of site.

END OF ELECTRICAL REPORT

TAB 7 CONCEPTUAL DESIGN FOR PROPOSED MIDDLE SCHOOL



CONCEPTUAL DESIGN FOR PROPOSED MIDDLE SCHOOL



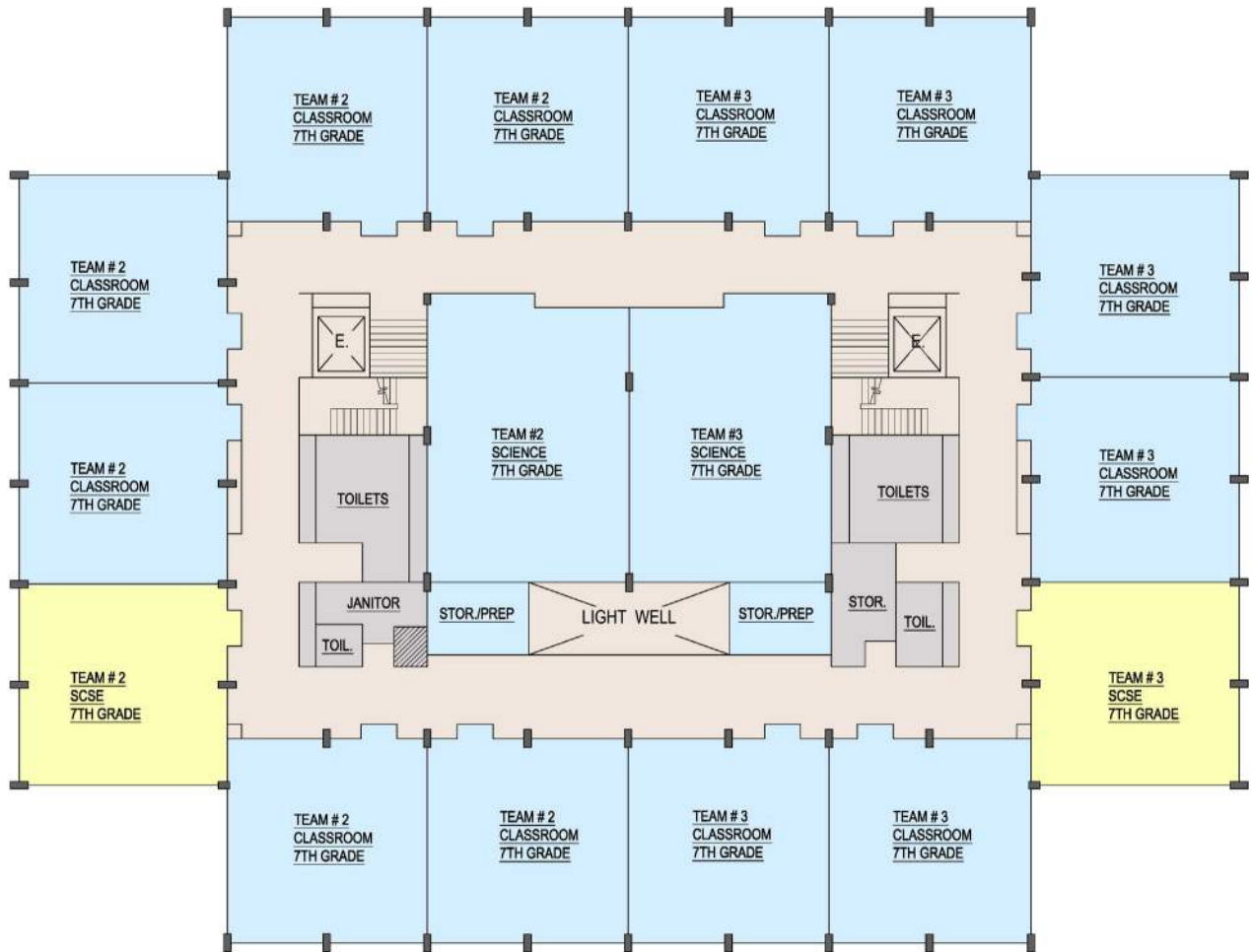
RENOVATED FIRST FLOOR PLAN

CONCEPTUAL DESIGN FOR PROPOSED MIDDLE SCHOOL



RENOVATED SECOND FLOOR PLAN

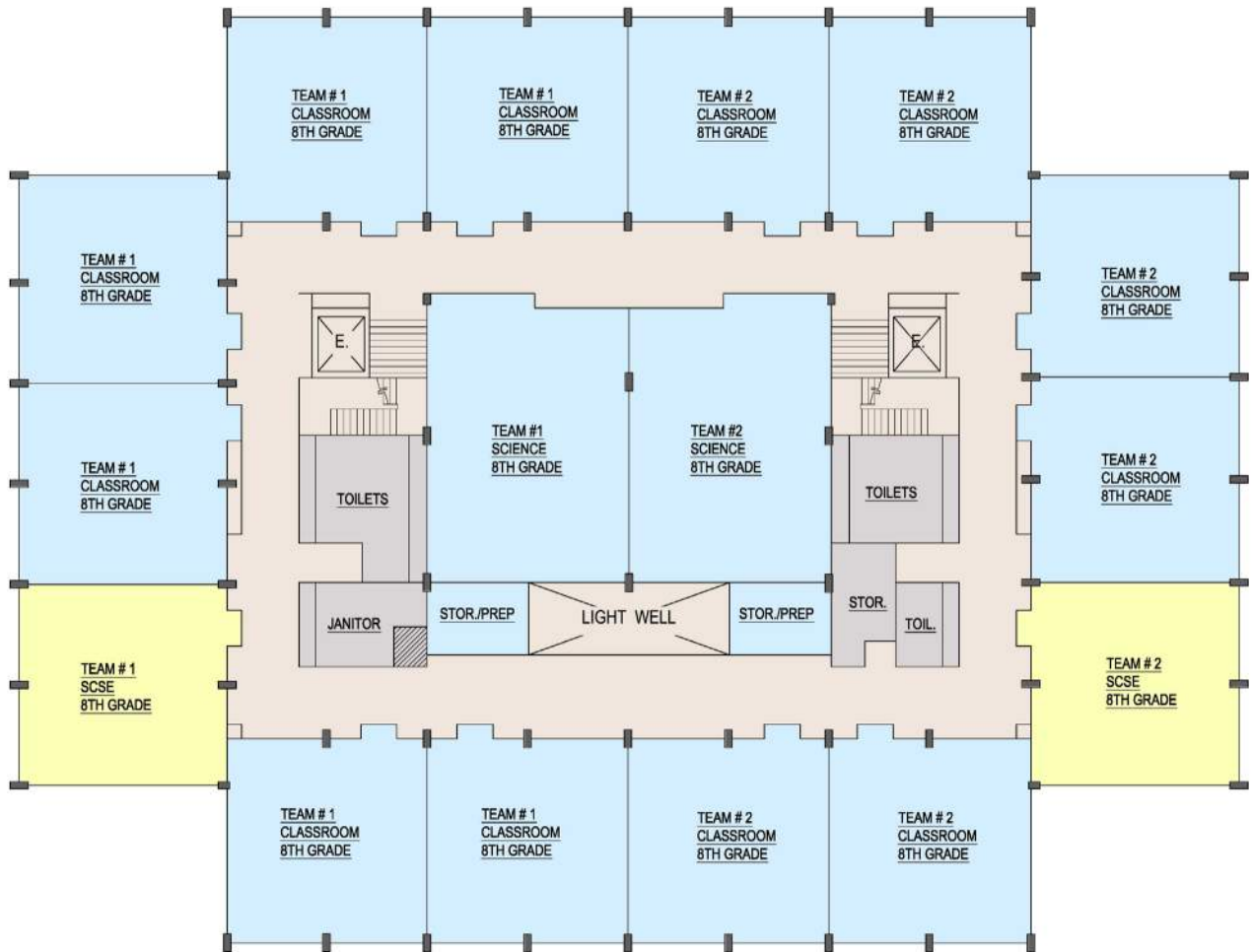
CONCEPTUAL DESIGN FOR PROPOSED MIDDLE SCHOOL



RENOVATED THIRD FLOOR PLAN

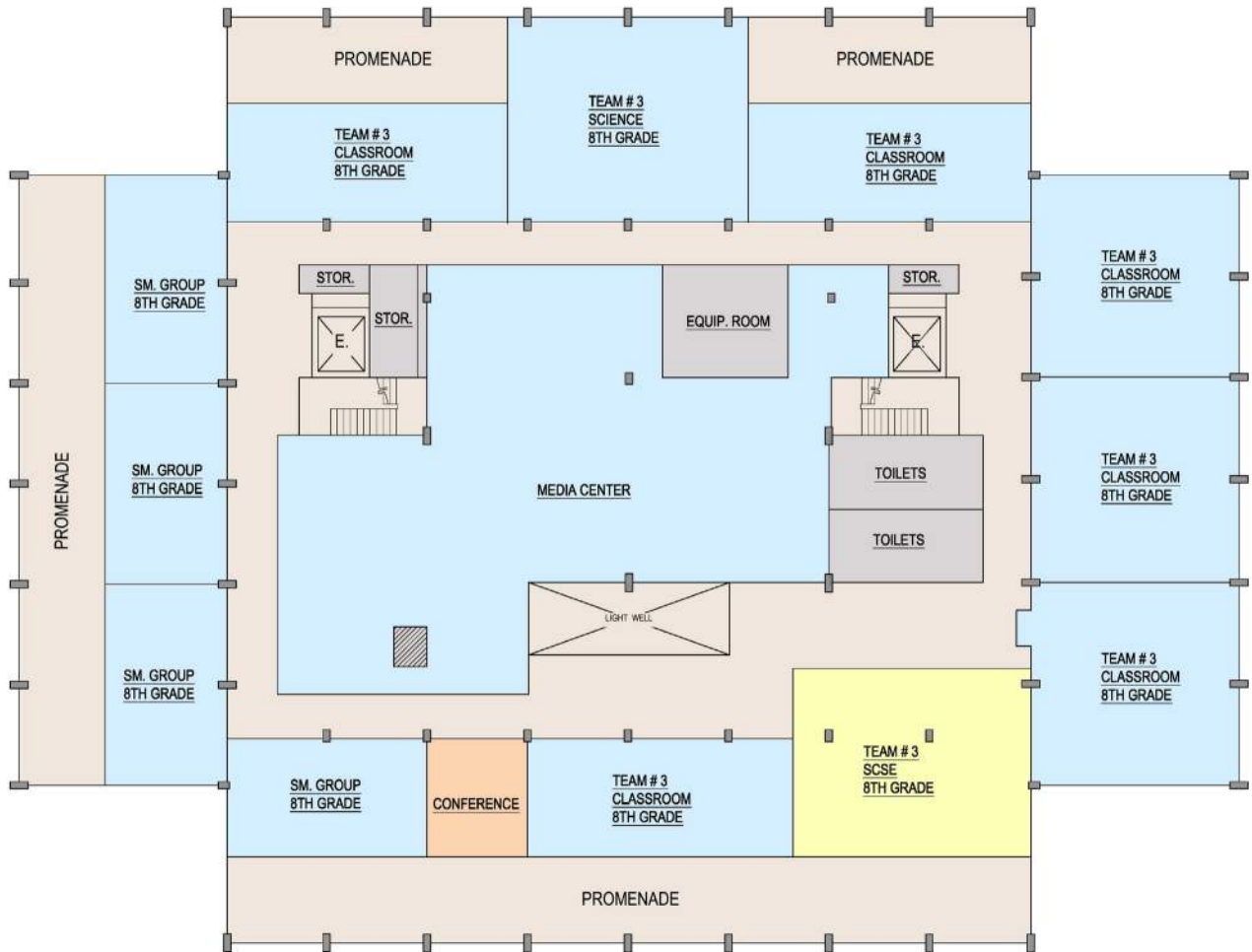


CONCEPTUAL DESIGN FOR PROPOSED MIDDLE SCHOOL



RENOVATED FOURTH FLOOR PLAN

CONCEPTUAL DESIGN FOR PROPOSED MIDDLE SCHOOL



RENOVATED FIFTH FLOOR PLAN

TAB 8 COST ESTIMATE



CONSTRUCTION COST ESTIMATE	ESTIMATED COST
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Site Improvements	Quantity	Unit Price		
Site structures, landscape, Accessibility & Improvements	1	\$750,000.00	/s	\$750,000

Site Improvements Sub Total				\$750,000
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Structural Building Improvements	Quantity	Unit Price		
Miscellaneous Structural Repair	144,130	\$3.00	sf	\$432,390

Structural Improvements Sub Total				\$432,390
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Architectural Building Improvements	Quantity	Unit Price		
Remove & Replace Existing Floor Tile & Base	144,130	\$13.00	sf	\$1,873,690
Repainting Existing Wall Surfaces	144,130	\$2.50	sf	\$360,325
Ceiling Finishes Complete	144,130	\$8.50	sf	\$1,225,105
Replace Existing Window type A 12'-8" H x 13'-0" W	1,650	\$150.00	sf	\$247,500
Remove Existing Window type B 10'-0" H x 13'-0" W	11,180	\$150.00	sf	\$1,677,000
Remove Existing Window type C 10'-0" H x 9'-0" W	2,700	\$150.00	sf	\$405,000
Remove Existing Window type D 5'-4" H x 13'-0" W	833	\$150.00	sf	\$124,950
Remove Existing Window type E 5'-4" H x 12'-10" W	1,020	\$150.00	sf	\$153,000
Remove Existing Window type F 3'-0" H x 7'-0" W	672	\$150.00	sf	\$100,800
Remove Existing Window type G 3'-0" H x 6'-8" W	225	\$150.00	sf	\$33,750
Remove Existing Window type H 12'-0" H x 4'-0" W	1,248	\$150.00	sf	\$187,200
Remove Existing Window type J 17'-4" H x 1'-9" W	364	\$150.00	sf	\$54,600
Replace Skylight at roof	252	\$200.00	sf	\$50,400
Replace Light well frames and glazing	1,240	\$150.00	sf	\$186,000
Miscellaneous Interior borrowed lights	200	\$60.00	sf	\$12,000
New Exterior Single Doors, Frame & Hardware	9	\$2,800.00	ea	\$25,200
New Exterior Double Doors, Frames & Hardware	11	\$5,600.00	ea	\$61,600
New Int. Dbl Doors, Frames, Hardware & Sidelight Frames	12	\$6,600.00	ea	\$79,200
New Interior Dbl Doors, Frames & Hardware	30	\$5,600.00	ea	\$168,000
New Interior Single Doors, Frame & Hardware Interior	226	\$2,800.00	ea	\$632,800
Reconstruction of Classroom Door Entries for Accessibility	38	\$3,000.00	ea	\$114,000
HCP Requirement - Toilet Room Renovations	3,678	\$600.00	sf	\$2,206,800
HCP Requirement- Locker Room Renovations	3,111	\$600.00	sf	\$1,866,600
Renovation & Replacement of Kitchen Equipment	2,500	\$200.00	sf	\$500,000
Stair Renovation and reconstruction	1	\$600,000.00	ls	\$600,000
Remove and Replace Bleachers	4	\$30,000.00	ea	\$120,000
Remove and Replace Gym Floor	7,872	\$28.00	sf	\$220,416
Replace Dividing Partition	1	\$150,000.00	ls	\$150,000
Remove and Replace Existing Elevator	2	\$250,000.00	ea	\$500,000
Roof Replacement, Flashings, Insulation, Fascias A & B	41,262	\$40.00	sf	\$1,650,480
Auditorium seating	500	\$350.00	ls	\$175,000
Auditorium and Stage upgrades and finishes/HCAP	7,380	\$30.00	sf	\$221,400
Audio Visual Seating	122	\$250.00	ea	\$30,500
Audio Visual Upgrades and finishes/HCAP	2,457	\$30.00	sf	\$73,710
Remove & Replace Drinking fountains 12 locations	12	\$4,525.00	ea	\$54,300
Remove & Replace Existing Lockers	850	\$300.00	ea	\$255,000
Reconstruction of Existing Space 5th Floor	19,337	\$400.00	sf	\$7,734,800
Window Shades	18,000	\$18.00	sf	\$324,000
Fixed Equipment (millwork/casework allowance)	124,793	\$10.00	sf	\$1,247,930

Architectural Improvements Sub Total				\$25,703,056
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CONSTRUCTION COST ESTIMATE	ESTIMATED COST	
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Plumbing / Fire Protection Improvements	Quantity	Unit Price	
Plumbing Systems Replacement	144,130	\$28.00	\$4,035,640
Fire Protection System	144,130	\$15.00	\$2,161,950

Plumbing Improvements Sub Total **\$6,197,590**

Mechanical Improvements	Quantity	Unit Price	
Upgrade heating & ventilating systems replacement	144,130	\$75.00	\$10,809,750

Mechanical Improvements Sub Total **\$10,809,750**

Electrical Improvements	Quantity	Unit Price	Total
Electric service & distribution systems ,security, technology	144,130	\$50.00	\$7,206,500
Emergency Diesel generator 250-KW	1	\$350,000.00	\$350,000

Electrical Improvements Sub Total **\$7,556,500**

Asbestos Abatement	Quantity	Unit Price	Total
Hazardous Abatement	144,130	\$7.00	\$1,008,910

Asbestos Abatement Sub Total **\$1,008,910**

Renovation Construction Subtotal **\$52,458,196**

Design & Support Services (30%): Architecture, Landscape Architecture, Traffic, Civil/Structural Engineering, Mechanical-Electrical-Plumbing-Fire Protection Engineering, Energy Modeling, Technology, Security, Acoustical, Audio Visual, Food Service, Cost Estimating, Surveys, Environmental Permitting, Geotechnical, GeoEnvironmental, Hazardous Materials Assessment, Green/Sustainable Design, Owners Project Manager, Geotechnical Monitoring, Hazardous Material Monitoring, FFE Procurement, Technology Procurement, Commissioning, Environmental Permitting, Construction Testing, Legal costs, miscellaneous costs, Owners Contingency.	\$15,737,459
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Renovation Construction Total **\$68,195,655**

Furnishings Allowance	144,130	\$7.00	\$1,008,910
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Allowance for Escalation/Inflation 10%			\$6,920,456
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ls=lump sum

lf=linear feet

ea=each

sf=square feet

Grand Total **\$76,125,021**