



**CITY OF EVERETT
MIDDLE SCHOOL CONVERSION – DESIGNER
SERVICES**

ADDENDUM NO. 1

Date Issued: March 13, 2026

Project: #EPS-26-21 – Middle School Conversion Designer Selection

NOTICE TO ALL BIDDERS

This Addendum is issued to amend the Request for Services for Hazmat Consultant Services at 548 Broadway in Everett.

1. **Question:** Can you please clarify which due date and time is correct for the submission? The City of Everett's website and the RFS document state April 1, 2026, by 1:00 pm. However, the due date listed from the Central Register is March 25, 2026, by 12:00 pm.

Answer: Deadline is 4/1/26 at 2pm.

2. Please find ready for download from the City website:
 - a. Attachment 1 - Everett MS Facility Assessment Study - Feasibility Report
 - b. Attachment 2 – EHS Historic Docs
 - c. Attachment 3 – EHS Hazardous Materials Assessment Report

This Addendum modifies and becomes part of the original bid documents for this RFQ.

All other terms and conditions of the RFQ remain unchanged. Proposers must acknowledge receipt of this Addendum with their submission.

Kiara M. Freeman
Chief Procurement Officer
City of Everett



MOUNT VERNON GROUP
ARCHITECTS



Everett Public Schools

Middle School Conversion (Former Everett High School)

548 Broadway Street, Everett, MA

Facility Assessment Study - Feasibility Report

July 22, 2024



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Aerial View of Former Everett High School

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EXECUTIVE SUMMARY

Overview

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

Code

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

Architectural

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

Plumbing, Fire Protection, HVAC Systems:

Plumbing

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

Fire Protection

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

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HVAC

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

Electrical Systems

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

Structural

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

Conceptual Design and Preliminary Cost Estimate

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

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

SECTION 1: Architectural Building Assessment

I. BUILDING DESCRIPTION

A. GENERAL DESCRIPTION

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

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



Overhead view of the Former Everett High School and site.

II. EXISTING CONDITIONS

A. BUILDING ENVELOPE

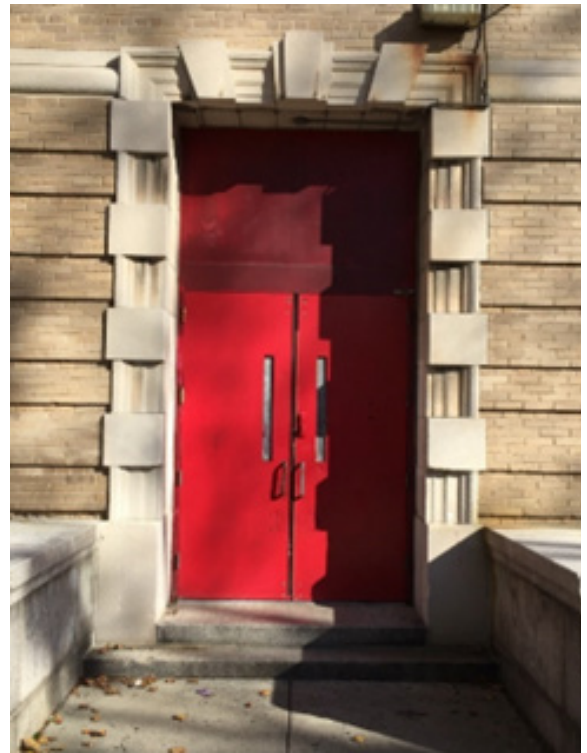
1. Exterior Walls

Existing Conditions

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



Masonry cracks and re-pointing required



Ornamental cast stone framework

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Continuous cast stone bands require repointing



Ornamental cast stone balconies



*1970's addition facing Linden Street
Boarded window openings*



*1970's addition and 1920's original building
connection*

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Deficiencies

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

Recommendations

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



Masonry and window openings require repointing and caulking

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

2. Window and Exterior Door Systems

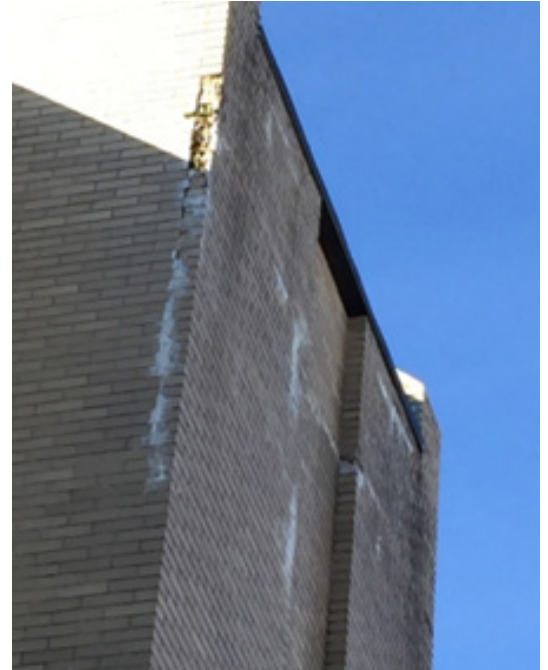
Existing Conditions

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

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Original main entrance to school



Masonry deterioration at 1970's addition



Ornamental cast stone, metal doors & frames

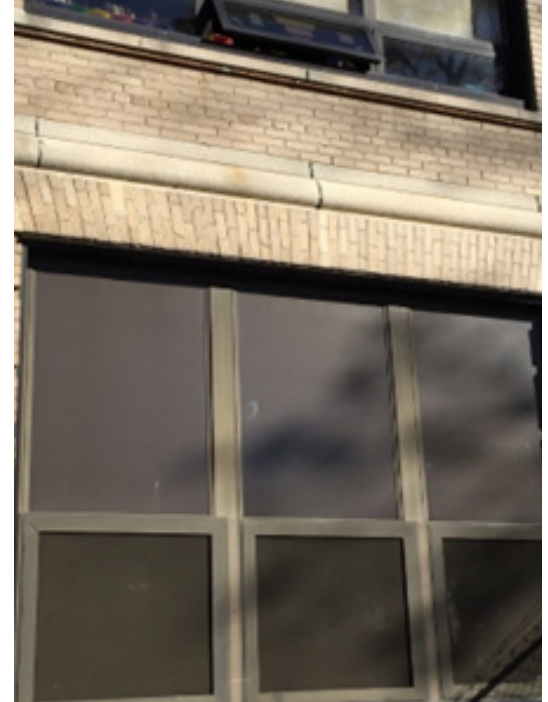


Elevation facing Maple Street

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Copper cornice flashings deteriorating



Aluminum windows w/double pane glazing & metal panels

Deficiencies

All doors in the 1920's building and 1970's are past their longevity showing signs of paint and weather stripping deterioration, hardware deficiencies and backer rod and sealant failure and should be removed in their entirety and substituted with thermally superior and appropriate period style doors. See above picture for example. The building is currently not handicap accessible from any of the exterior entrances. The existing concrete stair systems are in fair condition at the main entrance and side entries, though none of these entries are handicap accessible. Most windows are in fair condition. All caulking should be replaced in its entirety where the window frame meets its adjacent exterior wall surface. Steel lintels are in fair condition but further investigation would be required, see structural narrative for any additional information.

Recommendations

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

3. Roof System

Existing Conditions

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

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



Tar and gravel roof, continuous thru-wall flashing

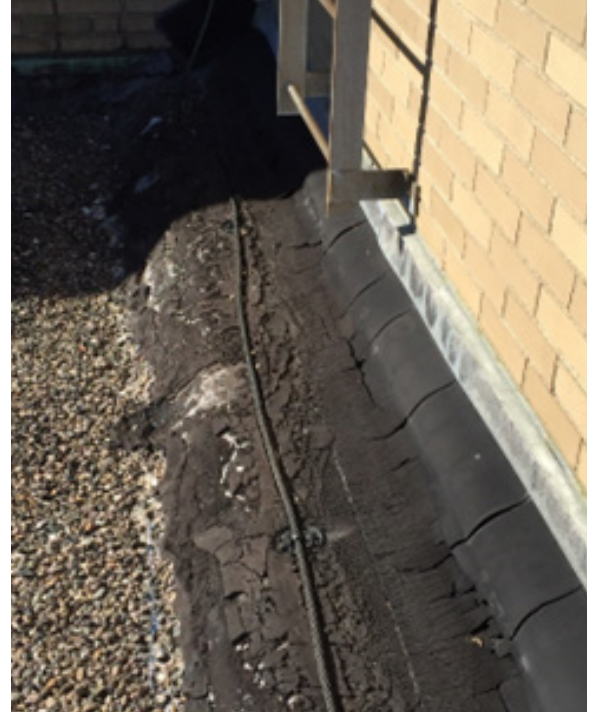


Deteriorated flashings, both copper and membrane

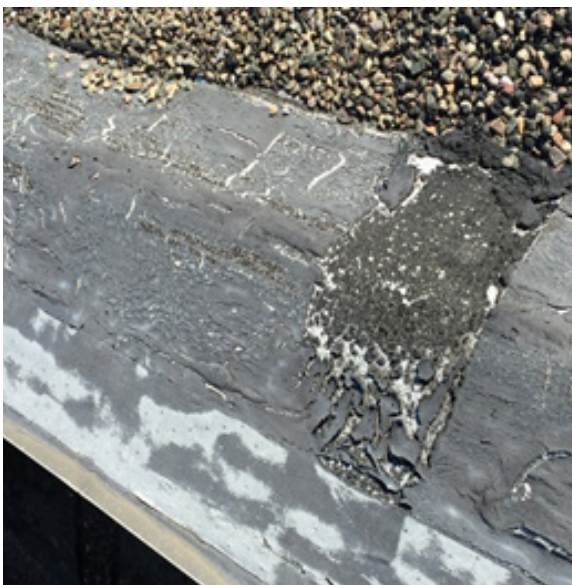
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Flashings deteriorated and useless



Flashings deteriorated and useless



Original Edge of roof gravel stop & flashings deteriorated



Flashings at skylights, roof fans & equipment deteriorated

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Failed and deteriorating mechanical units



Failed and deteriorating mechanical units



Exterior wall light leaking at inside



Flashing deteriorating

Deficiencies

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

Recommendations

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

B. INTERIORS

1. Interior Walls

Existing Conditions

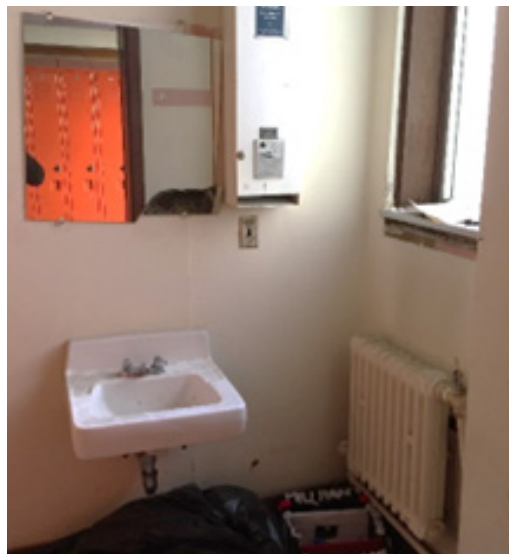
Interior walls of the original 1920's building are the original wood framed partitions with plaster finish. The 1970's addition is mostly painted block and finished plaster walls. Corridors are typically glazed masonry or painted block and lockers take up much of the corridor wall area. The toilet rooms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



Water migration and damage to interior surfaces



Water infiltration, wall deterioration



Ceramic tile floors, plaster walls, cmu backup



Classroom with painted plaster

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Glazed masonry wall



Existing wood floors typical in 1920's building classrooms



Interior stair rails and nosings non-compliant



*Existing interior door and trims.
Hardware non-compliant.*

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Existing interior main entry stairs non accessible



Tile stair treads main entry stair



Existing terrazzo floors and cracking

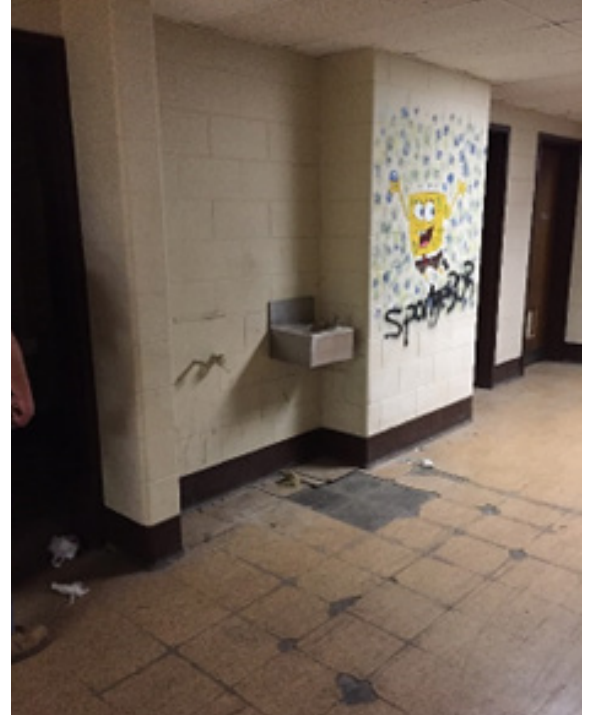


Existing VAT flooring materials

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Painted concrete floors in shops



Deteriorated VAT in corridors



Existing doors

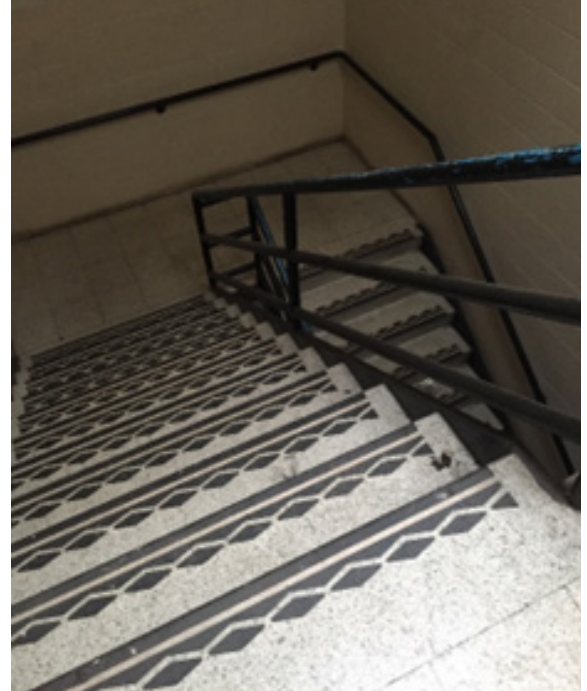


Existing Library space, acoustic tile, carpeted floor

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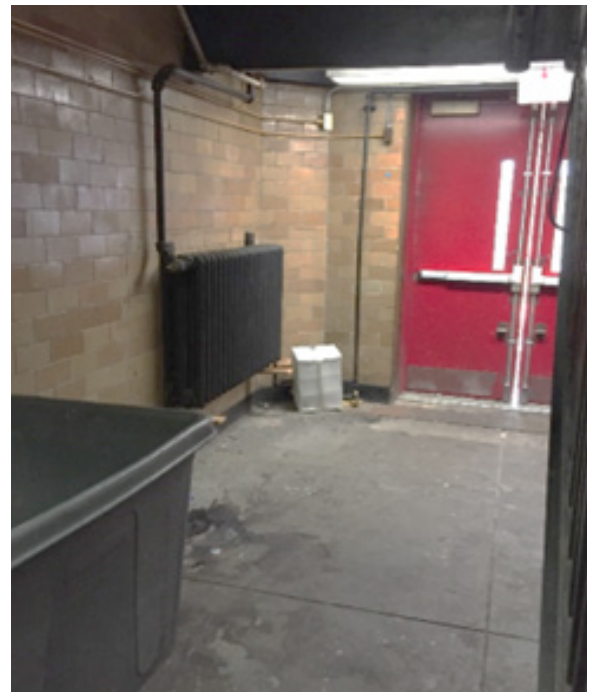
Non-compliant stairwell



Non-compliant rails and guardrails



Non-Compliant rails and stair tread nosings



Stairwell egress, glazed masonry walls

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Deficiencies

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

Recommendations

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

2. Ceilings

Existing Conditions

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

Deficiencies

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

Recommendations

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



Classroom acoustical ceiling tiles



Classroom plaster ceilings

3. Floors

Existing Conditions

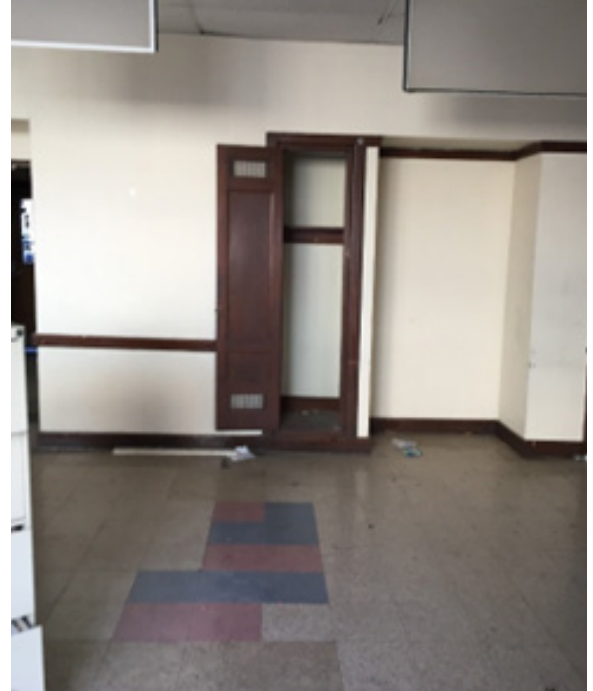
Existing floor finishes consist of a variety of materials, including the original wood strip flooring in the Auditorium and Classrooms, along with VAT, carpeting, ceramic tile, replacement vinyl composition tile (VCT), carpet and painted and or sealed concrete found in the boiler room area and shop areas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

Deficiencies

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

Recommendations

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



VCT & VAT floor in classroom

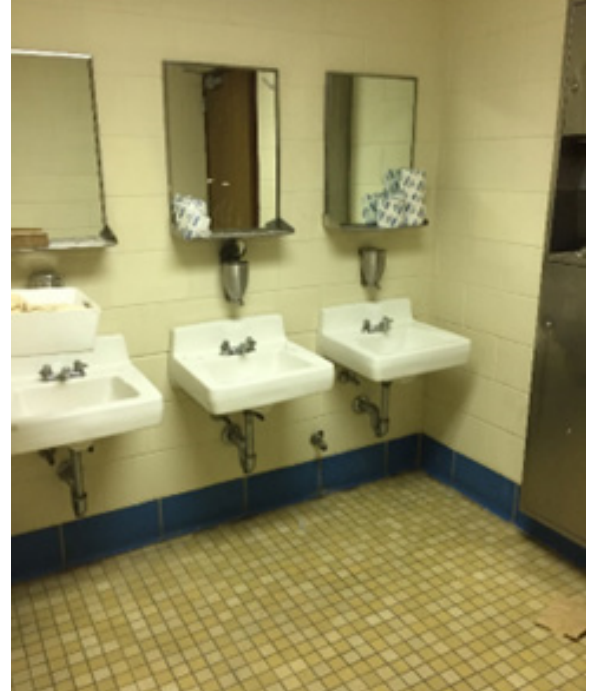


Ceramic tile in toilet rooms

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Wood flooring in classrooms



Ceramic tile in toilet rooms



VAT & VCT worn throughout school

4. Interior Doors

Existing Conditions

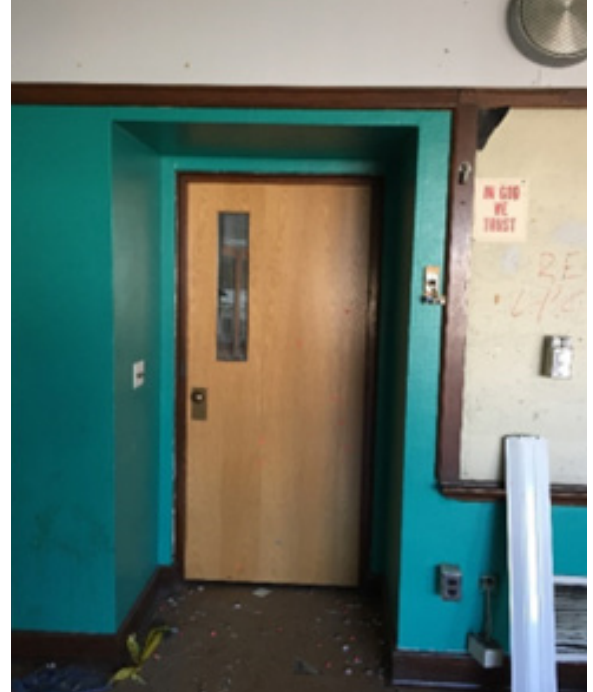
The large majority of existing interior doors and operating hardware are original construction. Doors are typically solid wood construction with either no lights or have glazed units. Door hardware is a variety of original and replacement units, with lever handles at selected locations. Entrance/exit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

Deficiencies

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

Recommendations

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

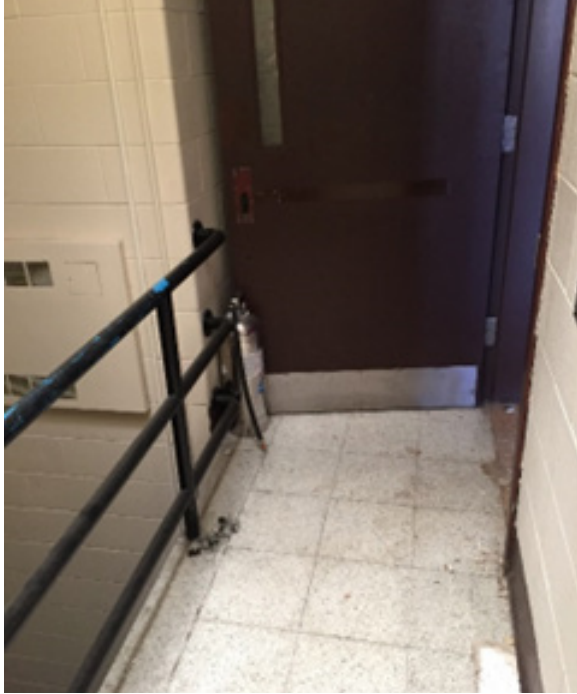


Original wood door systems in corridors and into classrooms with some hardware upgrades required

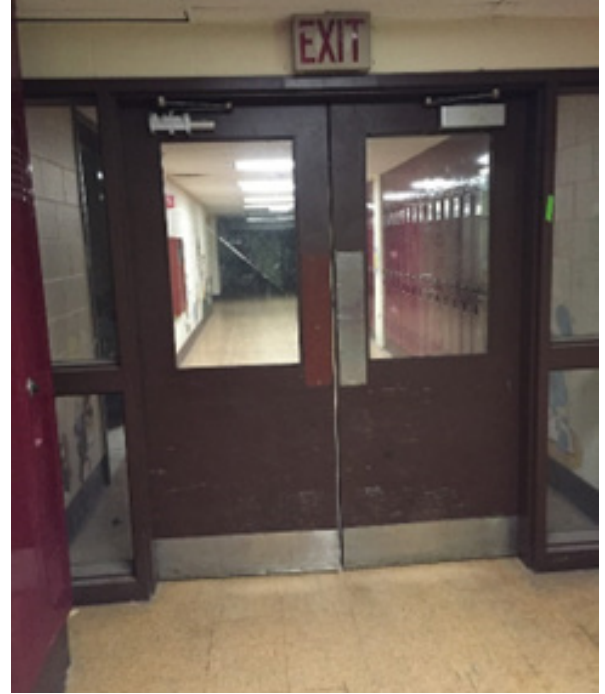


Same as above.

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Stairwell door hardware missing



Existing corridor swing doors



Original wood door system with hardware upgrade

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SECTION 2: Structural Building Assessment

GENERAL EXISTING BUILDING DESCRIPTION:

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

EXISTING STRUCTURAL SYSTEMS:

Existing Conditions:

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

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

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

Deficiencies:

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

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



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

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



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

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



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Recommendations:

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

**PROPOSED ALTERATIONS TO EXISTING BUILDING
(Former High School Building)**

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

New Foundations / New Structural Elements:

- A preliminary geotechnical engineering report dated February 1, 2017, and prepared by LGCI has been executed for the site. Any new foundations, particularly for the new elevator pit, would be founded on conventional shallow concrete footings bearing on well compacted Structural Fill placed over the natural sand and gravel layer. All unsuitable material (fill) shall be removed and replaced with well-compacted Structural Fill placed in 9" deep layers and compacted to 95%. The re-use of onsite materials is not acceptable for structural fill.
- In accordance with the preliminary geotechnical engineering report, any new foundations for the building will be founded on an allowable soil bearing pressure of 5 ksf.

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- Where the existing slab-on-grade will require selective removal (to accommodate the new elevator pit), new cast-in-place concrete slabs-on-grade (soil-supported) will include 4" thick minimum and will be reinforced with one layer of 6x6-W2.9xW2.9 welded wire fabric, placed over a minimum of 2" of rigid insulation and a 15-mil vapor barrier over a base course of approximately 12" of well-compacted Structural Fill placed directly on the natural sand and gravel layer.
- The new elevator pit will consist of a 12" thick concrete mat reinforced with #4 at 12" OC top and bottom each way.
- The new elevator walls are anticipated to be 8" wide nominal CMU walls reinforced with #5 at 24" OC vertical (in grout filled cells) and #9 gage horizontal reinforcing spaced at 16" OC.
- Groundwater was encountered in only one boring and could be anticipated during the excavation and construction of the new elevator pit.
- The soil site class for seismic design is indicated to be Site Class D, per the preliminary geotechnical engineering report.
- Structural steel wide-flanged beams may be used to head-off and support the existing framing at the new elevator opening.
- Sprayed-on fireproofing material may not be required at the underside of the new steel roof decking and on the surfaces of new steel beams and columns (since the construction classification of the existing building is anticipated to be Type IIB). The construction classification of the existing building will require additional clarification and confirmation as the design progresses.
- All structural deficiencies within the existing building, which is proposed to be renovated for this option, will require structural repairs in order to comply with the MSBC. Since alterations are proposed for this building, structural requirements per the MSBC will be triggered (depending upon the level of work and reconfiguration of space for the existing building). Any existing structural elements resisting lateral loads whose demand-capacity ratio with the alteration considered is more than 10% greater than its demand-capacity ratio with the alteration ignored shall comply with the seismic and wind requirements noted in the 2009 IEBC and the MSBC Amendments. If new and large openings in the existing masonry walls are required for the proposed architectural layout and the 10% threshold is exceeded, a lateral analysis of the existing building will be required and may result in the need for additional shear walls or bracing elements to resist lateral loads. If more than 50% of the floor area of the existing building is re-configured, the proposed alterations will be considered Level 3 Work (the most stringent of building alterations). If the building alterations are considered Level 3 Work, specific seismic hazards would need to be addressed / improved, such as roof diaphragm and wall connections (to brace unreinforced and unbraced masonry walls), unreinforced masonry parapets and unreinforced masonry chimneys. The existing building may also need to be investigated for wind uplift forces with respect to IBC level wind forces, which may

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

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



SECTION 3: Mechanical, Fire Protection, and Plumbing Assessment

GENERAL

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

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

PLUMBING

General

The following is the Plumbing System Narrative which defines the scope of work and capacities of the Plumbing System as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for NE-CHPS included in this submission.

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

1. CODES

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

2. DESIGN INTENT

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

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Design Parameters

1. GENERAL

- A. The required plumbing systems include potable hot and cold water, non-potable hot and cold water, hot water recirculation, sanitary, waste and vent system, kitchen grease waste system, and storm drain system. Acid waste and vent piping system will not be provided as it is expected that any chemicals used in the science classrooms will be collected and disposed of.
- B. The new building will be serviced by the municipal water and sewage systems.
- C. All plumbing will conform to applicable accessibility and water conservation codes.

2. DESIGN CRITERIA

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

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

Plumbing Systems

1. DRAINAGE SYSTEM

- A. Sanitary, waste, and vent piping systems will be provided and will connect to all fixtures and equipment requiring such connections throughout the new building. The buildings drain(s) will extend to a point 10'-0" beyond the building foundation. All plumbing system vents will extend through the roof.
- B. A separate, dedicated kitchen grease waste system will be provided and extend to a 1,000-gallon exterior grease interceptor. A chamber vent for the grease interceptor will be provided and will run independently back in to the building and through the roof. Grease waste piping will serve kitchen equipment and floor drains. Interior grease interceptors will be provided at specific kitchen equipment such as, but not limited to, dishwashers and scullery sinks.

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

2. WATER SYSTEM

- A. Domestic water service for the new building will be provided from the municipal water system. The water service will include valves, strainers, a water meter, pressure gauge and drain. The water meter will be interfaced with the building management system. Backflow preventers will be installed where required including, but not limited to, HVAC system make-up water connections, kitchen equipment, automatic detergent dispensers, and science classrooms.
- B. Potable hot and cold water distribution piping will be provided throughout the new building and connect to each plumbing fixture. Hot water recirculation systems will be provided. Water piping will be Type L copper tube with soldered fittings.
- C. Non-potable hot and cold water distribution piping will be provided throughout the new building and connect to each science classroom fixture. Hot water recirculation system will be provided. Water piping will be Type L copper tube with soldered fittings.
- D. Water heating will be provided by two (2) electric, storage type water heaters. Thermostatic mixing valves will be installed to provide 140°F hot water to the kitchen fixtures, and 120°F hot water to serve general use fixtures. Hot water at showers and public use lavatories will be further tempered to code allowed maximum temperatures by point-of-use pressure balancing and thermostatic mixing valves. Hot water recirculation pumps and piping will be provided for each system. A submeter will be interfaced with the building management system.
- E. 20-gallon electric water heaters will be provided for non-potable hot water serving the science classrooms.

3. FIXTURES

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

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

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

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

4. DRAINS

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

5. VALVES

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

6. INSULATION

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

7. CLEANOUTS

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

8. ACCESS DOORS

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

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FIRE PROTECTION

General

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

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

1. CODES

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

2. DESIGN INTENT

- A. Fire Protection system is existing and shall be modified to accommodate the renovations.
- B. Fire Protection work will include furnishing all equipment, materials, labor, testing and inspections required for the complete and operational installation of the fire protection systems.

3. GENERAL

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

Design Parameters

1. BASIS OF DESIGN

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

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- B. Required Design Densities:
 - Light Hazard Areas 0.10 GPM over a design area of 1,500 s.f.
 - Ordinary Hazard Group 1 0.15 GPM over a design area of 1,500 s.f.
 - Ordinary Hazard Group 2 0.20 GPM over a design area of 1,500 s.f.

- C. Maximum Sprinkler Spacing:
 - Light Hazard Areas: 225 s.f., maximum 15' between sprinklers
 - Ordinary Hazard Areas: 130 s.f., maximum 15' between sprinklers

2. HYDRANT FLOW TEST

- A. A hydrant flow test will be required.

Fire Protection Systems

1. DESCRIPTION

- A. The fire protection system is existing and will be modified as required for the building renovations.
- B. The existing system is a combination wet pipe automatic sprinkler and standpipe system providing complete building coverage.
- C. The system will be provided with a new fire department connection of a size and type to meet local requirements.

2. FIRE WATER SERVICE

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

3. SPRINKLERS

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

4. PIPING AND FITTINGS

- A. All sprinkler system piping two inches (2") and smaller in size, shall be Schedule 40 threaded black steel, conforming to ASTM Standards A53, A135, and/or A795 as applicable, and listed and approved for use in Fire Suppression Systems.
- B. All sprinkler system piping two and one-half inches (2½") and larger in size, unless

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

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

5. FIRE PUMP

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

HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

General

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

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

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

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

1. CODES

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

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2. DESIGN INTENT

The work of Division 23 00 00 is described within the narrative report. The HVAC project scope of work will consist of providing new HVAC equipment and systems and HVAC distribution systems as described herein. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

Design Parameters

1. DESIGN CRITERIA

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

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

Building Systems

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

1. HEATING and COOLING SYSTEMS

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

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

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

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

2. CENTRAL VENTILATION SYSTEMS

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

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

3. ELECTRONIC AIR FILTRATION

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

4. CLASSROOMS

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

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

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5. ADMINISTRATION AND SUPPORT AREAS

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

6. MUSIC ROOMS

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

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

7. MEDIA CENTER

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

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

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8. CAFETERIA

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

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

9. GYMNASIUM

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

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

10. AUDITORIUM

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

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

11. KITCHEN

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

12. COMMON AND MISCELLANEOUS AREAS

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

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

13. SPECIAL EDUCATION ROOMS

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

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

14. MDF, IDF AND ELECTRIC ROOMS

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

15. AUTOMATIC TEMPERATURE CONTROLS

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

16. GREEN KIOSK: LEED v4 'Innovation (IN)'

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

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

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- Indoor air temperature set point policy shall be established for all rooms and publicized for occupants to view.
- Electronic Air Filtration (MERV-13) shall be installed in ducted HVAC systems.
- Condensing boilers shall achieve higher efficiency and performance by supplying lower hot water temperature to heating equipment based on the outside temperatures.
- Displacement Ventilation shall be installed in Classrooms. This system increases ventilation effectiveness by supplying air at low velocities toward heat sources, causing supply air temperature to rise and become more buoyant, therefore displacing heat and contaminants up toward the exhaust grilles located at the ceiling.

Miscellaneous:

- Electronic air filters (MERV-13) shall be provided.
- Building shall be provided with dedicated exhaust system for spaces where chemical use occurs. Exhaust shall be provided at a rate of 0.5 cfm/sq.ft and make-up air shall be provided.
- Gas-fired boilers and furnaces for HVAC equipment shall be equipped with electric ignitions.
- Air intakes shall be in accordance to ASHRAE Standard 62.1.
- All systems shall be provided with return ductwork.
- Each classroom shall be provided with an independent temperature sensor for occupant control. Thermostats shall have the ability to adjust +/-3°F.
- HVAC shall specify an Energy Management System designed to monitor and trend Lighting (via a BAC net connection), Photovoltaics (via a MOD bus connection), HVAC and Domestic Hot Water.
- Electrical and Plumbing shall meter energy sources (electricity, natural gas and domestic/potable water), the EMS shall trend data with respect to the outside air temperature.
- The DDC system shall be equipped with sensors, point's matrix, trend capabilities, system architecture, data storage and operator interface.
- Project specifications shall include instructions for building operators to analyze energy source trending vs. outside air temperature and adjust equipment operation as required to increase energy efficiency.

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Mechanical Loads

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

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

SECTION 4: Electrical Assessment

I. BUILDING DESCRIPTION

A. SYSTEMS

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

B. ELECTRICAL DISTRIBUTION SYSTEM

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



*Utility Pole with Incoming Utility
Primary Lines*



Pad Mounted Utility Transformer

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



Main Switchboard



Main Switchboard

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

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

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Distribution Panelboard



Motor Control Center



Panelboards in Electrical Room



Panelboards in Kitchen

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

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C. INTERIOR LIGHTING

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



2x4 Lensed Troffer in Library



2x4 Lensed Troffer in Library



2x4 Lensed Troffer in Library

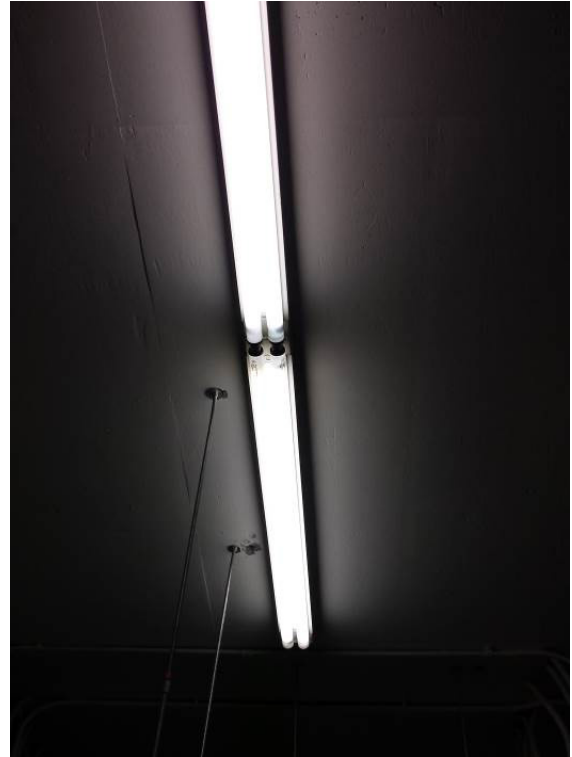


2x4 Lensed Troffer in Library

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2x4 Lensed Troffer in Library



2x4 Lensed Troffer in Library

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

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Tandem 2x4 Parabolic in Auditorium



High Bay HPS in Gymnasium

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

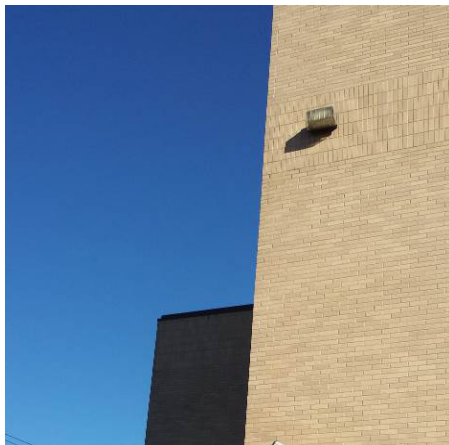
In general, the interior lighting system is in poor condition in which many of the fixtures either have broken lenses or no lenses at all, the fixtures have passed their useful life period of 20 to 25 years. The older fluorescent technology that is installed is no longer considered energy efficient compared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

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D. EXTERIOR LIGHTING

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



Building Mounted Wall Pack

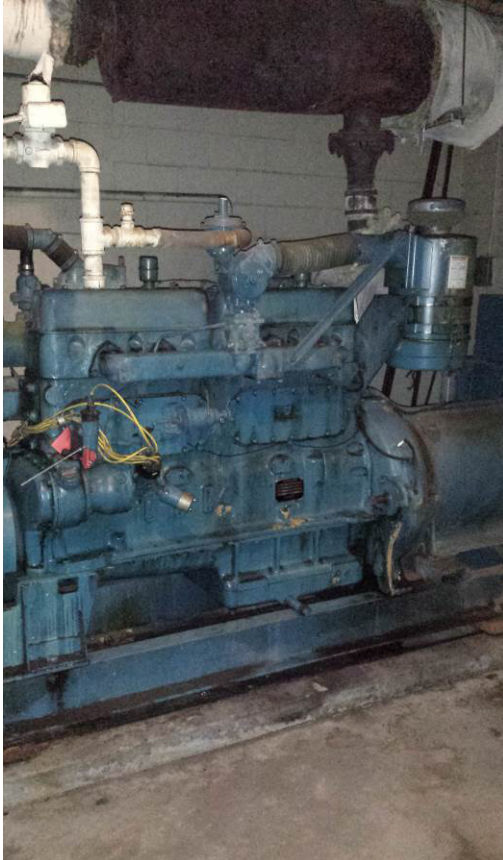


Architectural Street Light at Front Street Entrance

E. EMERGENCY SYSTEM

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

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Generator



Generator Control Panel

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

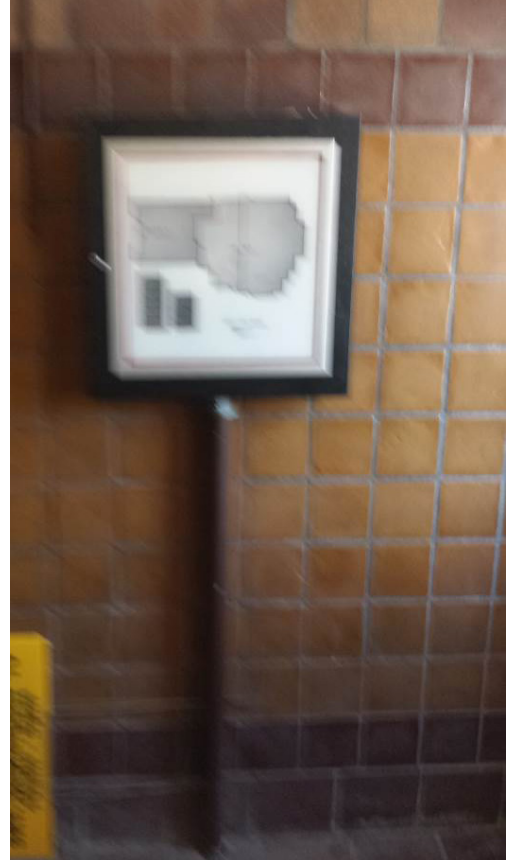
F. FIRE ALARM SYSTEM

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

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Original Control Panel with new Equipment



Annunciator in Man Entrance Lobby

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

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

G. WIRING DEVICES

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

H. SECURITY SYSTEM

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



Horn Strobe and Pull Station

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I. RECOMMENDATIONS

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

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

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

Exterior:

- Coordinate with National Grid Company to have the existing pad-mount transformer disconnected, removed and replaced with a new pad-mount Transformer with CT and meter. Disconnect, removed and replace the secondary conduits from the new pad-mount transformer to the new 2000A-277/480V-3Ph-4W Main Distribution Board located in the new Ground Floor Main Electric Room.
- Furnish and install a new 300-KW Diesel Generator with a weather-tight, sound-attenuated enclosure on the property, ideally near the new Ground Floor Electric Room. The generator is intended to protect Life Safety emergency and Standby emergency circuits. Emergency systems include lighting at all means of egress, selective lighting throughout the areas of renovation, exit signs, fire alarm system, telephone system, generator system. Standby systems include the security system, camera system, sound/clock system, energy management system, all freezers & coolers, selective administrative power and heat, selective exterior site lighting, any heaters in remote areas where pipes could freeze and main water pumps.
- Furnish and install new exterior lighting to properly illuminate entrances and parking areas.

Ground Floor:

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

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- Furnish and install a new 400A-480V-3Ph-4W sub-panel in the new Electric Room near the Kitchen; furnish and install a new 200A-3P feeder from the new Kitchen Panel to the new main distribution board on the Ground Floor. Furnish and install a new 1125.KVA step-down transformer in the room. Furnish and install a new 400A-120/208V-3Ph sub-panel for the Café and Kitchen power loads. Furnish and install a new standby emergency sub-panel in room. Connect power to selective kitchen equipment.
- Furnish and install a new time delay heavy duty disconnect switch in the new Elevator Machine Room. Provide a new 100A-3P-480V feeder to the new 1600A main distribution board in the new main electric room on the ground floor. Furnish and install all equipment and devices in the pit, elevator machine room, elevator lobbies and elevator shaft to meet current Code. NOTE: the elevator shall come equipped with battery operated lowering device and will not be connected to the generator power.
- Furnish and install both 277/480V and 120/208V circuitry and connections to new Kitchen equipment.
- Furnish and install new lighting in the Café and Kitchen. Maintain a minimum of 50-footcandles.
- Provide emergency power feeds to selective lighting in the Café and Kitchen areas.
- Furnish and install new tamper-resistant receptacles, approximately 25' apart in Café. Connect circuitry to new 120/208V panel.
- Furnish and install new Fire Alarm devices (pull stations, smoke detectors, heat detectors, CO detectors, Ansul System connections, speaker-visual devices, etc.) where required by Code.
- Provide electrical support to Mechanical, Plumbing and Fire Protection equipment. Coordinate work with each Trade.

First Floor:

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

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

- Create a new two-hour rated Emergency Electric Closet. Furnish and install a new 100A-3P-277/480V sub-panel to serve selective light fixture circuits. Furnish and install a new 70A-3P-480V-3Ph feeder and circuit breaker to the main emergency distribution board on the ground level.
- Furnish and install a new Fire Alarm Control Panel (FACP), Silent Knight Company (or equal) #6820EVS series with voice evacuation. Locate panel, communicator and batteries in the Administration Suite. Furnish and install a 120V feed from the FACP to the 120/208V emergency panel in the ground level emergency electric room. The FACP shall connect to all new manual pull stations, automatic fire detectors, speaker/visual and flashing only strobes, elevator recall connections, connections to the motorized dampers in the Elevator shaft, duct smoke detectors and supervision of the sprinkler system, kitchen Ansul System, Music, Gymnasium, Cafeteria, and Theater sound systems.
- Furnish and install a new remote Fire Alarm Annunciator in the vestibule at the school entry. On the exterior of the building locate a fire alarm red beacon light, fire fighters' key box and fire alarm master box. Connect to the new FACP.
- Furnish and install selective standby emergency power feeds in the Administration, Health and Guidance areas and connect to the new 120/208V standby emergency sub-panel in first floor electric room.
- Provide emergency power feeds to selective lighting on the first floor; furnish and install branch circuitry to new emergency closet on first floor.
- Furnish and install new tamper-resistant receptacles throughout, spaced to accommodate the various needs of each program. Connect circuitry to new 120/208V panel in new electric room on first floor.
- Provide empty raceway for telecommunication systems, CATV/CCTV, audio/visual systems.
- Furnish and install j-hooks every 5' in corridors for telecommunication cabling.
- Furnish and install new Fire Alarm devices (pull stations, smoke detectors, heat detectors, CO detectors, speaker-visual devices, etc.) where required by Code. Connect to new FACP in the Administration area.
- Provide electrical support to Mechanical, Plumbing and Fire Protection equipment. Coordinate work with each Trade.

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- Furnish and install a new Theatrical Lighting System for the renovated Auditorium. Provide a new Stage Dimming Rack, Stage lighting control devices, theatrical lighting, receptacles, etc., for a complete system. Furnish and install a new 45 KVA step-down transformer and 150A-3P-12/208V sub-panel in the vicinity of the Theater. Provide a new 70A-3P feeder to the 277/480V distribution board in the new ground floor electric room. Provide emergency power from the new Theatrical Dimming Panel to the Emergency panel in the Ground Floor Emergency Room.
- Assess the existing Gym conditions to ensure that the lighting and power are adequate for the space. Furnish and install new fire alarm devices (pull stations and speaker-visual devices) throughout the space.
- Furnish and install new lighting, power and fire alarm devices in all corridors, Lockers, Theatre Arts, Music areas, etc. Connect to the sub-panels in the new first floor electric room.

Second Floor and Third Floor:

- Create a new Electric Room. Furnish a new 400A-3P-277/480V sub-panel to serve the lighting and miscellaneous 277/480V mechanical loads; provide 400A-3P feeder and circuit breaker to the main distribution board on the ground level. Furnish and install a new 75-KVA step-down transformer and 225A-MLO-10/208V-3Ph-4W two-section sub-panel to serve receptacles and small power loads. Furnish and install a new 600A-3P-277/480V panel on the Third Floor to serve the Rooftop equipment. Furnish and install new 100A-MLO-120/208V standby emergency sub-panel in each room; furnish and install new 70A-3P feeders and circuit breakers to the 120/208V standby emergency panel in on the ground level.
- Create a new two-hour fire rated Emergency Electric Closet. Furnish and install a new 100A-3P-277/480V sub-panel to serve selective light fixture circuits. Furnish and install a new 70A-3P-480V-3Ph feeder and circuit breaker to the main emergency distribution board on the ground floor.
- Furnish and install selective standby emergency power feeds in the in the Second Floor Media Center and connect to the new 120/208V standby emergency sub-panel in first floor electric room.
- Provide emergency power feeds to selective lighting on the second/third floor; furnish and install branch circuitry to new emergency closet on second/third floor.
- Furnish and install new tamper-resistant receptacles throughout. Connect circuitry to new 120/208V panel in new electric room on second/third floor.
- Provide empty raceway for telecommunication systems, CATV/CCTV, audio/visual systems.
- Furnish and install j-hooks every 5' in corridors for telecommunications cabling.

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- Furnish and install new Fire Alarm devices (pull stations, smoke detectors, heat detectors, CO detectors, speaker-visual devices, etc.) where required by Code. Connect to the new FACP in the Administration area on the first floor.
- Provide electrical support to Mechanical, Plumbing and Fire Protection equipment. Coordinate work with each Trade.
- Furnish and install new lighting, power and fire alarm devices in all corridors, Toilet Rooms, Media Center, Classrooms, etc. Connect to the sub-panels in the new second/Third floor electric rooms.
- Typical Classroom:
 - o Furnish and install two rows of new pendant-mount LED style dimmable linear light fixtures. Maintain a minimum of 35-footcandles per room.
 - o Furnish and install lighting controls. Provide vacancy/occupancy sensors, photocell control (for day-light dimming) and a dimming station with three zone controls. The lighting system shall adjust the lighting in response to the varying ambient light levels from outside. Each classroom lighting system shall be connected to the networked lighting control system.
 - o Furnish and install new tamper-resistant receptacles, a minimum of two per wall. NOTE: the power design will be coordinated closely with the telecommunications design, architectural design and Owner equipment.
 - o Provide empty raceways for telecommunication devices and projectors. 1 ¼" conduit to rise up classroom wall and out to corridor.
 - o Provide electrical support for clock & sound system.
 - o Furnish and install a speaker/visual device; connect to the signal circuit loop on each floor.
 - o Provide electrical support for mechanical equipment.

Existing Building:

- It shall be the responsibility of the Electrical Contractor to ensure that the electrical systems in the building that are not within the area of renovations have not been affected by demolition. In the event that a device being removed causes another device remaining not to operate, it shall be the contractor's responsibility to reconnect the equipment remaining back to its source.
- It shall be the responsibility of the Electrical Contractor to coordinate phasing of work with the General Contractor prior to commencement of work.
- Disconnect and remove the existing secondary power coming into the building. Disconnect and remove the existing main distribution board in the ground floor electric room. See above for new work on the ground floor.

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- Furnish and install new Fire Alarm devices throughout the existing areas of the building (ground floor; existing charter school; existing gymnasium) that are not affected by the renovation project. The existing fire alarm system shall remain in place until the new fire alarm system is installed, operational, tested and approved by the fire department. The new devices shall be connected to the new Fire Alarm Control Panel with voice evacuation.
- Disconnect and remove power to all Rooftop equipment. Furnish and install new power feeds from new units to new main distribution board in the new electric room on the third floor and in the new main distribution board on the ground floor.
- The following work must be completed in the Charter School space and Public Gymnasium:
 - o Disconnect power from sub-panels feeding the spaces to the existing main distribution board. Furnish and install new feeders to the new 2500A board in the new Ground Floor Main Electric Room. The Electrical Contractor shall provide standby generator power to the space so that the building remains energized while power is disconnected.
 - o Furnish and install new addressable Fire Alarm initiating and signaling devices. When the new devices are installed, operational and tested, the EC shall disconnect the existing devices in the spaces.
 - o At each entry, furnish and install remote fire alarm annunciators. Connect to the new fire alarm system.

END OF REPORT

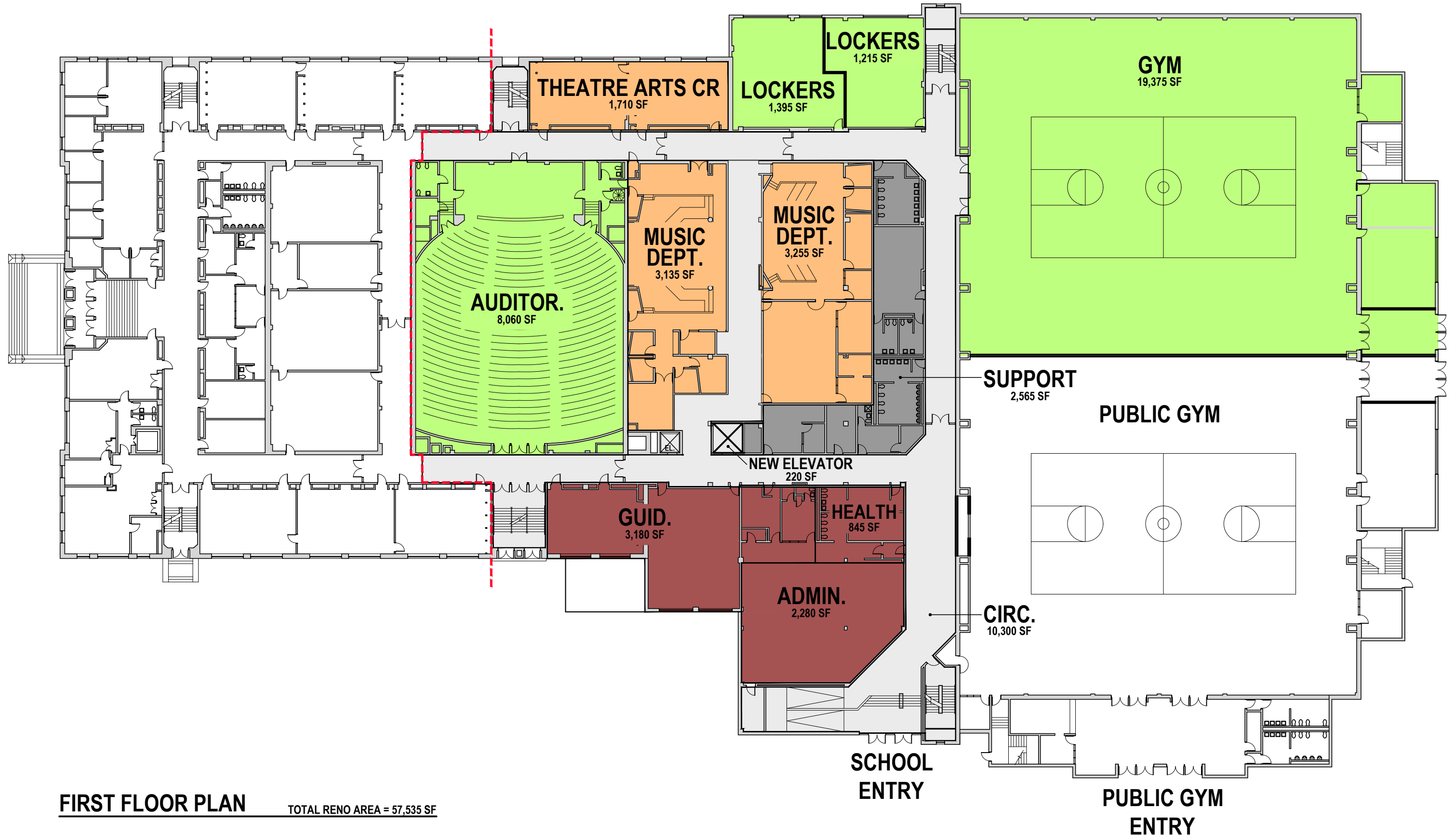
APPENDIX

CONCEPTUAL DESIGN FLOOR PLANS



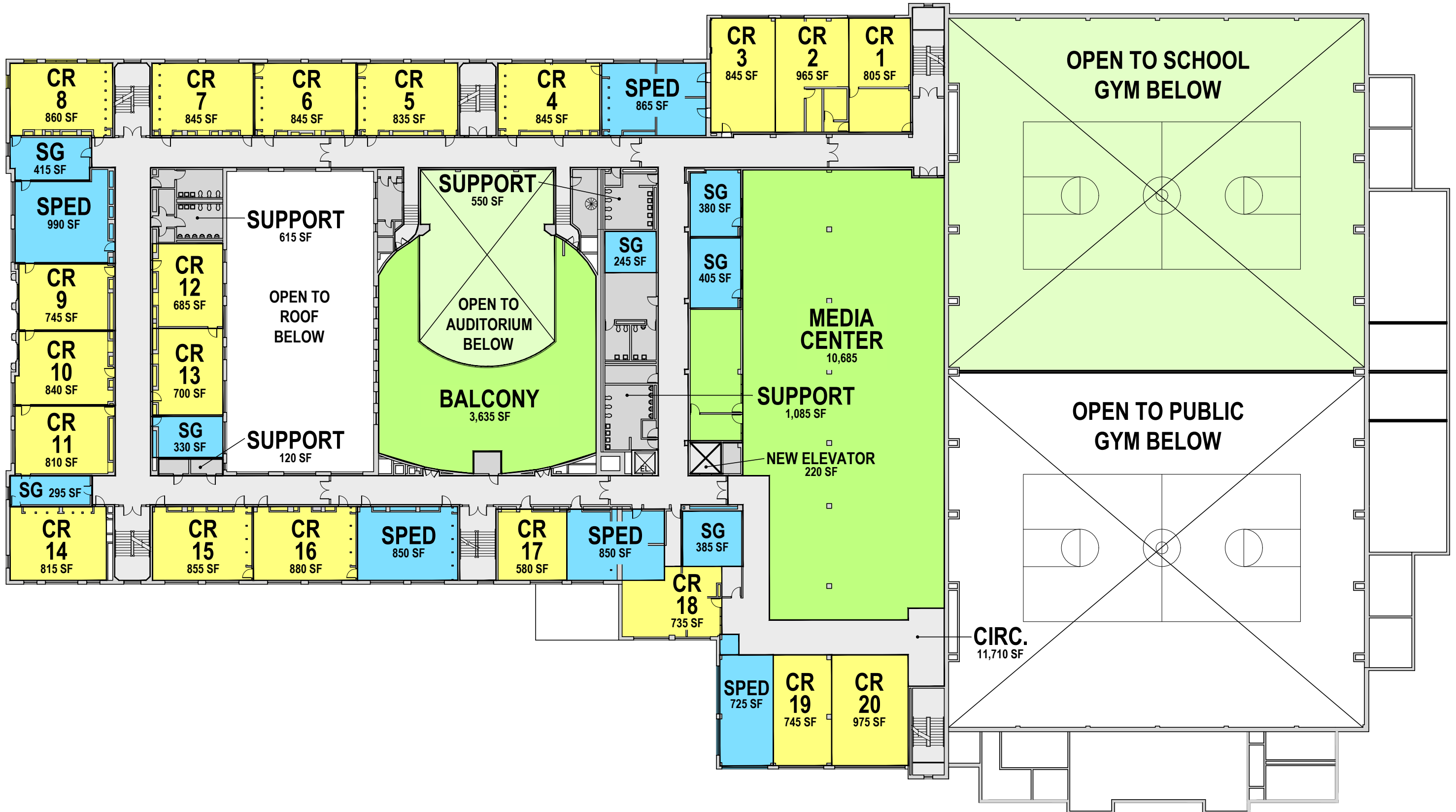
GROUND FLOOR PLAN

TOTAL RENO AREA = 19,985 SF



FIRST FLOOR PLAN

TOTAL RENO AREA = 57,535 SF



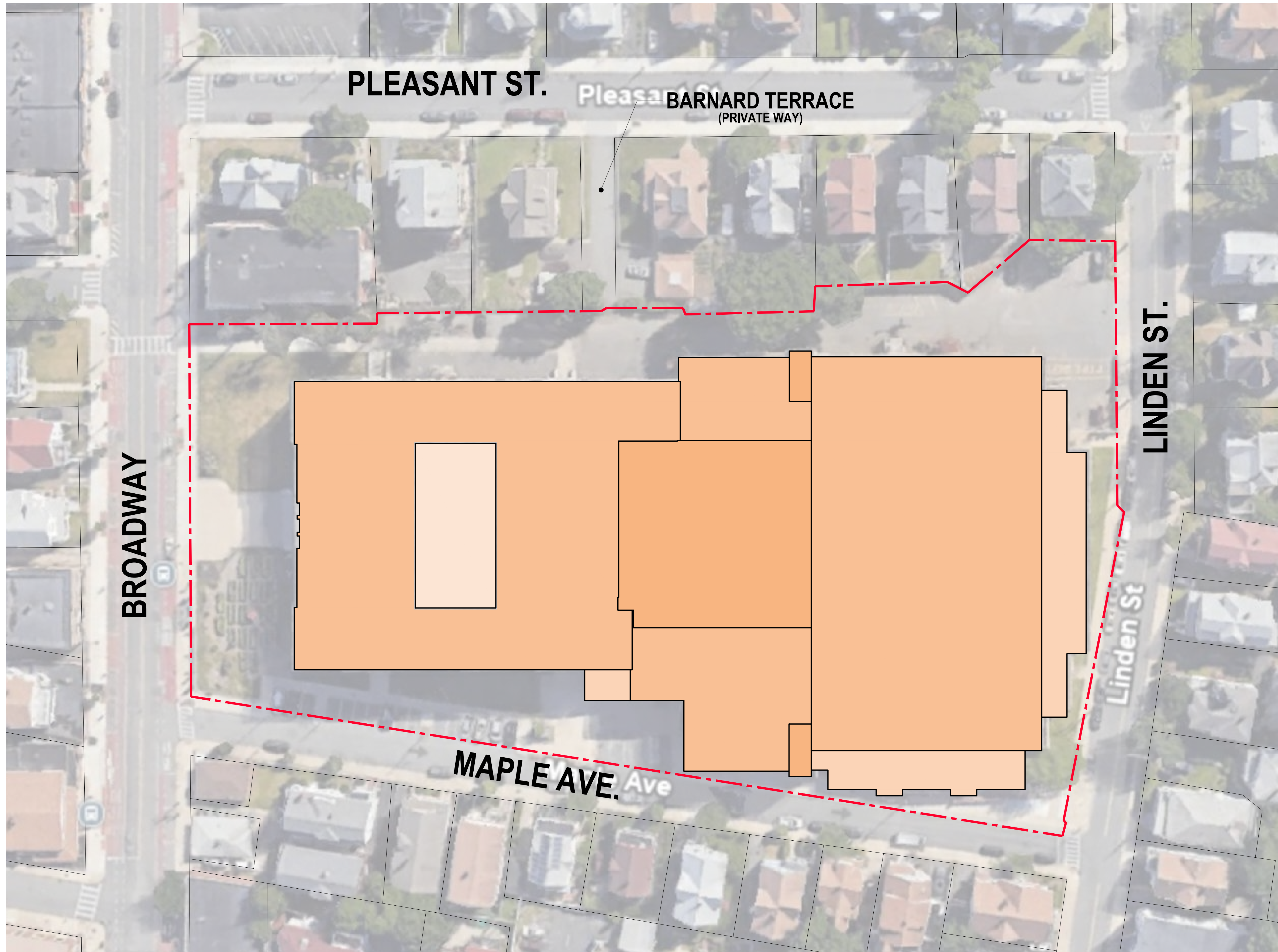
SECOND FLOOR PLAN

TOTAL RENO AREA = 51,565 SF

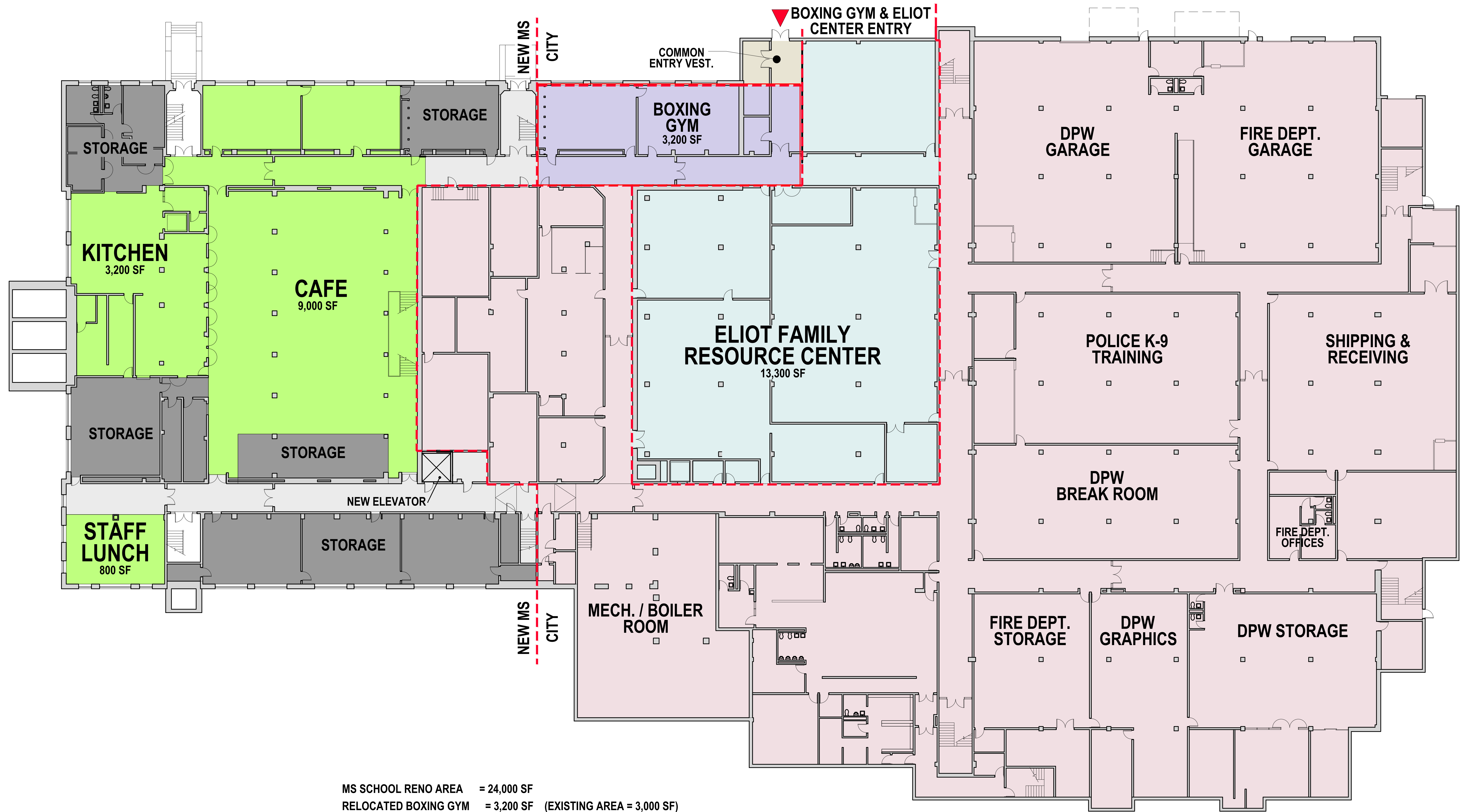


THIRD FLOOR PLAN

TOTAL RENO AREA = 54,075 SF

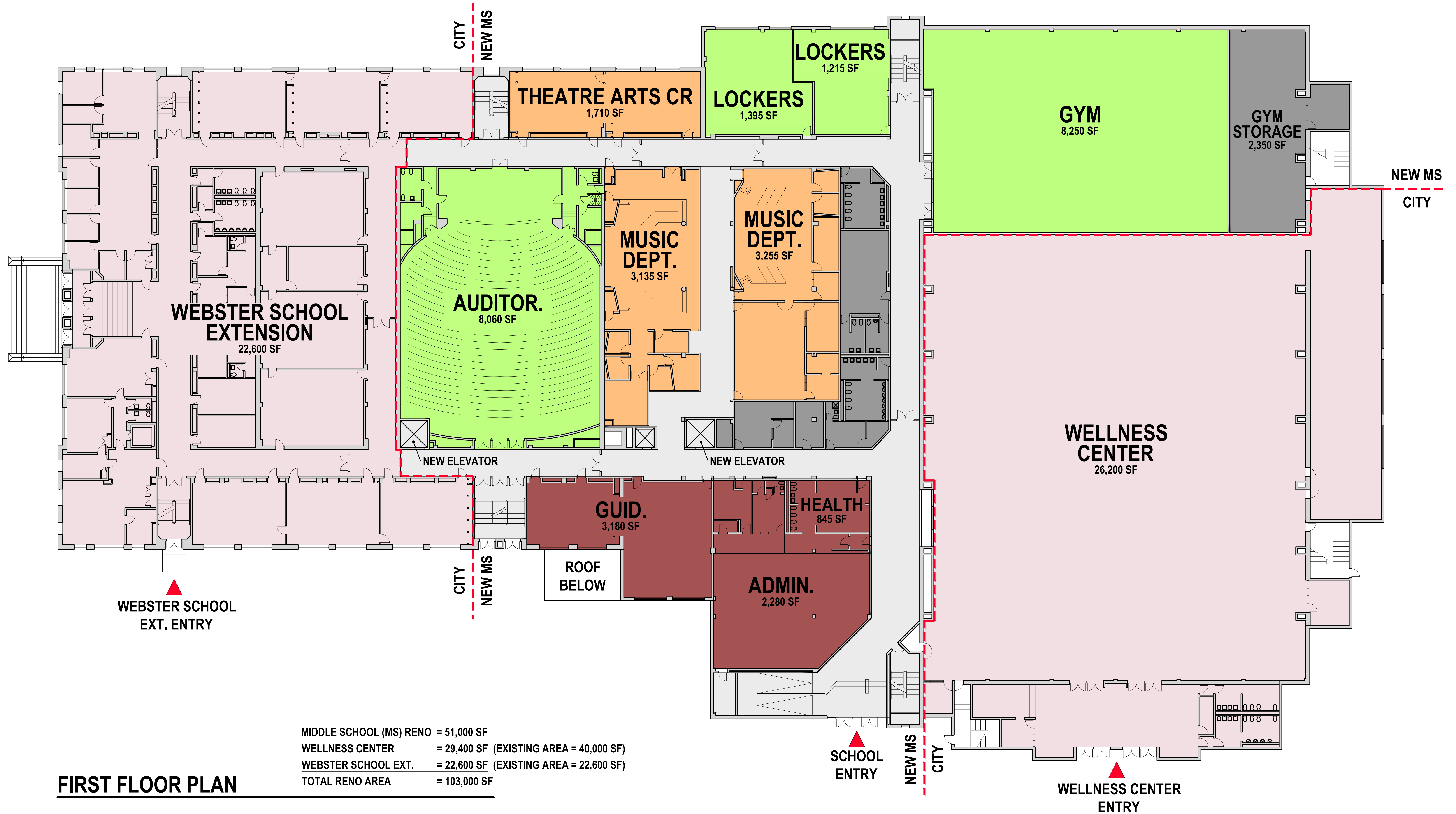


CONCEPTUAL SITE PLAN



MS SCHOOL RENO AREA = 24,000 SF
 RELOCATED BOXING GYM = 3,200 SF (EXISTING AREA = 3,000 SF)
 ELIOT CENTER RENO AREA = 13,300 SF (EXISTING AREA = 12,800 SF)
 TOTAL RENO AREA = 40,500 SF

GROUND FLOOR PLAN



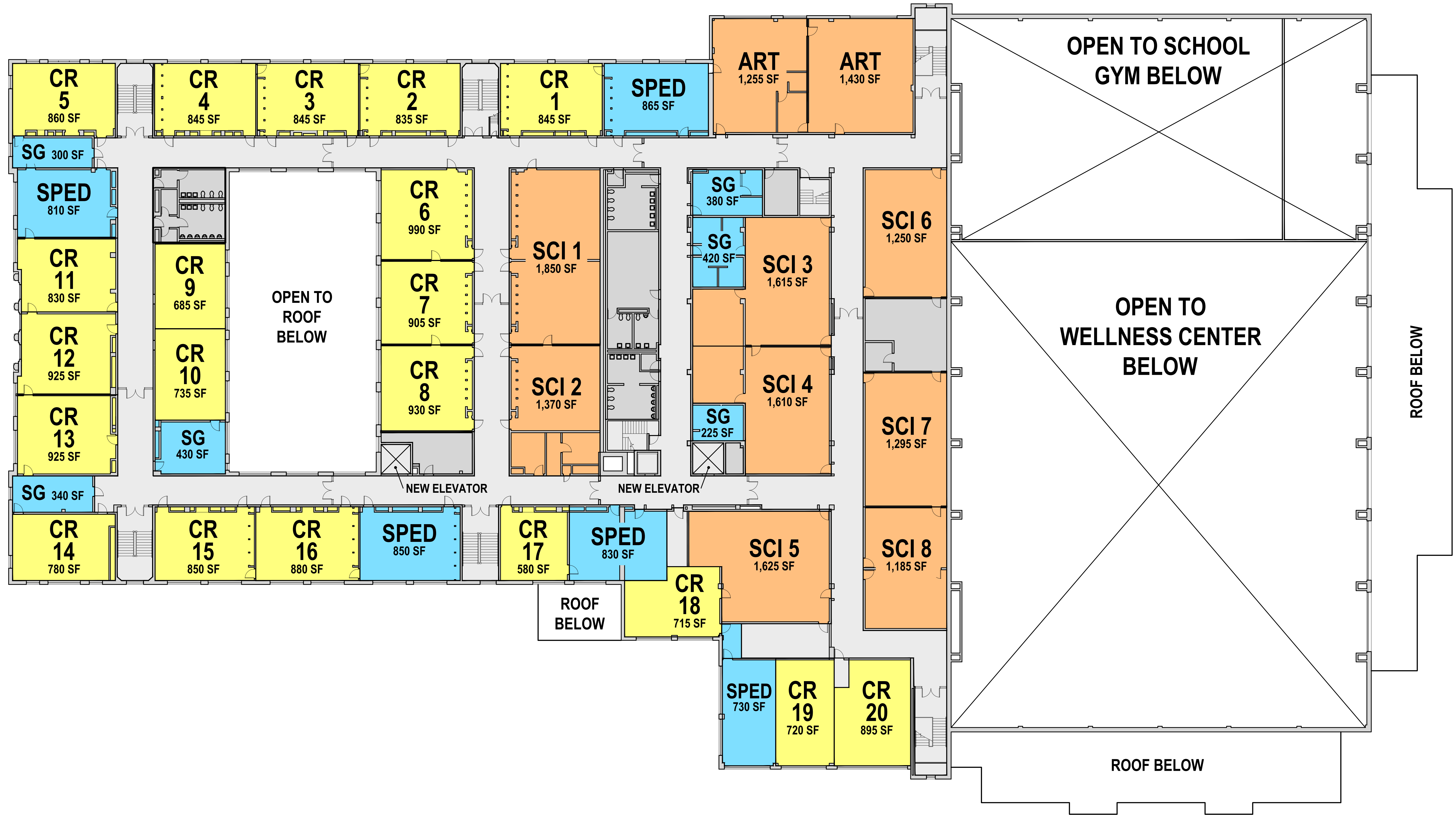
MIDDLE SCHOOL (MS) RENO	= 51,000 SF
WELLNESS CENTER	= 29,400 SF (EXISTING AREA = 40,000 SF)
WEBSTER SCHOOL EXT.	= 22,600 SF (EXISTING AREA = 22,600 SF)
TOTAL RENO AREA	= 103,000 SF

FIRST FLOOR PLAN

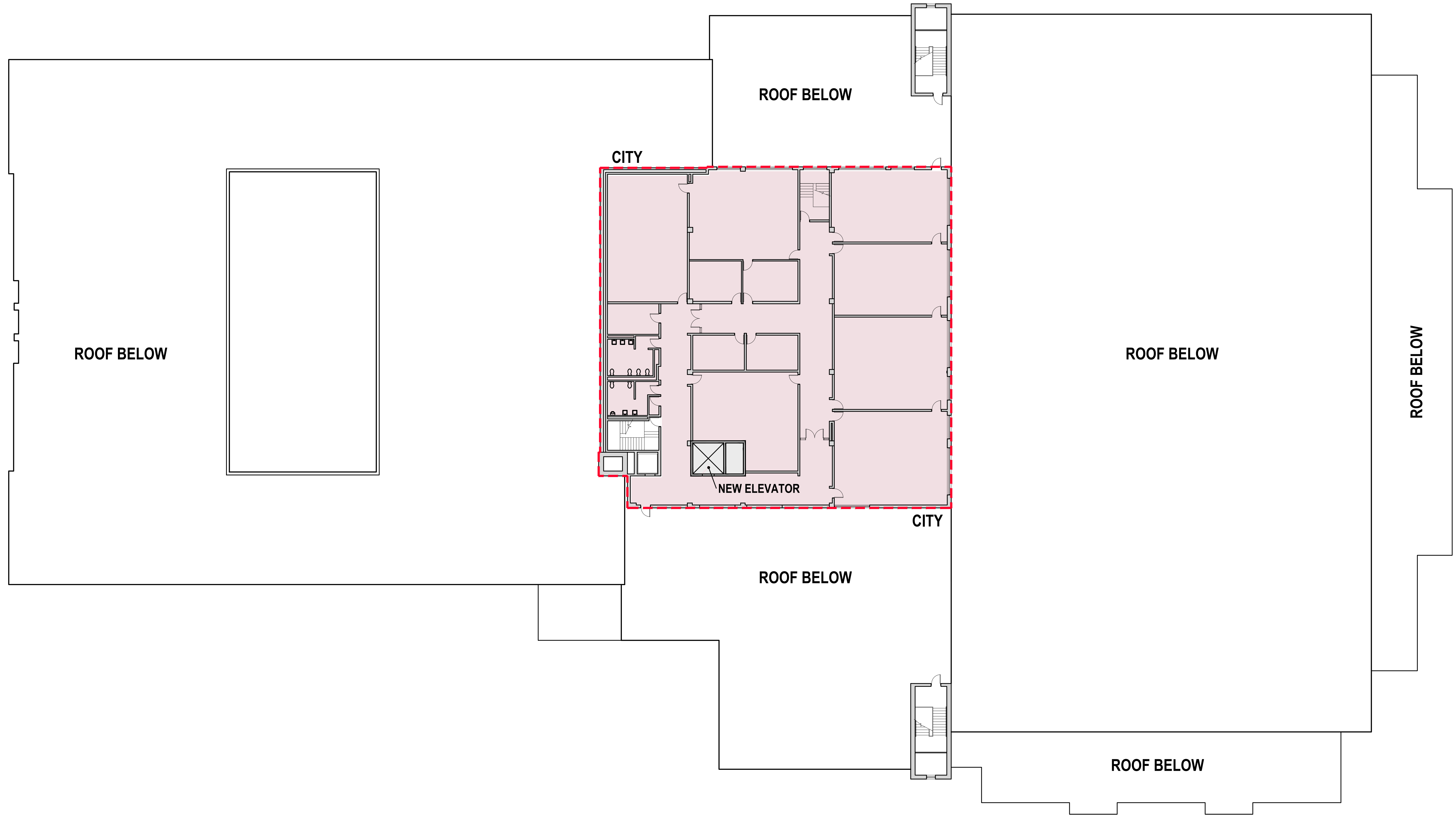


SECOND FLOOR PLAN

TOTAL RENO AREA = 51,565 SF



THIRD FLOOR PLAN TOTAL RENO AREA = 54,075 SF



FOURTH FLOOR PLAN TOTAL RENO AREA = 220 SF

**FEASIBILITY DESIGN
CONSTRUCTION COST REPORT**



June 17, 2024

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

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

Dear Bill:

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

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

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

Alternates

None considered at this time

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

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

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



Contractors are not required to be signatory to any labor union, however they will be required to pay prevailing wage rates as set forth by the Commonwealth of Massachusetts for construction at this project location. This cost report represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

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

Sincerely,

A handwritten signature in black ink that reads 'Seamus Fennessy'. The signature is written in a cursive style with a prominent 'S' and 'F'.

*Seamus Fennessy MRICS
Principal/Owner*

Enclosures

	Page No.
<i>Executive Summary</i>	1
<i>Basis of Construction Cost Report</i>	3
<i>Exclusions</i>	5
<i>Area Calculation</i>	6
<i>Overall Summary</i>	7
<i>Building Work</i>	8
<i>Site Work</i>	17

The Project

This project in Everett, Massachusetts comprises of renovations to approximately 100,000 sq ft of the existing building to provide a new middle school. A portion of the existing building will remain un-renovated.

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

Allowances have been included for site preparation and development.

Financial Status

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

Risk

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

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

Design Contingency

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

Escalation/Market Risk

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

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

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

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

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

Construction/Payment Default

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

Approvals Process/Funding.

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

Peer/Comparable Projects

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

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

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

Conditions of Construction

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

The Cost Plan is based on the following conditions:

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

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

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

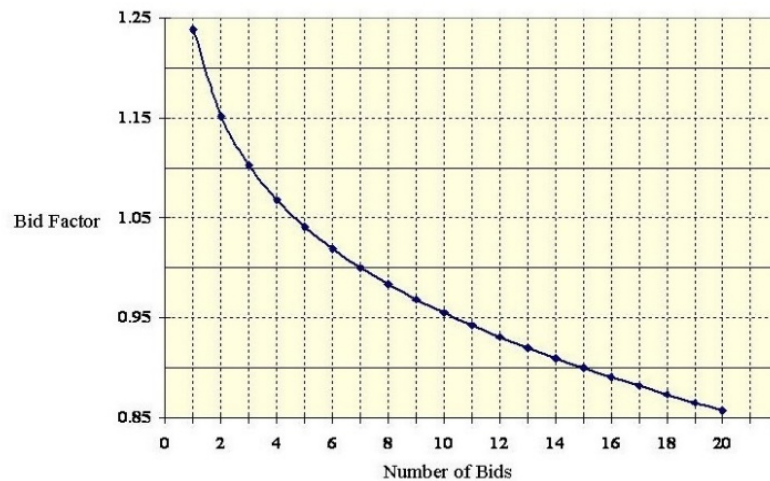
Bidding Process - Market Conditions

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

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

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

Effect of Competition on Prices



Source: [Area Cost Factor Study](#), U.S. Army Corps of Engineers

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

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

Areas Calculation

	<i>Existing</i>	<i>Total</i>
BUILDING WORK		
Ground Level	19,985	
Level 1	57,353	
Level 2	51,565	
Level 3	54,075	
Ground Level (not in GFA)	88,649	
Level 1 Charter School (not in GFA)	23,578	
Level 1 Public Gym (not in GFA)	22,848	
Level 4 (not in GFA)	14,406	
TOTAL GROSS FLOOR AREA	149,481	182,978
	<i>Preparation</i>	<i>Development</i>
SITE AREAS		
Complete	72,866	72,866

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

Building Work - Summary

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

Building Work - Summary

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

**Building Work - Estimate
 Detail**

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

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

**Building Work - Estimate
 Detail**

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

**Building Work - Estimate
 Detail**

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

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

**Building Work - Estimate
 Detail**

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

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

Site Work - Summary

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

Site Work - Estimate Detail

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

Site Work - Estimate Detail

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



MOUNT VERNON GROUP
ARCHITECTS

178 Albion Street
Suite 240
Wakefield, MA 01880
781.213.5030

mvgarchitects.com

Massachusetts Cultural Resource Information System

Scanned Record Cover Page

Inventory No:	EVR.62
Historic Name:	Everett High School
Common Name:	Everett Health and Wellness Center
Address:	548 Broadway
City/Town:	Everett
Village/Neighborhood:	Everett;
Local No:	
Year Constructed:	1922
Architectural Style(s):	Classical Revival;
Architect(s):	Ritchie, Parsons and Taylor;
Use(s):	Community Center; Public School;
Significance:	Architecture; Community Planning; Education; Health Medicine;
Area(s):	EVR.AF
Designation(s):	
Building Materials:	Wall: Brick; Cast Stone; Granite; Steel; Stone, Cut; Wrought Iron;
Demolished	No



The Massachusetts Historical Commission (MHC) has converted this paper record to digital format as part of ongoing projects to scan records of the Inventory of Historic Assets of the Commonwealth and National Register of Historic Places nominations for Massachusetts. Efforts are ongoing and not all inventory or National Register records related to this resource may be available in digital format at this time.

The MACRIS database and scanned files are highly dynamic; new information is added daily and both database records and related scanned files may be updated as new information is incorporated into MHC files. Users should note that there may be a considerable lag time between the receipt of new or updated records by MHC and the appearance of related information in MACRIS. Users should also note that not all source materials for the MACRIS database are made available as scanned images. Users may consult the records, files and maps available in MHC's public research area at its offices at the State Archives Building, 220 Morrissey Boulevard, Boston, open M-F, 9-5.

Users of this digital material acknowledge that they have read and understood the MACRIS Information and Disclaimer (<http://mhc-macris.net/macrisdisclaimer.htm>)

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Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

This file was accessed on: Wednesday, January 28, 2026 at 10:53 AM

Pl. EVERETT

EVR.62

FORM B - BUILDING

AREA	FORM NO.
	62

MASSACHUSETTS HISTORICAL COMMISSION
294 WASHINGTON STREET BOSTON MA 02109

Neg. #XII-12



Everett

ss Broadway

ric Name Everett High School

Present school

original school

DESCRIPTION:

1922

Source cornerstone

Style Beaux Arts

(Boston)

Architect Ritchie, Parsons and Taylor

(Boston)

Exterior wall fabric buff brick

Outbuildings

Major alterations (with dates)

rear addition: 1978

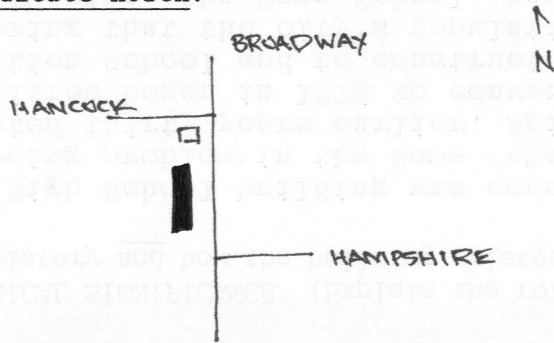
Moved Date

Approx. acreage

Setting commercial/residential

SKETCH MAP

Show property's location in relation to nearest cross streets and/or geographical features. Indicate all buildings between inventoried property and nearest intersection. Indicate north.



Recorded by Elizabeth Durfee Hengen

Organization Preservation Consultant
City of Everett

Date January, 1983

(Staple additional sheets here)

ARCHITECTURAL SIGNIFICANCE (Describe important architectural features and evaluate in terms of other buildings within the community.)

The largest school building in Everett, this is a massive three-story building, rectangular in plan, faced with buff brick with concrete trim. The tripartite facade has a broad central section containing three arched entrances and, above them, a two-story columned niche, repeated in the outer bays. Pedimented inscription tablets expound the benefits of education.

HISTORICAL SIGNIFICANCE (Explain the role owners played in local or state history and how the building relates to the development of the community.)

The High School building was constructed to meet a severe overcrowding problem in the Home School, (as the high school was called), erected thirty years earlier. Agitation on the part of the school committee began in 1920 to convert the use of that building into a vocation school and to construct a new high school building. Considering that the city's population had jumped from 16,000 to over 40,000 since the Home School had been built, the space needs became apparent.

The new building, ready in 1922, had thirty-six classrooms, special rooms for vocational skills (such as dressmaking, stenography and millinery), a gymnasium and a 1600-seat auditorium.

BIBLIOGRAPHY and/or REFERENCES (name of publication, author, date and publisher)

Everett Centennial (1970)

SPNEA files

INVENTORY FORM CONTINUATION SHEET

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

EUR.62

Town Everett Property Address Bradway

Area(s) Form No.
EUR 62

DEPARTMENT OF PUBLIC SAFETY
DIVISION OF INSPECTION
PLAN RECORD

CASE a RACK 1 APART. 2 NO. 18148

BUILDING New High school STORIES 3 B.

CITY OR TOWN Everett STREET COR. Broadway, Maple Ave.

TO BE USED FOR school purposes CLASS 1st SCHOOL

OWNER City of Everett

ARCHITECT Ritchie, Parsons & Taylor

~~CERTIFICATE APPROVAL - SPECIFICATION REQUIREMENTS REFERRED~~

DATE Dec. 28, 1921.

INSPECTOR Ryan

FORM 41. 2000. 2-11-20.



R.I. ANALYTICAL
41 Illinois Avenue - Warwick, RI 02888
P: (401) 737-8500 F: (401) 732-8034

January 31, 2017

Mount Vernon Group Architects, Inc.
Attn: William R. Peters
Associate Principal
200 Harvard Mill Square, Suite 410
Wakefield, MA 01880

E: bpeters@mvgarchitects.com
P: 781.451.0228

RE: Report - Everett HS Feasibility Study – Environmental Inspections
Site: George Keverian School, 548 Broadway, Everett, MA 02149
RI Analytical Project No. 160345

Dear Mr. Peters:

Thank you for the opportunity for RI Analytical to provide you with environmental consulting services.

1.0 BACKGROUND:

RI Analytical, **EAM Division**¹, was contracted to conduct an environmental study of the building. The work included an asbestos inspection, an indoor air quality survey, lead based paint testing, and Radon testing. The Site inspection and sampling was conducted from November 30, 2016 to December 2, 2016. The work included a visual inspection of all accessible areas of the building for materials suspected of containing asbestos (“Suspect Materials”), a visual inspection of representative accessible areas for other potential hazardous materials was also completed. Samples were collected of representative materials suspected of containing asbestos, indoor airborne fungal spore survey, lead based paint, and Radon. The results from the inspection and sampling will be used as a determination inspection relating to information needed for a feasibility study but will is not a comprehensive pre-renovation inspection that is required under **EPA**², **NESHAP**³, **MADEP**⁴ and **MADLWD**⁵ asbestos regulations.

Composite samples were not collected from representative caulks and putties within similar component groups (such as different window system types) for laboratory analysis TCLP for **PCB**⁶ for waste disposal characterization.

¹ **EAM Division** = Exposure Assessment and Management Division.

² **EPA** = U.S. Environmental Protection Agency.

³ **NESHAP** = National Emissions Standard for Hazardous Air Pollutants, 40 CFR 61 Subpart M.

⁴ **MADEP** = Massachusetts Department of Environmental Protection, 310 CMR 7.15

⁵ **MADLWD** = Massachusetts Department of Labor and Workforce Development, 453 CMR 6.

⁶ **PCB** = Polychlorinated Biphenyls.

⁷ **ACM** = Asbestos Containing Materials, i.e. Materials containing ≥1% asbestos by PLM analysis.

⁸ **ACWM** = Asbestos Containing Waste Material, i.e. Materials containing <1% asbestos by PLM analysis.

⁹ **PLM** = Polarized Light Microscopy, EPA 600/R-93/116 and/or 600/M4-82-020 methods.

¹⁰ **PLM NOB** = PLM with Gravimetric reduction for Non-Organically Bound materials.

¹¹ **MADLS** = Massachusetts Department of Labor Standards.

¹² **MADPH** = Massachusetts Department of Public Health.

¹³ **NRPP** = National Radon Proficiency Program.

The building is a 4-story masonry building with basement. The building contains a charter school in the older portion of the 1st floor of the building and a YMCA in the newer portion of the 1st floor of the building. The basement area was occupied by city facility workers and Everett Fire Department equipment.

2.0 FINDINGS AND RECOMMENDATIONS:

A. ASBESTOS INSPECTION AND SAMPLING

The asbestos inspection was based on representative sampling of materials suspected of containing asbestos. It would be impractical and costly to sample all materials in all areas; therefore, representative samples of each homogenous area or material were collected and analyzed in accordance with EPA guidelines.

Other materials suspected of containing asbestos may be present such as hidden materials not accessible at the time of inspection. Examples include: CMU block, wall interior materials, wall waterproofing materials on outside walls, sub-slab and subsurface materials, and live electrical equipment including light fixtures and electric switch panels.

Accessible, suspect materials were sampled for laboratory analysis for asbestos in order to determine which of these materials contain asbestos, equal to or greater than 1% ($\geq 1\%$ asbestos) which would be classified as **ACM**⁷, and which of these materials contain asbestos, less than 1% ($< 1\%$ asbestos) which would be classified as **ACWM**⁸, and would be regulated materials.

The inspection and bulk sample collection were completed by EPA accredited and **MADLS**¹¹ licensed asbestos inspectors Danny Mullen (MADLS Inspector #AI900682) and Brian Sharp (MADLS Inspector #AI900690) in accordance with federal and state requirements. Bulk samples analyses for asbestos were performed using **PLM**⁹ with additional analyses as necessary such as **PLM NOB**¹⁰ in accordance with federal and state requirements and analyzed by RI Analytical, Inc., a NVLAP accredited and MADLS licensed laboratory (MADLS Asbestos Laboratory #AA000028). The laboratory sample results are attached.

RESULTS

A total of 143 bulk samples were collected from materials suspected of containing asbestos and submitted to the laboratory for analysis. The 143 bulk samples were grouped into 54 homogeneous material types, i.e. areas of materials that are uniform in color and texture, and typically also similar in type and application [Homog #, **Tables 1 and 2 below**]. The samples of each homogeneous material were analyzed in numerical order with analysis stopped for each homogeneous type when a sample was found to contain **ACM** (i.e. $\geq 1\%$ asbestos), referred to as "positive stop". Once one sample in a homogeneous group tested positive, all the materials of the homogeneous group are considered to be **ACM**. A total of 130 sample analyses were made by the laboratory from the 143 samples submitted.

Table 1			
Suspect Asbestos Homogeneous Materials - Work Order #1612-28422			
Line #	Sample#/ Homog #	Description	Location
1	1a	Tan w/ brown spots 12x12 VFT	4 th floor corridor
2	2a	Red w/ beige spots 12x12 VFT	4 th floor classroom
3	3a	Off-white w/ beige spots 12x12VFT	4 th floor classroom
4	4a	Orange/ brownish w/ brown spots 12x12 VFT	4 th floor classroom
5	5a	Green w/ black spots 12x12 VFT	3 rd floor classroom
6	6a	Plain white 12x12 VFT	3 rd floor classroom
7	7a	Maroon w/ black spots 12x12 VFT	3 rd floor classroom
8	8a	Gray w/ black spots 12x12 VFT	3 rd floor classroom
9	9a	Orange w/ gray spots 12x12 VFT	3 rd floor classroom
10	10a	Bright white w/ black spots 12x12 VFT	3 rd floor classroom
11	11a	Black mastic under 12x12 VFT	4th floor, under 1a on concrete floor
12	11b	Black mastic under 12x12 VFT	2 nd floor corridor on concrete floor
13	11c	Black mastic under 12x12 VFT	Basement cafeteria on concrete floor
14	12a	Interior white window caulk	4 th floor corridor
15	12b	Interior white window caulk	2 nd floor library, attached rooms
16	13a	Interior black window caulk	4 th floor classroom
17	13b	Interior black window caulk	2 nd floor library, attached rooms
18	14a	Purple anti – condensate on sink	4th floor classroom
19	15a	White tile design terrazzo floor	4 th floor stairwell
20	16a	2x4 ACT (abundant type) dots & squiggles	4 th floor corridor
21	16b	2x4 ACT (abundant type) dots & squiggles	2 nd floor library, attached classroom
22	17a	Yellow glue to 12x12 VFT on wood	3 rd floor classroom
23	17b	Yellow glue to 12x12 VFT on wood	2 nd floor library
24	18a	Yellow wallpaper (textured) on gypsum board	3 rd floor classroom
25	18b	Yellow wallpaper (textured) on gypsum board	2 nd floor library
26	19a	Glue to 18A	3 rd floor classroom
27	19b	Glue to 18B	2 nd floor library
28	20a	Fibrous beige burlap covering over plaster wall	3 rd floor classroom
29	20b	Fibrous beige burlap covering over plaster wall	3 rd floor classroom
30	21a	Gray Base layer (plaster wall)	3 rd floor
31	21b	Gray Base layer (plaster wall)	3 rd floor
32	21c	Gray Base layer (plaster wall)	2 nd floor
33	22a	White skim coat to plaster wall	3 rd floor
34	22b	White skim coat to plaster wall	2 nd floor
35	22c	White skim coat to plaster wall	Basement
36	23a	Black coating on inside of exterior brick	3 rd floor (behind plaster wall)
37	24a	Beige glue to wood wall paneling on plaster	3 rd floor
38	25a	Brown VCB on gypsum board	3 rd floor
39	25b	Brown VCB on gypsum board	2 nd floor library
40	26a	Brown glue to brown VCB	Same as 25A
41	26b	Brown glue to brown VCB	Same as 25B
42	27a	Black paper under hardwoods	3 rd floor classroom
43	27b	Black paper under hardwoods	2 nd floor classroom

Table 1			
Suspect Asbestos Homogeneous Materials - Work Order #1612-28422			
Line #	Sample#/ Homog #	Description	Location
44	28a	Light blue w/ gray spots 12x12 VFT	3 rd floor classroom
45	29a	Fireproofing (spray on)	3 rd floor classroom
46	29b	Fireproofing (spray on)	2 nd floor classroom
47	30a	Black lab countertop	3 rd floor classroom
48	31a	Fibrous bulletin board	3 rd floor classroom
49	32a	Tan glue to 31A	3 rd floor classroom
50	33a	Brown glue daub behind chalk board	3 rd floor class (on CMU)
51	33b	Brown glue daub behind chalk board	2 nd floor classroom
52	34a	Yellowish glue to lab counter	3rd floor
53	35a	Brownish glue to lab counter	3rd floor
54	36a	Mudded elbow (TSI) "Mag" type	3 rd floor
55	36b	Mudded elbow (TSI) "Mag" type	2nd floor bath
56	36c	Mudded elbow (TSI) "Mag" type	2 nd floor classroom
57	37a	Brown duct sealer	3 rd floor corridor
58	37b	Brown duct sealer	Basement
59	38a	Duct work seam tape	3 rd floor corridor
60	39a	Black window glazing to double metal doors	3rd floor corridor
61	40a	Yellow glue to library carpet on concrete	2 nd floor library
62	40b	Yellow glue to library carpet on concrete	2 nd floor library
63	41a	2x2 brown tinted ACT	2 nd floor library
64	41b	2x2 brown tinted ACT	2 nd floor library
65	42a	White gypsum board wall	2 nd floor library
66	42b	White gypsum board wall	2 nd floor classroom
67	43a	Joint compound to gypsum board	2 nd floor library
68	43b	Joint compound to gypsum board	2 nd floor classroom
69	43c	Joint compound to gypsum board	Basement
70	44a	Yellow glue on stick pin to fiberglass ductwork	2 nd floor library
71	45a	Pipe Insulation ("Aircell" type) to radiator	2nd floor restroom
72	45b	Pipe Insulation ("Aircell" type) to radiator	2 nd floor classroom
73	46a	Brown paper to restroom partition wall	2 nd floor restroom
74	47a	Gray caulking, interior side of window	2 nd floor corridor
75	48a	Gray grout to tan brick wall (corridor walls)	2 nd floor corridor
76	49a	Boiler duct insulation	Basement – Boiler Room
77	49b	Boiler duct insulation	Basement – Boiler Room
78	49c	Boiler duct insulation	Basement – Boiler Room
79	50a	Boiler duct insulation jacket	Basement – Boiler Room
80	50b	Boiler duct insulation jacket	Basement – Boiler Room
81	50c	Boiler duct insulation jacket	Basement – Boiler Room
82	51a	Boiler insulation on exterior	Basement – Boiler Room
83	51b	Boiler insulation on exterior	Basement – Boiler Room
84	51c	Boiler insulation on exterior	Basement – Boiler Room
85	52a	Boiler insulation – Interior	Basement – Boiler Room
86	52b	Boiler insulation – Interior	Basement – Boiler Room

Table 1			
Suspect Asbestos Homogeneous Materials - Work Order #1612-28422			
Line #	Sample#/ Homog #	Description	Location
87	52c	Boiler insulation – Interior	Basement – Boiler Room
88	53a	Boiler insulation rope	Basement – Boiler Room
89	53b	Boiler insulation rope	Basement – Boiler Room
90	53c	Boiler insulation rope	Basement – Boiler Room
91	54a	Boiler insulation jacket covering exterior portions	Basement – Boiler Room
92	54b	Boiler insulation jacket covering exterior portions	Basement – Boiler Room
93	54c	Boiler insulation jacket covering exterior portions	Basement – Boiler Room
94	55a	Pipe insulation (likely mag type) TSI	Basement – cafeteria (plenum)
95	55b	Pipe insulation (likely “Mag” type) TSI	Basement – classroom closet
96	55c	Pipe insulation (likely “Mag” type) TSI	Basement – kitchen room, vertical
97	56a	Gray floor leveler under 12x12 VFT & mastic	Basement – cafeteria
98	57a	Black VCB	Basement – cafeteria, “same glue”
99	57b	Black VCB	Basement – basement classroom
100	58a	Off-white VCB	Basement classroom
101	59a	Beige glue to 58A	Basement classroom
102	60a	White w/ brown spots 12x12 VFT	Basement classroom
103	61a	Brown glue to 60A on wood	Basement classroom
104	61b	Brown glue to 60A on wood	Basement classroom
105	62a	Typical 2x2 restroom ceramic tile floor grout	4 th floor restroom
106	62b	Typical 2x2 restroom ceramic tile floor grout	3 rd floor restroom
107	63a	Cement setting bed to 62A	4 th floor restroom
108	63b	Cement setting bed to 62B	3 rd floor restroom
109	64a	Black sealer (painted silver) on rubber seams	Exterior: Newer roof, vent box pen.
110	64b	Black sealer (painted silver) on rubber seams	Exterior: Newer roof, vent box pen.
111	65a	Brown Sealer on rubber seams	Exterior: Newer roof, parapet walls
112	65b	Brown Sealer on rubber seams	Exterior: Newer roof, parapet walls
113	66a	Black sealer on penetrations	Exterior: Older roof, mush. exhaust
114	66b	Black sealer on penetrations	Exterior: Older roof, pipe penetration
115	67a	Black sealer flashed on roof edges & pen.	Exterior: Older roof, edge
116	67b	Black sealer flashed on roof edges & pen.	Exterior: Older roof, edge
117	67c	Black sealer flashed on roof edges & pen.	Exterior: Older roof, vent box
118	68a	Insulation jacket to fiberglass ductwork	Exterior: Older roof
119	69a	Black glazing to exterior window	Exterior: 4th floor windows
120	69b	Black glazing to exterior window	Exterior: 4 th floor windows
121	70a	Brown & tan terrazzo floor	3 rd floor corridor
122	71a	Other abundant 2x4 ACT type (similar)	Basement corridor
123	72a	Red adhesive to corkboard	3 rd floor classroom
124	73a	Tan adhesive to 20A	3 rd floor classroom
125	73b	Tan adhesive to 20B	3 rd floor classroom
126	74a	White caulking on cement seams (decorative)	Exterior: front of building, 2nd floor
127	74b	White caulking on cement seams (decorative)	Exterior: NE side, side of door frame
128	75a	Glazing to old red exterior doors	Exterior: Front of older building
129	76a	White caulking to old red exterior doors	Exterior: Front of older building

Table 1 Suspect Asbestos Homogeneous Materials - Work Order #1612-28422			
Line #	Sample#/ Homog #	Description	Location
130	76b	Brown caulking to common exterior windows	Exterior: Front of older building
131	77a	Brown caulking to common exterior windows	Exterior: Front of older building
132	78a	Black glazing to common exterior windows	Exterior: Front of older building
133	78b	Black glazing to common exterior windows	Exterior: Front of older building
134	79a	Most common white caulking on doors, old bldg.	Exterior: older building
135	79b	Most common white caulking on doors, old bldg.	Exterior: older building
136	80a	Most common white caulking on doors, new bldg.	Exterior: newer building
137	80b	Most common white caulking on doors, new bldg.	Exterior: newer building
138	81a	Black caulking to exterior door	Exterior: NE side of older building
139	82a	Black sealer on vertical "I" beam behind brick	Exterior: wall/corner of newer bldg.
140	83a	Grout to exterior brick of older building	Exterior: older building
141	84a	Grout to exterior brick of newer building	Exterior: newer building
142	85a	Residual white caulking to common exterior window	Exterior: older building
143	85b	Residual white caulking to common ext. window	Exterior: older building

Note: (1) Homogeneous materials found to be ACM ($\geq 1\%$ asbestos) are highlighted in yellow #####;

(2) Homogeneous materials found to be ACWM ($< 1\%$ asbestos) are highlighted in orange #####.

The laboratory analyses identified twenty (20) homogeneous materials as **ACM**. Homogeneous number 55b (pipe insulation, "Mag" type) was found to be **ACWM**, however other pipe and pipe joint (elbow, "Mag" type) insulation was found to be ACM, therefore all "Aircell" type and "Mag" type pipe and pipe joint insulation must be treated as ACM.

Table 2 lists the materials found to be ACM and ACWM, as well as allowances for other **PACM**², which must be removed and disposed of appropriately by a MADLS licensed asbestos abatement contractor in accordance with federal, state and local rules and regulations, including those of OSHA, as required.

Table 2 ACM/ACWM/PACM					
Line #	Sample#/ Homog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity
1	11	Black mastic under 12x12 VFT. VFT must be removed as ACM with the ACM black mastic as the mastic is adhered to the VFT. Substrates must be scraped to clean.	1920's bldg. - all floors 1970's bldg. - basement and 1 st floor	5-15% Chrysotile	114,452 SF
2	14	Purple anti-condensate coating on sink	1920's bldg. - all floors 1970's bldg. - none	5-15% Chrysotile	80 SF (~20 EA)

² PACM = Presumed ACM

Table 2
ACM/ACWM/PACM

Line #	Sample#/ Homog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity
3	34	Yellowish glue under lab counter tops on wood. Counter tops must be removed as ACM with the ACM glues as the glues are adhered to the counter tops. Substrates must be scraped to clean.	1920's bldg. - all floors	5-15% Chrysotile	3,072 SF
4	35	Brownish glue under lab counter tops on wood.		1970's bldg. - none	
5	36	Pipe mudded elbow (TSI) on ACM pipe insulated runs and fiberglass pipe runs, {F}	1920's bldg. - floors- Basement, 1, 2, 3 1970's bldg. - floors- Basement	20-30% Chrysotile	9,984 LF
6	45	Pipe Insulation (TSI), {F}. Some pipe insulation tested $\geq 1\%$ asbestos and some tested $< 1\%$ asbestos. All pipe insulation must be removed as ACM. There is likely to be hidden ACM pipe insulation inside some walls and above some fixed ceilings.		20-30% Chrysotile	
7	39	Glazing putties in interior doors with windows	1920's bldg. - floors-B, 1, 2, 3 1970's bldg. - floors-1	5-15% Chrysotile	760 SF (~31 doors)
8	53	Boiler section roping and gaskets - 3 boilers. All boiler interior fire brick, sealers and other suspect materials must be removed as ACM	Basement - Boiler Room	40-60% Chrysotile	2,880 SF (3 boilers, each 8'Hx10'Wx12'D)
9	55	Boiler insulation jacket - 3 boilers. This material is $< 1\%$ asbestos but must be removed as ACM		$< 1\%$ Chrysotile	
10	66	Roofs - black sealer on penetrations	1920's bldg. & 1970's bldg. Sealers on all penetrations, exhausts, flashing, curbs, equipment, etc.	5-15% Chrysotile	6,860 SF (sealers at edges, penetrations)
11	67	Roofs - black sealer on penetrations		5-15% Chrysotile	
12	68	Roofs - insulation jacket to fiberglass ductwork	1920's bldg. roof	20-30% Chrysotile	1,632 SF
13	N/A	Roofs - fields and edges materials appear to be tar & gravel and are assumed to be ACM	All roofs	PACM	88,608 SF
14	69	Glazing putties type 1 in exterior windows	All windows appear to have ACM glazing putties	5-15% Chrysotile	15,744 SF (~190 windows with various sizes)
15	78	Glazing putties type 2 in exterior windows		1-5% Chrysotile	
16	77	Exterior window metal frame perimeter caulking at brick openings	All windows appear to have ACM frame perimeter caulking	5-15% Chrysotile	582 SF (~190 windows with various sizes)
17	85	Residual white caulking to exterior windows		1-5% Chrysotile	

Table 2
ACM/ACWM/PACM



Line #	Sample#/ Homog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity
18	74	Caulking in joints between exterior decorative cement moldings – 3 rows - also around some exterior doors and at joints in exterior window sill concrete trim 	1920's bldg. exterior	1-5% Chrysotile	33 SF (joints every ~6 ft; each 1 ft high x 1" bead)
19	75	Glazing putties old red exterior wood door windows	1920's bldg.	1-5% Chrysotile	224 SF (~7 doors)
20	76	Caulking between old red exterior wood and steel door frames and surrounding brick	1920's bldg.	1-5% Chrysotile	24 SF (~14 doors)
21	82	Black sealer on vertical "I" beam behind brick 	1970's bldg.	5-15% Chrysotile	2,560 SF (64 columns, 1' wide x 40' building height)
22	N/A	Allowance for hidden damp proofing, water proofing and fabric inside exterior walls.	1920's bldg. and 1970's bldg.	PACM	7,704 SF (1,284 LF bldg.. perimeter x 6' high)

Table 2
ACM/ACWM/PACM




Line #	Sample#/ Homog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity
23	N/A	Allowance for hidden vermiculite inside cavities of CMU wall block at insides of exterior brick walls. 	1920's bldg. and 1970's bldg.	PACM	7,704 CF (1,284 LF bldg.. perimeter x 6' high x 1' deep)
24	N/A	Allowance for hidden sub-concrete floor slab vapor barriers.	1920's bldg. and 1970's bldg.	PACM	88,608 SF
25	N/A	Allowance for ACM electrical wire insulation and heat shields in light fixtures (including fluorescent and stage lighting) and conduit from fixtures to junction boxes. 	1920's bldg. and 1970's bldg.	PACM	58 CF (579 fixtures; 1 CF per 10 fixtures)
26	N/A	Allowance for ACM materials inside electrical equipment such as switch panels and circuit breakers. 	1920's bldg. and 1970's bldg.	PACM	40 CF (20 panels; 2 CF per panel)

Table 2
ACM/ACWM/PACM

Line #	Sample#/ Homog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity
27	N/A	Allowance for ACM materials inside equipment such as gaskets in pipe flanges and equipment; refrigerators.	1920's bldg. and 1970's bldg.	PACM	10 CF
28	N/A	Laboratory ventilation hoods that contain Transite (asbestos) were observed	1920's bldg., 3 rd floor science department	PACM	160 SF (4 hoods, 40 SF each)

Note: (1) PACM = Presumed ACM.

(2) The quantity for ACM sealers listed in lines 10 and 11 would be included as part of the quantity for roof field materials if the field materials are found to contain asbestos by sampling and laboratory analysis. The sealers quantity is listed separately in case the roof field materials test negative for asbestos.

No CMU or brick expansion joints were observed around the exterior or the interior of the building.

The scope of work included the inspection for materials suspected of containing asbestos, collection of bulk samples and determination of types of ACM and ACWM found. Reasonable efforts were made to discover hidden suspect materials that will be impacted by the project, however, some hidden materials containing asbestos may only be discovered during demolition, at which time work must stop until the suspect materials can be inspected and sampled for asbestos by a licensed inspector, or the suspect materials can be presumed to be ACM and removed and disposed in accordance with federal and state regulations. Additional inspection and sampling is required to fully identify all ACM and ACWM in the building.

Should ACM or ACWM be found, all work related to abatement of ACM and ACWM must be completed by a MADLS licensed asbestos abatement contractor in accordance with federal, state and local rules and regulations, including those of OSHA, as required. Storage, transportation and disposal of ACM and ACWM must also comply with EPA, OSHA and MADLS and MADEP regulations.

B. MOLD INSPECTION AND SAMPLING

RI Analytical conducted visual inspection of accessible building areas for signs of water and moisture infiltration and visible signs of mold growth.

- Visual inspections of representative, accessible building areas were conducted for signs of water and moisture infiltration and visible signs of mold growth.
- Air sampling for airborne non-viable mold spores was conducted using bio-slide samplers in interior areas and exterior for comparison for analysis by an AIHA accredited laboratory for identification and enumeration of fungal spores with fragment, dander, fiber and pollen counts (method A1).
- No surface swab or bulk samples were collected for mold analysis.

Sampling Methodology

Sampling was conducted using the following equipment and methods.

Sample	Equipment/method
Air, Non-Viable Fungi	Aero-Trap (Buck BioSlide Model B1020) air sampling onto Buck-gel BioSlides with direct optical microscopy analysis.
CO ₂ , rH, Temp.	Amprobe CO2-100 CO ₂ /Temp/rH monitor

Mold air sampling included collection of seventeen (17) interior air samples for non-viable fungi and one (1) exterior air sample for comparison to the interior samples.

Readings for CO₂, Temp. and rH were taken during the fungal sampling periods using direct reading instruments.

The test results were used to identify potential health hazards in evaluating the air quality.

Determining the cause of indoor air quality problems is not a simple task. There are constantly changing interactions of a complex set of factors. Some of the more important considerations include: complaints and symptoms of occupants, sources of odors or contaminants, potential design or operation problems with HVAC equipment, and the existence of a pathway between the poor air quality source and the location of the complaint.

Observations

Weather conditions at the time of sampling were clear with a light breeze outside.

There was heavy dust and debris throughout the basement, 2nd, 3rd, and 4th floors. During the sampling period all windows were closed; doors to the outside were closed; and no forced ventilation system was observed to be operating. There was very light traffic and the building was set back about 50 feet from the road. There were visible signs of water intrusion on the 2nd, 3rd, and 4th floors. Visible mold growth was observed on cardboard boxes and books (items made of cellulose) in the 2nd floor library.

Discussion of Bio Aerosol Exposure Testing

There are currently no state regulations pertaining to microbiological growth. There are recommendations based on private organizations or from federal agencies for acceptable fungal concentrations. This is in part due to the many variables involved with sampling for microorganisms, dramatic fluctuations in background levels of microorganisms, and lack of agreement between researchers about what constitutes a "problem situation". Therefore, it is important that the indoor air consultant be able to combine experience and knowledge of microbiology to evaluate laboratory results of samples collected from interior locations.

RI Analytical approach regarding the interpretation of biological air samples is formed primarily by two guiding principles. Firstly, an effective interpretation is based on the comparison of indoor and outdoor samples. While there are currently no guidelines or regulations to indicate "safe" or "normal" fungal spore levels, we typically expect indoor counts to be 30 to 80 percent of outdoor spore counts, with the same general distribution of spore types present. However, this may change during winter months as spores do

not thrive as well in cold weather. And secondly, with variation being an inherent part of biological air sampling, the presence or absence of a few genera in small numbers should not be considered abnormal.

The activity level of a particular environment at the time of sampling will likely affect the data collected. Indoor spore levels usually average 30 to 80% of the outdoor spore level at the time of sampling, with the same general distribution of spore types. Filtered air, air-conditioned air, or air remote from outside sources may average 5 to 15% of the outside air at the time of sampling. These percentages are guidelines, only. A major factor is the accessibility of outdoor air. A residence with open doors and windows, with heavy foot traffic, may average 95% of the outdoor level while high-rise office buildings with little air exchange may average 2%.

Results of Bio Aerosol Testing

Table 3 below summarizes the results of the fungal air samples collected with the sample locations. Laboratory results can be found in the Attachment.

Table 3 Fungal Air Sampling Results – WO #1612-28195				
Sample ID	Location	Total Spores (Counts/m ³)	Spore Identification (Counts/m ³)	
1	Outside ambient	333	13 Mycelial Fragments 20 Ascospores 187 Basidiospores 33 Cladosporium species	13 Epicoccum species 7 Pithomyces species 67 Smuts/Myxomycetes 7 Stemphylium species
2	Room 405	20	7 Alternaria species 7 Curvularia species	7 Epicoccum species
3	Hall outside room 312	213	213 Basidiospores	-----
4	Room 305	227	13 Mycelial Fragments 27 Alternaria species 7 Ascospores 107 Basidiospores	20 Cladosporium species 13 Epicoccum species 20 Pithomyces species 33 Smuts/Myxomycetes
5	Library	8127	7 Ascospores 8027 Aspergillus/Penicillium	80 Basidiospores 13 Stachybotrys species
6	Hall outside room 209	47	7 Aspergillus/Penicillium	40 Basidiospores
7	Hall outside room 10	273	47 Ascospores 27 Aspergillus/Penicillium 187 Basidiospores	7 Cladosporium species 7 Curvularia species
B1	4th floor hall near elevator	133	13 Mycelial Fragments 27 Aspergillus/Penicillium 53 Basidiospores 20 Cladosporium species	7 Epicoccum species 13 Rusts 7 Smuts/Myxomycetes 7 Stachybotrys species
B2	4 th floor hall	20	20 Basidiospores	-----
B3	Room 401	53	33 Basidiospores 13 Cladosporium species	7 Smuts/Myxomycetes

Table 3 Fungal Air Sampling Results – WO #1612-28195				
Sample ID	Location	Total Spores (Counts/m ³)	Spore Identification (Counts/m ³)	
B4	3 rd floor hall north	73	60 Cladosporium species 7 Nigrospora species	7 Stachybotrys species
B5	3 rd floor hall south	120	13 Ascospores 20 Basidiospores	80 Cladosporium species 7 Smuts/Myxomycetes
B6	2 nd floor hall near exterior wall	53	7 Ascospores	47 Basidiospores
B7	2 nd floor hall near elevator	167	67 Aspergillus/Penicillium	100 Basidiospores
B8	Basement closet	8787	13 Ascospores 6867 Aspergillus/Penicillium 213 Basidiospores	1680 Cladosporium species 13 Stachybotrys species
B9	Basement kitchen	887	7 Mycelial Fragments 7 Alternaria species 13 Ascospores 400 Aspergillus/Penicillium	7 Chaetomium species 7 Pithomyces species 13 Smuts/Myxomycetes
B10	1 st floor hall north	213	7 Ascospores 40 Aspergillus/Penicillium 120 Basidiospores	7 Chaetomium species 33 Cladosporium species 7 Pithomyces species
B11	1 st floor hall south	40	7 Mycelial Fragments 7 Aspergillus/Penicillium 20 Basidiospores	7 Cladosporium species 7 Smuts/Myxomycetes

Note: Fungi associated with water damage and wetting are shown in **yellow**. Elevated airborne fungi levels are shown in **underlined bold italics**.

Discussion of Temperature and Relative Humidity Testing

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Standard 55-2013, Thermal Environmental Conditions for Human Occupancy, notes that for thermal comfort purposes, temperature can range between approximately 67 and 82 °F. A more specific range can be determined from the standard but depends on relative humidity, season, clothing worn, activity levels, and other factors. The standard notes that HVAC systems must be able to maintain a humidity ratio of at or below 0.012. This corresponds to an upper relative humidity level as high as more than 80% at low dry bulb temperatures but may be lower dependent upon factors such as temperature and the other factors listed above. The standard does not specify a lower humidity limit but notes that non-thermal comfort factors such as skin drying, irritation of mucus membranes, dry eyes, and static electricity may place limits on acceptability of very low humidity environments. ASHRAE Standard 62.1-2013 recommends that relative humidity in occupied spaces be controlled to less than 65% to reduce the likelihood of conditions that can lead to microbial growth.

Discussion of Carbon Dioxide Testing

Carbon Dioxide (CO₂) is a colorless and odorless gas that does not support combustion. It is produced by human metabolism and exhaled through the lungs. Testing of concentrations of CO₂ is a useful measurement of ventilation effectiveness.

CO₂ at very high concentrations (e.g. greater than 5,000 ppm) can pose a health risk. Refer to Appendix B, Summary of Selected Air Quality Guidelines in ASHRAE Standard 62.1-2013, "Ventilation for Acceptable Indoor Air Quality". However, in most buildings, concentrations almost never rise to these levels. CO₂ at the concentrations commonly found in buildings is not a direct health risk, but CO₂ concentrations can be used as an indicator of occupant odors (odorous bioeffluents) and occupant acceptance of these odors. At the activity levels found in typical office buildings, steady-state CO₂ concentrations of about 700 ppm above outdoor air levels indicate an outdoor air ventilation rate of about 7.5 L/s/person (15 cfm/person). Laboratory and field studies have shown that this rate of ventilation will dilute odors from human bioeffluents to levels that will satisfy a substantial majority (about 80%) of unadapted persons (visitors) in a space. CO₂ concentrations in outdoor air typically range from 300 to 500 ppm. Thus indoor CO₂ concentrations of 1,000 to 1,200 ppm in spaces housing sedentary people is an indicator that a substantial majority of visitors entering the space will be satisfied with respect to human bioeffluents (body odor). Note however that CO₂ concentration is not a good indicator of the concentration and occupant acceptance of other indoor contaminants, such as volatile organic compounds off-gassing from furnishings and building materials. Thus CO₂ concentration on its own is not a reliable indicator of overall building air quality.

Results of Temperature and Relative Humidity and Carbon Dioxide Testing

The results of direct reading instrument tests with the sample locations are listed in the Table 4 below.

Table 4 - Direct Reading Instrument Test Results				
Area ID	Temp. (°F)	Relative Humidity (%)	CO ₂	Time
Outside Ambient	50.5	46.9	399	15:18
Room 405	61.7	57.0	539	15:38
Hall outside room 312	60.9	55.4	544	16:00
Room 305	64.6	54.6	568	16:20
Library	65.3	53.3	522	16:35
Hall outside room 209	67.4	54.8	549	16:52
Hall outside room 10	68.6	33.9	431	17:12
4 th floor hall near elevator	64.1	53.1	561	15:17
4 th floor hall south	62.9	54.1	554	15:30
Room 401	65.4	49.1	532	15:45
3 rd floor hall north	67.6	46.9	576	16:07
3 rd floor hall south	68.8	39.9	549	16:21
2 nd floor near exterior wall	69.0	37.6	576	16:42
2 nd floor near elevator	72.2	35.7	602	16:55
Basement closet	69.2	30.7	426	17:13
Basement kitchen	68.8	35.3	428	17:58
1 st floor hall north	59.6	50.1	669	16:06
1 st floor hall south	59.8	52.1	665	16:12

ASHRAE Recommended Range ¹	67 - 82	< 65	< 1000	NA
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¹ See the Discussion section above for an explanation of the ASHRAE Recommended Range for Temperature, Humidity, and CO₂

The indoor levels of CO₂ recorded in areas tested during the survey ranged from **426 ppm** to **669 ppm**. The recorded outside ambient reading was **399 ppm**.

The CO₂ (carbon dioxide) readings (i.e. a measure of ventilation effectiveness including intake and distribution of fresh, outside air) were within the ASHRAE recommended ranges in the areas tested.

The relative humidity readings in the areas tested ranged from **30.7%** to **57.0%** with outside ambient reading of **46.9%**.

The indoor relative humidity readings were within the ASHRAE recommended range in the areas tested.

The interior temperature results in areas tested were between **59.6°F** and **72.2°F** with outside ambient reading of **50.5°F**.

The indoor temperature readings were within or lower the ASHRAE recommended range in the areas tested. The heating system was off or turned lower in many areas.

Recommendations

The following species that are typically associated with water intrusion and wetting were identified. Levels of airborne **Aspergillus/Penicillium species**, **Stachybotrys species** and **Cladosporium species** were found to be present and elevated in some of the interior air samples collected.

The following comments below are regarding the prominent fungal species identified.

1. Aspergillus/Penicillium species:

- a) It grows on many types of organic matter and produces a large number spores.
- b) Spores are easily aerosolized.
- c) It can grow and reproduce rapidly in low moisture environments.
- d) It may cause infections in the respiratory tract, lungs and atopic allergies.
- e) It is a known allergen in immunocompromised individuals.

2. Stachybotrys species:

- a) It is referred to as toxic black mold which can produce mycotoxins.
- b) Its airborne spores are a potential health hazard and can cause Type I allergenic reactions.
- c) It is one of the most toxigenic species of mold.

3. Cladosporium species:

- a) The most commonly identified outdoor fungus with outdoor numbers typically reduced in winter. Often found indoors in numbers less than outdoor numbers.
- b) It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles.
- c) Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.
- d) Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.

Airborne mold results and recommendations are summarized in table 5 below.

Table 5 Summary of Significant Fungal Results and Recommendations							
Area ID	Total Airborne Fungi (Counts/m ³)	Aspergillus/ Penicillium species (Counts/m ³)	Stachybotrys species (Counts/m ³)	Cladosporium species (Counts/m ³)	Water Intrusion Observed	Visible Mold	Recommendation
Room 405	20	0	0	0	Yes	No	Identify Water Intrusion Sources and Repair
Hall outside Rm. 312	213	0	0	0	Yes	No	Identify Water Intrusion Sources and Repair
Room 305	227	0	0	20	Yes	No	Identify Water Intrusion Sources and Repair
Library	8,127	8,027	13	0	Yes	Yes	Identify Water Intrusion Sources and Repair/ Identify fungi locations and remediate
Hall outside Rm. 209	47	7	0	0	Yes	No	Identify Water Intrusion Sources and Repair
Hall outside Rm 10	273	27	0	7	Yes	No	Identify Water Intrusion Sources and Repair
4 th Floor Hall near elevator	133	27	7	20	Yes	No	Identify Water Intrusion Sources and Repair
4 th Floor Hall	20	0	0	0	Yes	No	Identify fungi locations and remediate
3 rd Floor Hall N	73	0	0	60	Yes	No	Identify Water Intrusion Sources and Repair
3 rd Floor Hall S	120	0	7	80			
2 nd Floor Hall – Exterior Wall	53	0	0	0	Yes	No	Identify Water Intrusion Sources and Repair
2 nd Floor Hall - @ elevator	167	67	0	0			

Table 5 Summary of Significant Fungal Results and Recommendations							
Area ID	Total Airborne Fungi (Counts/m ³)	Aspergillus/ Penicillium species (Counts/m ³)	Stachybotrys species (Counts/m ³)	Cladosporium species (Counts/m ³)	Water Intrusion Observed	Visible Mold	Recommendation
Basement Closet	8,787	6,867	13	1,680	Yes	Yes	Identify Water Intrusion Sources and Repair / Identify fungi locations and remediate
Basement Kitchen	887	400	0	0	Yes	No	Identify Water Intrusion Sources and Repair
1 st Floor Hall N	213	40	0	33	No	No	No response required
1 st Floor Hall S	40	7	0	7	No	No	
Outside	333	0	0	33	N/A	N/A	---

Water intrusion was observed in the basement, 2nd, 3rd, and 4th floors. RI Analytical recommends that the sources of water damage and water intrusion pathways be thoroughly investigated and repaired.

Airborne levels of Aspergillus/Penicillium species were significantly elevated in the library and the basement closed. Aspergillus/Penicillium species were identified at low levels in several other areas of the building.

Airborne levels of Stachybotrys species was also identified, with present but low levels in the 4th floor hall, the 3rd floor hall, and the basement closet. The presence of Stachybotrys species with elevated levels of Aspergillus/Penicillium species is of concern and there may be hidden sources of fungal growth.

Significant airborne levels of Cladosporium species were identified in a basement closet.

Based upon these findings RI Analytical recommends that remediation of water damaged materials and fungi impacted areas in all rooms be completed promptly by an experienced mold remediation contractor in accordance with current industry state of the art practices as well as in accordance with IICRC S520, ANSI/IICRC S520-2008.

We recommend vacating the areas with elevated airborne fungi levels as well as turning off any ventilation systems and restricting air flow out of the water damaged areas.

Ceiling, floor and wall materials with signs of water stains or water damaged must be replaced as part of the mold remediation process. Non-porous impacted surfaces and materials can be wiped or scrubbed using a biocide and appropriate techniques. Porous materials that have signs of water damage and fungal growth typically have to be discarded.

The temperature readings were 2 - 9 degrees lower than the ASHRAE recommended range in 9 areas that were tested. Five of these areas were hallways. Hallways are typically not heated and are expected to be cooler. The Library, room 305, room 401, and room 403 ranged from 61.7 – 65.3. The heating system was off or turned lower in many areas.

RI Analytical recommends increasing the temperature to within the ASHRAE recommended range in rooms that are occupied.

C. VISUAL INSPECTION FOR OTHER POTENTIAL HAZARDOUS MATERIALS

RI Analytical inspection included inspection for other potential hazardous materials. The following materials were identified:

- a. Light fixtures appeared to be old and new and some are likely to contain Mercury in light tubes and bulbs and PCB containing ballasts. Additional evaluation of light fixtures prior to demolition is required. Ballasts should be categorized according to labeling as either "no PCB" (or similar), no label found or "PCB" label found, and removed and disposed of accordingly to meet federal and state requirements. Representative lighting fixtures were visually inspected and some of the ballasts were found to be labeled "NO PCB") and some had no labeling for PCB. There were approximately 630, 2'x4' light fixtures within the building. There were approximately 135, 1'x2' light fixtures within the building.
- b. Electric capacitors and transformers, door closers and other equipment that may contain PCB-containing oils were found.
- c. Thermostats that may contain Mercury were identified. No manometers and gas meters that may contain Mercury were observed. Further evaluation of thermostats and inspection for gas equipment that may contain Mercury is recommended.
- d. Exit signs and emergency lighting that may contain hazardous materials including Tritium and batteries were observed.
- e. Circuit breaker panels that may contain hazardous materials such as Transite asbestos and other asbestos components were observed. These were energized at the times of inspection and further inspection is recommended.
- f. Oil spills and floor staining were observed in the boiler room. There appear to be aboveground heating oil storage tanks and associated piping in the boiler room. Evaluation of release to the environment (i.e. below the concrete floor slab) in the boiler room and elsewhere on the property needs to be undertaken. Spill cleanup may be required.

• PCB in Building Materials and Soils

Materials such as caulking and glazing materials are assumed to contain PCB at ≥ 50 ppm.

One group was identified – Aluminum frame window system with perimeter caulk and glazing putties.

Composite samples were not collected from representative caulks and putties within similar component groups (such as different window system types) for laboratory analysis TCLP for PCB for waste disposal characterization as this was excluded from the scope of work.

Determining disposal requirements

A PCB-containing material is considered *PCB bulk product waste* if the concentration of PCB in the material is greater than or equal to (\geq) 50 ppm (see, 40 CFR §761.3). PCB bulk product waste includes waste derived

from manufactured products containing PCB in a non-liquid state where the concentration at the time of designation for disposal is ≥ 50 ppm PCB (see, 40 CFR §761.3 & §761.62). Additionally, the definition of PCB bulk product waste includes building materials that have been coated or surfaced with PCB. That is, masonry, wood, metals, and other building materials that are purposely coated with a PCB-containing material are regulated as PCB bulk product waste if the material coating the building materials contains PCB at concentrations ≥ 50 ppm.

Soil is not considered a *PCB bulk product waste*.

If PCB has contaminated either the surrounding building materials or adjacent soil, these materials are considered *PCB remediation waste*. *PCB remediation waste* is subject to the cleanup and disposal requirements in accordance with 40 CFR §761.61.

Although state, local, and federal regulations may allow for the disposal of materials containing PCB at concentrations of < 50 ppm, some disposal facilities will not accept waste with any concentration of PCB. Some disposal facilities will accept waste with assumed PCB concentration ≥ 50 ppm as long as the TCLP PCB analytical results are < 10 $\mu\text{g/L}$ - Minerva disposal facility is such a facility. The disposal facility selected should be verified as able and willing to accept the waste prior to shipment. Removal, transportation and disposal must meet federal and state requirements. Other PCB containing materials and equipment may be present.

Sampling and characterization of materials and soils for PCB may be required.

- **Lead in Paint**

RI Analytical conducted an inspection with XRF testing of representative painted and varnished surfaces to identify **LBP**³. Painted and varnished surfaces were randomly tested using an **XRF**⁴ on walls, ceilings, doors, door casings, door jambs, window components and other components. XRF readings were taken from a sufficient number of these surface types to give a representative evaluation of the extent of accessible LBP in the building. The LBP survey and testing was conducted by a **MADPH**¹² licensed Childhood Lead Poisoning Prevention Program Inspector/Risk Assessor. The study found that the building had two sections which were assessed separately. The older section of the building was built in ~1920 and the newer section of the building was built in ~1970.

1920's Section:

In the older section, a total of 53 surfaces, grouped as similar architectural features, were tested using a spectrum type of X-Ray fluorescence analyzer.

Positive XRF readings for lead-based paint and lead containing materials were identified on interior cork bulletin boards, plaster closet walls, plaster walls, a porcelain sink located in a maintenance sink room, and vinyl baseboard in a second floor corridor. In the auditorium and stage area, lead-based paint was also identified on wood baseboard, wood door, wood door casings, wood door jambs,

³ **LBP** = Lead Based Paint.

⁴ **XRF** = Portable, spectrum type X-Ray Fluorescence Analyzer

wood wall chair rail, wood wall cleat, and wood wall trim. The entry foyer on the Broadway side has decorative painted concrete and brick walls, and ceramic wall tiles that tested positive.

Positive XRF readings for lead-based paint were identified on exterior metal lamp post column and metal hand railing system.

1970 Section:

In the newer section, a total of 59 surfaces, grouped as similar architectural features, were tested using a XRF.

Positive XRF readings for LBP and lead containing materials were identified on interior metal elevator doors, porcelain sinks, and a metal floor access panel.

Exterior:

A total of 11 exterior surfaces, grouped as similar architectural features, were tested using a XRF.

Positive XRF readings for lead-based paint were identified on the metal lamp post column and metal railing system.

Refer to the attached lead inspection report.

No inspection, sampling and analysis of water, dust and soil was included in the scope of work. No paint chip or building materials sampling and analysis for Total Lead, or **TCLP**⁵ Lead for building demolition waste disposal characterization was included. Additional inspection and sampling may be required for regulatory compliance for waste transportation and disposal of lead coated materials. Demolition work practices that impact materials with lead containing coatings must be completed in accordance with the requirements of the Lead in Construction OSHA standard 29 CFR 1926.62.

- **Radon Sampling**

RI Analytical sampled for airborne Radon in representative areas of the building for informational purposes. Additional sampling may be required to comply with Radon in schools testing requirements under the EPA IAQ Tools for Schools program.

One, data logging, RadStar RS800 active CRM was set up in one area together with one data verification CLS vial/canister. The data was compared to the verification vial/canister result and included in the report. A total of twenty four (24) EPA approved, AccuStar Laboratories supplied CLS vials/canisters were used.

Twenty (20) CLS vials/canisters were placed in representative areas of the building; 2 (10%) CLS duplicates were deployed for quality assurance; 1 (5%) blank sample was retained as a CLS vendor cross check; plus the one CRM data verification sample.

⁵ **TCLP** = Toxicity Characteristic Leaching Procedure.

Samples were analyzed by AccuStar Laboratory, Medway, MA. Sampling was conducted by a **NRPP**⁶ Certified Radon Measurement Provider. The results from both passive and electronic methods for ALL rooms tested were found to have radon levels below EPA action level of 4.0 **pCi/L**⁷. Refer to the attached analytical report for detailed results.

No further action is required for the building in its current state. Once renovation and repurposing of the building has been completed or a new building is built, re-testing is recommended.

- **Other Hazardous Materials**

The following items must be removed and packaged for appropriate transportation and disposal.

Light fixture tubes may contain Mercury.

Light fixture ballasts (based on labeling).

Electric transformers, door closers and other equipment that may contain PCB-containing oils.

Mercury containing thermostats.

Exit signs and emergency lighting that may contain hazardous materials including Tritium and batteries.

Asbestos wiring, components and materials in circuit breaker panels.

Oil spills and floor staining were observed in the boiler room. Evaluation of release to the environment on the property needs to be undertaken. Spill cleanup may be required. No sub-surface inspections and sampling were included in the scope of work.

3.0 COST ESTIMATES FOR REMEDIATION:

The table below summarizes cost estimates for abatement of ACM, ACWM and PACM identified.

Costs associated with Fungal growth remediation and remediation of OTHER POTENTIAL HAZARDOUS MATERIALS have not been included.

⁶ NRPP = National Radon Proficiency Program.

⁷ pCi/L = Picocuries per liter.

Line #	Sample#/H omog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity	Estimated Unit Cost	Estimated Total Cost
1	11	Black mastic under 12x12 VFT. VFT must be removed as ACM with the ACM black mastic as the mastic is adhered to the VFT. Substrates must be scraped to clean.	1920's bldg. - all floors 1970's bldg. - basement and 1 st floor	5-15% Chrysotile	114,452 SF	\$4.00	\$457,808
2	14	Purple anti-condensate coating on sink	1920's bldg. - all floors 1970's bldg. - none	5-15% Chrysotile	80 SF (~20 EA)	\$6.50	\$520
3	34	Yellowish glue under lab counter tops on wood. Counter tops must be removed as ACM with the ACM glues as the glues are adhered to the counter tops. Substrates must be scraped to clean.	1920's bldg. - all floors	5-15% Chrysotile	3,072 SF	\$6.50	\$19,968
4	35	Brownish glue under lab counter tops on wood.	1970's bldg. - none	5-15% Chrysotile			
5	36	Pipe mudded elbow (TSI) on ACM pipe insulated runs and fiberglass pipe runs, {F}	1920's bldg. - floors-Basement, 1, 2, 3 1970's bldg. - floors-Basement	20-30% Chrysotile	9,984 LF	\$20.00	\$199,680
6	45	Pipe insulation (TSI), {F}. Some pipe insulation tested ≥1% asbestos and some tested <1% asbestos. All pipe insulation must be removed as ACM. There is likely to be hidden ACM pipe insulation inside some walls and above some fixed ceilings.		20-30% Chrysotile			
7	39	Glazing putties in interior doors with windows	1920's bldg. - floors-B, 1, 2, 3 1970's bldg. - floors-1	5-15% Chrysotile	~31 doors (760 SF)	\$85.00	\$2,635
8	53	Boiler section roping and gaskets - 3 boilers. All boiler interior fire brick, sealers and other suspect materials must be removed as ACM	Basement - Boiler Room	40-60% Chrysotile	1,880 SF (3 boilers, each 8'Hx10'Wx12'D)	\$20.00	\$37,600
9	55	Boiler insulation jacket - 3 boilers. This material is <1% asbestos but must be removed as ACM		<1% Chrysotile			
10	66	Roofs - black sealer on penetrations	1920's bldg. & 1970's bldg.	5-15% Chrysotile	6,860 SF	\$5.00	\$34,300
11	67	Roofs - black sealer on penetrations	Sealers on all penetrations, exhausts, flashing, curbs, equipment, etc.	5-15% Chrysotile	(sealers at edges, penetrations)		
12	68	Roofs - insulation jacket to fiberglass ductwork	1920's bldg. roof	20-30% Chrysotile	1,632 SF	\$9.00	\$14,688
13	N/A	Roofs - fields and edges materials appear to be tar & gravel and are assumed to be ACM	All roofs	PACM	88,608 SF	\$4.00	\$354,432
14	69	Glazing putties type 1 in exterior windows	All windows appear to have ACM glazing putties	5-15% Chrysotile	15,744 SF	\$250.00	\$47,500
15	78	Glazing putties type 2 in exterior windows		1-5% Chrysotile	(~190 windows, various sizes)		

Line #	Sample#/Homog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity	Estimated Unit Cost	Estimated Total Cost
16	77	Exterior window metal frame perimeter caulking at brick openings	All windows appear to have ACM frame perimeter caulking	5-15% Chrysotile	582 SF (~190 windows, various sizes)	\$120.00	\$22,800
17	85	Residual white caulking to exterior windows		1-5% Chrysotile			
18	74	Caulking in joints between exterior decorative cement moldings – 3 rows - also around some exterior doors and at joints in exterior window sill concrete trim	1920's bldg. exterior	1-5% Chrysotile	33 SF (joints every ~6 ft; each 1 ft high x 1" head)	\$85.00	\$2,805
19	75	Glazing putties old red exterior wood door windows	1920's bldg.	1-5% Chrysotile	224 SF (~7 doors)	\$150.00	\$1,050
20	76	Caulking between old red exterior wood and steel door frames and surrounding brick	1920's bldg.	1-5% Chrysotile	24 SF (~14 doors)	\$120.00	\$1,680
21	82	Black sealer on vertical I-beams behind exterior facia brick. This assumes that the facia brick can be removed as non-asbestos material to expose the I-beams and that the ACM on the I-beams will be abated with the I-beams in place.	1970's bldg.	5-15% Chrysotile	2,560 SF (64 columns, 1' wide x 40' building height)	\$70.00	\$179,200
22	N/A	Allowance for hidden damp- or water-proofing materials and/or fabric inside exterior walls. This assumes that the damp- or water-proofing materials were applied to the outside of the inner CMU block or brick walls prior to construction of the exterior facia brick walls which would therefore not have applied damp- or water-proofing materials on their interior sides. The cost of careful facia brick removal is not included.	1920's bldg. and 1970's bldg.	PACM	660 tons (12,840 CF - 1,284 LF bldg. perimeter x 10' high x 1' deep)	\$150.00	\$99,000
23	N/A	Allowance for hidden vermiculite inside cavities of CMU wall block at insides of exterior brick walls. This assumes that there is only vermiculite in the bottom 6 ft of wall CMU block interior cavities and that the CMU is contaminated and will be abated and disposed of with the vermiculite as ACM. The cost of careful facia brick removal is not included.	1920's bldg. and 1970's bldg.	PACM			
24	N/A	Allowance for hidden sub-concrete floor slab vapor barriers. This assumes the concrete can be removed as non-asbestos material first.	1920's bldg. and 1970's bldg.	PACM			
25	N/A	Allowance for ACM electrical wire insulation and heat shields in light fixtures (including fluorescent and stage lighting) and conduit from fixtures to junction boxes.	1920's bldg. and 1970's bldg.	PACM	579 fixtures (1 CF per 10 fixtures = 58 CF)	\$25.00	\$14,475



Report: Everett HS Feasibility Study - Environmental Inspections
 Site: George Keverian School, 548 Broadway, Everett, MA 02149

RIA Project #160345
 January 31, 2017 - Page 24

Line #	Sample#/Homog #	Suspect Material Identified as ACM	Location	Asbestos Content	Estimated Quantity	Estimated Unit Cost	Estimated Total Cost
26	N/A	Allowance for ACM materials inside electrical equipment such as switch panels and circuit breakers.	1920's bldg. and 1970's bldg.	PACM	40 CF (20 panels; 2 CF per panel)	\$24.00	\$960
27	N/A	Allowance for ACM materials inside equipment such as gaskets in pipe flanges and equipment; refrigerators.	1920's bldg. and 1970's bldg.	PACM	10 CF	\$250.00	\$2,500
28	N/A	Laboratory ventilation hoods that contain Transite (asbestos) were observed	1920's bldg., 3 rd floor science department	PACM	160 SF (4 hoods, 40 SF each)	\$22.00	\$3,520
29						Sub-Total	\$1,851,553
30						Contingency 10%	\$185,155
31						Total abatement	\$2,036,708
32	Soft Costs Estimate				Quantity	\$/unit	Total
33		RI Analytical Additional Pre-Demolition Inspections/Sampling/Report			1	\$25,000	\$25,000
34		RI Analytical Asbestos Abatement Plan/HazMat Remediation Plan/Specifications/Bid Document Assistance			1	\$11,500	\$11,500
35		RI Analytical Asbestos Abatement Period Monitoring		% of abatement cost		8%	\$162,937
36						Sub-Total	\$199,437
37						Total	\$2,236,145

4.0 LIMITATIONS AND CONDITIONS:

This report has been completed based on visual and physical observations made and information available at the times of the site visits. This report is intended to be used as a summary of available information on existing conditions with conclusions based on a reasonable and knowledgeable review of evidence found in accordance with normally accepted industry standards, state and federal protocols, and within the scope and budget established by Client. Any additional data obtained by further review must be reviewed by RI Analytical and the conclusions presented herein may be modified accordingly.

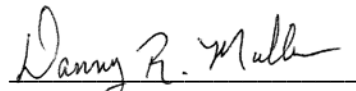
This report and attachments, prepared for the exclusive use of Client for use in a limited hazardous materials evaluation of the subject site, are an integral part of the inspections and opinions should not be formulated without reading the report in its entirety. No part of this report may be altered, used, copied or relied upon without prior written permission from RI Analytical, except that this report may be conveyed in its entirety to parties associated with the project for this subject study.

Thank you for the opportunity to provide environmental consulting services.

Please contact us at (401) 737-8500 if you have any questions.

Sincerely,

R.I. Analytical Laboratories, Inc.
Exposure Assessment and Management Division



Danny Mullen
Environmental Technician
MADLS Inspector #AI900682



Kenneth Davis
Senior Environmental Scientist
Manager, EAM Division
MADLS Inspector #AI060869

Doc: 160345 - mt.vernongrp-everett hs-feasibility study report-1.30.2017-v2

Attachments: Laboratory Asbestos Sample Analysis Reports
Laboratory Fungi in Air Sample Analysis Reports
Radon Report
Lead in Paint Report



Report: Everett HS Feasibility Study - Environmental Inspections
Site: George Keverian School, 548 Broadway, Everett, MA 02149

RIA Project #160345
January 31, 2016

LABORATORY ASBESTOS SAMPLE ANALYSIS REPORTS



CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)
Attn: Brian Sharp
41 Illinois Avenue
Warwick, RI 02888

Date Received: 12/7/2016
Date Reported: 12/16/2016
Work Order #: 1612-28422

Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

Enclosed please find your sample(s) analysis results for asbestos content. The six asbestos types include amosite, chrysotile, crocidolite, anthophyllite, tremolite, and actinolite.

METHODOLOGY: Polarized Light Microscopy (PLM) as suggested by EPA 600/R-93/116, July 1993 edition and EPA 600/M4-82-020, December 1982.

If the samples are found to be inhomogeneous, individual components will be analyzed separately. If individual components cannot be separated, the samples will be homogenized and a single result will be provided for the entire sample.

The samples submitted for analysis were accepted by R.I. Analytical unless otherwise noted in the report.

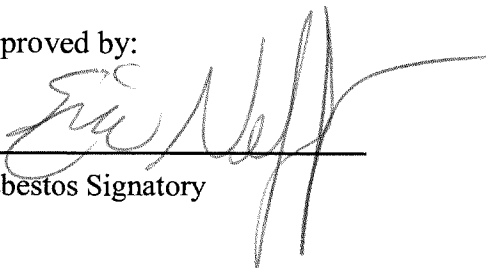
Sample results pertain only to items tested. The report must not be reproduced except in full with permission of R.I. Analytical. Samples submitted for analysis will be retained for three months for your future reference.

Our laboratory maintains NVLAP accreditation for bulk asbestos fiber analysis NVLAP lab code 101440-0.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government.

If you have any questions regarding this report, or if we may be of further assistance, please contact us.

Approved by:


Asbestos Signatory



Yihai Ding
Technical Director

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)

Date Received: 12/7/2016

Work Order #: 1612-28422

Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
001	1A: TAN W/BROWN SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Tan	12/16/2016	CRC
002	2A: RED W/BEIGE SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Red	12/16/2016	CRC
003	3A: OFF WHITE W/BEIGE SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Multicolor	12/16/2016	CRC
004	4A: ORANGE/BROWNISH W/BROWN SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Orange	12/16/2016	CRC
005	5A: GREEN W/BLACK SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Green	12/16/2016	CRC
006	6A: PLAIN WHITE 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC

R.I. Analytical Laboratories, Inc.
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R.I. Analytical (EAM Division)
 Date Received: 12/7/2016
 Work Order #: 1612-28422
 Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
007	7A: MAROON W/BLACK SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Red	12/16/2016	CRC
008	8A: GRAY W/BLACK SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
009	9A: ORANGE W/GRAY SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Orange	12/16/2016	CRC
010	10A: BRIGHT WHITE W/BLACK SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
011	11A: BLACK MASTIC UNDER 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
012	11B: BLACK MASTIC UNDER 12X12 VFT	PLM Fiber Analysis			
	+ STOP TO 11A				
013	11C: BLACK MASTIC UNDER 12X12 VFT	PLM Fiber Analysis			
	+ STOP TO 11A				

R.I. Analytical Laboratories, Inc.
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METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
014	12A: INTERIOR WHITE WINDOW CAULK	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
015	12B: INTERIOR WHITE WINDOW CAULK	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
016	13A: INTERIOR BLACK WINDOW CAULK	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
017	13B: INTERIOR BLACK WINDOW CAULK	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
018	14A: PURPLE ANTI-CONDENSATE ON SINK	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Purple	12/16/2016	CRC
019	15A: WHITE TILE DESIGN TERRAZZO FLOOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC

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Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
020	16A: 2X4 ACT (ABUNDANT TYPE) DOTS & SQUIGGLES	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	40-60 %	12/16/2016	CRC
		Non-fibrous	40-60 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC
021	16B: 2X4 ACT (ABUNDANT TYPE) DOTS & SQUIGGLES	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	40-60 %	12/16/2016	CRC
		Non-fibrous	40-60 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC
022	17A: YELLOW GLUE TO 12X12 VFT ON WOOD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
023	17B: YELLOW GLUE TO 12X12 VFT ON WOOD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
024	18A: YELLOW WALLPAPER (TEXTURED) ON GYPSUM BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
025	18B: YELLOW WALLPAPER (TEXTURED) ON GYPSUM BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)

Date Received: 12/7/2016

Work Order #: 1612-28422

Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
026	19A: GLUE TO 18A	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
027	19B: GLUE TO 18B	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
028	20A: FIBROUS BEIGE BURLAP COVERING OVER PLASTER WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC
029	20B: FIBROUS BEIGE BURLAP COVERING OVER PLASTER WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC
030	21A: GRAY BASE LAYER (PLASTER WALL)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Animal Hair	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
031	21B: GRAY BASE LAYER (PLASTER WALL)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Animal Hair	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)

Date Received: 12/7/2016

Work Order #: 1612-28422

Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
032	21C: GRAY BASE LAYER (PLASTER WALL)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Animal Hair	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
033	22A: WHITE SKIM COAT TO PLASTER WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
034	22B: WHITE SKIM COAT TO PLASTER WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
035	22C: WHITE SKIM COAT TO PLASTER WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
036	23A: BLACK COATING ON INSIDE OF EXTERIOR BRICK	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
037	24A: BEIGE GLUE TO WOOD WALL PANELING ON PLASTER	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)
 Date Received: 12/7/2016
 Work Order #: 1612-28422
 Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
038	25A: BROWN VCB ON GPYSUM BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
039	25B: BROWN VCB ON GPYSUM BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
040	26A: BROWN GLUE TO BROWN VCB	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
041	26B: BROWN GLUE TO BROWN VCB	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
042	27A: BLACK PAPER UNDER HARDWOODS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
043	27B: BLACK PAPER UNDER HARDWOODS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC

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 Date Received: 12/7/2016
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 Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
044	28A: LIGHT BLUE W/GRAY SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Blue	12/16/2016	CRC
045	29A: FIREPROOFING (SPRAY ON)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	40-60 %	12/16/2016	CRC
		Non-fibrous	40-60 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC
046	29B: FIREPROOFING (SPRAY ON)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	40-60 %	12/16/2016	CRC
		Non-fibrous	40-60 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC
047	30A: BLACK LAB COUNTERTOP	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
048	31A: FIBROUS BULLETIN BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
049	32A: TAN GLUE TO 31A	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Tan	12/16/2016	CRC

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METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
050	33A: BROWN GLUE DAUB BEHIND CHALK BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
051	33B: BROWN GLUE DAUB BEHIND CHALK BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
052	34A: YELLOWISH GLUE TO LAB COUNTER	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
053	35A: BROWNISH GLUE TO LAB COUNTER	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
054	36A: MUDDIED ELBOW (TSI)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	20-30 %	12/16/2016	CRC
		Non-fibrous	70-80 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
055	36B: MUDDER ELBOW (TSI)	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	20-30 %	12/16/2016	CRC
		Non-fibrous	70-80 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
056	36C: MUDDER ELBOW (TSI)	PLM Fiber Analysis			
	+ STOP TO 36B				
057	37A: BROWN DUCT SEALER	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Other	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
058	37B: BROWN DUCT SEALER	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Other	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
059	38A: DUCT WORK SEAM TAPE	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Multicolor	12/16/2016	CRC
060	39A: BLACK WINDOW GLAZING TO DOUBLE METAL DOORS	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
061	40A: YELLOW GLUE TO LIBRARY CARPET ON CONCRETE	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
062	40B: YELLOW GLUE TO LIBRARY CARPET ON CONCRETE	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
063	41A: 2X2 BROWN TINTED ACT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	40-60 %	12/16/2016	CRC
		Non-fibrous	40-60 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
064	41B: 2X2 BROWN TINTED ACT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	40-60 %	12/16/2016	CRC
		Non-fibrous	40-60 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
065	42A: WHITE GYPSUM BOARD WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Cellulose	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
066	42B: WHITE GYPSUM BOARD WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Cellulose	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
067	43A: JOINT COMPOUND TO GYPSUM BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
068	43B: JOINT COMPOUND TO GYPSUM BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
069	43C: JOINT COMPOUND TO GYPSUM BOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
070	44A: YELLOW GLUE ON STICK PIN TO FIBERGLASS DUCTWORK	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Yellow	12/16/2016	CRC
071	45A: PIPE INSULATION (AIR-CELL?) TO RADIATOR	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	20-30 %	12/16/2016	CRC
		Non-fibrous	70-90 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
072	45B: PIPE INSULATION (AIR-CELL?) TO RADIATOR	PLM Fiber Analysis			
	+ STOP TO 45A				
073	46A: BROWN PAPER TO RESTROOM PARTITION WALL	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
074	47A: GRAY CAULKING, INTERIOR SIDE OF WINDOW	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
075	48A: GRAY GROUT TO TAN BRICK WALL (CORRIDOR WALLS)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
076	49A: BOILER DUCT INSULATION	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
077	49B: BOILER DUCT INSULATION	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
078	49C: BOILER DUCT INSULATION	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
079	50A: BOILER DUCT INSULATION JACKET	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
080	50B: BOILER DUCT INSULATION JACKET	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
081	50C: BOILER DUCT INSULATION JACKET	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
082	51A: BOILER INSULATION ON EXTERIOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
083	51B: BOILER INSULATION ON EXTERIOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
084	51C: BOILER INSULATION ON EXTERIOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
085	52A: BOILER INSULATION - INTERIOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
086	52B: BOILER INSULATION - INTERIOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
087	52C: BOILER INSULATION - INTERIOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
088	53A: BOILER INSULATION ROPE	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	40-60 %	12/16/2016	CRC
		Non-fibrous	40-60 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
089	53B: BOILER INSULATION ROPE	PLM Fiber Analysis			
	+ STOP TO 53A				
090	53C: BOILER INSULATION ROPE	PLM Fiber Analysis			
	+ STOP TO 53A				

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
091	54A: BOILER INSULATION JACKET COVERING EXTERIOR PORTIONS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
092	54B: BOILER INSULATION JACKET COVERING EXTERIOR PORTIONS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
093	54C: BOILER INSULATION JACKET COVERING EXTERIOR PORTIONS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
094	55A: PIPE INSULATION (MAG ?) TSI	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Synthetic	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
095	55B: PIPE INSULATION (MAG ?) TSI	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	<1 %	12/16/2016	CRC
		Amosite	5-15 %	12/16/2016	CRC
		Crocidolite	1-5 %	12/16/2016	CRC
		Non-fibrous	80-95 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC

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096	55C: PIPE INSULATION (MAG ?) TSI	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Synthetic	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
097	56A: GRAY FLOOR LEVELER UNDER 12X12 VFT & MASTIC	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
098	57A: BLACK VCB	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
099	57B: BLACK VCB	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
100	58A: OFF-WHITE VCB	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
101	59A: BEIGE GLUE TO 58A	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
102	60A: WHITE W/BROWN SPOTS 12X12 VFT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
103	61A: BROWN GLUE TO 60A ON WOOD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
104	61B: BROWN GLUE TO 60A ON WOOD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
105	62A: TYPICAL 2X2 RESTROOM CERAMIC TILE FLOOR GROUT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
106	62B: TYPICAL 2X2 RESTROOM CERAMIC TILE FLOOR GROUT	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
107	63A: CEMENT SETTING BED TO 62A	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC

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108	63B: CEMENT SETTING BED TO 62B	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
109	64A: BLACK SEALER (PAINTED SILVER) ON RUBBER SEAMS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
110	64B: BLACK SEALER (PAINTED SILVER) ON RUBBER SEAMS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
111	65A: BROWN SEALER ON RUBBER SEAMS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
112	65B: BROWN SEALER ON RUBBER SEAMS	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
113	66A: BLACK SEALER ON PENETRATIONS	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
114	66B: BLACK SEALER ON PENETRATIONS	PLM Fiber Analysis			

+ STOP TO 66A

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SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
115	67A: BLACK SEALER FLASHED ON ROOF EDGES & PEN.	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
116	67B: BLACK SEALER FLASHED ON ROOF EDGES & PEN.	PLM Fiber Analysis			
	+ STOP TO 67A				
117	67C: BLACK SEALER FLASHED ON ROOF EDGES & PEN.	PLM Fiber Analysis			
	+ STOP TO 67A				
118	68A: INSULATION JACKET TO FIBERGLASS DUCTWORK	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	20-30 %	12/16/2016	CRC
		Non-fibrous	70-80 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
119	69A: BLACK GLAZING TO EXTERIOR WINDOW	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
120	69B: BLACK GLAZING TO EXTERIOR WINDOW	PLM Fiber Analysis			
	+ STOP TO 69A				
121	70A: BROWN & TAN TERRAZZO FLOOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)
 Date Received: 12/7/2016
 Work Order #: 1612-28422
 Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
122	71A: OTHER ABUNDANT 2X4 ACT TYPE (SIMILAR)	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Glass Fiber	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Beige	12/16/2016	CRC
123	72A: RED ADHESIVE CORKBOARD	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Red	12/16/2016	CRC
124	73A: TAN ADHESIVE TO 20A	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Tan	12/16/2016	CRC
125	73B: TAN ADHESIVE TO 20B	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Tan	12/16/2016	CRC
126	74A: WHITE CAULKING ON CEMENT SEAMS (DECORATIVE)	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
127	74B: WHITE CAULKING ON CEMENT SEAMS (DECORATIVE)	PLM Fiber Analysis			

+ STOP TO 74A

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)
 Date Received: 12/7/2016
 Work Order #: 1612-28422
 Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
128	75A: GLAZING TO OLD RED EXTERIOR DOORS	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
129	76A: WHITE CAULKING TO OLD RED EXTERIOR DOORS	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
130	77A: BROWN CAULKING TO COMMON EXTERIOR WINDOWS	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Brown	12/16/2016	CRC
131	77B: BROWN CAULKING TO COMMON EXTERIOR WINDOWS	PLM Fiber Analysis			
	+ STOP TO 77A				
132	78A: BLACK GLAZING TO COMMON EXTERIOR WINDOWS	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
133	78B: BLACK GLAZING TO COMMON EXTERIOR WINDOWS	PLM Fiber Analysis			
	+ STOP TO 78A				

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)
 Date Received: 12/7/2016
 Work Order #: 1612-28422
 Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
134	79A: MOST COMMON WHITE CAULKING ON DOORS, OLD BLDG	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
135	79B: MOST COMMON WHITE CAULKING ON DOORS, OLD BLDG	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
136	80A: MOST COMMON WHITE CAULKING ON DOORS, NEW BLDG	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
137	80B: MOST COMMON WHITE CAULKING ON DOORS, NEW BLDG	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
138	81A: BLACK CAULKING TO EXTERIOR DOOR	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC
139	82A: BLACK SEALER ON VERTICAL "I" BEAM BEHIND BRICK	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	5-15 %	12/16/2016	CRC
		Non-fibrous	85-95 %	12/16/2016	CRC
		Sample Color	Black	12/16/2016	CRC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

R.I. Analytical (EAM Division)
 Date Received: 12/7/2016
 Work Order #: 1612-28422
 Site Location: PROJECT #160345 MOUNT VERNON GROUP ARCH, INC

METHOD: EPA 600/R-93/116

SAMPLE NO.	SAMPLE DESCRIPTION	PARAMETER	SAMPLE RESULTS / UNITS	DATE ANALYZED	ANALYST
140	83A: GROUT TO EXTERIOR BRICK OF OLDER BUILDING	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
Exterior piece of brick associated with this sample has what appears to be a small piece of suspect fibrous sheet material adhering to it.					
141	84A: GROUT TO EXTERIOR BRICK OF NEWER BUILDING	PLM Fiber Analysis			
		Asbestos	Not Detected	12/16/2016	CRC
		Non-fibrous	100 %	12/16/2016	CRC
		Sample Color	Gray	12/16/2016	CRC
142	85A: RESIDUAL WHITE CAULKING TO COMMON EXTERIOR WIND.	PLM Fiber Analysis			
		Asbestos	Detected	12/16/2016	CRC
		Chrysotile	1-5 %	12/16/2016	CRC
		Non-fibrous	95-99 %	12/16/2016	CRC
		Sample Color	White	12/16/2016	CRC
143	85B: RESIDUAL WHITE CAULKING TO COMMON EXT. WIND.	PLM Fiber Analysis			

+ STOP TO 85A

Project #160345
 Mount Vernon Group Arch, Inc.
 (Old) Everett High School, Everett, MA



R. I. Analytical
Specialists in Environmental Services
41 Illinois Ave, Warwick, RI 02888
Phone: 401.737.8500 - Fax: 401.738.1970

**SAMPLE DATA SHEET
&
CHAIN OF CUSTODY**

Project : Mount vernon group Arch., Inc	Client Purchase Order #:
Address: (old) Everett High School, Everett, MA	RI Analytical EAM Project #: 160345
Sampled By (Name): BSharp & DMullen	RI Analytical Work Order#: 1612-28422
Sampled By (License#): AAC-0967 & AAC-0963	Date of Inspection: 12/01 & 12/02/2016 Page 1 of 5

Line	Sample #	Description	Location	Notes
1	1A	Tan w/ brown spots 12x12 VFT	4 th floor corridor	
2	2A	Red w/ beige spots 12x12 VFT	4 th floor classroom	
3	3A	Off-white w/ beige spots 12x12VFT	4 th floor classroom	
4	4A	Orange/ brownish w/ brown spots 12x12 VFT	4th floor classroom	
5	5A	Green w/ black spots 12x12 VFT	3 rd floor classroom	
6	6A	Plain white 12x12 VFT	3rd floor classroom	
7	7A	Maroon w/ black spots 12x12 VFT	3rd floor classroom	
8	8A	Gray w/ black spots 12x12 VFT	3rd floor classroom	
9	9A	Orange w/ gray spots 12x12 VFT	3rd floor classroom	
10	10A	Bright white w/ black spots 12x12 VFT	3rd floor classroom	
11	11A	Black mastic under 12x12 VFT	4 th floor, under 1a on concrete floor	
12	11B	Black mastic under 12x12 VFT	2 nd floor corridor on concrete floor	
13	11C	Black mastic under 12x12 VFT	Basement cafeteria on concrete floor	
14	12A	Interior white window caulk	4 th floor corridor	
15	12B	Interior white window caulk	2nd floor library, attached rooms	
16	13A	Interior black window caulk	4 th floor classroom	
17	13B	Interior black window caulk	2 nd floor library, attached rooms	
18	14A	Purple anti - condensate on sink	4 th floor classroom	
19	15A	White tile design terrazzo floor	4 th floor stairwell	
20	16A	2x4 ACT (abundant type) dots & squiggles	4 th floor corridor	
21	16B	2x4 ACT (abundant type) dots & squiggles	2 nd floor library, attached classroom	
22	17A	Yellow glue to 12x12 VFT on wood	3 rd floor classroom	
23	17B	Yellow glue to 12x12 VFT on wood	2 nd floor library	
24	18A	Yellow wallpaper (textured) on gypsum board	3rd floor classroom	
25	18B	Yellow wallpaper (textured) on gypsum board	2 nd floor library	
26	19A	Glue to 18A		
27	19B	Glue to 18B		
28	20A	Fibrous beige burlap covering over plaster wall	3 rd floor classroom	
29	20B	Fibrous beige burlap covering over plaster wall	3rd floor classroom	
30	21A	Gray Base layer (plaster wall)	3 rd floor	

COMMENTS: Email report to: Name: _____; Email address: BSharp@RIAnalytical.com
 A. (1) Analysis = PLM, Asbestos (EPA 600/R-93/116); PLM NOB; 400 point count if <10% ASB; TEM NOB
 (2) TAT = 5-7 hour (day) - week; (3) No. samples submitted = 143; (4) Y or N - Positive stop by Homogeneous # shown.

RELINQUISHED BY: (SIGNATURE)	DATE/TIME <u>12/7/16 11:31</u>	RECEIVED BY: (SIGNATURE)	DATE/TIME <u>12-7-16 11:30</u>
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME



41 Illinois Ave, Warwick, RI 02888
Phone: 401.737.8500 - Fax: 401.738.1970

**SAMPLE DATA SHEET
&
CHAIN OF CUSTODY**

Project :	Client Purchase Order #:
Address:	RI Analytical EAM Project #:
Sampled By (Name):	RI Analytical Work Order#: <u>1612-28422</u>
Sampled By (License#):	Date of Inspection: <u> </u> / <u> </u> / <u> </u> Page <u>2</u> of <u>5</u>

Line	Sample #	Description	Location	Notes
1	21B	Gray Base layer (plaster wall)	3 rd floor	
2	21C	Gray Base layer (plaster wall)	2 nd floor	
3	22A	White skim coat to plaster wall	3 rd floor	
4	22B	White skim coat to plaster wall	2 nd floor	
5	22C	White skim coat to plaster wall	Basement	
6	23A	Black coating on inside of exterior brick	3 rd floor (behind plaster wall)	
7	24A	Beige glue to wood wall paneling on plaster	3 rd floor	
8	25A	Brown VCB on gypsum board	3 rd floor	
9	25B	Brown VCB on gypsum board	2 nd floor library	
10	26A	Brown glue to brown VCB	Same as 25A	
11	26B	Brown glue to brown VCB	Same as 25B	
12	27A	Black paper under hardwoods	3 rd floor classroom	
13	27B	Black paper under hardwoods	2 nd floor classroom	
14	28A	Light blue w/ gray spots 12x12 VFT	3 rd floor classroom	
15	29A	Fireproofing (spray on)	3 rd floor classroom	
16	29B	Fireproofing (spray on)	2 nd floor classroom	
17	30A	Black lab countertop	3 rd floor classroom	
18	31A	Fibrous bulletin board	3 rd floor classroom	
19	32A	Tan glue to 31A		
20	33A	Brown glue daub behind chalk board	3 rd floor class (on CMU)	
21	33B	Brown glue daub behind chalk board	2 nd floor classroom	
22	34A	Yellowish glue to lab counter	3 rd floor	
23	35A	Brownish glue to lab counter	3 rd floor	
24	36A	Mudded elbow (TSI)	3 rd floor	
25	36B	Mudded elbow (TSI)	2 nd floor bath	
26	36C	Mudded elbow (TSI)	2 nd floor classroom	
27	37A	Brown duct sealer	3 rd floor corridor	
28	37B	Brown duct sealer	Basement	
29	38A	Duct work seam tape	3 rd floor corridor	
30	39A	Black window glazing to double metal doors	3 rd floor corridor	

COMMENTS: Email report to: Name: _____; Email address: _____

A. (1) Analysis = PLM, Asbestos (EPA 600/R-93/116); PLM NOB; 400 point count if <10% ASB; TEM NOB
 (2) TAT = _____ hour - day - week; (3) No. samples submitted = _____; (4) Y or N - Positive stop by Homogeneous # shown.

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME 12-7-16 11:30
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME



41 Illinois Ave, Warwick, RI 02888
Phone: 401.737.8500 - Fax: 401.738.1970

**SAMPLE DATA SHEET
&
CHAIN OF CUSTODY**

Project :	Client Purchase Order #:
Address:	RI Analytical EAM Project #:
Sampled By (Name):	RI Analytical Work Order#: <u>1612-28422</u>
Sampled By (License#):	Date of Inspection: <u> </u> / <u> </u> / <u> </u> Page <u>3</u> of <u>5</u>

Line	Sample #	Description	Location	Notes
1	40A	Yellow glue to library carpet on concrete	2 nd floor library	
2	40B	Yellow glue to library carpet on concrete	2nd floor library	
3	41A	2x2 brown tinted ACT	2nd floor library	
4	41B	2x2 brown tinted ACT	2nd floor library	
5	42A	White gypsum board wall	2 nd floor library	
6	42B	White gypsum board wall	2 nd floor classroom	
7	43A	Joint compound to gypsum board	2 nd floor library	
8	43B	Joint compound to gypsum board	2 nd floor classroom	
9	43C	Joint compound to gypsum board	Basement	
10	44A	Yellow glue on stick pin to fiberglass ductwork	2 nd floor library	
11	45A	Pipe Insulation (air-cell?) to radiator	2 nd floor restroom	
12	45B	Pipe Insulation (air-cell?) to radiator	2 nd floor classroom	
13	46A	Brown paper to restroom partition wall	2 nd floor restroom	
14	47A	Gray caulking, interior side of window	2 nd floor corridor	
15	48A	Gray grout to tan brick wall (corridor walls)	2 nd floor corridor	
16	49A	Boiler duct insulation	Basement – Boiler Room	
17	49B	Boiler duct insulation	Basement – Boiler Room	
18	49C	Boiler duct insulation	Basement – Boiler Room	
19	50A	Boiler duct insulation jacket	Basement – Boiler Room	
20	50B	Boiler duct insulation jacket	Basement – Boiler Room	
21	50C	Boiler duct insulation jacket	Basement – Boiler Room	
22	51A	Boiler insulation on exterior	Basement – Boiler Room	
23	51B	Boiler insulation on exterior	Basement – Boiler Room	
24	51C	Boiler insulation on exterior	Basement – Boiler Room	
25	52A	Boiler insulation – Interior	Basement – Boiler Room	
26	52B	Boiler insulation – Interior	Basement – Boiler Room	
27	52C	Boiler insulation – Interior	Basement – Boiler Room	
28	53A	Boiler insulation rope	Basement – Boiler Room	
29	53B	Boiler insulation rope	Basement – Boiler Room	
30	53C	Boiler insulation rope	Basement – Boiler Room	

COMMENTS: Email report to: Name: _____; Email address: _____

A. (1) Analysis = PLM, Asbestos (EPA 600/R-93/116); PLM NOB; 400 point count if <10% ASB; TEM NOB
 (2) TAT = _____ hour - day - week; (3) No. samples submitted = _____; (4) Y or N - Positive stop by Homogeneous # shown.

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY:	DATE/TIME 12-7-16 11:30
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME



R. I. Analytical
Specialists in Environmental Services
41 Illinois Ave, Warwick, RI 02888
Phone: 401.737.8500 - Fax: 401.738.1970

**SAMPLE DATA SHEET
&
CHAIN OF CUSTODY**

Project :	Client Purchase Order #:
Address:	RI Analytical EAM Project #:
Sampled By (Name):	RI Analytical Work Order#: <u>1612-28422</u>
Sampled By (License#):	Date of Inspection: <u> / / </u> Page <u>4</u> of <u>5</u>

Line	Sample #	Description	Location	Notes
1	54A	Boiler insulation jacket covering exterior portions	Basement – Boiler Room	
2	54B	Boiler insulation jacket covering exterior portions	Basement – Boiler Room	
3	54C	Boiler insulation jacket covering exterior portions	Basement – Boiler Room	
4	55A	Pipe insulation (mag?) TSI	Basement – cafeteria (plenum)	
5	55B	Pipe insulation (mag?) TSI	Basement – classroom closet	
6	55C	Pipe insulation (mag?) TSI	Basement – kitchen room, vertical	
7	56A	Gray floor leveler under 12x12 VFT & mastic	Basement – cafeteria	
8	57A	Black VCB	Basement – cafeteria, "same glue"	
9	57B	Black VCB	Basement – basemen classroom	
10	58A	Off-white VCB	Basement classroom	
11	59A	Beige glue to 58A	Basement classroom	
12	60A	White w/ brown spots 12x12 VFT	Basement classroom	
13	61A	Brown glue to 60A on wood	Basement classroom	
14	61B	Brown glue to 60A on wood	Basement classroom	
15	62A	Typical 2x2 restroom ceramic tile floor grout	4 th floor restroom	
16	62B	Typical 2x2 restroom ceramic tile floor grout	3 rd floor restroom	
17	63A	Cement setting bed to 62A		
18	63B	Cement setting bed to 62B		
19	64A	Black sealer (painted silver) on rubber seams	Exterior: Newer roof, vent box pen.	
20	64B	Black sealer (painted silver) on rubber seams	Exterior: Newer roof, vent box pen.	
21	65A	Brown Sealer on rubber seams	Exterior: Newer roof, parapet walls	
22	65B	Brown Sealer on rubber seams	Exterior: Newer roof, parapet walls	
23	66A	Black sealer on penetrations	Exterior: Older roof, mush. exhaust	
24	66B	Black sealer on penetrations	Exterior: Older roof, pipe penetration	
25	67A	Black sealer flashed on roof edges & pen.	Exterior: Older roof, edge	
26	67B	Black sealer flashed on roof edges & pen.	Exterior: Older roof, edge	
27	67C	Black sealer flashed on roof edges & pen.	Exterior: Older roof, vent box	
28	68A	Insulation jacket to fiberglass ductwork	Exterior: Older roof	
29	69A	Black glazing to exterior window	Exterior: 4 th floor windows	
30	69B	Black glazing to exterior window	Exterior: 4 th floor windows	

COMMENTS: Email report to: Name: _____; Email address: _____

A. (1) Analysis = PLM, Asbestos (EPA 600/R-93/116); PLM NOB; 400 point count if <10% ASB; TEM NOB
 (2) TAT = _____ hour - day - week; (3) No. samples submitted = _____; (4) Y or N - Positive stop by Homogeneous # shown.

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME 12-7-16 11:30
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME



R. I. Analytical
Specialists in Environmental Services
41 Illinois Ave, Warwick, RI 02888
Phone: 401.737.8500 - Fax: 401.738.1970

**SAMPLE DATA SHEET
&
CHAIN OF CUSTODY**

Project :	Client Purchase Order #:
Address:	RI Analytical EAM Project #: <u>1612-28422</u>
Sampled By (Name):	RI Analytical Work Order#:
Sampled By (License#):	Date of Inspection: <u> / / </u> Page <u>5</u> of <u>5</u>

Line	Sample #	Description	Location	Notes
1	70A	Brown & tan terrazzo floor	3 rd floor corridor	
2	71A	Other abundant 2x4 ACT type (similar)	Basement corridor	
3	72A	Red adhesive to corkboard	3 rd floor classroom	
4	73A	Tan adhesive to 20A		
5	73B	Tan adhesive to 20B		
6	74A	White caulking on cement seams (decorative)	Exterior: front of building, 2 nd floor	Older bldg.
7	74B	White caulking on cement seams (decorative)	Exterior: NE side, side of door frame	Older bldg.
8	75A	Glazing to old red exterior doors	Exterior: Front of older building	
9	76A	White caulking to old red exterior doors	Exterior: Front of older building	
10	77A	Brown caulking to common exterior windows	Exterior: Front of older building	
11	77B	Brown caulking to common exterior windows	Exterior: Front of older building	
12	78A	Black glazing to common exterior windows	Exterior: Front of older building	
13	78B	Black glazing to common exterior windows	Exterior: Front of older building	
14	79A	Most common white caulking on doors, old bldg	Exterior: older building	
15	79B	Most common white caulking on doors, old bldg	Exterior: older building	
16	80A	Most common white caulking on doors, new bldg	Exterior: newer building	
17	80B	Most common white caulking on doors, new bldg	Exterior: newer building	
18	81A	Black caulking to exterior door	Exterior: NE side of older building	
19	82A	Black sealer on vertical "I" beam behind brick	Exterior: wall/corner of newer bldg.	
20	83A	Grout to exterior brick of older building	Exterior: older building	
21	84A	Grout to exterior brick of newer building	Exterior: newer building	
22	85A	Residual white caulking to common exterior wind.	Exterior: older building	
23	85B	Residual white caulking to common ext. wind.	Exterior: older building	
24				
25				
26				
27				
28				
29				
30				

COMMENTS: Email report to: Name: _____; Email address: _____

A. (1) Analysis = PLM, Asbestos (EPA 600/R-93/116); PLM NOB; 400 point count if <10% ASB; TEM NOB
 (2) TAT = _____ hour - day - week; (3) No. samples submitted = _____; (4) Y or N - Positive stop by Homogeneous # shown.

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME 12-7-16 11:30
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	DATE/TIME



Report: Everett HS Feasibility Study - Environmental Inspections
Site: George Keverian School, 548 Broadway, Everett, MA 02149

RIA Project #160345
January 31, 2016

LABORATORY FUNGI IN AIR SAMPLE ANALYSIS REPORTS

LABORATORY REPORT

R.I. Analytical (EAM Division)
Attn: Danny Mullen
41 Illinois Avenue
Warwick, RI 02888

Date Received: 12/5/2016
Date Reported: 12/7/2016
P.O. Number 160345

Work Order #: 1612-28195

Project Name: PROJECT # 160345 EVERETT HIGH SCHOOL

Enclosed are the analytical results and Chain of Custody for your project referenced above. The sample(s) were analyzed by our Warwick, RI laboratory unless noted otherwise. When applicable, indication of sample analysis at our Hudson, MA laboratory and/or subcontracted results are noted and subcontracted reports are enclosed in their entirety.

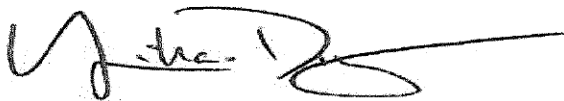
All samples were analyzed within the established guidelines of US EPA approved methods with all requirements met, unless otherwise noted at the end of a given sample's analytical results or in a case narrative.

The Detection Limit is defined as the lowest level that can be reliably achieved during routine laboratory conditions.

These results only pertain to the samples submitted for this Work Order # and this report shall not be reproduced except in its entirety.

We certify that the following results are true and accurate to the best of our knowledge. If you have questions or need further assistance, please contact our Customer Service Department.

Approved by:



Yihai Ding
Technical Director

Laboratory Certification Numbers (as applicable to sample's origin state):

Warwick RI * RI LAI00033, MA M-RI015, CT PH-0508, ME RI00015, NH 2070, NY 11726
Hudson MA * M-MA1117, RI LAO00319

R.I. Analytical Laboratories, Inc.

Laboratory Report

R.I. Analytical (EAM Division)

Work Order #: 1612-28195

Project Name: PROJECT # 160345 EVERETT HIGH SCHOOL

Sample Number: 001
Sample Description: #1
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 002
Sample Description: #2
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 003
Sample Description: #3
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 004
Sample Description: #4
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

R.I. Analytical Laboratories, Inc.

Laboratory Report

R.I. Analytical (EAM Division)

Work Order #: 1612-28195

Project Name: PROJECT # 160345 EVERETT HIGH SCHOOL

Sample Number: 005
Sample Description: #5
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 006
Sample Description: #6
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 007
Sample Description: #7
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 008
Sample Description: B1
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

R.I. Analytical Laboratories, Inc.

Laboratory Report

R.I. Analytical (EAM Division)

Work Order #: 1612-28195

Project Name: PROJECT # 160345 EVERETT HIGH SCHOOL

Sample Number: 009
Sample Description: B2
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 010
Sample Description: B3
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 011
Sample Description: B4
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 012
Sample Description: B5
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

R.I. Analytical Laboratories, Inc.

Laboratory Report

R.I. Analytical (EAM Division)

Work Order #: 1612-28195

Project Name: PROJECT # 160345 EVERETT HIGH SCHOOL

Sample Number: 013
Sample Description: B6
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 014
Sample Description: B7
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 015
Sample Description: B8
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 016
Sample Description: B9
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

R.I. Analytical Laboratories, Inc.

Laboratory Report

R.I. Analytical (EAM Division)

Work Order #: 1612-28195

Project Name: PROJECT # 160345 EVERETT HIGH SCHOOL

Sample Number: 017
Sample Description: B10
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

Sample Number: 018
Sample Description: B11
Sample Type : COMPOSITE
Sample Date / Time : 12/01/2016

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
Non-viable Spore Trap	See Attached			A2	12/6/2016 0:00	*SA

*SA Samples analyzed by SanAir Technologies Laboratory, Inc.

Project #160345

Everett High School

SanAir Technologies Laboratory

Analysis Report

prepared for

RI Analytical Laboratories, Inc.

Report Date: 12/6/2016
Project #: 1612-28195
SanAir ID#: 16043836



NVLAP LAB CODE 200870-0



Certification # 652931



License # LAB0166



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SanAir Technologies Laboratory, Inc.

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RI Analytical Laboratories, Inc.
Data Reporting Department
41 Illinois Avenue
Warwick, RI 02888

December 6, 2016

SanAir ID # 16043836
Project Name:
Project Number: 1612-28195

Dear Alan Ford,

We at SanAir would like to thank you for the work you recently submitted. The 18 sample(s) were received on Tuesday, December 06, 2016 via FedEx. The final report(s) is enclosed for the following sample(s): 1612-28195-001, 1612-28195-002, 1612-28195-003, 1612-28195-004, 1612-28195-005, 1612-28195-006, 1612-28195-007, 1612-28195-008, 1612-28195-009, 1612-28195-010, 1612-28195-011, 1612-28195-012, 1612-28195-013, 1612-28195-014, 1612-28195-015, 1612-28195-016, 1612-28195-017, 1612-28195-018.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

L. Claire Macdonald
Microbiology Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

sample conditions:
18 sample(s) in Good condition



SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: <http://www.sanair.com> E-mail: iaq@sanair.com

SanAir ID Number

16043836

FINAL REPORT

Name: RI Analytical Laboratories, Inc.
Address: Data Reporting Department
41 Illinois Avenue
Warwick, RI 02888

Project Number: 1612-28195
P.O. Number: 1073
Project Name:

Collected Date: 12/1/2016
Received Date: 12/6/2016 10:40:00 AM
Report Date: 12/6/2016 4:55:06 PM
Analyst: Acharya, Uttam

Air Cassette Analysis

SanAir ID Number	16043836-001	16043836-002	16043836-003	16043836-004
Analysis Using STL:	105C	105C	105C	105C
Sample Number	1612-28195-001	1612-28195-002	1612-28195-003	1612-28195-004
Sample Identification	#1	#2	#3	#4
Sample Type	Impact Slide	Impact Slide	Impact Slide	Impact Slide
Volume	150 Liters	150 Liters	150 Liters	150 Liters
Analytical Sensitivity	7 Count/M ³	7 Count/M ³	7 Count/M ³	7 Count/M ³
Background Density	1+	2	1+	2
Other				
Mycelial Fragments	Raw Count: 2 Count/M ³ : 13 %: n/a	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 2 Count/M ³ : 13 %: n/a
Fungal Identification				
Alternaria species	Raw Count: 3 Count/M ³ : 20 %: 6	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 4 Count/M ³ : 27 %: 12
Ascospores	Raw Count: 28 Count/M ³ : 187 %: 56	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 1 Count/M ³ : 7 %: 3
Aspergillus/Penicillium	Raw Count: 5 Count/M ³ : 33 %: 10	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 16 Count/M ³ : 107 %: 47
Basidiospores	Raw Count: 2 Count/M ³ : 13 %: 4	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 3 Count/M ³ : 20 %: 9
Chaetomium species	Raw Count: 1 Count/M ³ : 7 %: 2	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 2 Count/M ³ : 13 %: 6
Cladosporium species	Raw Count: 10 Count/M ³ : 67 %: 20	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 3 Count/M ³ : 20 %: 9
Curvularia species	Raw Count: 1 Count/M ³ : 7 %: 2	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 2 Count/M ³ : 13 %: 6
Epicoccum species	Raw Count: 1 Count/M ³ : 7 %: 2	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 3 Count/M ³ : 20 %: 9
Nigrospora species	Raw Count: 10 Count/M ³ : 67 %: 20	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 5 Count/M ³ : 33 %: 15
Pithomyces species	Raw Count: 1 Count/M ³ : 7 %: 2	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 3 Count/M ³ : 20 %: 9
Rusts	Raw Count: 10 Count/M ³ : 67 %: 20	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 5 Count/M ³ : 33 %: 15
Smuts/Myxomycetes	Raw Count: 1 Count/M ³ : 7 %: 2	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 3 Count/M ³ : 20 %: 9
Stachybotrys species	Raw Count: 1 Count/M ³ : 7 %: 2	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 5 Count/M ³ : 33 %: 15
Stemphylium species	Raw Count: 1 Count/M ³ : 7 %: 2	Raw Count: 1 Count/M ³ : 7 %: 33	Raw Count: 32 Count/M ³ : 213 %: >99	Raw Count: 3 Count/M ³ : 20 %: 9
Total	Raw Count: 50 Count/M ³ : 333	Raw Count: 3 Count/M ³ : 20	Raw Count: 32 Count/M ³ : 213	Raw Count: 34 Count/M ³ : 227

ND = None Detected. Blank spaces indicate no spores detected.

Signature: *Uttam Acharya*

Date: 12/6/2016

Reviewed: *S. Claire Macdonald*

Date: 12/6/2016



SanAir Technologies Laboratory, Inc.

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Name: RI Analytical Laboratories, Inc.
Address: Data Reporting Department
41 Illinois Avenue
Warwick, RI 02888

Project Number: 1612-28195
P.O. Number: 1073
Project Name:

Collected Date: 12/1/2016
Received Date: 12/6/2016 10:40:00 AM
Report Date: 12/6/2016 4:55:06 PM
Analyst: Acharya, Uttam

SanAir ID Number
16043836
FINAL REPORT

Air Cassette Analysis

SanAir ID Number	16043836-017	16043836-018	ND = None Detected. Blank spaces indicate no spores detected.	
Analysis Using STL:	105C	105C		
Sample Number	1612-28195-017	1612-28195-018		
Sample Identification	B10	B11		
Sample Type	Impact Slide	Impact Slide		
Volume	150 Liters	150 Liters		
Analytical Sensitivity	7 Count/M ³	7 Count/M ³		
Background Density	2+	1+		
Other			Raw Count	Count/M³
Mycelial Fragments			1	7
				%
				n/a
Fungal Identification			Raw Count	Count/M³
Alternaria species				%
Ascospores	1	7		
Aspergillus/Penicillium	6	40	1	7
Basidiospores	18	120	3	20
Chaetomium species	1	7		
Cladosporium species	5	33	1	7
Curvularia species				17
Epicoccum species				
Nigrospora species				
Pithomyces species	1	7		3
Rusts				
Smuts/Myxomycetes			1	7
Stachybotrys species				17
Stemphylium species				
Total	32	213	6	40

Signature: *Uttam Acharya*

Reviewed: *S. Claire Macdonald*

Date: 12/6/2016

Date: 12/6/2016



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Received Date: 12/6/2016 10:40:00 AM
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Macdonald, Claire

ORGANISM DESCRIPTIONS

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

MYCELIAL FRAGMENTS - A mycelium (plural = mycelia) is the "body" of a fungus. It is a collective term for hyphae (singular = hypha), which are the tubular units of the mycelium usually composed of chitin. The terms hyphae and mycelial fragments are used interchangeably. [This information was referenced from the mycology text "The Fifth Kingdom"] In some cases a fungal identification cannot be obtained due to lack of sporulation. Only the mycelial fragments are present, and cannot be identified without the distinguishing characteristics of the spores or the structures they grow from. *Health Effects:* Allergic reactions may occur in the presence of spores (conidia) or mycelial/hyphal fragments.

ALTERNARIA SPECIES - This genus comprises a large number of saprobes and plant pathogens. It is one of the predominate airborne fungal spores indoor and outdoor. Outdoors it may be isolated from samples of soil, seeds, and plants. It is one of the more common fungi found in nature, extremely widespread and ubiquitous. Conidia are easily carried by the wind, with peak concentrations in the summer and early fall. It is commonly found in outdoor samples. It is often found in indoor environments, on drywall, ceiling tiles, in house dust, carpets, textiles, and on horizontal surfaces in building interiors. Often found on window frames. *Health Effects:* In humans, it is recognized to cause type I and III allergic responses. Because of the large size of the spores, it can be deposited in the nose, mouth and upper respiratory tract, causing nasal septum infections. It has been known to cause Baker's asthma, farmer's lung, and hay fever. It has been associated with hypersensitivity pneumonitis, sinusitis, dermatomycosis, onychomycosis, subcutaneous phaeoerythromycosis, and invasive infection. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. *References:* Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis, 2001.

ASCOSPORES - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be exercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and disperse ascospores, which is why during these weather conditions there is a great increase in counts. *Health Effects:* This group contains possible allergens.

ASPERGILLUS/PENICILLIUM - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination. *Health Effects:* Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

BASIDIOSPORES - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology; however, some care should be exercised with regard to specific identification. The release of basidiospores is dependant upon moisture, and they are dispersed by wind. *Health Effects:* Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.

CHAETOMIUM SPECIES - It is an ascomycete. It is found on a variety of substrates containing cellulose including paper and plant compost. It can be found on the damp or water damaged paper in sheetrock after a long term water damage. Several species have been reported to play a major role in decomposition of cellulose made materials. These fungi are able to dissolve the cellulose fibers in cotton and paper, and thus cause these materials to disintegrate. The process is especially rapid under moist conditions. *Health Effects:* Chaetomium can produce type I fungal hypersensitivity and has caused



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Macdonald, Claire

ORGANISM DESCRIPTIONS

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onychomycosis (nail infections).

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. *Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control.* London and New York: Taylor & Francis, 2001.

CLADOSPORIUM SPECIES - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer. *Health Effects:* It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. *Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control.* London and New York: Taylor & Francis, 2001.

CURVULARIA SPECIES - Curvularia is found on plant material and is considered a saprobe. It has also been isolated from dust samples and from wallpaper. *Health Effects:* It has been reported to cause type I hypersensitivity and to be a cause of allergic fungal sinusitis. It may cause corneal infections, mycetoma and infections in immune compromised hosts. *References:* De Hoog, G.S., J. Guarro, J. Gene, and M.J. Figueras. *Atlas of Clinical Fungi*, 2nd Edition. The Netherlands: CBS, 2000.

EPICOCCUM SPECIES - It is found in plants, soil, grains, textiles, and paper products. Frequently isolated from air and occasionally occurs in house dust. Is a saprophyte and considered a weakly parasitic secondary invader of plants, moldy paper and textiles. Epicoccum is usually isolated with either Cladosporium species or Aureobasidium species. *Health Effects:* A common allergen. It also has the potential to produce type I fungal hypersensitivity reactions.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. *Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control.* London and New York: Taylor & Francis, 2001.

NIGROSPORA SPECIES - Has been isolated from air and soil samples. Usually found in plant material as a saprobe. *Health Effects:* It has been associated with type I allergic responses. No reported cases of infection.

References: St-Germain, Guy and Richard Summerbell. *Identifying Filamentous Fungi: A Clinical Laboratory Handbook.* California: Star Publishing Company., 1996.

PITHOMYCES SPECIES - Grows on dead grass in pastures and decaying plant material. *Health Effects:* Causes facial eczema in ruminants.

References: St-Germain, Guy, and Richard Summerbell. *Identifying Filamentous Fungi: A Clinical Laboratory Handbook.* California: Star Publishing Co., 1996.

RUSTS - From the group Uredinales, called Rusts due to the color of the spores, which are known for causing disease in plants.

SMUTS/MYXOMYCETES - Smuts and Myxomycetes are parasitic plant pathogens. They are typically grouped together due to their association with plants, the outdoors and because they share similar microscopic morphology. *Health Effects:* Can produce type I fungal hypersensitivity reactions.

References: Martin, G.W., C.J. Alexopoulos, and M.L. Farr. *The Genera of Myxomycetes.* Iowa City, Iowa: University of Iowa Press, 1983.

STACHYBOTRYS SPECIES - This organism is rarely found in outdoor samples. It is usually difficult to find in indoor air samples unless it is physically disturbed because the spores are in a gelatinous mass. Grows well on wet media, preferably



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Received Date: 12/6/2016 10:40:00 AM
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Macdonald, Claire

ORGANISM DESCRIPTIONS

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

containing cellulose. It proliferates in the indoor environment with long term water damage, growing on wallpaper, gypsum board, and textiles. As a general rule, air cultures for *Stachybotrys* yields unpredictable results, mainly due to the fact that this fungus is usually accompanied by other fungi such as *Aspergillus* and *Penicillium* that normally are better aerosolized than *Stachybotrys*. This is a slow growing fungus on media. It does not compete well with other rapidly growing fungi. The black fungi grow on building material with high cellulose content and low nitrogen content. Appropriate media for the growth of this organism will have high cellulose content and low nitrogen content. *Health Effects:* It has worldwide distribution and has been reported to cause dermatitis, cough, rhinitis, and headache, although no definitive reports of human infections have been verified. It has the ability to cause type I hypersensitivity. It is a documented mycotoxin producer.

References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. *Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control.* London and New York: Taylor & Francis, 2001.

STEMPHYLIUM SPECIES - It is usually isolated from dead materials and is either parasitic or saprophytic. *Health Effects:* It has been reported to be a type I allergen and is considered a contaminant.

Additional Information

Air Cassette Analyses

Air cassette reports indicate the genus and concentration of viable (living) and non-viable mold spores detected on the slide (A2 Analysis). Whether or not these spores are viable cannot be determined using this type of analysis. However, keep in mind that spores can remain allergenic even after cellular death. Other possible allergens include dander, pollen and fibers which are included in air cassette reports for the A1 Analysis. A1 and A2 analyses are performed on several types of air cassettes. Light microscopy at a 400 to 1000x magnification is used for air cassette sample analysis. SanAir always analyzes 100% of the impacted slide.

Explanation of Background Densities

The background density of an air cassette aids in the overall interpretation of results as it indicates the level of background debris present (e.g. dander, pollen, fibers, insect parts, soot, fly ash, etc.). Excessive background debris may mask the presence of fungal spores thereby reducing the accuracy of the count. It may also serve as an alert that the volume of air pulled was too high or too low. The following table explains background densities.

Air Cassette Density	Amount of Particulate on Slide	Explanation
1	Insignificant	Should not skew any counts
1+	Low	Should not skew any counts
2	Low to Moderate	Should not skew any counts
2+	Moderate to High	May cause occlusion of small spores
3	High	May cause occlusion of small to medium spores
3+	Very High	Will cause occlusion of spores
4	Overloaded	Level of particulate too high to perform analysis

A Note About the Fungal Spores

In some instances certain groups of fungi cannot be identified due to a lack of distinguishing characteristics. These fungi will be categorized as "unknown spores" on the final report.

The genera *Aspergillus* and *Penicillium* are typically composed of small, round spores that are difficult to distinguish from each other; therefore, they are grouped into the category *Aspergillus / Penicillium*. Other fungi that produce spores of similar characteristics may also be placed into this category, including *Paecilomyces*, *Gliocladium*, and *Trichoderma*, among others.

Stachybotrys and *Memnoniella* spores are coated with a sticky "slime" layer that may inhibit aerosolization.

Any genus of fungi detected on an air cassette with a high raw count (i.e. exceeding 500 spores) may be estimated. Any estimate higher than 12,000 spores will be reported as >12,000.

Understanding the Air Cassette Report

Each sample has 3 columns of information provided. The left is the raw count which is the number of spores for that fungal type detected on the trace. The middle column is the count per cubic meter (Count/m³) which is the raw count converted based on the total volume pulled for that sample. It represents the number of spores that should be expected in a cubic meter of air from the location in question *if* the spores were distributed evenly throughout the air. This column is helpful for interpreting results when the samples were pulled at different total volumes. In other words, the raw count of a cassette pulled at 75 liters should not be compared to the raw count of a cassette pulled at 150 liters because there may be higher counts associated with the higher volume. By comparing the "Count/m³" columns the difference in volumes are accounted for.

Revision Date: 6/1/2016

The limit of detection is the lowest spore count detectable with reasonable certainty, and it is calculated this way using a raw count of one. Keep in mind there are 1,000 liters in a cubic meter.

$$1 \times (1,000 / \text{Total Volume in Liters})$$

How to calculate the count per cubic meter:

$$\text{Raw Count} \times (1,000 / \text{Total Volume in Liters})$$

The last column on the right shows the percentage for which each spore type comprised the total spore count.

Understanding the Air Cassette Graph (If included in the final report)

The graph is a visual representation of the baseline sample (usually the outdoor air sample) compared individually against each indoor sample. Each spore type found on the indoor sample is compared to what was found outdoors per cubic meter.

The graph shows the percentile representation of each indoor spore count derived by dividing the indoor Count/m³ by the outdoor Count/m³. If the percentage is below 50% of the outside count, then the bar is below 50 on the chart, which corresponds to "No evidence of mold amplification." If the percentage is between 50 and 100%, then the bar on the chart will stop between 50 and 100, which corresponds to "Possible mold amplification." If the percentage is greater than 100%, then the bar will be above 100 on the chart, which corresponds to "Probable mold amplification."

Each organism is given a threshold level for the Count/m³. If this threshold level is not met in an inside sample, then the organism will not be graphed on the chart. This is used to prevent the graph from showing every spore type that is commonly found outside and doesn't typically indicate a possible moisture problem inside. For example, most common outdoor spores (e.g. ascospores, basidiospores, and *Cladosporium*) have a threshold level of 100. Therefore, in order to show up on the chart, the inside Count/m³ must be above 100. On the other hand, fungi that may indicate water damage (e.g. *Stachybotrys*, *Ulocladium*, *Chaetomium*, *Memnoniella*, etc.) are given lower threshold levels. These fungi have a higher water activity value and therefore require more moisture to grow. *Stachybotrys* and *Chaetomium* have threshold values of 14 and 30, respectively, as even a low count of those types of spores may indicate an issue with excess moisture.

Keep in mind that this graph is to be used only as a tool in the inspection of a building. Visual examination and knowledge of water damage, past remediation, and weather conditions, among other elements, is essential in the decision regarding the indoor air quality of a building.

Assistance with Remediation Projects

**more information pertaining to interpretation of results is available on our website www.sanair.com **

For assistance in a remediation project you may consult the Institute of Inspection, Cleaning and Restoration Certification's (IICRC) S500 and S520 protocols. The S500 is a reference guide for water-damage restoration and the S520 pertains specifically to mold remediation. Other standards and guidelines regarding Indoor Air Quality that may assist in remediation projects:

- AIHA (Recognition, Evaluation, and Control of Indoor Mold)
- AIHA (The Facts About Mold)
- NADCA (ACR 2006)
- IESO (Standards of Practice for the Assessment of Indoor Air Quality)
- EPA (Mold Remediation in Schools and Commercial Buildings)
- New York City Department of Health and Mental Hygiene (Guidelines on Assessment and Remediation of Fungi in Indoor Environments)

Disclaimer

SanAir Technologies Laboratory does not make contamination corrections to reports based upon analysis of laboratory and/or field blanks.

This report is the sole property of the client named on the SanAir Technologies Laboratory chain-of-custody. Neither results nor reports will be discussed with or released to any third party without our client's written permission. The information provided in this report applies only to the samples submitted and is relevant only for the date, time and location of sampling. SanAir assumes no responsibility for the method of sample procurement. Evaluation reports are based solely on the sample(s) in the condition in which they arrived at the laboratory and on the information provided by the client on the COC. SanAir will not provide any opinion on the safety of a building as visual inspection and knowledge of water damage, past remediation and weather conditions during sampling, among other elements, is essential in this decision. All samples are disposed of after 90 days unless otherwise requested by the client. SanAir is accredited by AIHA-LAP, LLC in the EMLAP program for Direct Examination of air samples.

This report does not constitute endorsement by AIHA-LAP/NVLAP and/or any other U.S. governmental agencies; and may not be certified by every local, state and federal regulatory agency.

CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
 Warwick, RI 02888-3007
 Tel: 800-937-2580
 Fax: 401-738-1970

131 Coolidge St, Suite 105
 Hudson, MA 01749-1331
 Tel: 800-937-2580
 Fax: 978-568-0078

Date Collected	Time Collected	Lab ID	Sample Identification	Grab or Composite	# of Containers & Type ^c	Preservation Code ^p	Matrix Code ^m	A2 - Non Viable Spore Trap	Volume (L)
12/1/2016	15:16-15:26	1612-28195-001	#1	C	1P	NP	A	X	150
12/1/2016	15:32-15:42	1612-28195-002	#2	C	1P	NP	A	X	150
12/1/2016	15:59-16:09	1612-28195-003	#3	C	1P	NP	A	X	150
12/1/2016	16:12-16:22	1612-28195-004	#4	C	1P	NP	A	X	150
12/1/2016	16:32-16:42	1612-28195-005	#5	C	1P	NP	A	X	150
12/1/2016	16:48-16:58	1612-28195-006	#6	C	1P	NP	A	X	150
12/1/2016	17:08-17:18	1612-28195-007	#7	C	1P	NP	A	X	150
12/1/2016	15:14-15:24	1612-28195-008	B1	C	1P	NP	A	X	150
12/1/2016	15:27-15:37	1612-28195-009	B2	C	1P	NP	A	X	150
12/1/2016	15:42-15:52	1612-28195-010	B3	C	1P	NP	A	X	150

10093830

Send Report and Invoice to:

Company Name: R.I. Analytical Laboratories, Inc. Address: 41 Illinois Avenue
 City/State/Zip: Warwick, RI 02888

Contact Person: Kristen Phelan Email: kphelan@rianalytical.com; datareporting@rianalytical.com
 Telephone: 401-737-8500 x 116

Subcontractor Information:

Company Name: SanAir Technologies Address: 1551 Oakbridge Drive, Suite B
 City/State/Zip: Powhatan, VA 23139-8061

Contact Person: Email: Telephone: 804-897-1177 ext 116

Relinquished By	Date	Time	Received by	Date	Time	Turn Around Time
	12-5-16	16:00				X Normal-24Hr
						Rush _____ (Days)

Project Comments

If MCL is exceeded, Please notify; Sharon Baker (800-937-2580 x104) or Kristen Mayo (800-937-2580 x109) also Alan Ford (401-562-1332/cell #617-893-0253)

TEAM Project #160345

PO #: **1073**

Date Shipped: 12/5/2016
 PrePaid Acct. # Fed Ex
 Overnight
 Shipped on Ice
 WO #: 1612-28195

Temperature Upon Receipt °C

CEU

CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
 Warwick, RI 02888-3007
 Tel: 800-937-2580
 Fax: 401-738-1970

131 Coolidge St, Suite 105
 Hudson, MA 01749-1331
 Tel: 800-937-2580
 Fax: 978-568-0078

Date Collected	Time Collected	Lab ID	Sample Identification	Grab or Composite	# of Containers & Type ^C	Preservation Code ^P	Matrix Code ^M	A2 - Non Viable Spore Trap	Volume (L)
12/1/2016	16:04-16:14	1612-28195-011	B4	C	1P NP	NP	A	X	150
12/1/2016	16:18-16:28	1612-28195-012	B5	C	1P NP	NP	A	X	150
12/1/2016	16:37-16:47	1612-28195-013	B6	C	1P NP	NP	A	X	150
12/1/2016	16:50-17:00	1612-28195-014	B7	C	1P NP	NP	A	X	150
12/1/2016	17:10-17:20	1612-28195-015	B8	C	1P NP	NP	A	X	150
12/1/2016	17:53-18:03	1612-28195-016	B9	C	1P NP	NP	A	X	150
12/1/2016	16:03-16:13	1612-28195-017	B10	C	1P NP	NP	A	X	150
12/1/2016	16:06-16:16	1612-28195-018	B11	C	1P NP	NP	A	X	150

100428830

Send Report and Invoice to:

Company Name: R.I. Analytical Laboratories, Inc.

Address: 41 Illinois Avenue

City/State/Zip: Warwick, RI 02888

Contact Person: Kristen Phelan

Email: kphelan@rianalytical.com; datareporting@rianalytical.com

Telephone: 401-737-8500 x 116

Subcontractor Information:

Company Name: SanAir Technologies

Address: 1551 Oakbridge Drive, Suite B

City/State/Zip: Powhatan, VA 23139-8061

Contact Person:

Email:

Telephone: 804-897-1177 ext 116

Relinquished By	Date	Time	Received by	Date	Time
	12-5-16	16:00			

Turn Around Time
<input checked="" type="checkbox"/> Normal-24Hr
<input type="checkbox"/> Rush _____ (Days)

Project Comments

If MCL is exceeded, Please notify: Sharon Baker (800-937-2580 x104) or Kristen Mayo (800-937-2580 x109) also Alan Ford (401-562-1332/cell #617-893-0253)

TEAM Project #160345

PO #: **1073**

Temperature Upon Receipt _____ °C

Date Shipped:	12/5/2016
<input checked="" type="checkbox"/> PrePaid. Acct. # Fed Ex	
<input checked="" type="checkbox"/> Overnight	
Shipped on Ice	
WO #:	1612-28195

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, ST=Sterile Preservatives: A=Ascorbic Acid, NH4=NH4Cl, H=HCl, M=MeOH, N=HNO3, NP=None, S=H2SO4, SB=NaHSO4, SH=NaOH, T=Na2S2O3, Z=ZnOAc

Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, O=

Page 2
 12/10/16 10:40 AM
 CEU



CHAIN OF CUSTODY RECORD

41 Illinois Avenue
 Warwick, RI 02888-3007
 800-937-2580 • Fax: 401-738-1970 800-937-2580 • Fax: 978-568-0078

Date Collected		Time Collected		Field Sample Identification	
12/11/16	1516	1526	# 1		
	1533	1542	# 2		
	1557	1609	# 3		
	1612	1622	# 4		
	1632	1642	# 5		
	1648	1658	# 6		
	1705	1718	# 7		
	1514	1524	B1		
	1527	1537	B2		
	1543	1552	B3		
	1604	1614	B4		
	1618	1628	B5		
	1637	1647	B6		
	1650	1700	B7		

Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	Volume																	
C	IP	NP	A	150 Liters																	
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		
C	IP	NP	A																		

Client Information

Company Name: RI Analytical EAM
 Address: 41 Illinois Ave
 City / State / Zip: Warwick RI 02888
 Telephone: (401) 737-8500 Fax: _____
 Contact Person: Danny Mullen

Project Information

Project Name: John Greenwood / Everett High School
 P.O. Number: _____ Project Number: 160345
 Report To: _____ Phone: _____
 Sampled By: DEM/BS Email report to these addresses: dmullen@rianalytical.com
 Quote No: _____ Fax: _____

Relinquished By Signatures	Date	Time	Received By Signatures	Date	Time
<i>Danny Mullen</i>	12/5/16	15:20	<i>[Signature]</i>	12-5-16	15:20

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

* Send to SAN Air

Temp. Upon Receipt _____ °C

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH4Cl, H=HCl, M=MeOH, N=HNO3, NP=None, S=H2SO4, SB=NaHSO4, SH=NaOH, T=Na2S2O8, Z=ZnOAc
 Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, WP=Wipe, O=

Turn Around Time	
Normal	EMAIL Report
5 Business days. Possible surcharge	
<input checked="" type="checkbox"/> Rush	Date Due: <u>12/7/16</u>

Lab Use Only	
Sample Pick-Up Only	
<input checked="" type="checkbox"/> RIAL sampled; attach field hours	
Shipped on ice	
Workorder No:	<u>1612-28195</u>



CHAIN OF CUSTODY RECORD

41 Illinois Avenue
Warwick, RI 02888-3007
800-937-2580 • Fax: 401-738-1970 800-937-2580 • Fax: 978-568-0078

Field Sample Identification

Date Collected Time Collected

12/16/16 17:20 B8

12/12/16 18:03 B9

1603-1613 B10

1606-1616 B11

Grab or Composite	# of Containers & Type ^c	Preservation Code ^p	Matrix Code ^m	150 Liters
C	1P NP	A	X	X
C	1P NP	A	X	X
C	1P NP	A	X	X
C	1P NP	A	X	X

Client Information

Company Name: RI ANALYTICAL EAM Project Name: Everett High School

Address: 41 ILLINOIS AVE. P.O. Number: 160345

City / State / Zip: WARWICK, RI 02888 Report To: _____ Phone: _____ Fax: _____

Telephone: (401) 737-8500 Sampled By: DRM/BS Email report to these addresses: d.mullen@rianalytical.com

Contact Person: DANNY MULLEN Quote No.: _____

Relinquished By Signatures	Date	Time	Received By Signatures	Date	Time
<u>Danny R. Mullen</u>	<u>12/15/16</u>	<u>15:20</u>	<u>[Signature]</u>	<u>12-5-16</u>	<u>15:20</u>

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

X Send to San Air Temp. Upon Receipt _____ °C

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH4Cl, H=HCl, M=MeOH, N=HNO3, NP=None, S=H2SO4, SB=NaHSO4, SH=NaOH, T=Na2S2O3, Z=ZnOAc

Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, Sl=Sludge, A=Air, B=Bulk/Solid, WP=Wipe, O=

Turn Around Time: Normal _____ EMAIL Report _____ 5 Business days. Possible surcharge _____ Rush -- Date Due: 12/7/16

Lab Use Only: Sample Pick-Up Only _____ RIAL sampled; attach field hours _____ Shipped on ice _____

Workorder No: 1612-48195



Report: Everett HS Feasibility Study - Environmental Inspections
Site: George Keverian School, 548 Broadway, Everett, MA 02149

RIA Project #160345
January 31, 2016

RADON REPORT

RADON

TESTING IN MASSACHUSETTS

RADON ASSESSMENT SURVEY RESULTS

December 12, 2016

TO: Kenneth Davis
RI Analytical
41 Illinois Avenue
Warwick, RI 02888

RE: Former George Keverian School aka Everett High School
RI Analytical Job #160345
548 Broadway
Everett, MA 02149
(the "Subject Property" for Radon Assessment Survey)

Dear Ken,

At your request, Radon Testing in Massachusetts performed a radon assessment survey of the "Subject Property" in accordance with National Radon Proficiency Program (NRPP) and the United States Environmental Protection Agency (EPA) guidelines. This radon assessment survey was performed as part of a feasibility study for building renovation/repurposing.

A sampling of accessible frequently occupied basement level rooms was tested for the presence of radioactive radon gas. Select rooms on the first floor level were chosen based on location above unsuitable or inaccessible rooms on the basement level. Weather conditions were clear and dry without wind present at the time of initial deployment; rain was present during approximately 18 hours of the total 48 hours of deployment. At the time of testing, the HVAC system was minimally operational on the basement level.

EPA Guideline 402-R-92-014 recommends short-term radon testing in schools to be performed during the fall and winter heating season when all windows and doors are kept closed except for normal brief entry and exit of the building. It is recommended to test a school building between the months of October and March.

DOCUMENTATION

We performed two types of radon tests at the "Subject Property", an active method and a passive method. Active radon testing is an electronic method; we used a RadStar RS800 Continuous Radon Monitor (CRM) also known as Radon Detector Monitor. Passive testing is a non-electronic method; we used EPA approved AccuStar carbon liquid scintillating vials/canisters also known as Collection Device.

As a point of reference, the number for each passive Collection Device is noted with correlating room number, description and/or location at the "Subject Property" with the final result. In addition, please see attachments of AccuStar laboratory reports and RadStar RS800 Radon Detector Monitor Report. Radon is measured in pCi/L also known as picocuries per liter.

All areas tested were basement construction or first floor above basement construction. Closed house conditions for testing were followed throughout the "Subject Property". The Auto Repair Shop and Auto Body Shop were being used as Shipping and Receiving at the time of testing and the bays were opened for deliveries only; these were not tested.

Please note on the Radon Test Placement plans, passive devices are identified as red squares, active Continuous Radon Monitors are identified as blue circles and field blanks are identified by a green diamond. When two passive devices are placed together in the same room, one red square is a duplicate as part of the Quality Assurance Plan.

Accu-Star Labs analyzed the passive devices and their lowest result is noted as <0.4 pCi/L even if the results are lower. That is how the lab reads and reports the results.

Each active Continuous Radon Monitor (CRM) was crossed checked with a passive device.

Active CRM #1823 average result: 0.2 pCi/L Cabinet Shop-Basement
Passive device #3292673 QC results: 0.5 pCi/L Cabinet Shop-Basement

10% of passive devices were crossed checked with a duplicate.

Passive device #3292682 results: 1.3 pCi/L Decorating Room-Basement
Passive duplicate #3292683 results: 1.3 pCi/L Decorating Room-Basement

Passive device #3292693 results: 0.7 pCi/L Band Room-First Floor
Passive duplicate #3292694 results: 0.8 pCi/L Band Room-First Floor

5% Blanks were secured for a vendor cross check. All blanks should be void of any radon absorption and the results should be zero. Zero lab results are read as <0.4 pCi/L.

Passive blank #3292692 results: <0.4 pCi/L First floor field blank

Summary:

The results from both passive and electronic methods for ALL rooms were found to have radon levels below EPA action level of 4.0 pCi/L.

Recommendations:

No further action is required for the building in its current state. Once renovation/repurposing is completed, I would recommend re-testing the building.

Radon Testing in Massachusetts, herewith agrees that RI Analytical may rely on the results of this documentation for the purpose of radon mitigation decisions relative to the "Subject Property".

If you have any questions, please contact me at 617-593-0786. Thank you for the opportunity to conduct the radon assessment survey for the Former George Keverian School aka Everett High School in Everett, MA.

Sincerely,



Laura S. Rossinow, Principal
NRPP Radon Measurement Provider, Certification ID number: 107121 RT

Attachments: AccuStar Laboratory Results
RadStar RS800 Continuous Radon Monitor Reports
Radon Test Placement Floor plans

NELAC NY 11769
NRPP 101193 AL
NRSB ARL0017

EPA Method #402-R-92-004
Liquid Scintillation
NRPP Device Code 8088
NRSB Device Code 12193

Laboratory Report for:

Property Tested: Project # 160345 RI Analytical Jo

Rossinow
112 Washington Park #1
Newtonville MA 02460

Former George Keverian School
548 Broadway
Everett MA 02149

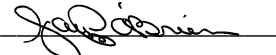
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
2018431	3292673	12/06/2016 9:46 am	12/08/2016 10:13 am	Unit 25 Basement Cabinet Shop	0.5
2018432	3292674	12/06/2016 9:53 am	12/08/2016 10:17 am	Unit 12 Basement Electric Shop	0.9
2018433	3292675	12/06/2016 9:57 am	12/08/2016 10:19 am	Basement Cafeteria	0.6
2018434	3292676	12/06/2016 10:01 am	12/08/2016 10:20 am	Basement Faculty Dining	1.0
2018435	3292677	12/06/2016 10:03 am	12/08/2016 10:21 am	Unit 4A Basement Classroom	0.8
2018436	3292678	12/06/2016 10:06 am	12/08/2016 10:22 am	Unit 4B Basement Classroom	0.6
2018437	3292679	12/06/2016 10:10 am	12/08/2016 10:24 am	Unit 6 Basement Classroom	0.8
2018438	3292680	12/06/2016 10:12 am	12/08/2016 10:27 am	Basement Men's Locker Room	0.8
2018439	3292681	12/06/2016 10:16 am	12/08/2016 10:29 am	Unit 20 Basement Painting Room	0.5
2018440	3292682	12/06/2016 10:17 am	12/08/2016 10:30 am	Unit 22 Basement Decorating Room	1.3

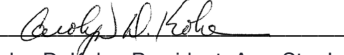
Comment: Radon Testing in Massachusetts was emailed a copy of this report. A copy of this report was emailed to laura.rossinow@gmail.com.

Test Performed By: Laura Rossinow Certification Number: 107121RT

Distributed by: Radon Testing in Massachusetts

Date Received: 12/08/2016 Date Logged: 12/08/2016 Date Analyzed: 12/09/2016 Date Reported: 12/09/2016

Report Reviewed By: 

Report Approved By: 

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is +/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769
NRPP 101193 AL
NRSB ARL0017

EPA Method #402-R-92-004
Liquid Scintillation
NRPP Device Code 8088
NRSB Device Code 12193

Laboratory Report for:

Property Tested: Project # 160345 RI Analytical Jo

Rossinow
112 Washington Park #1
Newtonville MA 02460

Former George Keverian School
548 Broadway
Everett MA 02149

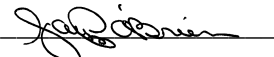
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
2018441	3292683	12/06/2016 10:20 am	12/08/2016 10:31 am	Unit 22 Basement Decorating Room Duplicate	1.3
2018442	3292684	12/06/2016 10:24 am	12/08/2016 10:34 am	Unit 24 Basement Graphic Arts	1.8
2018443	3292685	12/06/2016 10:20 am	12/08/2016 10:35 am	Basement Alternative Ed.	0.8
2018444	3292686	12/06/2016 10:24 am	12/08/2016 10:36 am	Unit 33 Basement Metal Shop	0.7
2018445	3292687	12/06/2016 10:28 am	12/08/2016 10:37 am	Unit 23 Basement Machine Shop	0.9
2018446	3292688	12/06/2016 10:30 am	12/08/2016 10:42 am	Unit 15 Basement Classroom	0.6
2018447	3292689	12/06/2016 10:33 am	12/08/2016 10:43 am	Unit 17 Basement Classroom	0.4
2018448	3292690	12/06/2016 10:41 am	12/08/2016 10:58 am	Unit 14 Basement Classroom	0.7
2018449	3292691	12/06/2016 10:43 am	12/08/2016 11:15 am	First Floor Eagle Bank	< 0.4
2018450	3292692	12/06/2016 11:02 am	12/08/2016 11:15 am	First Floor Field Blank	< 0.4

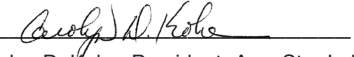
Comment: Radon Testing in Massachusetts was emailed a copy of this report. A copy of this report was emailed to laura.rossinow@gmail.com.

Test Performed By: Laura Rossinow Certification Number: 107121RT

Distributed by: Radon Testing in Massachusetts

Date Received: 12/08/2016 Date Logged: 12/08/2016 Date Analyzed: 12/09/2016 Date Reported: 12/09/2016

Report Reviewed By: 

Report Approved By: 

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

This report may only be transferred to a third party in its entirety. Analytical results relate to the samples AS RECEIVED BY THE LABORATORY. Results shown on this report represent levels of radon gas measured between the dates shown in the room or area of the site identified above as "Property Tested". Incorrect information will affect results. The results may not be construed as either predictive or supportive of measurements conducted in any area of this structure at any other time. AccuStar Labs, its employees and agents are not responsible for the consequences of any action taken or not taken based upon the results reported or any verbal or written interpretation of the results.

NELAC NY 11769
NRPP 101193 AL
NRSB ARL0017

EPA Method #402-R-92-004
Liquid Scintillation
NRPP Device Code 8088
NRSB Device Code 12193

Laboratory Report for:

Property Tested: Project # 160345 RI Analytical Jo

Rossinow
112 Washington Park #1
Newtonville MA 02460

Former George Keverian School
548 Broadway
Everett MA 02149

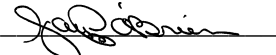
Log Number	Device Number	Test Exposure Duration:		Area Tested	Result (pCi/L)
2018451	3292693	12/06/2016 11:13 am	12/08/2016 11:19 am	First Floor Band Room	0.7
2018452	3292694	12/06/2016 11:13 am	12/08/2016 11:20 am	First Floor Band Room Duplicate	0.8
2018453	3292695	12/06/2016 11:19 am	12/08/2016 11:25 am	First Floor Women's Locker Room	1.1
2018454	3292696	12/06/2016 11:20 am	12/08/2016 11:31 am	First Floor Executive Office Charter School	0.4

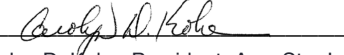
Comment: Radon Testing in Massachusetts was emailed a copy of this report. A copy of this report was emailed to laura.rossinow@gmail.com.

Test Performed By: Laura Rossinow Certification Number: 107121RT

Distributed by: Radon Testing in Massachusetts

Date Received: 12/08/2016 Date Logged: 12/08/2016 Date Analyzed: 12/09/2016 Date Reported: 12/09/2016

Report Reviewed By: 

Report Approved By: 

Carolyn D. Koke, President, AccuStar Labs

Disclaimer:

The uncertainty of this radon measurement is ~+/- 10 %. Factors contributing to uncertainty include statistical variations, daily and seasonal variations in radon concentrations, sample collection techniques and operation of the dwelling. Interference with test conditions may influence the test results.

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RadStar RS800
Radon Detector/Monitor
Version 1.6
Serial #01823
Calib. #00315 Bkgnd12
TestID #80309

No Delay

Interval Report

Hour	Tamper	Battery	A/C Adapter	pCi/L	Temp	Humd	Alpha
1				0	61	36	2
2				0	63	34	0
3				0.3	63	33	11
4				0.5	64	33	18
5				0.3	64	30	11
6				0.4	64	30	14
7				0.3	63	29	11
8				0.2	63	29	9
9				0.5	64	30	19
10				0.1	63	30	5
11				0.3	62	30	11
12				0.3	62	31	10
13				0.3	62	30	12
14				0.4	62	31	15
15				0.4	62	33	14
16				0.3	62	33	12
17				0.6	63	33	20
18				0.5	63	34	17
19				0.5	62	34	18
20				0.2	63	34	8
21				0.3	63	34	13
22				0.3	63	35	11
23				0.4	63	35	16
24				0	63	37	2
25				0.4	63	37	14
26				0.1	63	38	5
27				0.2	63	38	8
28				0.3	63	39	13
29				0	63	39	0
30				0.3	63	39	10
31				0.3	62	39	11
32				0.2	63	39	7
33				0.3	62	38	13
34				0.3	62	38	12
35				0.4	62	38	14

36	0	62	38	3
37	0.3	62	37	13
38	0.3	62	37	10
39	0.5	62	37	18
40	0.1	62	36	6
41	0.1	62	36	6
42	0.3	62	36	10
43	0.1	62	36	4
44	0.2	62	35	9
45	0.1	62	35	5
46	0.1	62	35	5
47	0.3	62	35	11
48	0.2	62	36	8

Avg: 0.2
Max: 0.6
Min: 0

Start Date/Time
December 6, 2016 @ 9:44AM

End Date/Time
December 8, 2016 @ 10:14AM

Address
Former George Keverian School AKA Everett High School
548 Broadway
Everett, MA 02149

Location of Instrument
Cabinet Shop

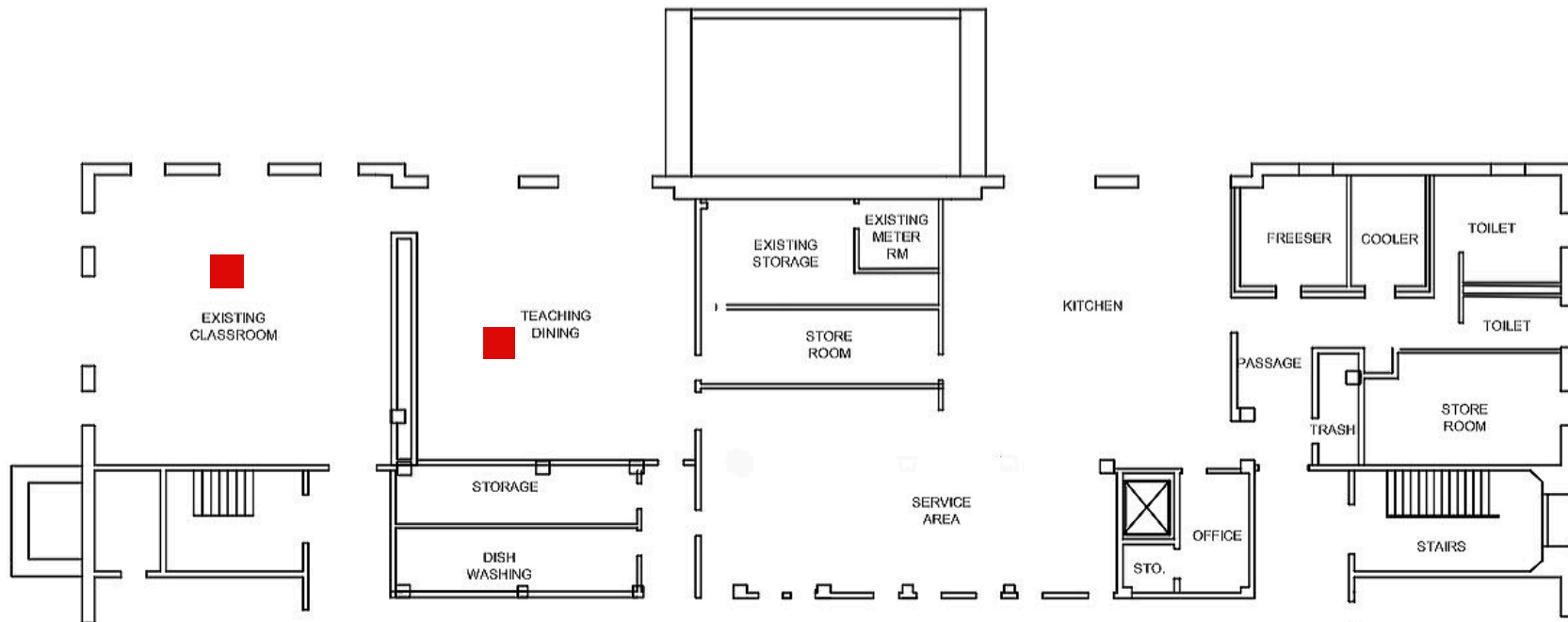
Tested By
Laura S. Rossinow, NRPP Cert. #107121 RT

Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

RI Analytical Job #160345

Radon Test Placement-Basement location

 12/16 Passive radon device

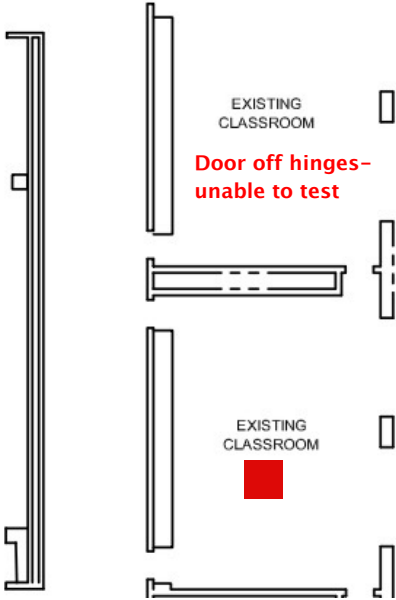
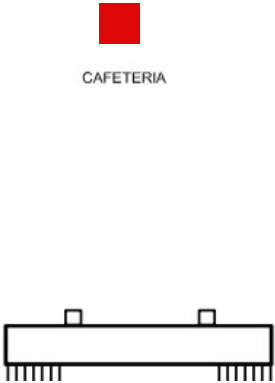
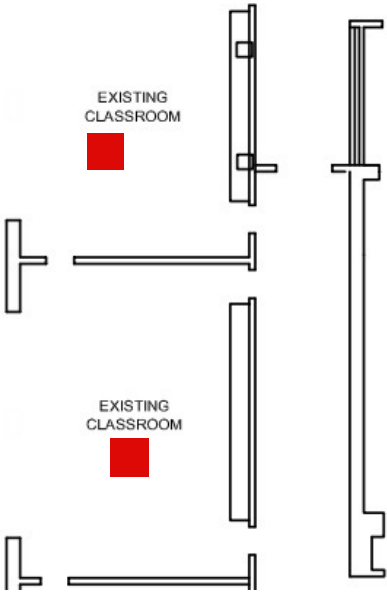


Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

RI Analytical Job #160345

Radon Test Placment-Basement location


■ 12/16 Passive Radon Device

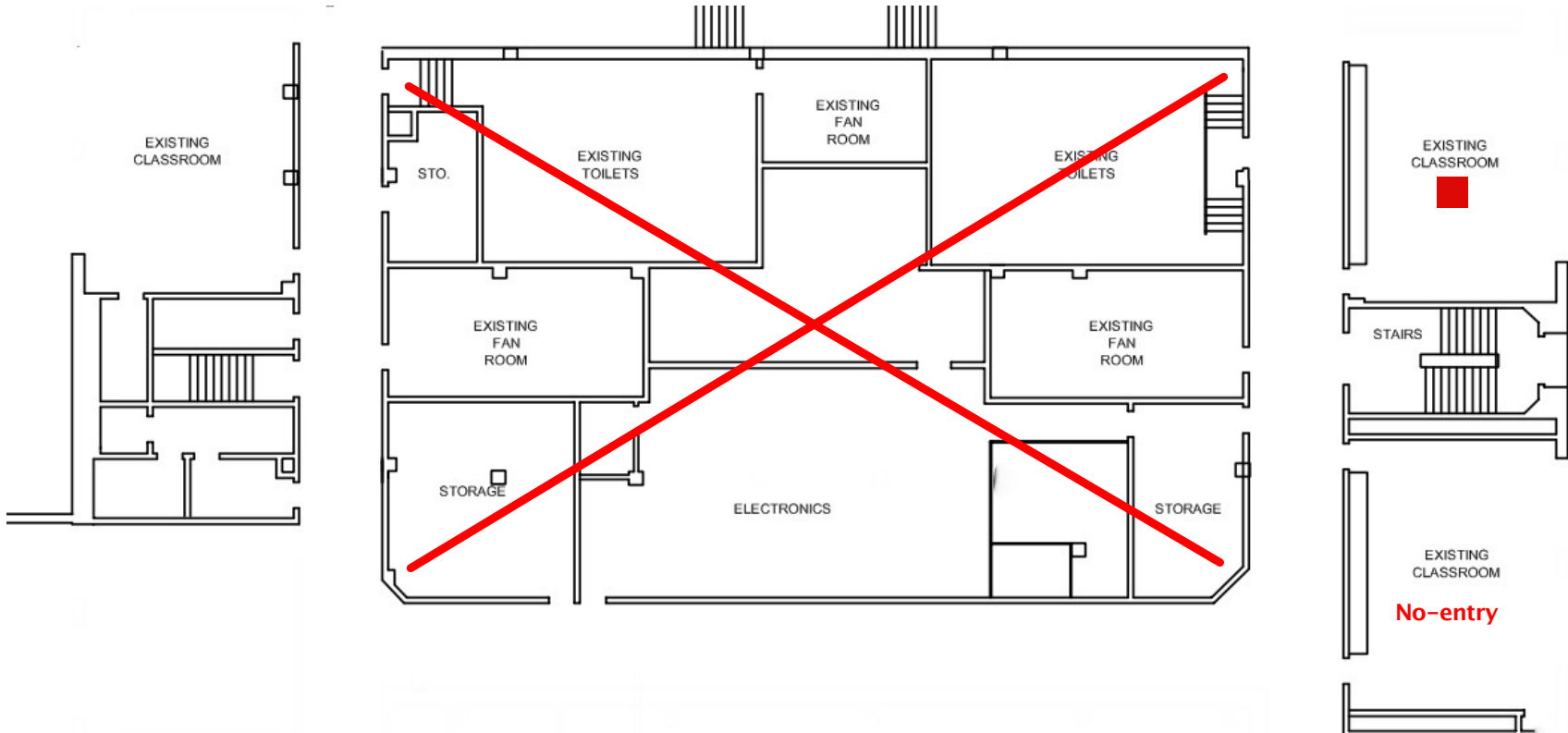


Former George Keverian School aka Everett High School
548 Broadway
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RI Analytical Job #160345

Radon Test Placement–Basement location

 12/16 Passive Radon Device

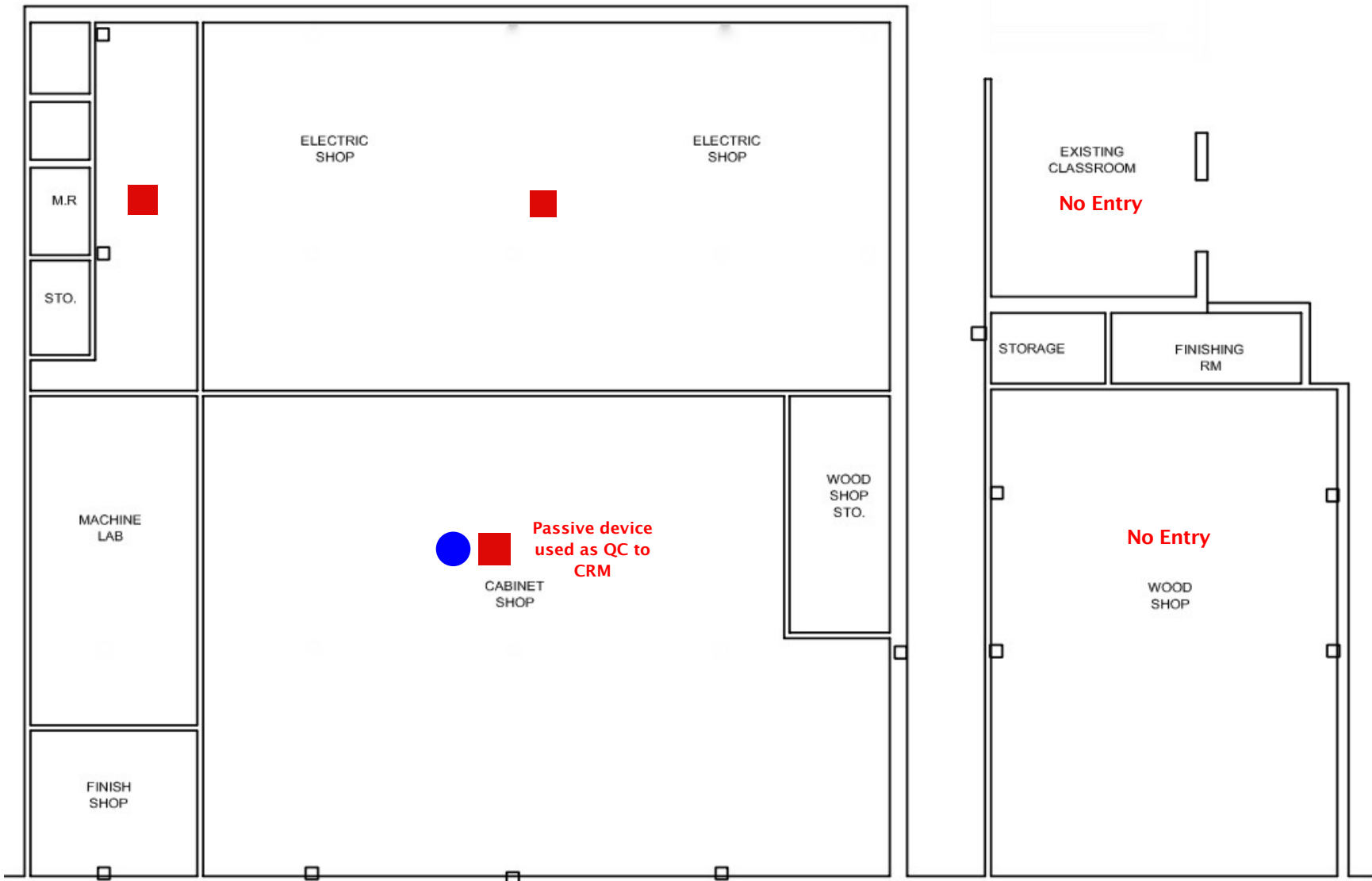


Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

RI Analytical Job #160345

Radon Test Placement-Basement location

- 12/16 Passive Radon Device
- 12/16 CRM (Continuous Radon Monitor)

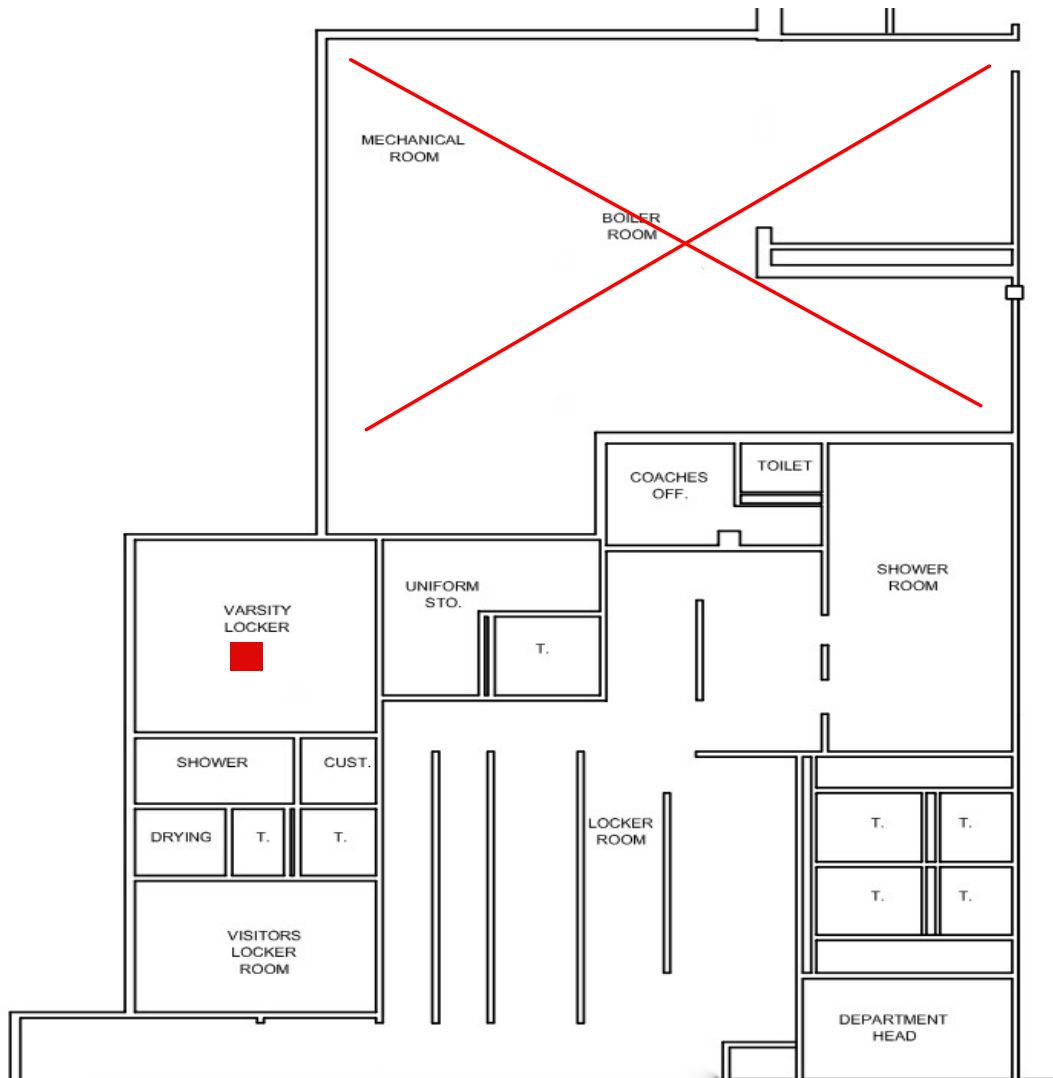


Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

Radon Test Placement-Basement location

 12/16 Passive Radon Device

RI Analytical Job # 160345



Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

Radon Test Placement-Basement location

■ 12/16 Passive Radon Device

RI Analytical Job # 106345

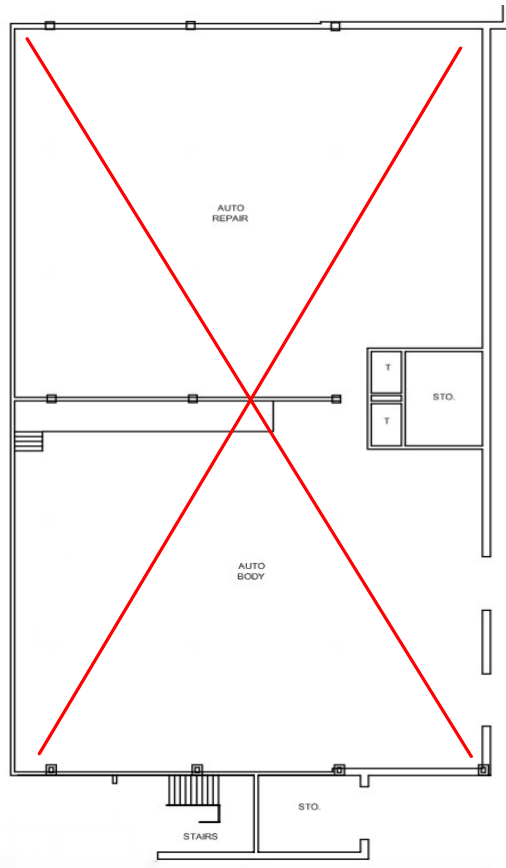


Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

RI Analytical Job # 106345

Radon Test Placement–Basement location

■ 12/16 Passive Radon Device



This section of the building is currently being used for shipping and receiving.

Due to the bays being open for extended periods of time for deliveries, these two sections were NOT tested.

The bays were closed once deliveries were completed and this section is sealed off from the rest of the building.

Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

RI Analytical Job #160345

Radon Test Placement-First floor location

■ 12/16 Passive Radon Device



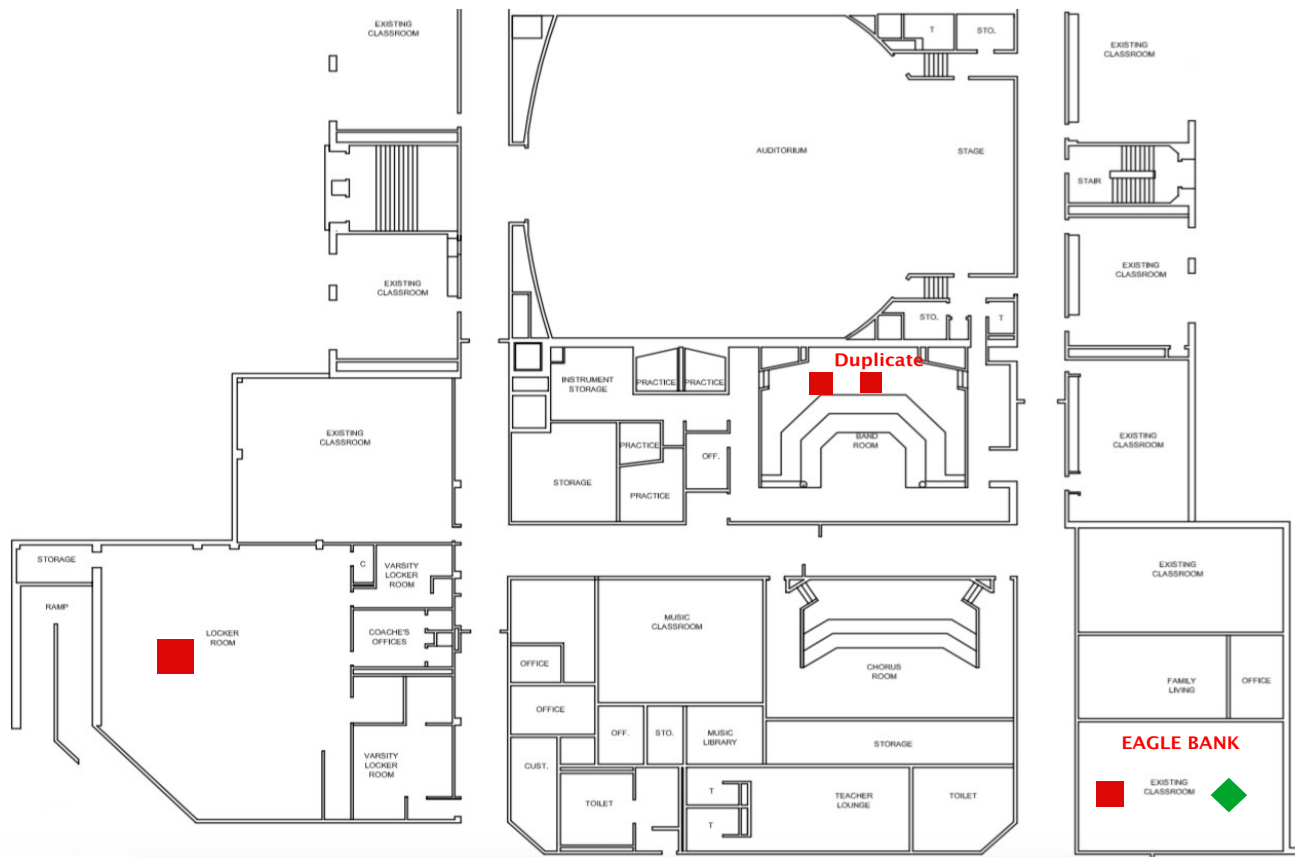
Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

RI Analytical Job #160345

Radon Test Placement-First floor location

■ 12/16 Passive radon Device


◆ 12/16 Field Blank

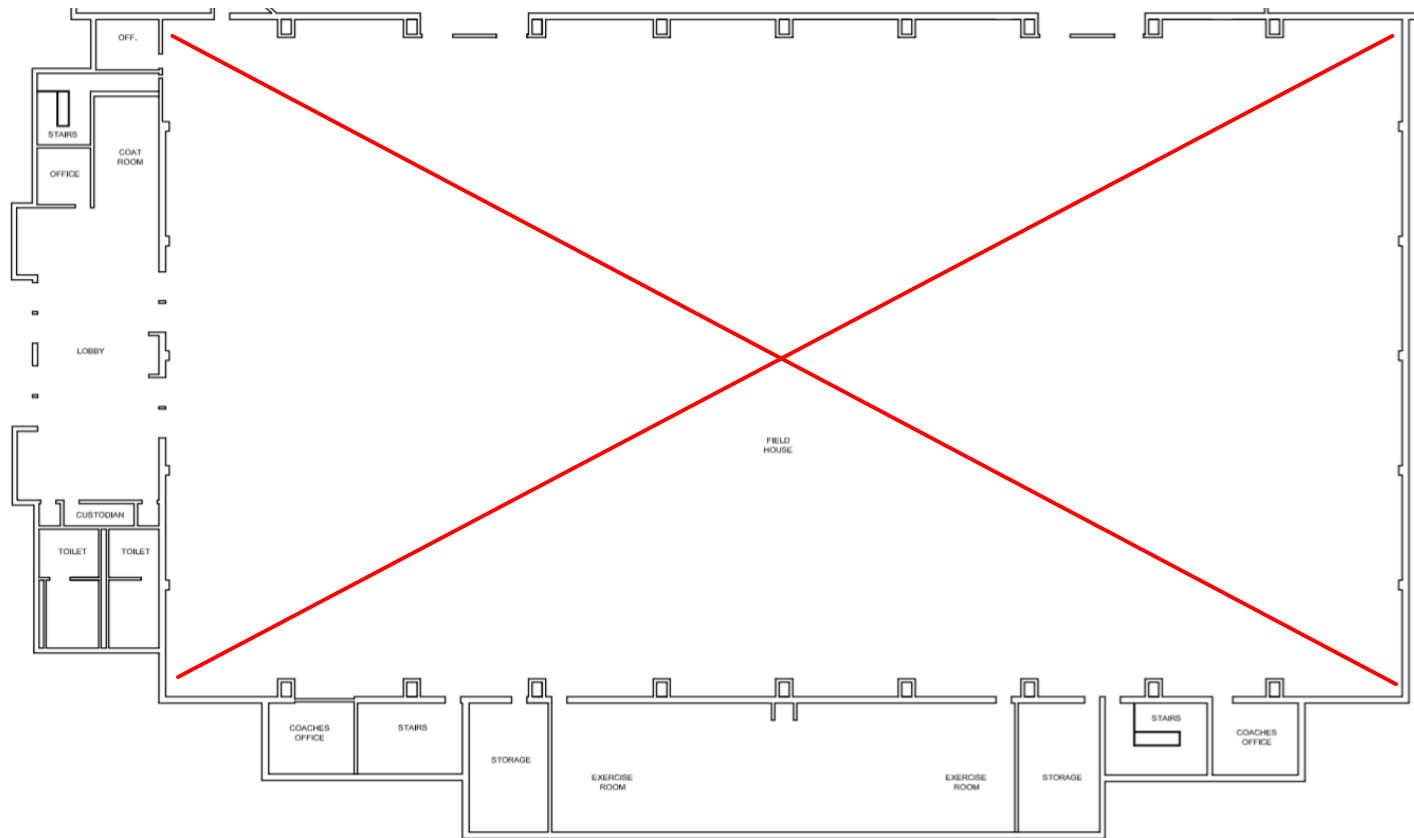


Former George Keverian School aka Everett High School
548 Broadway
Everett, MA 02149

RI Analytical Job # 106345

Radon Test Placement-First floor location

 12/16 Radon passive device





Report: Everett HS Feasibility Study - Environmental Inspections
Site: George Keverian School, 548 Broadway, Everett, MA 02149

RIA Project #160345
January 31, 2016

LEAD IN PAINT REPORT

RHODE ISLAND ANALYTICAL
LEAD-BASED PAINT TESTING REPORT



PERFORMED AT:

GEORGE KEVERIAN SCHOOL
548 Broadway
Everett, MA 02149

PREPARED BY:

Brenda Eastman
Environmental Lead Inspector/Risk Assessor
Commonwealth of Massachusetts
#I/R-3691
Rhode Island Analytical
41 Illinois Ave
Warwick, RI 02888
TEL. (401) 737-8500
ELD1988@comcast.net
Project No.: 160345

EXECUTIVE SUMMARY

Enclosed is the final report for the Lead-Based Paint (LBP) testing conducted at the George Keverian School, 548 Broadway, Everett, MA.

This building has two sections which are assessed separately in this report. The older section of the building was built c1920 and the newer section of the building was built in 1970.

1920's Section:

In the older section, a total of 53 surfaces, grouped as similar architectural features, were tested using a spectrum type of X-Ray fluorescence analyzer.

Positive XRF readings for lead-based paint and lead containing materials were identified on interior cork bulletin boards, plaster closet walls, plaster walls, a porcelain sink located in a maintenance sink room, and vinyl baseboard in a second floor corridor. In the auditorium and stage area, lead-based paint was also identified on wood baseboard, wood door, wood door casings, wood door jambs, wood wall chair rail, wood wall cleat, and wood wall trim. The entry foyer on the Broadway side has decorative painted concrete and brick walls, and ceramic wall tiles that tested positive.

Positive XRF readings for lead-based paint were identified on exterior metal lamp post column and metal hand railing system.

1970 Section:

In the newer section, a total of 59 surfaces, grouped as similar architectural features, were tested using a spectrum type of X-Ray fluorescence analyzer.

Positive XRF readings for lead-based paint and lead containing materials were identified on interior metal elevator doors, porcelain sinks, and a metal floor access.

Exterior:

A total of 11 exterior surfaces, grouped as similar architectural features, were tested using a spectrum type of X-Ray fluorescence analyzer.

Positive XRF readings for lead-based paint were identified on the metal lamp post column and metal railing system.

1.0 PLANNING AND DESIGN

1.1 Project Background

Rhode Island Analytical was contracted to conduct Lead-Based Paint XRF testing at the George Keverian School, 548 Broadway, Everett, MA.

The inspection took place on December 2, 2016.

1.2 Organization and Management

Brenda Eastman, I-3691, a Massachusetts Licensed Lead Inspector, conducted the field data collection portion of this project. Eastman was responsible for all major activities such as field design and operation, measurement quality control, data management and interpretation, quality assurance auditing, health and safety, overall coordination, and distribution of all reports, plans and Standard Operating Procedures. Brenda Eastman conducted the data analysis and report preparation.

1.3 Testing Objectives

The main objective of this LBP inspection was to test enough surfaces in a properly controlled manner to obtain a 95% confidence level with the results and to determine at what locations and in what concentrations LBP exists.

1.4 Sampling Design

Representative painted surfaces and potential lead containing materials were tested in each area. Surfaces tested by XRF included:

1920's Section

Interior:

- Brick Wall
- Ceramic Floor Tile
- Ceramic Wall Tile
- CMU Baseboard
- CMU Wall
- Concrete Baseboard
- Concrete Floor
- Concrete Wall
- Cork Bulletin Board
- Metal Access Panel
- Metal Cabinet
- Metal Door
- Metal Door Casing
- Metal Door Jamb
- Metal Drain Pipe
- Metal Fire Ext. Box
- Metal Ladder Cage
- Metal Locker
- Metal Pipe
- Metal Radiator
- Metal Stack
- Metal Stair Baluster
- Metal Stair Newel Post
- Metal Stair Railing
- Metal Stair Risers
- Metal Stair Stringer
- Metal Stair Treads
- Metal Stall
- Metal Vent
- Metal Window Guard
- Plaster Ceiling
- Plaster Wall
- Porcelain Sink
- Porcelain Toilet
- Slate Chalkboard
- Vinyl Baseboard
- Vinyl Floor Tile
- Wood Baseboard
- Wood Bench
- Wood Cabinet
- Wood Closet Shelf
- Wood Closet Shelf Support
- Wood Door
- Wood Door Casing
- Wood Door Jamb
- Wood Floor
- Wood Handrail
- Wood Handrail Support
- Wood Wall Chair rail
- Wood Wall Cleat
- Wood Wall Trim
- Wood Window Apron
- Wood Window Sill

Exterior:

- Brick Wall
- Concrete Corner board
- Metal Door
- Metal Door Casing
- Metal I-Beam
- Metal Lamp Post Column
- Metal Overhead Door
- Metal Railing System
- Wood Wall
- Wood Door Casing
- Wood Door Jamb

1.4 Sampling Design

Representative painted surfaces potential lead containing materials were tested in each area. Surfaces tested by XRF included:

1970 Section & Basement**Interior:**

- Brick Wall
- Ceramic Floor Tile
- CMU Baseboard
- CMU Wall
- Concrete Baseboard
- Concrete Ceiling
- Concrete Column
- Concrete Floor
- Concrete Kick plate
- Concrete Stair Riser
- Concrete Stair Tread
- Concrete Wall
- Cork Bulletin Board
- Gypsum Wall
- Metal Access Door
- Metal Access Panel
- Metal Cabinet
- Metal Cage
- Metal Ceiling Beam
- Metal Door
- Metal Door Casing
- Metal Door Jamb
- Metal Door Threshold
- Metal Electric Conduit
- Metal Electric Panel
- Metal Elevator Door
- Metal Elevator Door Casing
- Metal Fire Ext. Box
- Metal Floor Access
- Metal Floor Drain
- Metal Freezer Door
- Metal Freezer Door Casing
- Metal Handrail
- Metal Heater Vent
- Metal Lintel
- Metal Locker
- Metal Overhead Door
- Metal Overhead Door Frame
- Metal Pipe
- Metal Shelf
- Metal Sink
- Metal Stair Stringer
- Metal Stall
- Metal Vent
- Metal Window Frame
- Plaster Column
- Plaster Wall
- Porcelain Sink
- Porcelain Toilet
- Slate Chalkboard
- Vinyl Baseboard
- Vinyl Floor Tile
- Wood Cabinet
- Wood Door
- Wood Door Casing
- Wood Door Jamb
- Wood Pipe Chase
- Wood Wall Trim
- Vinyl Baseboard

1.5 Selection of Sampling Locations

Sampling of component locations to be tested was based primarily on accessibility. Location selection was further governed so as to minimize any potential background interferences, i.e., pipes in bathroom wet walls.

2.0 FIELD SAMPLING EQUIPMENT AND METHODS

2.1 Testing Methods

Under current Federal HUD guidelines, the XRF analyzer is a recognized method of in-situ lead paint testing. Initial in-situ lead paint testing was conducted using a Radiation Monitoring Devices (RMD) LPA-1 Lead in Paint Spectrum Analyzer. The instrument employed was:

<u>Model:</u>	<u>Serial #:</u>	<u>Source date:</u>
<i>RMD LPA-1</i>	<i>2548</i>	<i>03/2016</i>

2.2 XRF Testing Procedure

The following general rules were applied to all XRF testing:

1. Within a single unit, or other survey area, all surfaces representing a single substrate were surveyed in a series to measure and subsequently avoid large “swings” in the readings by the XRF machines. Measurements within an area began with the densest substrate present and proceeded, in the following sequence, to the least dense. For example:

steel ⇒ concrete ⇒ plaster ⇒ wood

2. Surfaces tested via XRF must be flat.
3. Testing locations shall be selected so as to avoid:
 - Edges of walls and other large surfaces.
 - Electrical outlets, switches or wiring. (Testing at least 12" from electrical components to avoid possible interference.)
 - Plumbing, conduit, etc., if suspected of being present in wall.
 - Patched areas of walls and ceilings.
4. The XRF meters are fully recharged after each day's use.
5. XRF measurements were performed in accordance with the instructions stated in the manufacturer's manual and Environmental Lead Detection's testing protocol. In cases of conflict between the two, the protocol superseded the manufacturer's manual.

3.0 DATA PROCESSING AND LABORATORY ANALYSIS

3.1 Documentation

The field XRF readings were recorded on a separate page for each room or area tested. The forms identify the Area, Location, Component, Substrate, Side, Color, Floor, Result and XRF (Reading). All readings were recorded on LBP Testing Data Sheets and will be maintained indefinitely.

3.2 Data Processing and Management

Over 780 readings were taken and recorded during this project. All readings were entered onto report forms in the field. Office personnel entered the day's readings into our computerized data base management program. The following information was keyed in:

Location	Component	Substrate	Side	Color	Floor	Result	XRF
----------	-----------	-----------	------	-------	-------	--------	-----

Conclusion

In the 1920's section of the building, positive XRF readings for lead-based paint and lead containing materials were identified on interior cork bulletin boards, plaster closet walls, plaster walls, a porcelain sink located in a maintenance sink room, and vinyl baseboard in a second floor corridor. In the auditorium and stage area lead-based paint was also identified on wood baseboard, wood door, wood door casings, wood door jambs, wood wall chair rail, wood wall cleat and wood wall trim. The entry foyer on the Broadway side has decorative painted concrete and brick walls, and ceramic tile walls that tested positive.

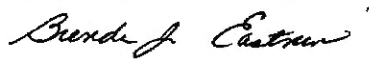
In the 1970 section of the building, positive XRF readings for lead-based paint and lead containing materials were identified on interior metal elevator doors, porcelain sinks in the maintenance sink rooms, and a metal floor access in the basement shop.

Positive XRF readings for lead-based paint were identified on exterior metal lamp post column and metal hand railing system at the Broadway side entry.

Massachusetts Lead Law and the EPA's RRP Rule apply only to residential properties and schools and commercial buildings that house child care facilities or are routinely used by children under the age of six. If this facility is used routinely by children under the age of six, the RRP Rule would apply as well OSHA Lead in Construction and the EPA Hazardous Waste Disposal Regulations.

Lead-based paint activities performed should be in accordance with applicable Federal, State, or local laws, ordinances, codes or regulations governing evaluation and hazard reduction. In the event of discrepancies, the most protective requirements prevail. These requirements can be found in OSHA 29 CFR 1926-Construction Industry Standards, 29 CFR 1926.62-Construction Industry Lead Standards, 29 CFR 1910.1200-Hazard Communication, 40 CFR 261-EPA Regulations. Please refer to Appendix C for OSHA Lead Construction Standards.

Submitted by:



Brenda Eastman

Massachusetts Lead Inspector/Risk Assessor I-3691

Expires on 7/15/17

XRF Data

1920's Section
XRF Data Interior

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
	Calibration							1.0
	Calibration							0.9
	Calibration							1.0
Old	Corridor 1	Wall	CMU	C	White	3	Neg	0.1
Old	Corridor 1	Wall	Brick	C	Brown	3	Neg	-0.2
Old	Corridor 1	Baseboard	Vinyl	C	Brown	3	Neg	0.0
Old	Corridor 1	Wall	Plaster	A	White	3	Neg	0.1
Old	Corridor 1	Door	Metal	B	Brown	3	Neg	-0.1
Old	Corridor 1	Door Casing	Metal	B	Brown	3	Neg	0.0
Old	Corridor 1	Fire Ext Box	Metal	C	Red	3	Neg	-0.2
Old	Corridor 1	Locker	Metal	A	Blue	3	Neg	0.1
Old	Corridor 1	Radiator	Metal	C	Silver	3	Neg	0.1
Old	Corridor 1	Window Apron	Wood	C	Varnish	3	Neg	0.0
Old	Corridor 1	Window Sill	Wood	C	Varnish	3	Neg	0.1
Old	Sink Room	Wall	CMU	C	White	3	Neg	-0.1
Old	Sink Room	Baseboard	CMU	C	Brown	3	Neg	0.1
Old	Sink Room	Floor	Concrete		Gray	3	Neg	0.2
Old	Sink Room	Door	Metal	A	Brown	3	Neg	-0.1
Old	Sink Room	Door Casing	Metal	A	Brown	3	Neg	0.0
Old	Sink Room	Door Jamb	Metal	A	Brown	3	Neg	0.0
Old	Sink Room	Sink	Porcelain	D	White	3	Pos	9.9
Old	324	Wall	Plaster	A	White	3	Pos	1.9
Old	324	Wall	Plaster	B	White	3	Neg	0.6
Old	324	Wall	Plaster	C	White	3	Pos	3.0
Old	324	Wall	Plaster	D	White	3	Pos	3.5
Old	324	Baseboard	Wood	B	Varnish	3	Neg	0.1
Old	324	Door	Wood	C	Varnish	3	Neg	-0.1
Old	324	Door Jamb	Wood	C	Varnish	3	Neg	0.0
Old	324	Door Casing	Wood	A	Varnish	3	Neg	-0.1
Old	324	Closet Shelf Support	Wood	D	Varnish	3	Neg	0.1
Old	324	Closet Floor	Concrete	D	Black	3	Neg	0.2
Old	324	Chalkboard	Slate	A	Black	3	Neg	0.0
Old	324	Cabinet	Wood	B	Beige	3	Neg	0.1
Old	324	Floor	Wood		Varnish	3	Neg	-0.2
Old	324	Closet Wall	Plaster	D	White	3	Pos	2.4
Old	324	Closet Ceiling	Plaster	D	Blue	3	Neg	0.3

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	324	Pipe	Metal	D	White	3	Neg	0.1
Old	324	Lower Ceiling	Plaster	D	White	3	Neg	0.1
Old	324	Bulletin Board	Cork	C	White	3	Pos	2.6
Old	322	Wall	Plaster	A	White	3	Pos	3.1
Old	322	Wall	Plaster	B	White	3	Neg	0.5
Old	322	Wall	Plaster	C	White	3	Pos	3.4
Old	322	Wall	Plaster	D	White	3	Pos	2.0
Old	322	Floor	Wood		Varnish	3	Neg	0.1
Old	322	Door	Wood	C	Varnish	3	Neg	0.0
Old	322	Door Casing	Wood	A	Varnish	3	Neg	-0.1
Old	322	Door Jamb	Wood	C	Varnish	3	Neg	0.0
Old	322	Baseboard	Wood	C	Varnish	3	Neg	0.1
Old	322	Closet Wall	Plaster	D	White	3	Pos	2.7
Old	322	Closet Ceiling	Plaster	D	Blue	3	Neg	0.1
Old	322	Upper Ceiling	Plaster		White	3	Neg	0.0
Old	322	Pipe	Metal	D	Brown	3	Neg	-0.2
Old	322	Closet Shelf Support	Wood	D	Varnish	3	Neg	0.0
Old	322	Chalkboard	Slate	A	Black	3	Neg	0.0
Old	322	Closet Floor	Concrete		Black	3	Neg	0.1
Old	322	Access Panel	Metal	A	White	3	Neg	0.0
Old	322	Lower Ceiling	Plaster	D	White	3	Neg	-0.1
Old	322	Bulletin Board	Cork	C	White	3	Pos	2.7
Old	320	Wall	Plaster	A	White	3	Pos	2.2
Old	320	Wall	Plaster	B	White	3	Neg	-0.1
Old	320	Wall	Plaster	C	White	3	Pos	3.7
Old	320	Wall	Plaster	D	White	3	Pos	4.1
Old	320	Floor	VFT		Beige	3	Neg	0.0
Old	320	Door	Wood	A	Varnish	3	Neg	0.1
Old	320	Door Casing	Wood	A	Varnish	3	Neg	-0.1
Old	320	Door Jamb	Wood	A	Varnish	3	Neg	0.1
Old	320	Chalkboard	Slate	A	Black	3	Neg	0.0
Old	320	Bench	Wood	A	Black	3	Neg	0.1
Old	320	Bulletin Board	Cork	C	White	3	Pos	4.1
Old	320	Closet Wall	Plaster	D	Blue	3	Pos	3.2
Old	320	Closet Ceiling	Plaster	D	Blue	3	Neg	0.1
Old	320	Closet Floor	Concrete	D	Black	3	Neg	0.1
Old	320	Pipe	Metal	D	Blue	3	Neg	0.0
Old	320	Cabinet	Metal	C	Red	3	Neg	-0.1
Old	320	Pipe	Metal	B	White	3	Neg	0.0
Old	320	Pipe	Metal	B	Silver	3	Neg	0.1
Old	320	Lower Ceiling	Plaster	D	White	3	Neg	0.0
Old	325	Wall	Plaster	A	White	3	Pos	2.7

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	325	Wall	Plaster	B	White	3	Pos	2.2
Old	325	Wall	Plaster	C	White	3	Pos	1.8
Old	325	Wall	Plaster	D	White	3	Pos	3.0
Old	325	Wall Trim	Wood	A	Varnish	3	Neg	0.1
Old	325	Baseboard	Wood	C	Varnish	3	Neg	0.0
Old	325	Floor	Wood		Varnish	3	Neg	-0.2
Old	325	Door	Wood	A	Varnish	3	Neg	-0.1
Old	325	Door Casing	Wood	B	Varnish	3	Neg	0.0
Old	325	Door Jamb	Wood	A	Varnish	3	Neg	0.1
Old	325	Radiator	Metal	D	White	3	Neg	0.0
Old	325	Window Apron	Wood	D	Varnish	3	Neg	-0.1
Old	325	Window Sill	Wood	D	Varnish	3	Neg	0.0
Old	325	Closet Wall	Plaster	B	White	3	Pos	2.3
Old	325	Closet Ceiling	Plaster	B	White	3	Neg	0.0
Old	325	Closet Shelf Support	Wood	B	Varnish	3	Neg	0.2
Old	325	Closet Floor	Concrete	B	Black	3	Neg	0.1
Old	325	Chalkboard	Slate	A	Black	3	Neg	0.0
Old	325	Bulletin Board	Cork	A	White	3	Pos	2.8
Old	325	Pipe	Metal	B	White	3	Neg	0.0
Old	325	Lower Ceiling	Plaster	D	White	3	Neg	-0.1
Old	323	Wall	Plaster	A	White	3	Pos	4.0
Old	323	Wall	Plaster	B	White	3	Pos	1.8
Old	323	Wall	Plaster	C	White	3	Pos	2.2
Old	323	Wall	Plaster	D	White	3	Neg	0.1
Old	323	Baseboard	Wood	A	Varnish	3	Neg	0.0
Old	323	Floor	Wood		Varnish	3	Neg	0.1
Old	323	Lower Ceiling	Plaster	B	White	3	Neg	0.0
Old	323	Door	Wood	C	Varnish	3	Neg	-0.1
Old	323	Door Casing	Wood	B	Varnish	3	Neg	0.0
Old	323	Door Jamb	Wood	C	Varnish	3	Neg	0.0
Old	323	Window Apron	Wood	D	Varnish	3	Neg	0.1
Old	323	Window Sill	Wood	D	Varnish	3	Neg	-0.2
Old	323	Chalkboard	Slate	A	Black	3	Neg	0.0
Old	323	Bulletin Board	Cork	A	White	3	Pos	2.7
Old	323	Closet Wall	Plaster	B	White	3	Pos	2.9
Old	323	Closet Ceiling	Plaster	B	White	3	Neg	0.2
Old	323	Closet Floor	Concrete	B	Black	3	Neg	0.1
Old	323	Closet Shelf Support	Wood	B	Varnish	3	Neg	0.0
Old	323	Radiator	Metal	D	White	3	Neg	0.0
Old	321	Wall	Plaster	A	White	3	Pos	3.7
Old	321	Wall	Plaster	B	White	3	Pos	4.3
Old	321	Wall	Plaster	C	White	3	Pos	2.5

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	321	Wall	Plaster	D	White	3	Pos	3.5
Old	321	Floor	Wood		Varnish	3	Neg	-0.1
Old	321	Baseboard	Wood	C	Varnish	3	Neg	0.1
Old	321	Door	Wood	A	Varnish	3	Neg	0.0
Old	321	Door Casing	Wood	A	Varnish	3	Neg	0.0
Old	321	Door Jamb	Wood	A	Varnish	3	Neg	0.1
Old	321	Window Apron	Wood	D	Varnish	3	Neg	-0.1
Old	321	Window Sill	Wood	D	Varnish	3	Neg	0.0
Old	321	Chalkboard	Slate	C	Black	3	Neg	0.1
Old	321	Bulletin Board	Cork	A	White	3	Pos	3.7
Old	321	Radiator	Metal	D	White	3	Neg	0.2
Old	321	Closet Wall	Plaster	B	White	3	Pos	4.1
Old	321	Closet Ceiling	Plaster	B	White	3	Neg	0.1
Old	321	Closet Floor	Concrete	B	Black	3	Neg	0.0
Old	321	Closet Shelf Support	Wood	B	Varnish	3	Neg	0.1
Old	321	Upper Ceiling	Plaster		White	3	Neg	0.1
Old	321	Lower Ceiling	Plaster	B	White	3	Neg	-0.1
Old	311	Wall	Plaster	A	White	3	Pos	2.4
Old	311	Wall	Plaster	B	White	3	Pos	2.8
Old	311	Wall	Plaster	C	White	3	Pos	2.9
Old	311	Wall	Plaster	D	White	3	Pos	2.7
Old	311	Baseboard	Wood	A	Varnish	3	Neg	0.1
Old	311	Floor	Wood		Varnish	3	Neg	0.0
Old	311	Door	Wood	D	Varnish	3	Neg	0.1
Old	311	Door Casing	Wood	D	Varnish	3	Neg	-0.1
Old	311	Door Jamb	Wood	D	Varnish	3	Neg	-0.1
Old	311	Window Sill	Wood	A	Varnish	3	Neg	0.0
Old	311	Window Apron	Wood	A	Varnish	3	Neg	0.1
Old	311	Cabinet	Wood	C	Varnish	3	Neg	0.0
Old	311	Radiator	Metal	A	White	3	Neg	-0.2
Old	311	Closet Wall	Plaster	D	White	3	Pos	3.0
Old	311	Closet Ceiling	Plaster	D	White	3	Neg	0.1
Old	311	Closet Floor	Wood	D	Black	3	Neg	0.0
Old	311	Closet Shelf Support	Wood	D	Varnish	3	Neg	0.1
Old	311	Vent	Metal	C	White	3	Neg	0.1
Old	311	Pipe	Metal	D	White	3	Neg	0.0
Old	309	Wall	Plaster	A	White	3	Pos	4.3
Old	309	Wall	Plaster	B	White	3	Pos	2.2
Old	309	Wall	Plaster	C	White	3	Pos	2.2
Old	309	Wall	Plaster	D	White	3	Pos	1.0
Old	309	Baseboard	Wood	C	Varnish	3	Neg	0.0
Old	309	Floor	Wood		Varnish	3	Neg	-0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	309	Door	Wood	D	Varnish	3	Neg	0.0
Old	309	Door Casing	Wood	D	Varnish	3	Neg	0.0
Old	309	Door Jamb	Wood	D	Varnish	3	Neg	0.1
Old	309	Cabinet	Wood	C	Varnish	3	Neg	0.0
Old	309	Lower Ceiling	Plaster	C	White	3	Neg	0.1
Old	309	Radiator	Metal	A	White	3	Neg	0.0
Old	309	Chalkboard	Slate	C	Black	3	Neg	0.0
Old	309	Bulletin Board	Cork	C	White	3	Pos	3.2
Old	309	Window Apron	Wood	A	Varnish	3	Neg	0.1
Old	309	Window Sill	Wood	A	Varnish	3	Neg	0.0
Old	309	Closet Wall	Plaster	D	White	3	Pos	4.1
Old	309	Closet Ceiling	Plaster	D	White	3	Neg	-0.1
Old	309	Closet Shelf Support	Wood	D	Varnish	3	Neg	0.1
Old	309	Closet Floor	Concrete	D	Black	3	Neg	0.2
Old	309	Pipe	Metal	D	White	3	Neg	0.0
Old	309	Vent	Metal	C	White	3	Neg	0.1
Old	306A	Wall	Plaster	A	White	3	Neg	0.0
Old	306A	Baseboard	Vinyl	A	Brown	3	Neg	-0.2
Old	306A	Radiator	Metal	D	White	3	Neg	0.1
Old	308	Wall	Plaster	A	White	3	Neg	0.1
Old	308	Wall	Plaster	B	White	3	Neg	0.2
Old	308	Wall	Plaster	C	White	3	Neg	0.1
Old	308	Wall	Plaster	D	White	3	Pos	3.0
Old	308	Bulletin Board	Cork	A	White	3	Pos	2.7
Old	308	Floor	VFT		White	3	Neg	-0.1
Old	308	Baseboard	Wood	B	Varnish	3	Neg	0.1
Old	308	Window Apron	Wood	C	Varnish	3	Neg	0.0
Old	308	Window Sill	Wood	C	Varnish	3	Neg	0.0
Old	308	Vent	Metal	B	White	3	Neg	0.1
Old	330	Wall	Plaster	A	White	3	Neg	0.3
Old	330	Wall	Plaster	B	White	3	Pos	3.8
Old	330	Wall	Plaster	C	White	3	Pos	2.8
Old	330	Wall	Plaster	D	White	3	Pos	4.5
Old	330	Baseboard	Vinyl	A	Brown	3	Neg	-0.1
Old	330	Radiator	Metal	B	White	3	Neg	0.1
Old	330	Door Casing	Metal	A	Brown	3	Neg	0.0
Old	330	Stack	Metal	B	Beige	3	Neg	-0.2
Old	330	Chalkboard	Slate	C	Black	3	Neg	0.0
Old	330	Bulletin Board	Cork	C	White	3	Pos	3.4
Old	Stair E	Wall	Brick	D	Brown	3	Neg	0.0
Old	Stair E	Wall	Plaster	C	White	3	Neg	-0.1
Old	Stair E	Floor	VFT		Beige	3	Neg	0.0

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	Stair E	Newel Post	Metal	B	Black	3	Neg	0.1
Old	Stair E	Baluster	Metal	B	Black	3	Neg	0.0
Old	Stair E	Stair Tread	Metal	C	Black	3	Neg	0.0
Old	Stair E	Stair Riser	Metal	C	Black	3	Neg	0.2
Old	Stair E	Handrail	Wood	D	Varnish	3	Neg	-0.1
Old	Stair E	Ladder Cage	Metal	B	Black	3	Neg	0.1
Old	Stair E	Stair Stringer	Metal	D	Black	3	Neg	0.0
Old	Stair E	Window Guard	Metal	A	Black	3	Neg	0.1
Old	Stair E	Drain Pipe	Metal	C	Black	3	Neg	-0.1
Old	Stair E	Handrail Support	Wood	D	White	3	Neg	0.0
Old	Stair E	Radiator	Metal	A	Black	3	Neg	0.2
Old	Visual	Wall	Plaster	A	White	2	Pos	5.0
Old	Visual	Wall	Plaster	B	White	2	Neg	0.0
Old	Visual	Wall	Plaster	C	White	2	Neg	-0.1
Old	Visual	Wall	Plaster	D	White	2	Neg	0.1
Old	Visual	Radiator	Metal	A	Silver	2	Neg	0.0
Old	Visual	Door	Metal	B	Brown	2	Neg	0.1
Old	Visual	Door Casing	Metal	B	Brown	2	Neg	0.0
Old	Corridor 2	Wall	Plaster	A	White	2	Neg	-0.1
Old	Corridor 2	Wall	Brick	C	White	2	Neg	0.2
Old	Corridor 2	Baseboard	Vinyl	A	Brown	2	Neg	-0.2
Old	215	Wall	Plaster	A	White	2	Pos	5.2
Old	215	Wall	Plaster	B	White	2	Neg	0.1
Old	215	Wall	Plaster	C	White	2	Pos	3.7
Old	215	Radiator	Metal	A	White	2	Neg	-0.1
Old	215	Baseboard	Vinyl	D	Brown	2	Neg	-0.1
Old	215	Floor	VFT		Beige	2	Neg	0.0
Old	215	Window Sill	Wood	A	Varnish	2	Neg	0.0
Old	215	Window Apron	Wood	A	Varnish	2	Neg	0.1
Old	215	Floor	Wood		Varnish	2	Neg	0.2
Old	Stair D	Wall	Plaster	B	White	2	Neg	-0.1
Old	Stair D	Wall	Plaster	D	White	2	Pos	1.4
Old	Stair D	Door Casing	Wood	B	Brown	2	Neg	0.1
Old	Stair D	Door Jamb	Wood	B	Brown	2	Neg	0.2
Old	Stair D	Handrail	Wood	D	Brown	2	Neg	0.4
Old	Stair D	Treads	Metal		Black	2	Neg	0.0
Old	Stair D	Risers	Metal		Black	2	Neg	0.1
Old	Stair D	Railing	Metal	D	Black	2	Neg	-0.1
Old	Stair D	Balusters	Metal	D	Black	2	Neg	0.3
Old	Stair D	Newel Post	Metal	D	Black	2	Neg	0.1
Old	207	Wall	Plaster	A	White	2	Pos	3.3
Old	207	Wall	Plaster	B	White	2	Pos	3.9

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	207	Wall	Plaster	C	White	2	Pos	3.3
Old	207	Wall	Plaster	D	White	2	Pos	4.1
Old	207	Floor	Wood		Varnish	2	Neg	0.0
Old	207	Door	Wood	D	Varnish	2	Neg	0.1
Old	207	Door Casing	Wood	D	Varnish	2	Neg	0.1
Old	207	Door Jamb	Wood	D	Varnish	2	Neg	0.2
Old	207	Baseboard	Wood	C	Varnish	2	Neg	0.1
Old	207	Window Apron	Wood	A	Varnish	2	Neg	0.1
Old	207	Window Sill	Wood	A	Varnish	2	Neg	-0.1
Old	207	Radiator	Metal	A	White	2	Neg	0.0
Old	207	Closet Shelf Support	Wood	D	Varnish	2	Neg	0.1
Old	207	Closet Wall	Plaster	D	White	2	Pos	2.9
Old	207	Closet Floor	Concrete	D	Black	2	Neg	0.2
Old	207	Closet Ceiling	Plaster	D	White	2	Neg	0.1
Old	207	Pipe	Metal	D	White	2	Neg	0.1
Old	201	Wall	Plaster	A	White	2	Neg	0.1
Old	201	Wall	Plaster	B	White	2	Pos	1.0
Old	201	Wall	Plaster	C	White	2	Neg	0.0
Old	201	Wall	Plaster	D	White	2	Neg	0.1
Old	201	Door Jamb	Wood	B	Varnish	2	Neg	0.1
Old	201	Radiator	Metal	D	White	2	Neg	0.0
Old	201	Door Casing	Metal	A	Brown	2	Neg	-0.2
Old	201	Radiator	Metal	D	White	2	Neg	0.0
Old	202	Floor	VFT		Beige	2	Neg	0.1
Old	202	Wall	Plaster	A	White	2	Neg	0.2
Old	202	Wall	Plaster	B	White	2	Pos	1.0
Old	202	Wall	Plaster	C	White	2	Neg	0.0
Old	202	Wall	Plaster	D	White	2	Neg	0.1
Old	202	Baseboard	Vinyl	C	Brown	2	Neg	0.0
Old	202	Door Casing	Metal	A	Brown	2	Neg	-0.1
Old	202	Floor	VFT		Beige	2	Neg	0.0
Old	202	Pipe	Metal	D	White	2	Neg	0.1
Old	202	Radiator	Metal	D	White	2	Neg	0.0
Old	217	Wall	Plaster	A	White	2	Neg	0.2
Old	217	Wall	Plaster	B	White	2	Neg	0.1
Old	217	Wall	CMU	C	White	2	Neg	0.1
Old	217	Wall	Plaster	D	White	2	Neg	0.0
Old	217	Baseboard	Wood	B	White	2	Neg	0.0
Old	217	Window Apron	Wood	D	White	2	Neg	-0.1
Old	217	Window Sill	Wood	D	White	2	Neg	0.1
Old	217	Door Jamb	Wood	B	White	2	Neg	0.0
Old	217	Door Casing	Wood	A	White	2	Neg	0.2

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	217	Door Jamb	Wood	A	White	2	Neg	0.1
Old	217	Radiator	Metal	D	White	2	Neg	0.0
Old	217	Closet Wall	Plaster	A	White	2	Neg	0.1
Old	217	Closet Shelf	Wood	A	White	2	Neg	0.1
Old	217	Closet Shelf Support	Wood	A	White	2	Neg	0.0
Old	217	Closet Ceiling	Plaster	A	White	2	Neg	0.2
Old	Corridor 3	Wall	Plaster	A	White	1	Neg	-0.2
Old	Corridor 3	Wall	Brick	C	Beige	1	Neg	0.1
Old	Corridor 3	Door	Metal	A	Brown	1	Neg	0.0
Old	Corridor 3	Door Casing	Wood	A	Varnish	1	Neg	0.1
Old	Corridor 3	Door Jamb	Metal	A	Brown	1	Neg	-0.1
Old	Corridor 3	Baseboard	Vinyl	A	Black	1	Pos	2.3
Old	Corridor 3	Door	Wood	C	Brown	1	Neg	0.1
Old	Corridor 3	Door Casing	Wood	C	Brown	1	Neg	0.1
Old	115	Wall	Plaster	A	Blue	1	Pos	1.9
Old	115	Wall	Plaster	B	Blue	1	Pos	2.0
Old	115	Wall	Plaster	C	Blue	1	Pos	3.7
Old	115	Wall	Plaster	D	White	1	Neg	0.5
Old	115	Closet Wall	Plaster	D	White	1	Neg	0.6
Old	115	Closet Ceiling	Plaster	D	White	1	Neg	0.1
Old	115	Door	Wood	D	Varnish	1	Neg	-0.1
Old	115	Door Casing	Wood	D	Varnish	1	Neg	0.0
Old	115	Door Jamb	Wood	D	Varnish	1	Neg	0.1
Old	109	Wall	Plaster	A	White	1	Pos	1.0
Old	109	Wall	Plaster	B	White	1	Pos	1.0
Old	109	Wall	Plaster	C	White	1	Neg	0.2
Old	109	Wall	Plaster	D	White	1	Pos	1.0
Old	109	Window Sill	Wood	A	Varnish	1	Neg	0.1
Old	109	Floor	Wood		Varnish	1	Neg	0.0
Old	109	Bulletin Board	Cork	C	Yellow	1	Pos	3.0
Old	109	Lower Ceiling	Plaster	C	White	1	Neg	0.2
Old	109	Closet Wall	Plaster	D	White	1	Pos	1.0
Old	109	Closet Ceiling	Plaster	D	White	1	Neg	0.1
Old	109	Pipe	Metal	D	White	1	Neg	-0.2
Old	Social Science	Wall	Plaster	A	White	1	Neg	0.1
Old	Social Science	Wall	Plaster	B	White	1	Neg	0.0
Old	Social Science	Wall	Plaster	C	White	1	Neg	0.0
Old	Social Science	Wall	Plaster	D	White	1	Neg	0.1
Old	Social Science	Window Sill	Wood	A	Brown	1	Neg	0.2
Old	Social Science	Window Apron	Wood	A	Brown	1	Neg	0.1
Old	Social Science	Pipe	Metal	A	White	1	Neg	0.0
Old	Social Science	Door Casing	Metal	D	Brown	1	Neg	-0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	Social Science	Baseboard	Vinyl	B	Brown	1	Neg	0.0
Old	Foyer	Wall	Concrete	A	Green	1	Pos	5.3
Old	Foyer	Wall	Brick	A	Beige	1	Pos	3.0
Old	Foyer	Wall	Concrete	C	Green	1	Pos	4.8
Old	Foyer	Wall	Brick	C	Beige	1	Pos	9.9
Old	Foyer	Lower Wall Tile	Ceramic	A	Brown	1	Pos	9.9
Old	Foyer	Floor Tile	Ceramic		Brown	1	Neg	0.1
Old	Foyer	Door	Metal	D	Brown	1	Neg	0.1
Old	Foyer	Door Casing	Wood	D	Varnish	1	Neg	0.0
Old	Foyer	Door Jamb	Metal	D	Brown	1	Neg	-0.1
Old	5	Wall	Plaster	A	Blue	1	Pos	4.5
Old	5	Wall	Plaster	B	Blue	1	Pos	3.6
Old	5	Wall	Plaster	C	Blue	1	Pos	3.7
Old	5	Wall	Plaster	D	Blue	1	Pos	3.6
Old	5	Wall Chair Rail	Wood	B	Varnish	1	Neg	0.1
Old	5	Baseboard	Wood	B	Varnish	1	Neg	0.2
Old	5	Window Sill	Wood	D	Varnish	1	Neg	0.1
Old	5	Window Apron	Wood	D	Varnish	1	Neg	0.0
Old	Stair B	Wall	Plaster	A	White	1	Neg	0.1
Old	Stair B	Wall	Brick	D	Beige	1	Neg	0.2
Old	Stair B	Baseboard	Concrete	D	Black	1	Neg	0.0
Old	Stair B	Floor	VFT		Beige	1	Neg	-0.1
Old	Stair B	Railing	Metal	C	Black	1	Neg	0.1
Old	Stair B	Newel Post	Metal	C	Black	1	Neg	0.0
Old	Stair B	Balusters	Metal	C	Black	1	Neg	0.1
Old	Stair B	Door	Metal	A	Brown	1	Neg	-0.1
Old	Stair B	Door Casing	Metal	A	Brown	1	Neg	-0.1
Old	Stair B	Drain Pipe	Metal	A	Black	1	Neg	0.0
Old	Stair B	Treads	Metal		Black	1	Neg	0.0
Old	Stair B	Risers	Metal		Black	1	Neg	0.2
Old	116	Wall	Plaster	A	White	1	Neg	0.5
Old	116	Wall	Plaster	B	White	1	Neg	0.0
Old	116	Wall	Plaster	C	White	1	Neg	0.1
Old	116	Wall	Plaster	D	White	1	Neg	0.4
Old	116	Baseboard	Wood	A	Varnish	1	Neg	-0.1
Old	116	Floor	Wood		Varnish	1	Neg	0.0
Old	116	Window Sill	Wood	C	Varnish	1	Neg	-0.1
Old	116	Window Apron	Wood	C	Varnish	1	Neg	0.1
Old	116	Bulletin Board	Cork	A	Lilac	1	Pos	3.6
Old	116	Chalkboard	Slate	D	Black	1	Neg	0.0
Old	116	Window Apron	Wood	C	Varnish	1	Neg	0.0
Old	116	Window Sill	Wood	C	Varnish	1	Neg	0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	Women's Bath	Wall	CMU	A	White	1	Neg	0.1
Old	Women's Bath	Floor Tile	Ceramic		Beige	1	Neg	-0.2
Old	Women's Bath	Door Casing	Metal	B	Blue	1	Neg	0.0
Old	Women's Bath	Stall	Metal	C	White	1	Neg	0.0
Old	Women's Bath	Sink	Porcelain	C	White	1	Neg	0.1
Old	Women's Bath	Toilet	Porcelain	C	White	1	Neg	-0.1
Old	Women's Bath	Lower Ceiling	Plaster	D	White	1	Neg	0.1
Old	Stair A	Wall	Brick	A	Beige	1	Neg	0.2
Old	Stair A	Wall	Plaster	C	Beige	1	Neg	0.0
Old	Stair A	Treads	Metal		Black	1	Neg	0.2
Old	Stair A	Risers	Metal		Black	1	Neg	0.1
Old	Stair A	Railing	Metal	D	Black	1	Neg	-0.1
Old	Stair A	Balusters	Metal	D	Black	1	Neg	0.0
Old	Stair A	Newel Post	Metal	D	Black	1	Neg	0.1
Old	Auditorium	Wall	Plaster	A	White	1	Pos	1.0
Old	Auditorium	Wall	Plaster	B	White	1	Pos	1.0
Old	Auditorium	Wall	Plaster	C	White	1	Pos	1.0
Old	Auditorium	Wall	Plaster	D	White	1	Pos	1.0
Old	Auditorium	Wall Trim	Wood	A	Brown	1	Pos	9.7
Old	Auditorium	Wall Trim	Wood	B	Gray	1	Pos	3.2
Old	Auditorium	Door	Metal	A	Brown	1	Neg	0.1
Old	Auditorium	Door Casing	Wood	A	Gray	1	Pos	9.3
Old	Auditorium	Wall Chair Rail	Wood	B	Gray	1	Pos	6.9
Old	Auditorium	Baseboard	Wood	B	Gray	1	Pos	1.5
Old	Auditorium	Radiator	Metal	D	White	1	Neg	0.0
Old	Stage	Wall	Plaster	A	White	1	Pos	3.7
Old	Stage	Wall	Plaster	B	White	1	Pos	4.0
Old	Stage	Wall	Plaster	C	White	1	Pos	4.3
Old	Stage	Wall	Plaster	D	White	1	Pos	4.5
Old	Stage	Lower Wall Trim	Wood	C	Beige	1	Neg	0.1
Old	Stage	Door	Wood	B	White	1	Neg	0.1
Old	Stage	Door Casing	Wood	B	White	1	Pos	4.2
Old	Stage	Door	Wood	D	White	1	Pos	1.9
Old	Stage	Door Casing	Wood	D	White	1	Neg	0.1
Old	Stage	Door	Wood	A	White	1	Neg	0.2
Old	Stage	Door Casing	Wood	A	White	1	Pos	7.4
Old	Stage	Door Jamb	Wood	A	White	1	Pos	1.7
Old	Stage	Wall Cleat	Wood	A	White	1	Pos	1.7
	Calibration							0.9
	Calibration							0.9
	Calibration							1.0

1970 Section
XRF Data Interior

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
New	Corridor 1	Wall	CMU	C	White	4	Neg	0.1
New	Corridor 1	Baseboard	CMU	C	Brown	4	Neg	0.0
New	Corridor 1	Floor	VFT	C	Tan	4	Neg	-0.1
New	Corridor 1	Heater Vent	Metal	D	White	4	Neg	0.0
New	Corridor 1	Door	Metal	C	Brown	4	Neg	0.1
New	Corridor 1	Door Casing	Metal	C	Brown	4	Neg	-0.1
New	Corridor 1	Door Jamb	Metal	C	Brown	4	Neg	0.0
New	Corridor 1	Door Threshold	Metal	C	Brown	4	Neg	0.0
New	Corridor 1	Kick plate	Concrete	C	Brown	4	Neg	0.2
New	Corridor 1	Elevator Door	Metal	A	Red	4	Pos	1.0
New	Corridor 1	Elevator Door Casing	Metal	A	Brown	4	Neg	0.1
New	Corridor 1	Door	Wood	B	Varnish	4	Neg	0.0
New	Corridor 1	Fire Ext Box	Metal	A	Red	4	Neg	0.0
New	Corridor 1	Locker	Metal	B	Red	4	Neg	-0.1
New	Staircase 1	Wall	CMU	C	White	4	Neg	0.1
New	Staircase 1	Baseboard	CMU	C	Brown	4	Neg	0.0
New	Staircase 1	Floor Tile	Ceramic		White	4	Neg	-0.1
New	Staircase 1	Heater Vent	Metal	A	White	4	Neg	0.0
New	Staircase 1	Handrail	Metal	C	Black	4	Neg	0.1
New	Staircase 1	Door	Metal	B	Brown	4	Neg	-0.2
New	Staircase 1	Door Casing	Metal	B	Brown	4	Neg	0.1
New	Staircase 1	Door Jamb	Metal	B	Brown	4	Neg	0.0
New	Staircase 1	Stair Stringer	Metal	C	Brown	4	Neg	0.1
New	Men's Bath	Wall	CMU	C	White	4	Neg	0.1
New	Men's Bath	Baseboard	CMU	C	Brown	4	Neg	0.0
New	Men's Bath	Floor Tile	Ceramic		Beige	4	Neg	-0.1
New	Men's	Door	Wood	B	Varnish	4	Neg	0.0
New	Men's Bath	Door Casing	Metal	B	Brown	4	Neg	-0.1
New	Men's Bath	Door Jamb	Metal	B	Brown	4	Neg	0.0
New	Men's Bath	Stall	Metal	A	Brown	4	Neg	0.0
New	Men's Bath	Sink	Porcelain	C	White	4	Neg	-0.2
New	Men's Bath	Toilet	Porcelain	C	White	4	Neg	-0.1
New	Men's Bath	Heater Vent	Metal	D	White	4	Neg	0.0
New	Sink Room	Wall	CMU	D	White	4	Neg	0.0
New	Sink Room	Baseboard	CMU	D	Brown	4	Neg	0.0
New	Sink Room	Floor	Concrete		Gray	4	Neg	0.2
New	Sink Room	Door	Metal	B	Brown	4	Neg	0.0
New	Sink Room	Door Casing	Metal	B	Brown	4	Neg	0.0
New	Sink Room	Door Jamb	Metal	B	Brown	4	Neg	-0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
New	Sink Room	Sink	Porcelain	D	White	4	Pos	9.9
New	Sink Room	Pipe	Metal	D	White	4	Neg	0.1
New	Sink Room	Pipe	Metal	B	White	4	Neg	0.0
New	Sink Room	Electric Panel	Metal	B	White	4	Neg	-0.2
New	Women's Bath	Wall	CMU	A	White	4	Neg	0.1
New	Women's Bath	Baseboard	CMU	A	Brown	4	Neg	0.0
New	Women's Bath	Floor Tile	Ceramic		Beige	4	Neg	-0.1
New	Women's Bath	Door	Wood	B	Varnish	4	Neg	0.0
New	Women's Bath	Door Casing	Metal	B	Brown	4	Neg	0.0
New	Women's Bath	Door Jamb	Metal	B	Brown	4	Neg	0.1
New	Women's Bath	Stall	Metal	C	White	4	Neg	-0.1
New	Women's Bath	Sink	Porcelain	C	White	4	Neg	0.0
New	Women's Bath	Toilet	Porcelain	C	Beige	4	Neg	0.0
New	Women's Bath	Heater Vent	Metal	D	Beige	4	Neg	0.1
New	Stair 2	Wall	CMU	C	White	4	Neg	0.2
New	Stair 2	Baseboard	CMU	B	Brown	4	Neg	0.1
New	Stair 2	Handrail	Metal	A	Brown	4	Neg	-0.1
New	Stair 2	Stair Stringer	Metal	D	Brown	4	Neg	0.2
New	Stair 2	Floor	VFT		White	4	Neg	-0.2
New	Stair 2	Door	Metal	C	Brown	4	Neg	-0.1
New	Stair 2	Door Casing	Metal	C	Brown	4	Neg	0.0
New	Stair 2	Door Jamb	Metal	C	Brown	4	Neg	0.1
New	Stair 2	Heater Vent	Metal	C	White	4	Neg	0.0
New	400	Wall	CMU	C	White	4	Neg	0.1
New	400	Baseboard	CMU	C	Brown	4	Neg	0.0
New	400	Floor	VFT		Beige	4	Neg	0.0
New	400	Door	Wood	C	Varnish	4	Neg	-0.1
New	400	Door Casing	Metal	C	Brown	4	Neg	0.0
New	400	Door Jamb	Metal	C	Brown	4	Neg	0.0
New	400	Chalkboard	Slate	B	Green	4	Neg	-0.2
New	400	Electric Conduit	Metal	Ctr	White	4	Neg	-0.1
New	400	Heater Vent	Metal	A	White	4	Neg	0.0
New	400	Cabinet	Wood	C	Varnish	4	Neg	0.1
New	400	Bulletin Board	Cork	B	Blue	4	Neg	0.0
New	401	Wall	CMU	C	Blue	4	Neg	0.1
New	401	Baseboard	CMU	C	Brown	4	Neg	-0.1
New	401	Floor	VFT		Pink	4	Neg	0.0
New	401	Bulletin Board	Cork	B	Blue	4	Neg	0.1
New	401	Cabinet	Wood	B	Varnish	4	Neg	-0.2
New	401	Door	Wood	C	Varnish	4	Neg	0.0
New	401	Door Casing	Metal	C	Brown	4	Neg	0.0
New	401	Door Jamb	Metal	C	Brown	4	Neg	0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
New	401	Electric Conduit	Metal	A	Blue	4	Neg	0.1
New	401	Ceiling Beam	Metal		Brown	4	Neg	0.4
New	401	Shelf	Metal	C	Beige	4	Neg	0.0
New	401	Window Frame	Metal	A	Brown	4	Neg	0.1
New	401B	Wall	CMU	A	White	4	Neg	0.0
New	401B	Baseboard	CMU	A	Brown	4	Neg	0.1
New	401B	Floor	VFT		Brown	4	Neg	-0.1
New	401B	Door	Wood	B	Varnish	4	Neg	0.0
New	401B	Door Casing	Metal	B	Brown	4	Neg	0.0
New	401B	Door Jamb	Metal	B	Brown	4	Neg	-0.1
New	401B	Window Frame	Metal	C	Brown	4	Neg	0.1
New	401B	Electric Conduit	Metal	Ctr	White	4	Neg	-0.1
New	401B	Heater Vent	Metal	A	White	4	Neg	-0.1
New	401B	Cabinet	Wood	C	Varnish	4	Neg	0.0
New	401B	Chalkboard	Slate	B	Green	4	Neg	0.0
New	401B	Bulletin Board	Cork	B	Blue	4	Neg	0.1
New	Corridor 2	Wall	CMU	D	White	4	Neg	0.0
New	Corridor 2	Baseboard	CMU	D	Brown	4	Neg	0.1
New	Corridor 2	Floor	VFT		Beige	4	Neg	0.0
New	Corridor 2	Door	Metal	A	Brown	4	Neg	-0.1
New	Corridor 2	Door Casing	Metal	A	Brown	4	Neg	0.0
New	Corridor 2	Door Jamb	Metal	A	Brown	4	Neg	0.1
New	Corridor 2	Electric Panel	Metal	D	Beige	4	Neg	0.0
New	Corridor 2	Bulletin Board	Cork	C	Black	4	Neg	-0.1
New	Corridor 2	Heater Vent	Metal	C	Beige	4	Neg	0.0
New	Corridor 2	Locker	Metal	B	Red	4	Neg	0.1
New	Corridor 2	Fire Ext Box	Metal	B	Red	4	Neg	0.5
New	Staircase 2	Wall	CMU	B	White	4	Neg	0.1
New	Staircase 2	Baseboard	CMU	B	Brown	4	Neg	0.0
New	Staircase 2	Electric Conduit	Metal	D	White	4	Neg	-0.1
New	Staircase 2	Heater Vent	Metal	A	White	4	Neg	0.0
New	Staircase 2	Shelf	Metal	C	Beige	4	Neg	0.0
New	Staircase 2	Door	Wood	B	Varnish	4	Neg	0.0
New	Staircase 2	Door Casing	Metal	B	Brown	4	Neg	-0.1
New	Staircase 2	Door Jamb	Metal	B	Brown	4	Neg	-0.1
New	402	Wall	CMU	B	White	4	Neg	0.0
New	402	Baseboard	CMU	C	Brown	4	Neg	0.1
New	402	Floor	VFT		Beige	4	Neg	0.0
New	402	Door	Wood	D	Varnish	4	Neg	-0.1
New	402	Door Casing	Metal	D	Brown	4	Neg	0.0
New	402	Door Jamb	Metal	D	Brown	4	Neg	-0.1
New	402	Chalkboard	Slate	C	Green	4	Neg	0.0

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
New	402	Bulletin Board	Cork	C	White	4	Neg	-0.1
New	402	Door	Metal	A	Brown	4	Neg	0.0
New	402	Kick plate	Concrete	A	Brown	4	Neg	0.2
New	402	Heater Vent	Metal	B	White	4	Neg	0.0
New	403	Wall	CMU	B	White	4	Neg	0.1
New	403	Baseboard	CMU	A	Brown	4	Neg	0.0
New	403	Floor	VFT		White	4	Neg	-0.2
New	403	Door	Wood	C	Varnish	4	Neg	-0.1
New	403	Door Casing	Metal	C	Brown	4	Neg	0.0
New	403	Door Jamb	Metal	C	Brown	4	Neg	0.1
New	403	Chalkboard	Slate	A	Green	4	Neg	0.0
New	403	Bulletin Board	Cork	A	Blue	4	Neg	0.1
New	403	Electric Conduit	Metal	Ctr	White	4	Neg	-0.1
New	403	Heater Vent	Metal	B	White	4	Neg	0.0
New	IT Manager	Wall	CMU	C	White	4	Neg	0.0
New	IT Manager	Baseboard	CMU	C	Brown	4	Neg	0.1
New	IT Manager	Floor	VFT		Pink	4	Neg	0.0
New	IT Manager	Door	Wood	C	Varnish	4	Neg	0.0
New	IT Manager	Door Casing	Metal	C	Brown	4	Neg	0.1
New	IT Manager	Door Jamb	Metal	C	Brown	4	Neg	0.0
New	IT Manager	Electric Conduit	Metal	A	White	4	Neg	-0.1
New	408	Wall	CMU	C	White	4	Neg	0.0
New	408	Baseboard	CMU	C	Brown	4	Neg	0.2
New	408	Floor	VFT		White	4	Neg	0.0
New	408	Door	Wood	A	Varnish	4	Neg	0.0
New	408	Door Casing	Metal	A	Brown	4	Neg	0.1
New	408	Door Jamb	Metal	A	Brown	4	Neg	0.0
New	408	Electric Conduit	Metal	C	Black	4	Neg	0.0
New	Corridor 3	Wall	CMU	A	White	3	Neg	0.2
New	Corridor 3	Baseboard	CMU	A	Brown	3	Neg	0.1
New	Corridor 3	Floor	VFT	D	Brown	3	Neg	-0.2
New	Corridor 3	Door	Metal	D	Brown	3	Neg	0.0
New	Corridor 3	Door Casing	Metal	D	Brown	3	Neg	0.0
New	Corridor 3	Door Jamb	Metal	D	Brown	3	Neg	-0.1
New	Corridor 3	Elevator Door	Metal	A	Orange	3	Pos	1.0
New	Corridor 3	Locker	Metal	C	Blue	3	Neg	0.0
New	Corridor 3	Floor	VFT		Beige	3	Neg	0.0
New	Corridor 3	Door	Metal	B	Brown	3	Neg	0.1
New	Corridor 3	Door Casing	Metal	B	Brown	3	Neg	-0.1
New	Men's Bath	Wall	CMU	C	White	3	Neg	0.0
New	Men's Bath	Baseboard	CMU	C	Brown	3	Neg	0.0
New	Men's Bath	Door	Metal	B	Brown	3	Neg	0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
New	Men's Bath	Door Casing	Metal	B	Brown	3	Neg	-0.1
New	Men's Bath	Door Jamb	Metal	B	Brown	3	Neg	0.0
New	Men's Bath	Sink	Porcelain	A	White	3	Neg	0.1
New	Men's Bath	Toilet	Porcelain	D	White	3	Neg	-0.1
New	Men's Bath	Stall	Metal	D	Brown	3	Neg	0.0
New	Men's Bath	Floor Tile	Ceramic		Beige	3	Neg	-0.2
New	Sink Room	Wall	CMU	A	White	3	Neg	0.1
New	Sink Room	Baseboard	CMU	A	Brown	3	Neg	0.0
New	Sink Room	Floor	Concrete		Gray	3	Neg	0.2
New	Sink Room	Door	Wood	B	Varnish	3	Neg	0.0
New	Sink Room	Door Casing	Metal	B	Brown	3	Neg	-0.1
New	Sink Room	Door Jamb	Metal	B	Brown	3	Neg	-0.1
New	Sink Room	Sink	Porcelain	A	White	3	Pos	9.9
New	Sink Room	Vent	Metal	C	White	3	Neg	0.1
New	Sink Room	Access Panel	Metal	A	White	3	Neg	0.1
New	Corridor 4	Wall	CMU	D	White	3	Neg	0.1
New	Corridor 4	Baseboard	CMU	D	Brown	3	Neg	0.0
New	Corridor 4	Pipe Chase	Wood	D	White	3	Neg	0.1
New	Corridor 4	Door	Metal	C	Brown	3	Neg	-0.1
New	Corridor 4	Door Casing	Metal	C	Brown	3	Neg	0.0
New	Corridor 4	Door Jamb	Metal	C	Brown	3	Neg	0.0
New	Corridor 4	Locker	Metal	B	Blue	3	Neg	0.1
New	Men's Bath	Wall	CMU	B	White	3	Neg	0.0
New	Men's Bath	Baseboard	CMU	B	Brown	3	Neg	0.2
New	Men's Bath	Stall	Metal	A	Brown	3	Neg	-0.1
New	Men's Bath	Door	Wood	A	Varnish	3	Neg	0.0
New	Men's Bath	Door Casing	Metal	A	Brown	3	Neg	0.0
New	Men's Bath	Door Jamb	Metal	A	Brown	3	Neg	0.1
New	Men's Bath	Sink	Porcelain	C	White	3	Pos	9.9
New	Men's Bath	Toilet	Porcelain	A	White	3	Neg	0.1
New	Fac. Lounge	Wall	CMU	B	White	3	Neg	0.1
New	Fac. Lounge	Baseboard	CMU	B	Brown	3	Neg	0.2
New	Fac. Lounge	Floor	VFT		Pink	3	Neg	0.0
New	Fac. Lounge	Door	Wood	B	Varnish	3	Neg	0.1
New	Fac. Lounge	Door Casing	Metal	B	Brown	3	Neg	-0.1
New	Fac. Lounge	Door Jamb	Metal	B	Brown	3	Neg	0.0
New	Fac. Lounge	Cabinet	Metal	C	Brown	3	Neg	0.1
New	Women's Bath	Wall	CMU	C	White	3	Neg	0.2
New	Women's Bath	Baseboard	CMU	D	Brown	3	Neg	0.1
New	Women's Bath	Door	Wood	D	Varnish	3	Neg	0.0
New	Women's Bath	Door Casing	Metal	D	Brown	3	Neg	0.0
New	Women's Bath	Door Jamb	Metal	D	Brown	3	Neg	0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
New	Women's Bath	Sink	Porcelain	C	White	3	Pos	9.9
New	Women's Bath	Toilet	Porcelain	A	White	3	Neg	-0.1
New	Women's Bath	Stall	Metal	A	Beige	3	Neg	0.0
New	Dark Room	Wall	CMU	C	Blue	3	Neg	0.1
New	Dark Room	Baseboard	CMU	C	Brown	3	Neg	0.0
New	Dark Room	Door	Metal	B	Brown	3	Neg	0.1
New	Dark Room	Door Casing	Metal	B	Brown	3	Neg	0.1
New	Dark Room	Door Jamb	Metal	B	Brown	3	Neg	0.1
New	Dark Room	Cabinet	Wood	D	Black	3	Neg	0.0
New	Dark Room	Sink	Metal	B	Black	3	Neg	-0.1
New	Corridor 5	Wall	CMU	A	White	2	Neg	0.0
New	Corridor 5	Wall	Gypsum	C	White	2	Neg	0.1
New	Corridor 5	Elevator Door	Metal	A	Red	2	Neg	0.1
New	Corridor 5	Floor	VFT		Beige	2	Neg	0.1
New	Corridor 5	Door	Metal	C	Brown	2	Neg	0.0
New	Corridor 5	Door Casing	Metal	C	Brown	2	Neg	-0.1
New	Corridor 5	Door Jamb	Metal	C	Brown	2	Neg	0.0
New	Corridor 5	Locker	Metal	B	Orange	2	Neg	0.0
New	Men's Bath	Wall	CMU	C	White	2	Neg	0.0
New	Men's Bath	Sink	Porcelain	D	White	2	Neg	-0.1
New	Men's Bath	Toilet	Porcelain	D	White	2	Neg	-0.1
New	Men's Bath	Stall	Metal	D	Brown	2	Neg	0.0
New	Men's Bath	Floor Tile	Ceramic		Beige	2	Neg	0.1
New	Library	Wall	Gypsum	A	Yellow	2	Neg	0.0
New	Library	Wall	Gypsum	B	Yellow	2	Neg	-0.1
New	Library	Wall	Gypsum	C	Yellow	2	Neg	0.0
New	Library	Wall	Gypsum	D	Yellow	2	Neg	-0.1
New	Library	Baseboard	Vinyl	A	Brown	2	Neg	0.0
New	Library	Window Frame	Metal	D	Brown	2	Neg	-0.1
New	Library	Door	Metal	D	Brown	2	Neg	0.0
New	Library	Door Casing	Metal	D	Brown	2	Neg	0.2
New	Library	Column	Concrete	Ct	Orange	2	Neg	0.0
New	225	Wall	CMU	A	White	2	Neg	0.1
New	225	Door Casing	Metal	B	Brown	2	Neg	0.0
New	225	Door Jamb	Metal	B	Brown	2	Neg	-0.2
Base	Garage	Wall	CMU	B	White	Base	Neg	0.0
Base	Garage	Door	Metal	C	Brown	Base	Neg	0.0
Base	Garage	Door Casing	Metal	C	Brown	Base	Neg	-0.1
Base	Garage	Floor	Concrete		Red	Base	Neg	0.0
Base	Garage	Door	Metal	A	Gray	Base	Neg	0.1
Base	Garage	Door Casing	Metal	A	Gray	Base	Neg	0.0
Base	Garage	Door Jamb	Metal	A	Gray	Base	Neg	0.2

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Base	Garage	Overhead Door	Metal	A	Gray	Base	Neg	0.1
Base	Garage	Overhead Door Frame	Metal	A	Gray	Base	Neg	-0.1
Base	Garage	Freezer Door	Metal	C	White	Base	Neg	0.2
Base	Garage	Freezer Door Casing	Metal	C	White	Base	Neg	-0.1
Base	Garage	Electric Conduit	Metal	A	White	Base	Neg	0.1
Base	Garage	Column	Concrete	Ctr	White	Base	Neg	0.0
Base	Garage	Lintel	Metal	B	White	Base	Neg	0.1
Base	Garage	Access Door	Metal	B	Brown	Base	Neg	0.1
Base	Garage	Floor Drain	Metal	Ctr	Brown	Base	Neg	0.2
Base	Garage	Handrail	Metal	D	Gray	Base	Neg	-0.1
Base	Shop	Wall	Concrete	A	White	Base	Neg	-0.1
Base	Shop	Wall	CMU	B	White	Base	Neg	0.0
Base	Shop	Floor Access	Metal		Yellow	Base	Pos	2.9
Base	Shop	Baseboard	Concrete	B	Brown	Base	Neg	0.0
Base	Shop	Floor	Concrete		Gray	Base	Neg	0.2
Base	Shop	Overhead Door	Metal	A	Brown	Base	Neg	0.1
Base	Shop	Overhead Door Casing	Metal	A	Brown	Base	Neg	0.2
Base	Shop	Door	Metal	B	Brown	Base	Neg	0.2
Base	Shop	Door Casing	Metal	B	Brown	Base	Neg	-0.1
Base	Shop	Column	Concrete	Ctr	White	Base	Neg	0.2
Base	Shop	Electric Conduit	Metal	A	White	Base	Neg	-0.1
Base	Shop	Chalkboard	Slate	A	Green	Base	Neg	-0.1
Base	Shop	Sink	Porcelain	D	White	Base	Pos	9.9
Base	Shop Bath	Wall	CMU	A	White	Base	Neg	0.2
Base	Shop Bath	Baseboard	Concrete	A	Brown	Base	Neg	0.3
Base	Shop Bath	Floor	Concrete		Gray	Base	Neg	0.1
Base	Shop Bath	Toilet	Porcelain	B	White	Base	Neg	0.0
Base	Shop Bath	Door	Metal	C	Brown	Base	Neg	-0.1
Base	Shop Bath	Door Casing	Metal	C	Brown	Base	Neg	0.2
Base	Shop Bath	Door Jamb	Metal	C	Brown	Base	Neg	0.1
Base	Corridor 1	Wall	Brick	C	Beige	Base	Neg	0.2
Base	Corridor 1	Wall	CMU	A	White	Base	Neg	0.1
Base	Corridor 1	Baseboard	CMU	A	Brown	Base	Neg	0.0
Base	Corridor 1	Floor	VFT		Beige	Base	Neg	-0.1
Base	Corridor 1	Door	Metal	B	Brown	Base	Neg	0.0
Base	Corridor 1	Door Casing	Metal	B	Brown	Base	Neg	0.0
Base	Corridor 1	Locker	Metal	C	Red	Base	Neg	-0.1
Base	Corridor 1	Elevator Door	Metal	A	Red	Base	Neg	0.0
Base	Staircase 1	Wall	CMU	D	White	Base	Neg	0.1
Base	Staircase 1	Baseboard	CMU	D	Brown	Base	Neg	0.0
Base	Staircase 1	Stair Tread	Concrete		Gray	Base	Neg	0.2
Base	Staircase 1	Stair Riser	Concrete		Gray	Base	Neg	0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Base	Staircase 1	Handrail	Metal		Black	Base	Neg	-0.1
Base	Staircase 1	Floor	Concrete		Gray	Base	Neg	0.2
Base	Staircase 1	Door	Metal	C	Black	Base	Neg	-0.1
Base	Staircase 1	Door Casing	Metal	C	Black	Base	Neg	0.1
Base	Trash Room	Wall	CMU	A	White	Base	Neg	0.1
Base	Trash Room	Baseboard	CMU	A	Brown	Base	Neg	0.2
Base	Trash Room	Overhead Door	Metal	A	Brown	Base	Neg	0.1
Base	Trash Room	Overhead Door Casing	Metal	A	Brown	Base	Neg	0.0
Base	Trash Room	Floor	Concrete		Gray	Base	Neg	0.2
Base	Room 33	Wall	CMU	C	White	Base	Neg	0.1
Base	Room 33	Baseboard	CMU	C	Brown	Base	Neg	-0.1
Base	Room 33	Floor	Concrete		Gray	Base	Neg	0.0
Base	Room 33	Sink	Porcelain	C	White	Base	Neg	0.1
Base	Room 33	Door	Metal	D	Brown	Base	Neg	0.2
Base	Room 33	Door Casing	Metal	D	Brown	Base	Neg	0.1
Base	Room 33	Toilet	Porcelain	B	White	Base	Neg	0.0
Base	Room 33	Wall	Concrete	A	White	Base	Neg	-0.1
Base	Alt. Ed. Dept.	Wall	Concrete	A	White	Base	Neg	-0.1
Base	Alt. Ed. Dept.	Wall	Plaster	B	White	Base	Neg	0.0
Base	Alt. Ed. Dept.	Baseboard	Vinyl	C	Green	Base	Neg	-0.1
Base	Alt. Ed. Dept.	Door Casing	Metal	C	Green	Base	Neg	0.0
Base	Alt. Ed. Dept.	Window Frame	Metal	C	Green	Base	Neg	0.1
Base	Alt. Ed. Dept.	Column	Concrete	C	White	Base	Neg	0.2
Base	Alt. Ed. Dept.	Closet Wall	Plaster	C	White	Base	Neg	-0.1
Base	Staircase 2	Wall	CMU	D	White	Base	Neg	0.1
Base	Staircase 2	Lower Ceiling	Concrete	C	White	Base	Neg	0.1
Base	Staircase 2	Stair Tread	Concrete	C	Gray	Base	Neg	0.0
Base	Staircase 2	Stair Riser	Concrete	C	Gray	Base	Neg	0.2
Base	Staircase 2	Floor	VFT		Beige	Base	Neg	-0.1
Base	Staircase 2	Handrail	Metal	D	Black	Base	Neg	0.0
Base	Room 24	Wall	CMU	A	White	Base	Neg	0.1
Base	Room 24	Door	Metal	A	Brown	Base	Neg	-0.2
Base	Room 24	Door Casing	Metal	A	Brown	Base	Neg	0.1
Base	Room 24	Column	Concrete	Ctr	Blue	Base	Neg	0.1
Base	Room 24	Floor	Concrete		Gray	Base	Neg	0.0
Base	Room 24	Window Frame	Metal	C	Brown	Base	Neg	-0.1
Base	Room 24	Chalkboard	Slate	C	Green	Base	Neg	-0.1
Base	Room 20	Wall	CMU	A	White	Base	Neg	0.0
Base	Room 20	Floor	Concrete		Green	Base	Neg	0.1
Base	Room 20	Sink	Porcelain	B	White	Base	Neg	0.0
Base	Room 20	Bulletin Board	Cork	B	White	Base	Neg	0.0
Base	Room 20	Cage	Metal	D	Green	Base	Neg	0.1

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Base	Room 20	Door	Metal	A	Brown	Base	Neg	-0.1
Base	Room 20	Door Casing	Metal	A	Brown	Base	Neg	0.0
Base	Room 20	Column	Concrete	Ctr	Brown	Base	Neg	0.0
Base	Cafeteria	Wall	Plaster	A	White	Base	Neg	0.1
Base	Cafeteria	Wall	Concrete	B	White	Base	Neg	0.2
Base	Cafeteria	Wall	Concrete	C	White	Base	Neg	0.1
Base	Cafeteria	Wall	CMU	D	White	Base	Neg	-0.1
Base	Cafeteria	Baseboard	Concrete	B	Orange	Base	Neg	0.2
Base	Cafeteria	Handrail	Metal	B	Orange	Base	Neg	-0.2
Base	Cafeteria	Floor	VFT		Beige	Base	Neg	-0.1
Base	Cafeteria	Column	Plaster	Ctr	Orange	Base	Neg	0.0
Base	Cafeteria	Wall	Brick	C	Beige	Base	Neg	0.1
Base	Cafeteria	Door Casing	Metal	A	White	Base	Neg	0.0
Base	Cafeteria	Door Jamb	Wood	A	Varnish	Base	Neg	0.1
Base	Cafeteria	Door Casing	Wood	C	Brown	Base	Neg	0.0
Base	Cafeteria	Door Jamb	Metal	C	Brown	Base	Neg	0.0
Base	Cafeteria	Wall Trim	Wood	C	Brown	Base	Neg	-0.1
Base	Room 6	Wall	Brick	A	White	Base	Neg	0.0
Base	Room 6	Wall	Plaster	B	White	Base	Neg	0.0
Base	Room 6	Wall	Brick	C	White	Base	Neg	-0.2
Base	Room 6	Wall	Brick	D	White	Base	Neg	-0.1
Base	Room 6	Baseboard	Vinyl	A	Black	Base	Neg	0.0
Base	Room 6	Door	Wood	D	Brown	Base	Neg	0.1
Base	Room 6	Door Casing	Wood	D	Brown	Base	Neg	0.0

XRF Data Exterior

Location	Component	Substrate	Side	Color	Result	XRF
Exterior	Corner board	Concrete	A	Brown	Neg	0.1
Exterior	Wall	Brick	A	Beige	Neg	0.1
Exterior	Door	Metal	A	Brown	Neg	0.0
Exterior	Door Casing	Metal	A	Brown	Neg	0.2
Exterior	Corner board	Concrete	B	Brown	Neg	-0.1
Exterior	Wall	Wood	A	Beige	Neg	0.2
Exterior	Door	Metal	A	White	Neg	-0.1
Exterior	Door Casing	Wood	A	White	Neg	0.2
Exterior	Door Jamb	Wood	A	White	Neg	0.1
Exterior	I Beam	Metal	A	Black	Neg	0.2
Exterior	Door	Metal	B	Brown	Neg	0.0
Exterior	Door Casing	Metal	B	Brown	Neg	0.1
Exterior	Overhead Door	Metal	A	Brown	Neg	0.1
Exterior	Door	Metal	A	Red	Neg	0.0
Exterior	Door Casing	Metal	A	Red	Neg	0.2
Exterior	Railing System	Metal	D	Black	Pos	9.9
Exterior	Lamp Post Column	Metal	D	Black	Pos	9.2
	Calibration					1.0
	Calibration					1.0
	Calibration					0.9

Positive XRF Data

Old Section
Positive XRF Data Interior

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	Sink Room	Sink	Porcelain	D	White	3	Pos	9.9
Old	324	Wall	Plaster	A	White	3	Pos	1.9
Old	324	Wall	Plaster	C	White	3	Pos	3.0
Old	324	Wall	Plaster	D	White	3	Pos	3.5
Old	324	Closet Wall	Plaster	D	White	3	Pos	2.4
Old	324	Bulletin Board	Cork	C	White	3	Pos	2.6
Old	322	Wall	Plaster	A	White	3	Pos	3.1
Old	322	Wall	Plaster	C	White	3	Pos	3.4
Old	322	Wall	Plaster	D	White	3	Pos	2.0
Old	322	Closet Wall	Plaster	D	White	3	Pos	2.7
Old	322	Bulletin Board	Cork	C	White	3	Pos	2.7
Old	320	Wall	Plaster	A	White	3	Pos	2.2
Old	320	Wall	Plaster	C	White	3	Pos	3.7
Old	320	Wall	Plaster	D	White	3	Pos	4.1
Old	320	Bulletin Board	Cork	C	White	3	Pos	4.1
Old	320	Closet Wall	Plaster	D	Blue	3	Pos	3.2
Old	325	Wall	Plaster	A	White	3	Pos	2.7
Old	325	Wall	Plaster	B	White	3	Pos	2.2
Old	325	Wall	Plaster	C	White	3	Pos	1.8
Old	325	Wall	Plaster	D	White	3	Pos	3.0
Old	325	Closet Wall	Plaster	B	White	3	Pos	2.3
Old	325	Bulletin Board	Cork	A	White	3	Pos	2.8
Old	323	Wall	Plaster	A	White	3	Pos	4.0
Old	323	Wall	Plaster	B	White	3	Pos	1.8
Old	323	Wall	Plaster	C	White	3	Pos	2.2
Old	323	Bulletin Board	Cork	A	White	3	Pos	2.7
Old	323	Closet Wall	Plaster	B	White	3	Pos	2.9
Old	321	Wall	Plaster	A	White	3	Pos	3.7
Old	321	Wall	Plaster	B	White	3	Pos	4.3
Old	321	Wall	Plaster	C	White	3	Pos	2.5
Old	321	Wall	Plaster	D	White	3	Pos	3.5
Old	321	Bulletin Board	Cork	A	White	3	Pos	3.7
Old	321	Closet Wall	Plaster	B	White	3	Pos	4.1
Old	311	Wall	Plaster	A	White	3	Pos	2.4
Old	311	Wall	Plaster	B	White	3	Pos	2.8
Old	311	Wall	Plaster	C	White	3	Pos	2.9

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	311	Wall	Plaster	D	White	3	Pos	2.7
Old	311	Closet Wall	Plaster	D	White	3	Pos	3.0
Old	309	Wall	Plaster	A	White	3	Pos	4.3
Old	309	Wall	Plaster	B	White	3	Pos	2.2
Old	309	Wall	Plaster	C	White	3	Pos	2.2
Old	309	Wall	Plaster	D	White	3	Pos	1.0
Old	309	Bulletin Board	Cork	C	White	3	Pos	3.2
Old	309	Closet Wall	Plaster	D	White	3	Pos	4.1
Old	308	Wall	Plaster	D	White	3	Pos	3.0
Old	308	Bulletin Board	Cork	A	White	3	Pos	2.7
Old	330	Wall	Plaster	B	White	3	Pos	3.8
Old	330	Wall	Plaster	C	White	3	Pos	2.8
Old	330	Wall	Plaster	D	White	3	Pos	4.5
Old	330	Bulletin Board	Cork	C	White	3	Pos	3.4
Old	Visual	Wall	Plaster	A	White	2	Pos	5.0
Old	215	Wall	Plaster	A	White	2	Pos	5.2
Old	215	Wall	Plaster	C	White	2	Pos	3.7
Old	Stair D	Wall	Plaster	D	White	2	Pos	1.4
Old	207	Wall	Plaster	A	White	2	Pos	3.3
Old	207	Wall	Plaster	B	White	2	Pos	3.9
Old	207	Wall	Plaster	C	White	2	Pos	3.3
Old	207	Wall	Plaster	D	White	2	Pos	4.1
Old	207	Closet Wall	Plaster	D	White	2	Pos	2.9
Old	201	Wall	Plaster	B	White	2	Pos	1.0
Old	202	Wall	Plaster	B	White	2	Pos	1.0
Old	Corridor 3	Baseboard	Vinyl	A	Black	1	Pos	2.3
Old	115	Wall	Plaster	A	Blue	1	Pos	1.9
Old	115	Wall	Plaster	B	Blue	1	Pos	2.0
Old	115	Wall	Plaster	C	Blue	1	Pos	3.7
Old	109	Wall	Plaster	A	White	1	Pos	1.0
Old	109	Wall	Plaster	B	White	1	Pos	1.0
Old	109	Wall	Plaster	D	White	1	Pos	1.0
Old	109	Bulletin Board	Cork	C	Yellow	1	Pos	3.0
Old	109	Closet Wall	Plaster	D	White	1	Pos	1.0
Old	Foyer	Wall	Concrete	A	Green	1	Pos	5.3
Old	Foyer	Wall	Brick	A	Beige	1	Pos	3.0
Old	Foyer	Wall	Concrete	C	Green	1	Pos	4.8
Old	Foyer	Wall	Brick	C	Beige	1	Pos	9.9
Old	Foyer	Lower Wall Tile	Ceramic	A	Brown	1	Pos	9.9
Old	5	Wall	Plaster	A	Blue	1	Pos	4.5
Old	5	Wall	Plaster	B	Blue	1	Pos	3.6
Old	5	Wall	Plaster	C	Blue	1	Pos	3.7

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
Old	5	Wall	Plaster	D	Blue	1	Pos	3.6
Old	116	Bulletin Board	Ceramic	A	Lilac	1	Pos	3.6
Old	Auditorium	Wall	Plaster	A	White	1	Pos	1.0
Old	Auditorium	Wall	Plaster	B	White	1	Pos	1.0
Old	Auditorium	Wall	Plaster	C	White	1	Pos	1.0
Old	Auditorium	Wall	Plaster	D	White	1	Pos	1.0
Old	Auditorium	Wall Trim	Wood	A	Brown	1	Pos	9.7
Old	Auditorium	Wall Trim	Wood	B	Gray	1	Pos	3.2
Old	Auditorium	Door Casing	Wood	A	Gray	1	Pos	9.3
Old	Auditorium	Wall Chair Rail	Wood	B	Gray	1	Pos	6.9
Old	Auditorium	Baseboard	Wood	B	Gray	1	Pos	1.5
Old	Stage	Wall	Plaster	A	White	1	Pos	3.7
Old	Stage	Wall	Plaster	B	White	1	Pos	4.0
Old	Stage	Wall	Plaster	C	White	1	Pos	4.3
Old	Stage	Wall	Plaster	D	White	1	Pos	4.5
Old	Stage	Door Casing	Wood	B	White	1	Pos	4.2
Old	Stage	Door	Wood	D	White	1	Pos	1.9
Old	Stage	Door Casing	Wood	A	White	1	Pos	7.4
Old	Stage	Door Jamb	Wood	A	White	1	Pos	1.7
Old	Stage	Wall Cleat	Wood	A	White	1	Pos	1.7

**New Section & Basement
Positive XRF Data Interior**

Area	Location	Component	Substrate	Side	Color	Floor	Result	XRF
New	Corridor 1	Elevator Door	Metal	A	Red	4	Pos	1.0
New	Sink Room	Sink	Porcelain	D	White	4	Pos	9.9
New	Corridor 3	Elevator Door	Metal	A	Orange	3	Pos	1.0
New	Sink Room	Sink	Porcelain	A	White	3	Pos	9.9
New	Men's Bath	Sink	Porcelain	C	White	3	Pos	9.9
New	Women's Bath	Sink	Porcelain	C	White	3	Pos	9.9
Base	Shop	Floor Access	Metal		Yellow	Base	Pos	2.9
Base	Shop	Sink	Porcelain	D	White	Base	Pos	9.9

**Old Section
Positive XRF Data Exterior**

Location	Component	Substrate	Side	Color	Result	XRF
Exterior	Railing System	Metal	D	Black	Pos	9.9
Exterior	Lamp Post Column	Metal	D	Black	Pos	9.2

Floor Plans

EVERETT PUBLIC SCHOOLS
CITY OF EVERETT
GEORGE KEVERIAN SCHOOL
MODULE 3 – FEASIBILITY STUDY
PRELIMINARY DESIGN PROGRAM SUBMITTAL

MODULE 3.1.4 EXISTING SITE PLAN
FORMER HIGH SCHOOL



0 25 50 100
SCALE: 1/8" = 1'-0"

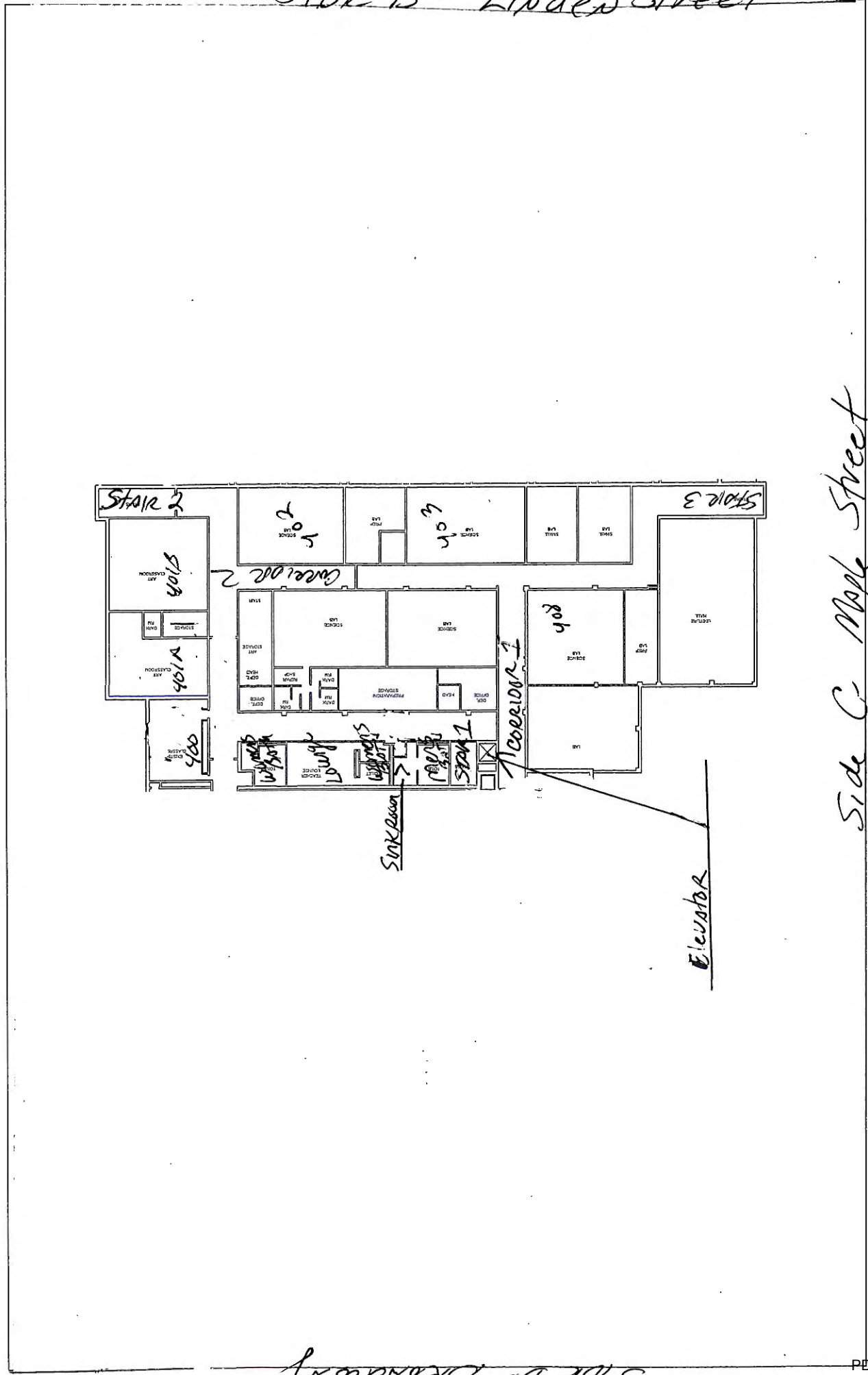


Floor 4
has New section only

Side A - Pleasant Street

SIDE B - Linden Street

Side C - Maple Street

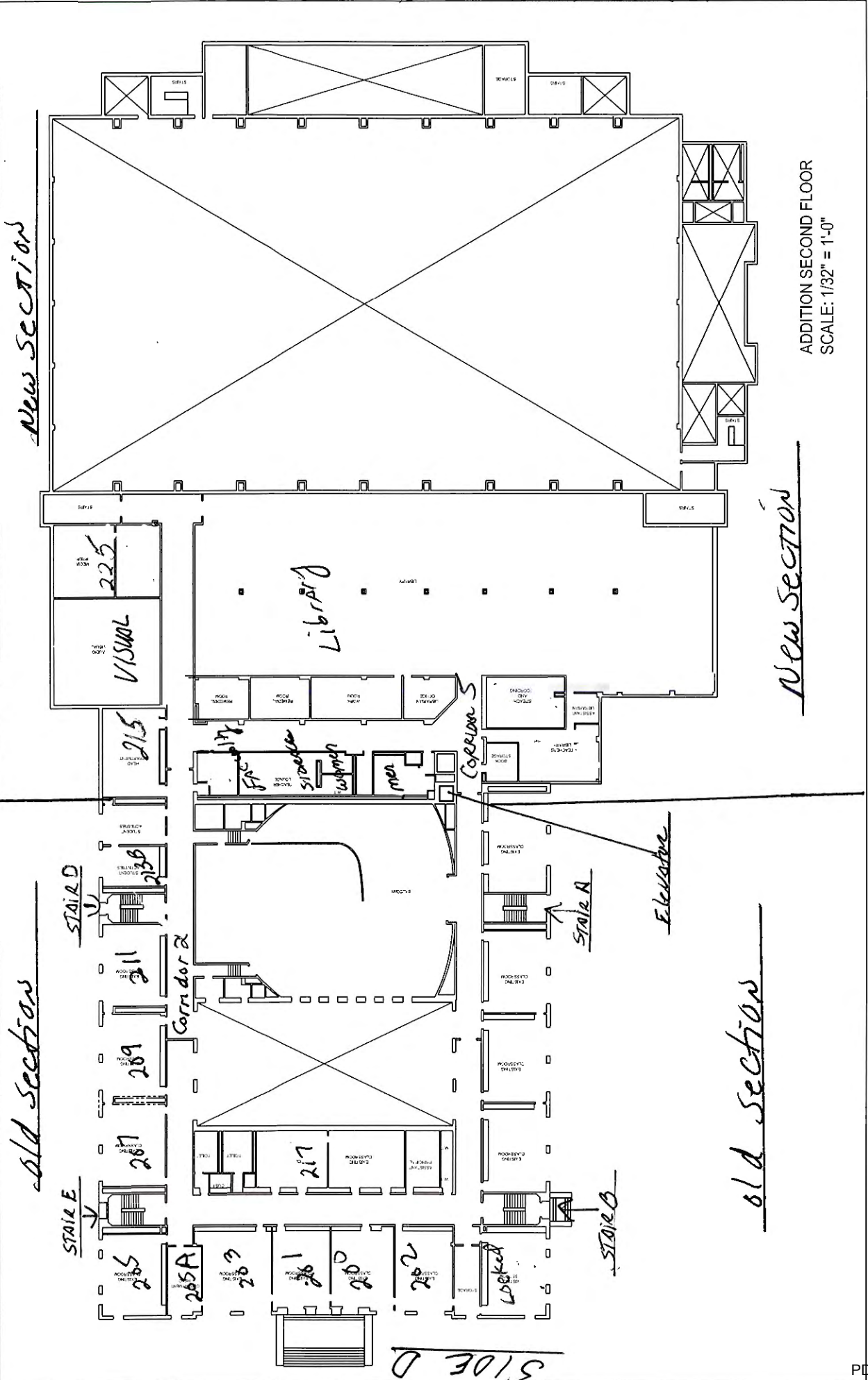


SIDE D - Broadway

SIDE B - Linden Street

FLOOR 2

Side A
Pleasant Street



New Section

New Section

old section

old section

SIDE D

ADDITION SECOND FLOOR
SCALE: 1/32" = 1'-0"

Side C - Maple Street

Inspector's License



Brenda Eastman

Inspector/Risk Assessor

#3691

Expires: 7/15/2017