Facility Analysis and Assessment Plan

Gates Middle School
327 First Parish Road
Scituate, MA

February 22, 2012

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I. Executive Summary

A. Introduction

Durkee, Brown, Viveiros & Werenfels Architects (DBVW) was hired by the Town of Scituate, MA to provide architectural services for the Facility Analysis and Assessment Plan of the Gates Middle School in January of 2012. This report is comprised of two major components and includes both an Existing Conditions Survey and a Feasibility Study. Due to funding source stipulations, the scope of the project includes the original building constructed in 1917, and its early east and west wing additions from 1930. These portions of the building are known as Building “A”.

Constructed in response to a growing population in the early twentieth century, the Gates School was established in the Scituate Center in 1917 to serve as the Scituate High School. Located on approximately 11 acres of the land, the original, rectangular shape, 14,500 SF school was built to accommodate 130 students. In 1930, wings were added at the east and west sides totaling 20,800 SF to provide six new classrooms and auditorium space for up to 850 people. As part of later alterations, a floor was inserted into the auditorium at the western end of the building and the wing was converted for new uses. Although the building had subsequent additions, in t1954 and 1959, it is the 40,000 SF associated with the 1917 and 1930 portions of the building that are the subject of this study.

B. Project Scope

The following scope of services is included in the project:

A. Review of the existing building documentation provided by the Town.
B. Performance of a visual inspection of Building A.
C. Preparation of an Existing Conditions Report that includes architectural, structural, mechanical, electrical, plumbing, fire protection and code observations. This report includes recommendations, prioritizations and associated “replace in kind” cost estimates for observed deficiencies.
D. Preparation of a Feasibility Study for three uses that have been identified by the Town. These uses include the continued use as a school, an alternative use as a community center and an alternative use as Town administrative office space. The Feasibility Study includes architectural, structural, mechanical, electrical, plumbing, fire protection and code commentary for each of the three possible uses. Cost estimates are also included for each of the three options.
E. Attendance at public meetings to report on findings.
F. Advise on the recommended next steps.

The work performed by DBVW as part of this project is limited to that which is listed above and excludes services related to Wings B and C, hazardous materials, computer modeling, civil and site surveys, measuring or drafting of existing conditions drawings, programming and enrollment projections, developing Construction Documents, and submitting MAAB requirements.

C. Project Team

Company and Discipline	Team Member and Role
Durkee, Brown, Viveiros & Werenfels: Architects 111 Chestnut Street Providence, RI 02903	Doug Brown, AIA, Principal Ashley Prester, AIA, Project Manager Cecelia Hallahan, AIA, LEED AP, Historic Building Advisor Ed Cifune, AIA, Code Advisor
Yoder + Tidwell, LTD: Structural Engineer 333 Smith St. Providence, RI 02903	Loren Yoder, PE, President
Wozny/Barbar & Associate, Inc: MEP/FP Engineers 1090 Washington St. Hanover, MA 02339	Fidaa Barbar, Principal Zbigniew Wozny, PE, Mechanical Engineer Gregory Wozny, PE, Plumbing/FP Engineer Mark Rattenbury, PE, Electrical Engineer
Daedalus Projects Incorporated 112 South St. Boston, MA 02111	Noriko Miyakoda Hall, Estimating Manager

Site visits were made by the Team in January 2012.

II. Exterior Existing Conditions

<u>Roof:</u>
Installed in 2007, the roof of the original building features synthetic slate shingles with snow guards. A gutter system with downspouts exists along the northern eave. An octagonal louvered cupola constructed of GFRP (glass fiber reinforced polymer), extends from the ridge and terminates in a gilded finial. Historic photos demonstrate that the original portion of the school once had a flat roof. In 1930, the roof was changed to the current pitched shape and was finished in slate shingles with copper flashings. The original cupola was of wood in the same configuration visible today. From Town records it is known that the original slate roof and wood cupola were replaced in 2007. At that time, the original gilded finial was retained, restored and reinstalled on top of the new cupola.


Current state of building with synthetic roof slate, January 2012

The roof of the wings flanking the original building and a section of roofing to the south are all flat with a membrane (EPDM). This roof is date stamped for 1995, indicating that it is 17 years old. Access to this roof is via a scuttle in the west wing. Additional roof features include a chimney, an elevator over-run and mechanical sheds at the south side of the original building. The flat roof has drains that lead to internal building connections.


Original building constructed in 1917 with flat roof.

<u>Condition:</u>
The synthetic slate roof, cupola, gutter and downspouts are in good condition. The downspouts do not connect to an underground storm water system and do not have effective splash blocks. This means that roof run-off from the pitched roof, outlets directly at the building foundation wall. At the south of the slate roof are two metal clad sheds that house equipment for the HVAC system. The flat seam copper roofing is rusted and the sidewall panels are bent.

The flat EPDM roof is not in good condition. It has significant ponding at the west wing due to improper pitch towards roof drains. Also, lifting seams and deteriorated sealants in the EPDM appear widespread. Around the perimeter of the roof, there is an existing curb, and the EPDM is not installed in a manner recommended for water tightness. This curb has a metal coping on it, but the EPDM roofing runs over the top of it and terminates in a sealant joint. A more effective detail for water tightness is for the EPDM to extend underneath it. The existing sealant joint is difficult to maintain and may permit water into the masonry wall and ceiling below if it fails.


Pitched roof, east and west wings added in 1930.

At other locations of the EPDM roof, there are isolated areas of wet insulation and decking, particularly near the over-run for the elevator. There are also lifted flashings around the roof of the elevator. In general, counter flashings remaining from original and past roofing campaigns are beyond their life expectancies.

Flat roof at east, south and west sides of original building

Shed at south side of original building housing HVAC equipment.

Downspout with no connection to underground system or splash block.

Ponding of water at EPDM roof at west wing.

Coping at flat roof with EPDM seam on top of metal coping and demonstrating much past maintenance.

Torn roof flashing at top of elevator.


Remaining original copper flashing. Area near elevator over run with wet insulation beneath roof.


Corroded roof top equipment.

Corroded roof top equipment.


Roof hatch.

Recommendations:
Connect downspouts to a system that directs water away from the foundation wall. PRIORITY A

Replace existing EPDM at flat roof and all associated flashings, including the perimeter coping. New EPDM roofing should be extended underneath the coping. Install new tapered insulation to direct water to roof drains and install crickets behind elevator over-run to prevent ponding. Install walkway pads from the roof hatch to equipment areas. PRIORITY A

Replace metal sheds housing mechanical equipment. PRIORITY A

Repair areas of torn roof flashing. PRIORITY A

Exterior Walls and Openings:
The building exterior is designed in the Neoclassical style, featuring two stories of red brick with contrasting white trim elements. The walls extend from raised brick and concrete foundation walls. The central, original building has a symmetrical façade, with two story monumental white pilasters and a triangular pediment. A semicircular opening exists in the center bay where the main door and fanlight are located. Wings of two stories exist at each end of the original building to the east and west; these are also on a raised base. The raised first floor adds value to the basement space as it allows the opportunity for natural light into below grade areas. The grade surrounding the basement areas varies and is particularly high near basement windows at the west wing and at the base of the original building.


North elevation of existing school.

The masonry openings for all windows are spanned by steel lintels. The window heads at the first floor of the north elevation feature jack arches, while the basement and second floor window heads are spanned by flat soldier courses. At the east, south and west elevations, the majority of window heads are also of flat soldier courses. Exceptions to this are the second floor windows of the original building, and the second floor west elevation windows at the west wing; where several rounded arch top masonry openings exist. The stringcourses, sills and keystones (where they occur) are of terra cotta at the original building and are of cast concrete at the east and west wings. Several of the original terra cotta keystones were replaced in 2007 with cast concrete replicas.


North and east elevations of existing school.

Of the three sections of the building under this study, the one most heavily altered in terms of masonry openings is the west wing. Since the west wing was constructed as an auditorium addition, it had large spandrel style windows between the first and second floors on the north and south elevations. It also had two, one and a half story entry porticos flanking pilasters on the west elevation. When the auditorium space was converted for new uses, a floor was inserted between the first and second levels. In order to conceal the floor on the building exterior, the spandrel windows were removed and punched window openings were added. When this change was made, windows were also added in between pilasters at the west elevation to provide light to new classrooms. Finally, in 1964, an addition was added to the west elevation causing the removal of a 1930's historic northwest portico. This modification leaves only the southwest portico remaining.


South elevation of existing school.

Condition:

It is evident from field observations and from Town documentation that a masonry repair campaign occurred in 2007. Therefore, the exterior bricks and mortar joints appear to be in good condition. There is one obvious crack at the southwest corner of the west wing, which was repointed in 2007. It was likely caused by water infiltration at the top of the wall, which resulted in rust-jacking at the window head. In the last five years, the joint has not re-opened and appears sound, indicating that there is no active movement in the wall.

During the 2007 work, many of the steel lintels at window openings were replaced; however 25 of them were not. The remaining steel lintels do exhibit signs of rust. During this work, original terra cotta keystones were replaced with cast concrete replicas; these appear to be in good condition. There is one piece of original terra cotta at the west side of the original building that is broken.

Recommendations:

The brick mortar joints should be monitored every 10 years for signs of open joints. The one crack on the exterior in the southwest corner of the west wing should be specifically examined every 5 years to observe any signs of re-opening. Since repointed in 2007, the joint appears to be sound.
PRIORITY B

Blast and paint the remaining 25 steel lintels not replaced under the 2007 campaign.
PRIORITY A

Provide Dutchman repair to the broken terra cotta string course element.
PRIORITY C


South and west elevation of the west wing.


Corroded steel lintel


Broken piece of terra cotta

Exterior Trim:
Originally, all trim elements at all three sections of the building were of wood; however these were replaced in their entirety in 2007 with GFRP. Elements replaced include: pilasters, porticos, pediments, cupola components and roof cornices.

Condition:
Overall, the GFRP appears to be in good condition. The sealants in between the joints of this product need maintenance however due to mold and joint size. At the north elevation in particular mold is accumulating in the joints. It also appears that when the GFRP was installed at the raking eave edges, butt joints were used as opposed to overlapped joints. Some of these butt joints are greater than ½" establishing gaps in the material that are relying on sealant only for water tightness. These larger butt joints may be more susceptible to failure.

Recommendations:
Monitor sealant joints on an annual basis.
PRIORITY A

Beginning in 2014, re-seal all exposed joints and seams every seven years by cutting out and removing all existing deteriorated, lose, and mold covered sealants and replacing with new sealant.
PRIORITY B


Cupola fabricate of GFRP with restored gilded finial.


Band course fabricated of GFRP at west wing.


Main entry elements fabricated of GFRP such as pilasters and pediment.

Portico elements of west elevation fabricated of GFRP.

Sealant joints at GFRP with vegetation and mold growth.

Large sealant joint at butt seam of GFRP raking eave.

Windows:

In general, most of the windows are large-scale and provide very good natural light throughout rooms and corridors, a benefit to occupants. The original windows throughout the three building sections were wood, double hung, true divided light sash in wood frames. Within the last 40 years, the wood sash were removed and replaced with single glazed metal replacement windows with applied mullion grids. The original wood window frames remain, with the original wood trim visible on the building interior. On the exterior, the wood sills and brick molds have panned over with aluminum.

Typical metal replacement window.

Most window openings remain true to their original configurations except for the west wing. At the west wing, where the spandrel windows previously existed, punched masonry openings have been made, greatly altering the original appearance. Many windows were also added at the west elevation of the west wing, with proportions and mullion grids unsympathetic to the original design of the façade.

Window configurations at the original building include: paired 2/2, paired 4/4, single 3/3 and single 6/6 sash. Window configurations at the east wing include paired 4/4, single 2/2, single 3/3 and triple windows with a 4/4, 6/6, 4/4 pattern. Window arrangements at the west wing include paired 4/4, paired 6/6, single 4/4 and single 6/6 sash.

At each gable end of the original building in the attic, there are round acrylic windows with an applied grid to create 8 divisions. These were installed in 2007 when the original wood windows were removed from these locations.

Condition:

All existing metal replacement windows are not in satisfactory condition due to heavy weight, improper balancing, difficult operation, air leakage and water leakage. Many of the windows that can be opened do not remain in the open state and fall shut when not supported by alternate means.

Typical room interior with large windows providing natural light.

On the exterior, sealants were poorly installed and are covered in mold. On the interior, wood casings, trims and moldings demonstrate signs of peeling paint, water damage and ultra violet degradation.

In the original building and east wing, historic interior trims and moldings remain. Some historic interior casings remain in the west wing, but most of the windows there are not original and therefore the interior trim is insignificant.

See Code section of this report for additional information on the condition.

Wood window trim with water damage.

North elevation of west wing with center bay heavily modified where original spandrel windows were removed.

Wood window trim with water damage.

West elevation of west wing heavily modified with non-original window openings.

Paint failure at window frame interior.

Poor sealant installation and mold accumulation at sealant joints.

Recommendations:

Replace all existing metal windows with aluminum clad wood windows to meet all current code requirements. See Code section of this report for additional information.
PRIORITY A

At west elevation of west wing, change window configuration of all 4/4 windows to 3/3 windows for grid proportions more in keeping with this building style.
PRIORITY C

Inappropriate window grid proportions for the style of this building.

Exterior Doors, Stairs and Ramps:

At the main entrance of the original building, an arched opening exists with paired, uneven metal doors and a wood semi-circular fanlight above. The wood fanlight and wood frame of this opening are original; the metal doors were later added for accessibility purposes. Originally, an opening such as this would have had paneled wood doors. These doors lead to a concrete exterior landing, from which a concrete stair and accessibility ramp extend. Painted metal pipe railings surround the entire construct.

At the west elevation of the west wing, a pair of metal doors with a rectangular transom exists at an original portico. These doors lead from an exit stair to a concrete landing and stair on the exterior. The decorative metal handrails appear to be original. At the south elevation, three sets of doors exist. The westernmost set serves a utility enclosure; these are paired metal doors raised one step above grade. The central doors serve the kitchen for deliveries and are located at the base of a ramp, nearly at grade. These doors are also paired, and made of metal. The easternmost door serves as an exit from the central egress stair. The single metal door leads to a shallow landing with stairs.

Main building entrance with original fanlight remaining.

Rusted metal frame, typical condition at all exterior doors.

Deteriorated accessibility ramp and stairs at main entry.

Condition:

All exterior metal doors and metal frames are in poor condition due to rust and age.

At the main entrance, the concrete ramp and stairs with metal railings are in poor condition due to age and water damage. The concrete is heavily degraded and metal components such as railings and treads have caused rust jacking. The concrete has been patched several times to repair the spalled concrete, but these repairs are also now failing. Additionally, a number of code violations exist relative to this construct; see the Code section of this report for additional information.

At the west and south elevations the landings and stairs are in fair condition; however they exhibit a number of code violations. See the Code section of this report for additional information.

The paired doors at the center of the south elevation are located at the base of ramp utilized for basement deliveries and loading. The location of this door nearly at grade, at the bottom of a ramp is an opportunity for water to enter the building.

Recommendations:

Replace all metal doors and frames with new metal doors and frames?
PRIORITY A

Remove and rebuild the main entry stairs and ramp, the west stair at the west elevation and the stair at the south elevation. See Code section of this report for more information.
PRIORITY A

Consider relocating the doors at the base of the loading ramp and possibly infilling the ramp.
PRIORITY A

Deteriorated accessibility ramp and stairs at main entry.

Exit door and stairs at west elevation of west wing.

South elevation, central service doors to basement.

South elevation, western door at utility enclosure.

South elevation, eastern door at exit stair.

Louvers:

A number of metal louvers exist around the building perimeter on all elevations. Most are of fairly thin metal and not fabricated with storm blades.

Condition:

The louvers themselves are in good condition, but the lack of storm blades allows the possibility for wind driven rain to enter the building walls.

Recommendations:
Replace all existing metal louvers with new metal louvers featuring storm blades to meet all current code requirements. See Code section of this report for additional information.
PRIORITY A

Louver at east elevation of east wing.

III. Interior Existing Conditions:

Attic:
The attic area above the original building was created in 1930 when the roof was changed from flat to a gable shape. Access to the attic area is by ladder through a ceiling panel in the second floor corridor, directly outside of a classroom door. The original tar and gravel from the flat roof is still visible in the attic space today, as it was encapsulated when the roof shape was changed. This roof is now the walking surface for those that enter the attic. The function of the garret is to house ductwork for the HVAC system. Most of the system is mounted from roof framing members and on brick flue piers that extend the full height of the building. The walls and ceilings of the attic are insulated in between framing members with batt insulation. The insulation is covered over with a vapor barrier.

Condition:
The attic access is not a safe condition due to its location directly outside of a classroom door. This is a hazard for maintenance technicians in the attic, technicians on the ladder and occupants of the classroom. The actual scuttle into the attic is small and difficult for those carrying tools. Within the attic, there is widespread mold on batt insulation in both the attic walls and roof rafters.

Recommendations:
Relocate attic access and create new access scuttle of proper size to meet all Codes. PRIORITY A

Remove batt insulation and replace with new insulation and vapor barrier. PRIORITY A

Provide ventilation for attic at roof ridge or at gable ends. PRIORITY A

*The existing tar and gravel roof may contain hazardous materials and should be tested by an outside testing agency.

Unsafe attic access.

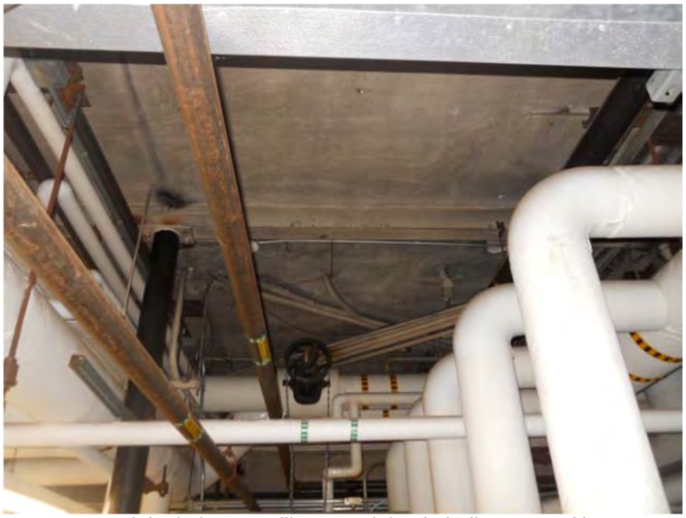
Original tar and gravel roof encapsulated within the attic area. Mechanical equipment existing throughout space.

Ceilings:
There are two basic ceiling types that exist throughout the building. These include exposed original plaster and a suspended ceiling with 2'x4' lay-in panels. Originally, the building had exposed plaster ceilings throughout; these ceilings remain exposed in basement utility spaces only. The original ceilings were quite high and ranged from 10 feet to 14 feet, depending upon location within the building. Today, ceilings are much lower due to the suspended grid. It is unknown to what extent original plaster ceilings exist underneath the present day suspended ceiling and in what condition they might be in. If they do exist, it is likely that they are heavily damaged from the installation of the later suspended ceiling.

Within the existing suspended ceiling grid, there are several types of lay-in panels. These types include a standard acoustic tile, a textured fiber tile and a perforated metal panel. For the most part, the suspended ceilings throughout are of the standard acoustic type in rooms and in corridors. In some areas of the first floor, including the corridor, the textured panels exist. The metal perforated panels exist in the kitchen area of the basement only.


Attic insulation covered in mold.

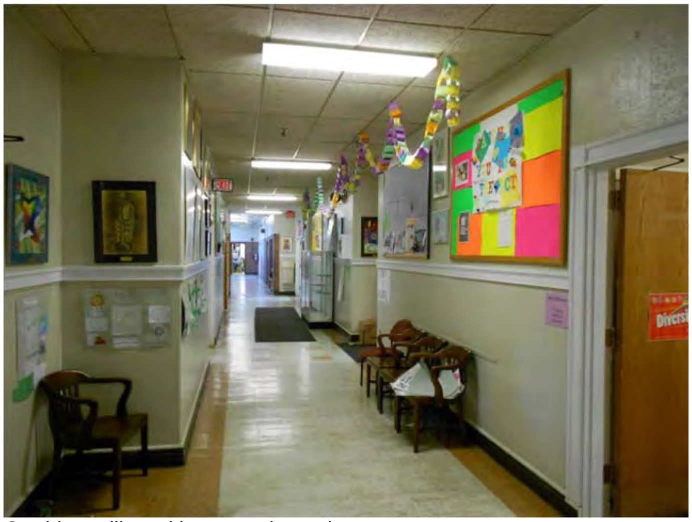
Condition:
The average life of suspended acoustic ceilings is 50 years, metal is 20 years and plaster is 75 years. These lifespans may be less due to the building use; a school is considered to be heavy/high use and it is expected that finishes will wear more rapidly. To that end, all ceilings have reached the end of their useful life. Additionally, many ceiling panels show signs of water stains from roof, steam pipe or plumbing leaks. The kitchen ceiling panels are coated and with grease.


Original plaster ceiling remaining in boiler room of basement.

Recommendation:
Remove and replace all existing suspended ceiling grids and panels throughout. PRIORITY A

*The existing plaster ceiling may contain hazardous materials and should be tested by an outside testing agency.


View of suspended ceiling in library area with standard acoustic tiles.


Corridor ceiling with textured panels.


Kitchen ceiling with metal panels.


Missing ceiling panel in restroom due to pipe leak and repair.


Water leaks visible in ceiling panels.


Close-up of metal panel with kitchen splatter.

Walls:
The walls of the building are mainly of masonry and were constructed to be quite durable. The basement walls are the most utilitarian in appearance and feature exposed brick, painted brick and painted CMU. The upper floors have slightly more refined finishes with painted plaster and gypsum wall board. The basement kitchen and some restroom areas feature ceramic wall tile.


Typical basement corridor of original building with painted brick.

Condition:
The masonry walls are generally in good condition and are very solid, but there are two conditions that need immediate attention. These conditions are in the egress stairs at the northwest and southwest corners of the west wing, and involve masonry cracks and efflorescence.

At the southwest egress stair, masonry cracks exist above the exterior door head, at the intersection of a CMU and brick wall, and at a brick intersection in the southeast corner. At the northwest stair, significant efflorescence exists behind the paint. Efflorescence indicates that there is or once was water in the masonry wall. The paint is peeling off the wall in these areas and the efflorescence sheds piles of white dust on the floor on a continuous basis.

In other areas, paint on masonry walls is in a variety of conditions. In the basement, areas such as corridors and the cafeteria are in fair condition. In basement utility areas, paint is in poor condition.

The plaster and GWB walls in the upper floors, are in fair condition. Paint on these walls is also in fair condition with many layers built-up on the plaster walls.


Painted masonry walls in basement utility areas.

Ceramic walls tiles in the basement kitchen are in good condition. Ceramic walls tiles in the restrooms areas are in fair condition.

Recommendations:
Repair cracks in masonry walls. PRIORITY A

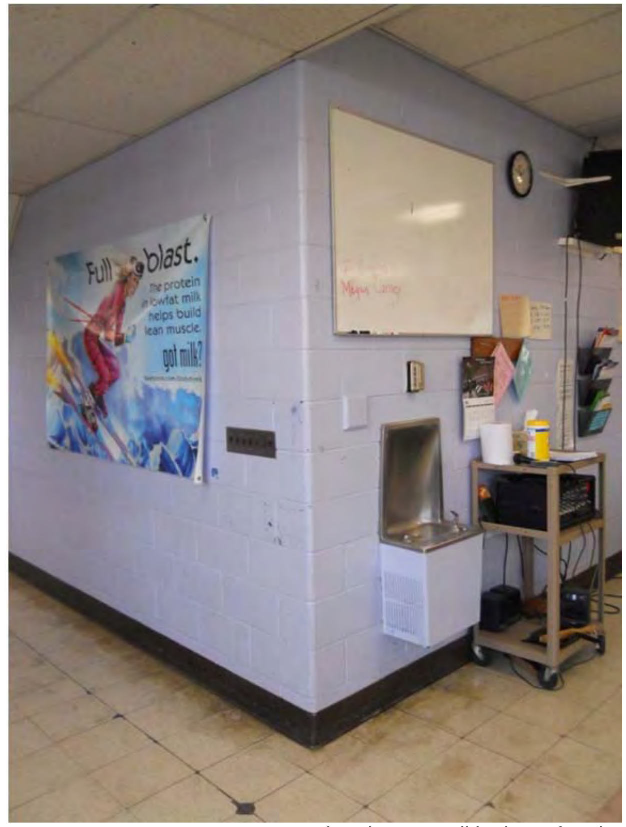
Remove paint at walls where there is efflorescence and then rake out and repoint the interior joints. Repaint walls. PRIORITY A

Repaint all existing masonry, plaster and GWB walls where already painted. PRIORITY **B**

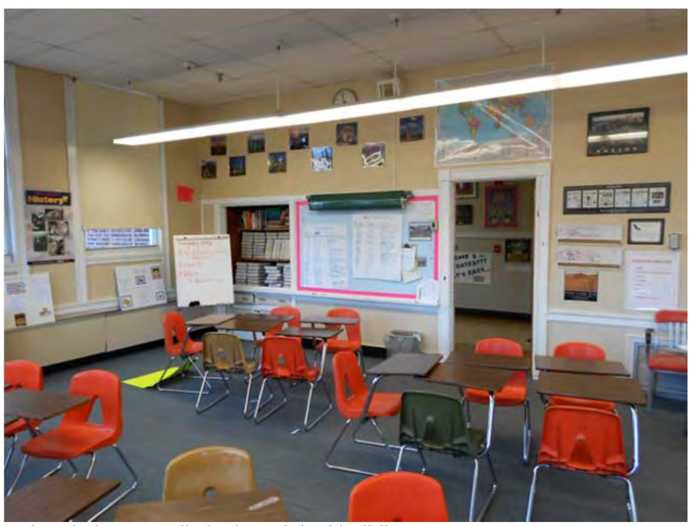
Remove and replace restroom wall tile. PRIORITY A

*The existing plaster walls may contain hazardous materials and should be tested by an outside testing agency.

Ceramic wall tiles in the kitchen area.

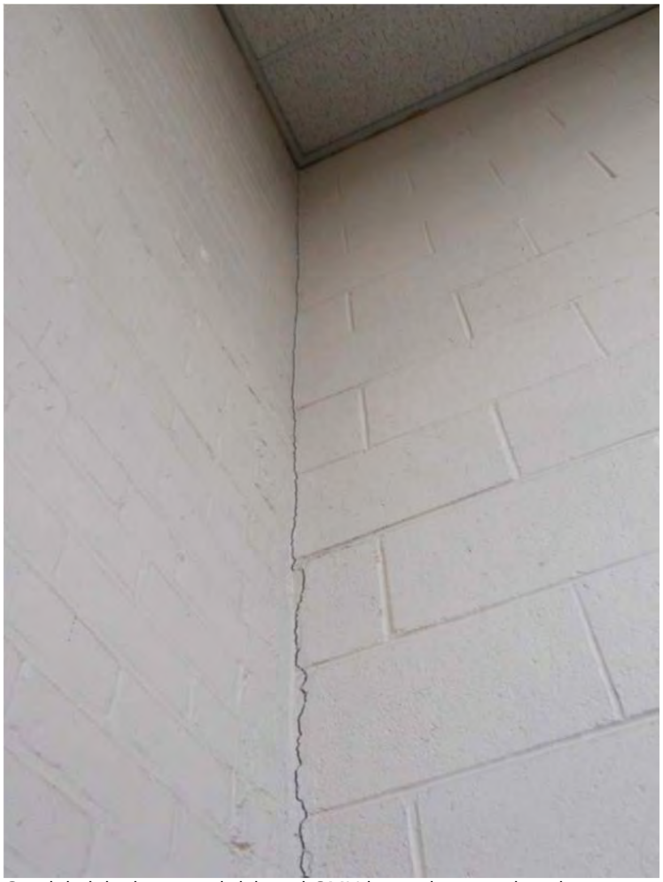


Painted CMU wall in the cafeteria.



Painted plaster walls in the original building.

Efflorescence behind peeling paint in northwest stair.


Crack in joint between brick and CMU in southwest exit stair.


Crack above door head at west elevation in southwest exit stair.


Crack in brick wall at southeast corner of southwest stair.

Floors:
The two main structural floor types of the building are concrete and wood; these floors are covered over with several different finishes. The basement floor features painted concrete in utility areas, VCT in main student areas, and ceramic tile in kitchen/ restroom facilities. There is evidence of a wood floor in the east wing of the basement, which means that the concrete slab there is at a lower depth. It is not known how many layers of flooring exist over the existing concrete floor.


Painted concrete floor in the basement boiler room.

At the first and second floors, the original floors were exposed wood. These have been covered over by a variety of carpets and VCT. It is not known how many layers of flooring exist over the original wood floors. It is also likely that there are plywood subfloors under some VCT and carpet areas. Ceramic tile exists throughout first and second floor restrooms.

Floor levels align fairly well between the original building and the east wing, but do not align exactly between the original building and the west wing. To accommodate the floor changes, a ramp was used to bridge the levels in the west wing.


Ceramic tile floor in the basement kitchen area.

Condition:
Floor finishes throughout the building are worn and are beyond their life expectancies, with the exception of newer carpet in the administrative area of the first floor.

In the west wing, there is a noticeable deflective movement in the floor inserted between the first and second floors.

In the west wing, the ramp between the original building and the west wing is not Code compliant.

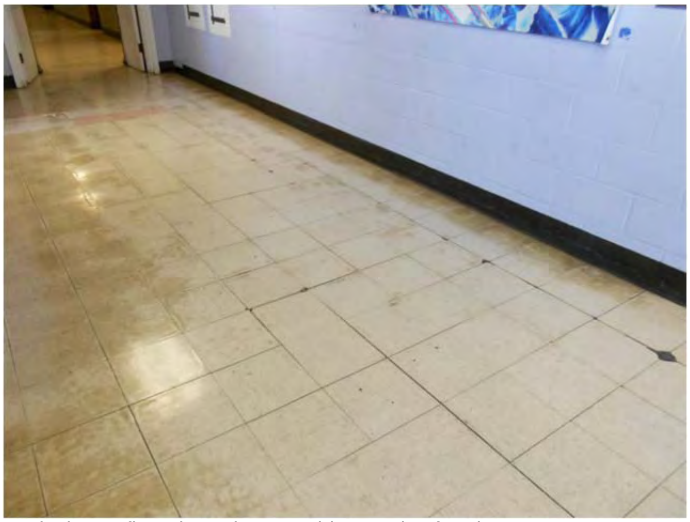
See Structural and Code sections for additional information.

Recommendations:
Replace all existing floor finishes new resilient flooring.
PRIORITY A

Replace existing ramp between the original building and the west wing, with new code compliant ramp. PRIORITY **A**

*See Structural and Code sections for additional information.

**The existing floors may contain hazardous materials and should be tested by an outside testing agency.



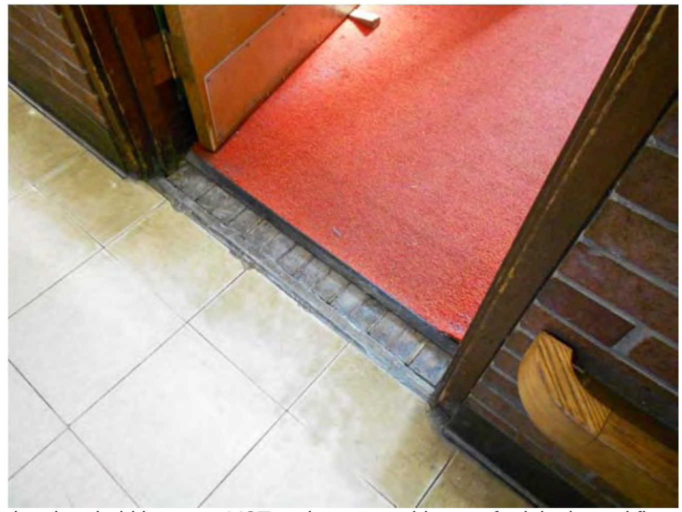
Typical VCT floor throughout corridors and cafeteria area.

Carpet at a first floor classroom.

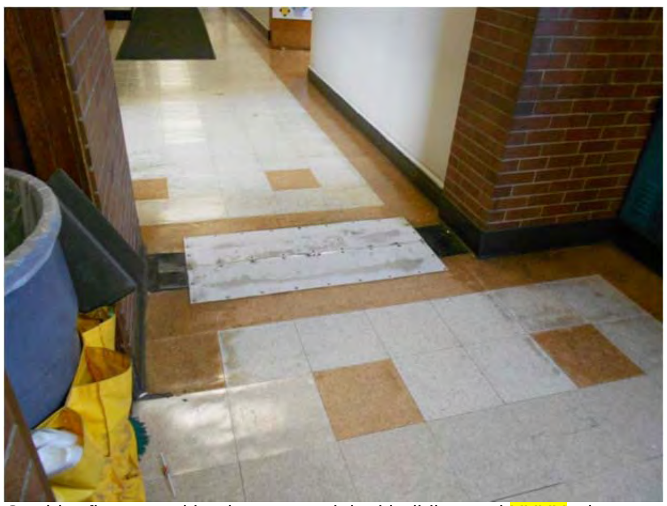
Typical ceramic tile floor in restroom areas.

Worn VCT at threshold, evidence of wood beneath VCT.

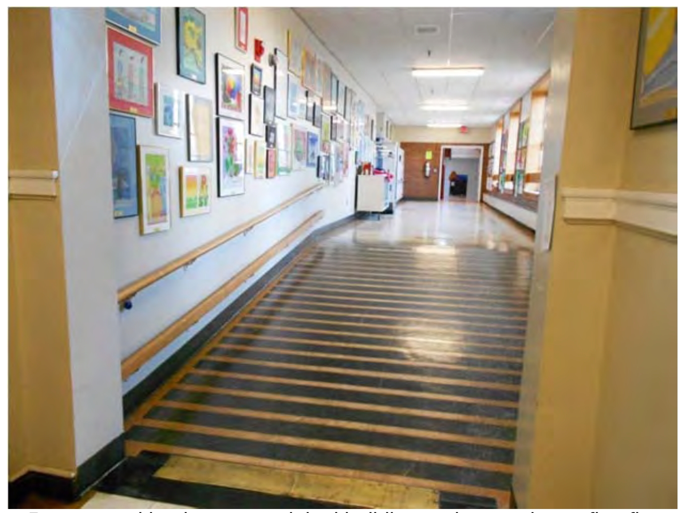
Worn VCT at exit stair, evidence of another layer of VCT beneath.



Missing threshold between VCT and carpet, evidence of original wood floor beneath carpet.



Corridor floor transition between original building and XXXX wing.



Ramp transition between original building and west wing at first floor.

Restrooms:
There are two main types of restroom facilities; these include multi-stall and individual restrooms. There are two Girls Rooms and Two Boys Rooms between the three building sections. In them, there are 2 to 4 stalls with partitions of painted metal and doors also of painted metal or of stainless steel. There are two individual style restrooms, one is located on the first floor and one is located on the second floor.

Condition:
Finishes, partitions, fixtures and accessories in all restrooms are beyond their life expectancies.

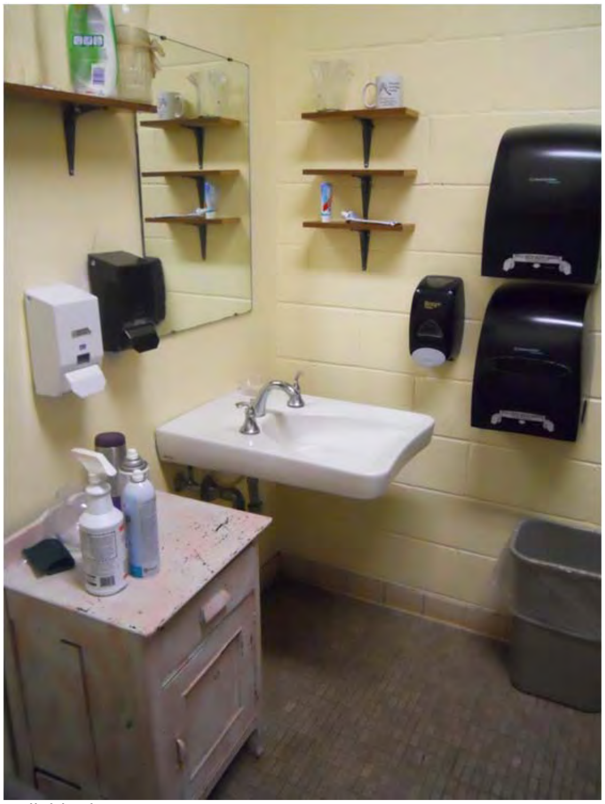
Most of the existing layouts, door swings, clearances, fixture and accessory locations do not meet current Code. See Code section for of this report for additional information.

Recommendation:
Re-design all existing restrooms. PRIORITY **A**

Replace all interior finishes, partitions, fixtures and accessories. PRIORITY A

See Code section of this report for additional information.

Typical multi-stall restroom.



Individual restroom.

Individual restroom.

Stairs:
There are four existing closed riser exit stairs throughout the three building sections. One stair is located in the original building, one is in the east wing and two are in the west wing. All stairs are constructed of metal with metal treads, with the exception of the southwest star, which has stone treads. Handrails at all stairs are of painted metal with the exception of the original stair which has wood handrails.

Condition:
The stairs and treads are in fair condition but they exhibit many code violations.

Recommendations:
Keep all stairs, re-do hand and guardrails. PRIORITY **A**

See Code section of this report for additional information.

Exit stair at original building

Exit stair at southwest corner of the west wing.

Exit stair at the east wing.

Interior Doors:
There are two main styles of doors throughout the facility. These include wood doors in wood or metal frames, and metal doors in metal frames. The wood doors have glass panels at classrooms and are solid at janitorial and administrative areas. Most metal doors are at exit stairs and egress points and have glass vision panels.

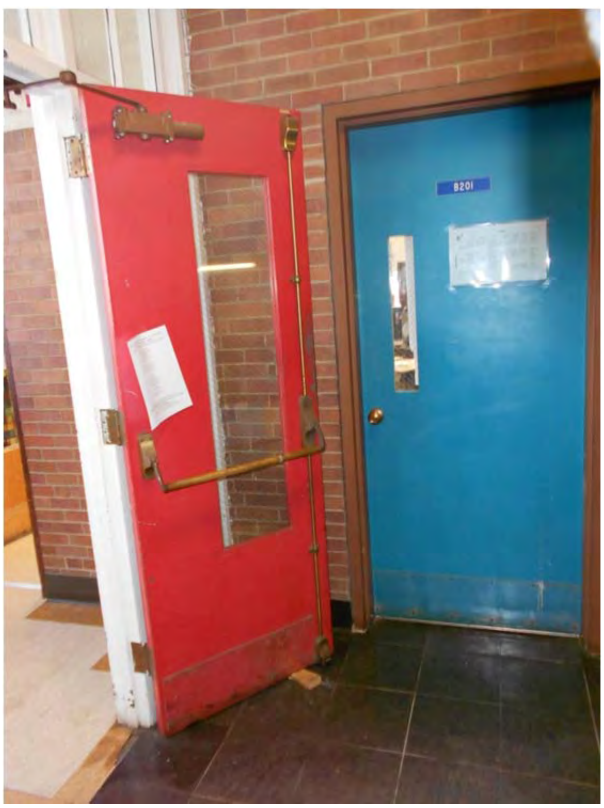
In the east wing at the exit stair, there is one historic door surround with sidelights and transoms remaining separating the corridor from the stair well. While wood historic door frames remain in the original building, there are no original doors remaining in any of the three building sections.

Condition:
All doors (wood and metal) are beyond their life expectancies.

All existing door hardware is not Code compliant. See Code section of this report for additional information.

Recommendations:
Replace all wood and metal doors with new and install new Code compliant hardware. See Code section of this report for additional information. PRIORITY **A**

Typical wood classroom door.



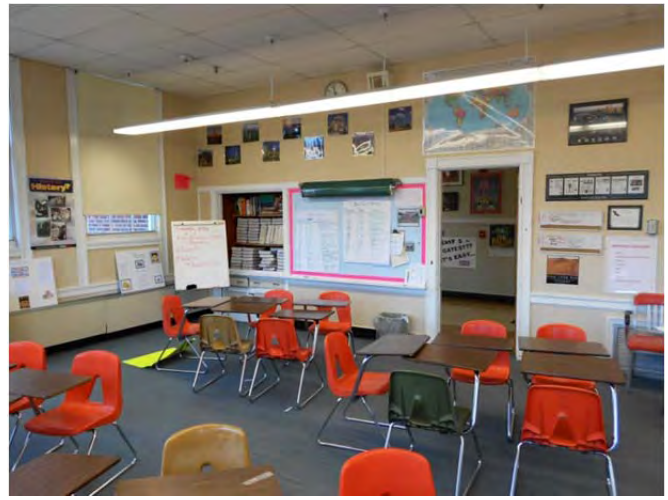
Typical metal door at exit stair.

Typical historic frame with transom and sidelights at exit stair.

Interior Wood Trim and Casework:
Despite the number of renovations that have occurred over the years, remarkably, the original built-in bookcases, shelving, chalkboard trim, bulletin board trim and even a historic fume hood remain in the original classrooms of the original building. Additionally, original wood bases, door casings, windows casings and chair rails remain. On the first floor, this trim has been painted many times with an opaque finish. On the second floor, the woodwork is both stained and painted.

In the east wing, historic wood trim remains in some classrooms surrounding windows, chalkboards and bulletin boards.

The west wing does not retain any interior trim or casework that is historically noteworthy. The wood trim that does exist is modern wood stock from the 1960's.

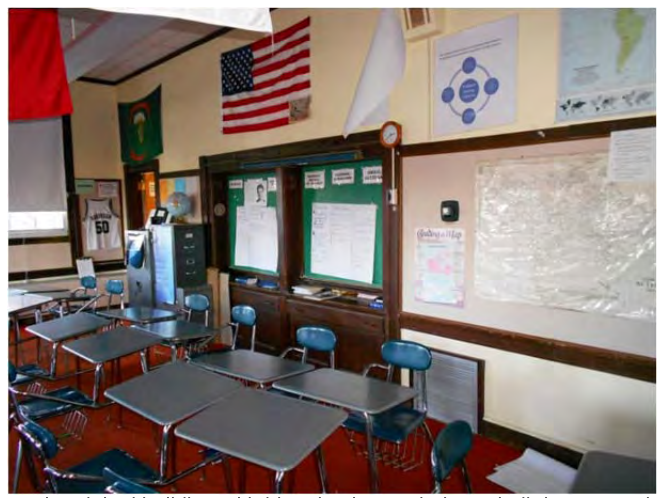

Classroom in original building with historic trim at windows, built-in casework and char rails.

Condition:
The original wood trim and casework in the original building is worn, but original profiles are discernible throughout. Paint and stained finishes are scuffed. Vinyl base has been installed over original wood base and door casings, but the original material remains beneath the modern modification.

In the east wing, the interior trim is in good condition.

In the west wing, existing trim is in fair condition.

Recommendations:


Classroom in original building with historic trim at windows, built-in casework and char rails.


Classroom in east wing with historic trim at windows.

Original built-in casework with fume hood remaining in original building.


Original door frame and wood base covered with vinyl.

Lockers:
The existing lockers are of painted sheet metal with sloped tops and are banked together. The typical configuration is two vertical cabinets topped by two tiers of smaller compartments. All doors have vents. The lockers originally had integral locking mechanisms, but they have been removed and the lockers have been retrofitted to accept personal padlocks.

Condition:
The lockers are bent, rusty and generally in poor condition due to heavy use.

Recommendation:
Replace existing lockers with new lockers.
PRIORITY **B**


Typical hallway lockers.

Teaching boards:
There are two types of wall mounted teaching boards that exist throughout the building. These include traditional chalkboards and newer white boards. Many of the chalkboards appear to be original to the school and still remain within their original hardwood trim.

Condition:
Chalkboards and whiteboards are in fair condition.

Recommendation:
Due to the possibility of allergic reaction to dust from chalkboards and where dust sensitive equipment such as computers exists, it is recommended that chalkboards be removed? PRIORITY **B**


Existing chalkboard

Kitchen Equipment:
The existing kitchen equipment is of the stainless steel type.

Condition:
Kitchen equipment appears to be in fair condition.

Recommendations:


Typical kitchen equipment.

III. Educational Use

Classrooms:

There are fifteen classrooms located in this area of the building, two on the lower level, four on the main level, and, nine on the upper level. Classrooms in the west wing and original building are typically around 750 square feet while the six classrooms in the east wing are smaller, around 600 to 650 square feet each. Although smaller than the 850 square foot minimum designated by current MSBA regulations, the classrooms appear to function adequately for traditional lecture delivery.

Classrooms function adequately despite smaller size.

Despite the smaller-than-standard size, the classrooms have many good qualities that are the goal of a modern classroom, including operable windows allowing lots of light, high ceilings, adequate built-in storage, and multiple chalk/marker board areas. Although typically beyond the scope of this report, the furniture and technology amenities also help the rooms to function at their smaller size, including attached tablet desk-chairs for students and overhead projectors for the teachers.

Tall windows and high ceilings allow lots of natural light in classrooms.

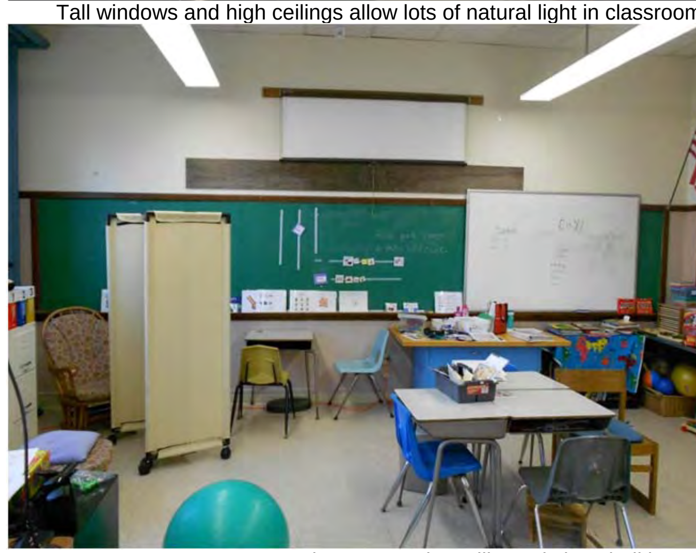
Although addressed in other areas of this report, it must be noted that some existing finishes and equipment are detriments to the current classrooms including the carpets which are thread bare, wrinkled, and could harbor allergens; the pendant lights which current provide 100% direct downlight which can lead to eye strain; existing chalkboards still in use which could aggravate dust allergies and asthma in extreme cases with students; and the unit ventilators which create noise in excess of the ambient noise allowed under current MA-CHPS and LEED for Schools standards.

Recommendations:

The existing classrooms are still serviceable and function well for the current class sizes. Unless class sizes change significantly, reconfiguration of the existing walls and spaces for larger classrooms is not necessary and would be cost prohibitive.

Removal of the unit ventilators from the classrooms will greatly improve acoustic levels. In addition, replacement of the 100% downlight pendant lights with 90% indirect light pendants will improve light quality and reduce eye strain.

Chalkboards can be re-skinned in-place with marker board material.



Many classrooms size utilize existing chalkboards.

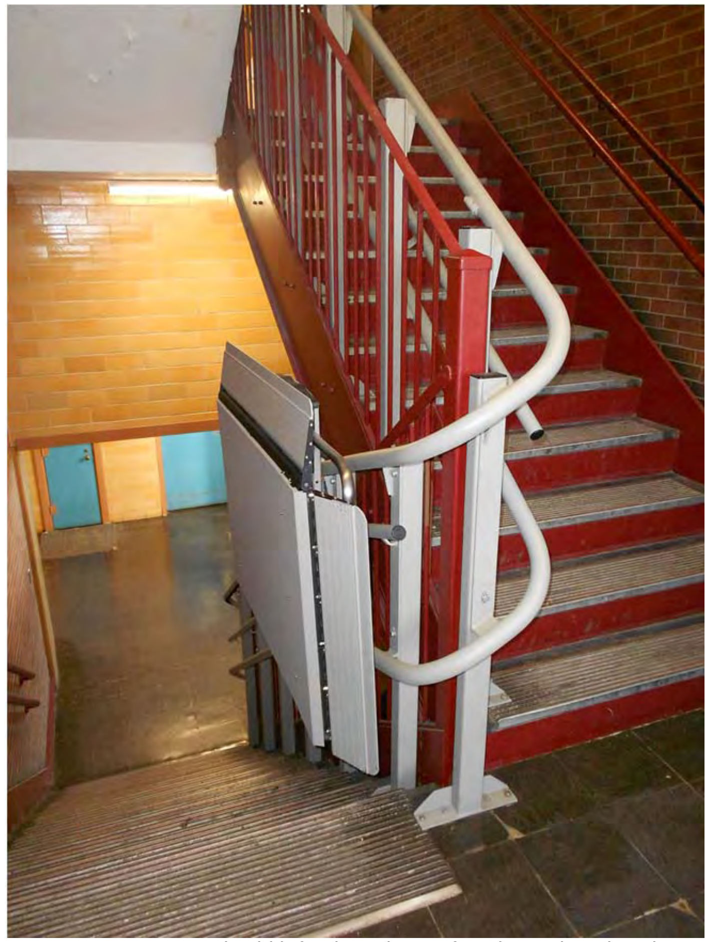
Corridors and Circulation Paths:

Although the code compliance of corridors, stairs, and ramps is addressed elsewhere in this report, the functionality of these components for an educational use must also be addressed, specifically in terms of student flow.

The stair connecting the east wing to the south wing and gym wing is the most congested area of the school during class changes. Due to the stair width, student flow is constricted to single-file flow up and down. It is further complicated by the socialization and group-type of travel prevalent in this age group.

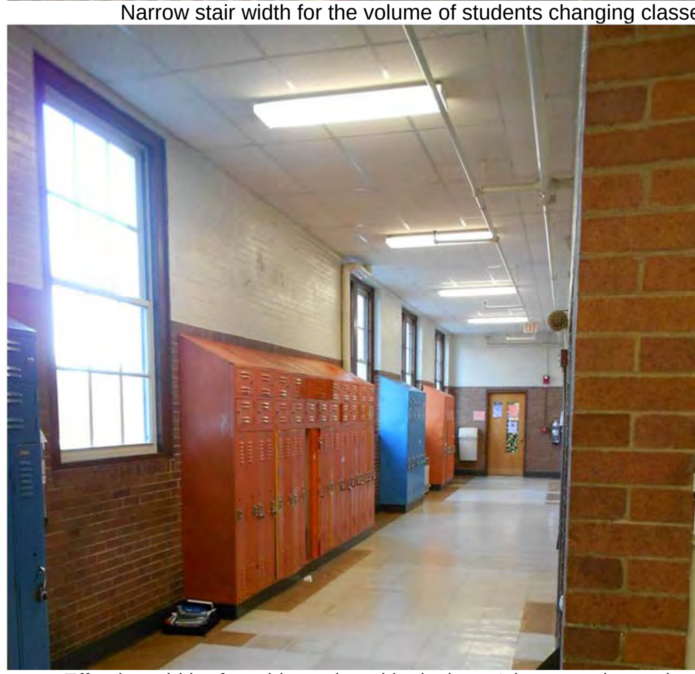
To compound the issue, the corridor within the east wing that connects to the main east wing stair is too narrow for the volume of students encountered during class changes. Although nearly 8'-6" wide, 12" deep lockers are located along one side. When students are at those lockers, the effective width of the corridor is reduced to around 6'-0", thus limiting circulation to single-file flow in each direction.

Corridors in the original building, although roughly the same width as the east wing, are better for student flow since there are less classrooms and no lockers. Removal of furniture and display cases the impede width will even increase and improve student flow. The west wing corridors, which include ramps on the main and upper floors, are wider where the lockers are.



Narrow stair width for the volume of students changing classes.

The amount of lockers and adjacent classrooms create congestion.

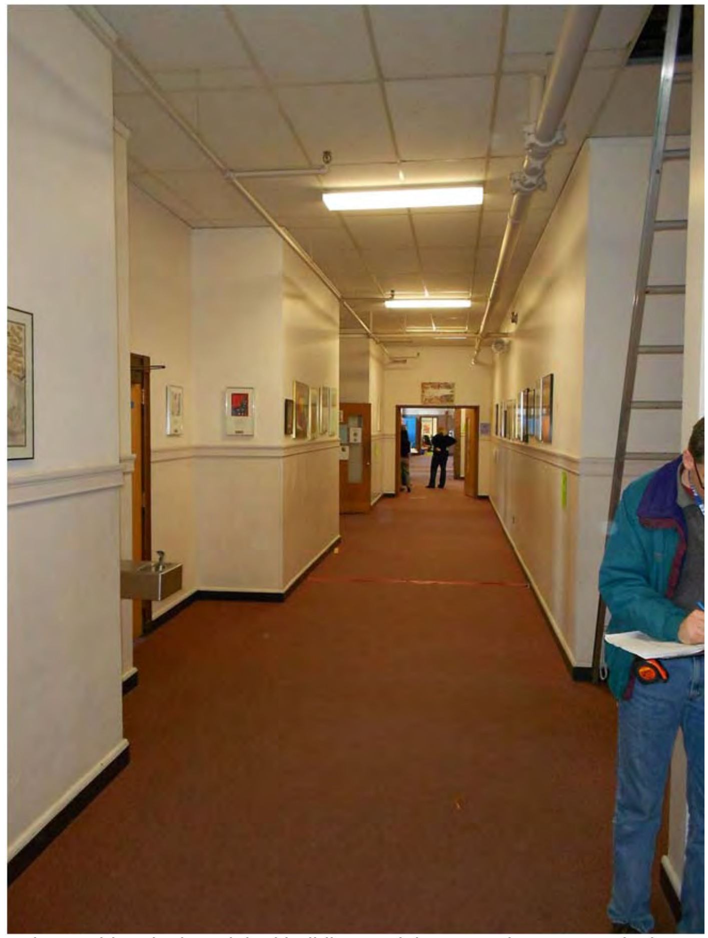


Effective width of corridor reduced by lockers & large student volume.

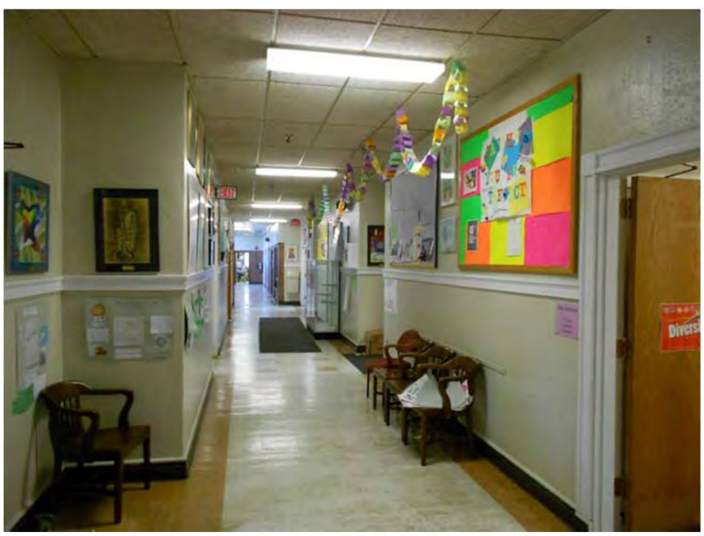
Recommendations:

Relocating the lockers out of the east wing corridor will greatly improve student flow, as will increasing the width of the stair connecting the east wing, gym wing, and south wing. In other corridors and stairs, remove obstructions and furniture to maximize available width.

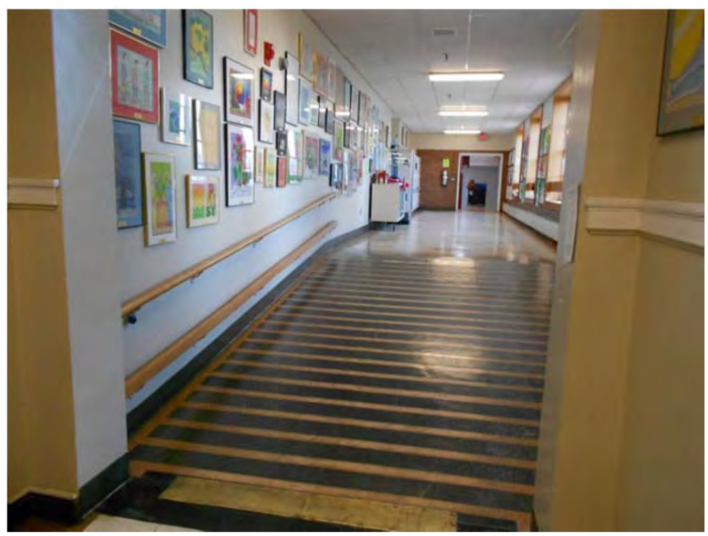
Another alternative for the east wing stair and corridor include designating different stairs for travel upstairs and others for downstairs travel unless there is an emergency. Once the students adjust to this traffic pattern, crossing and congestion could be reduced.



The corridors in the original building work because there are no lockers



The main level corridor is impeded by furniture and display cases.



The west wing corridor is generously wide for student travel.

Offices:

The main administration is cluttered, cramped, and

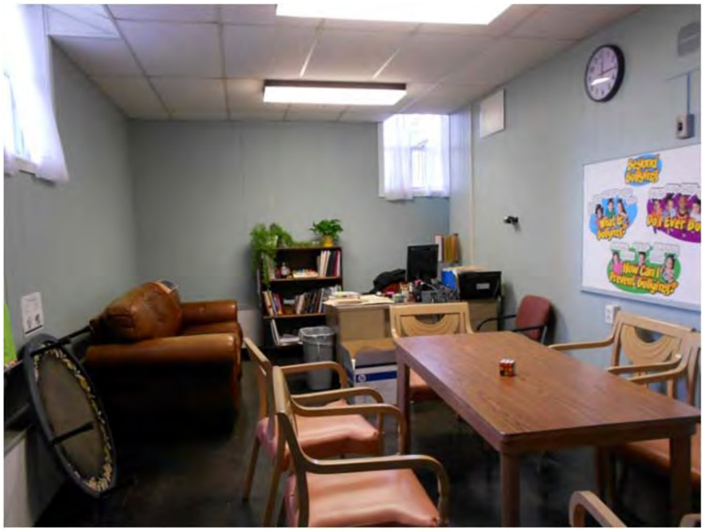
The main administration area is located on the main level of the original building. Although the space itself looks adequate on paper, the once furniture, copiers, waiting area chairs, file storage, speaker / telephone systems, computers, etc. are all added to the spaces, the entire administration area is extremely cramped and most likely not wheelchair accessible.

In addition to the main office area in the original building, there are a few offices scattered throughout the area covered by this report. Former teacher dining and teacher prep rooms appear to have been converted to dual-purpose office and special education spaces. These spaces are cramped, full of too much furniture, and in the case of the upper level room in the original building, not handicapped-accessible due to a deep door niche created by an original staff toilet room.

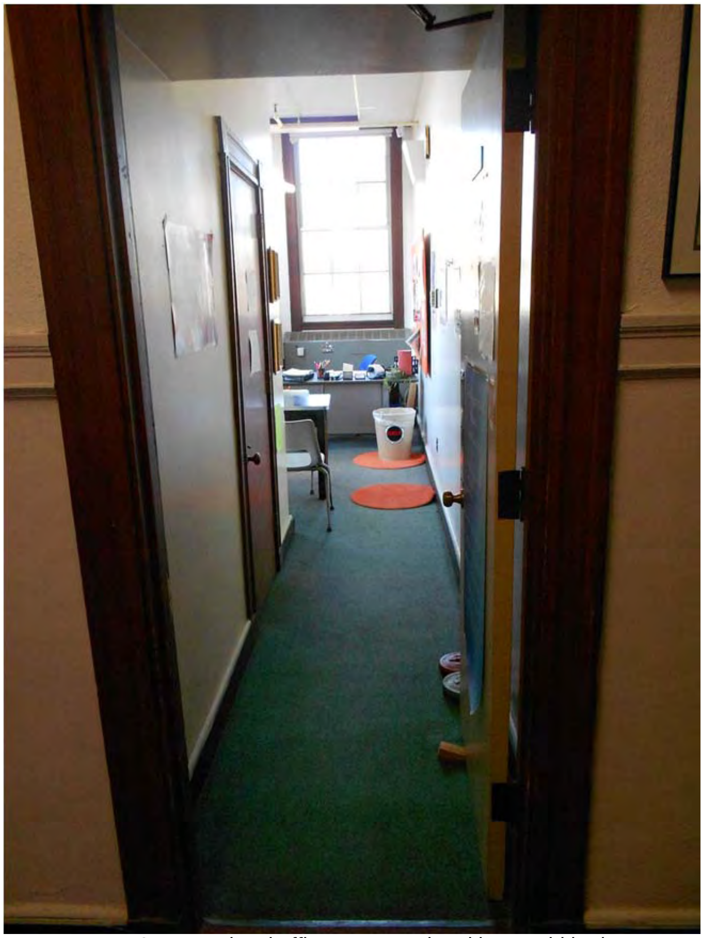
Recommendations:

The office areas have definitely sacrificed functionality and size for the sake of the educational spaces. That being said, the administration must be able to function well so the school can function well. Rooms must be adequately sized for the program they contain.

Should there be an opportunity for renovation, office areas should be evaluated for potential improvements if existing non-required infrastructure is removed, like old PA system panels, teacher bathroom cores, etc.



A lower level special education area not utilized well due to furniture.



An upper level office area restricted by an old bathroom core.

Library / Resource Rooms / Computer Labs:

The library and resource rooms were created by infilling the former auditorium space in the mid- 1970s. The library space itself contains a dedicated computer lab, stack areas, and an area for tables and chairs. The computer lab is organized for lecture instruction. The area with tables and chairs does not appear to function as a second teaching space. Resource rooms off the library have been repurposed to a teacher planning room. Stacks appear to have sufficient room for expansion. The desk area for the librarian is very modest and isolated on one side of the room. The student research computers are not visible from the librarian's desk. There is no soft seating for individual reading.

The main computer lab is laid out for instruction "in-the-round", allowing for efficient viewing of all student computers by the instructors but is a very inefficient use of space, leaving a large unused area in the center of the room. The resource room is organized with separate lecture and computer areas. The room appears to be bigger than required.

Recommendations:

Despite the library space having windows and relatively high ceilings, due to the size of the space, it appears very flat and confining. This is further enhanced by the tall stacks that obscure the view to the computer lab, making the library seem smaller. Also, the library computer lab should be separated acoustically from the rest of the library so instruction can happen in two areas without interference.

The computer lab and resource labs appear to function adequately but there are inefficiencies in the space use and layout. If possible, some space could be recouped for other uses if the delivery method was revised for both those spaces.


The media center does not have non-computer teaching area.


The main computer lab is organized "in-the-round".

The resource room is separated into lecture and computer areas.

Kitchen / Cafeteria:

The cafeteria is located a half-story below grade in the west wing. Ceiling height is not ideal, creating a very flat space for its size. In addition, the ceiling is lower than the windows, requiring box-outs at each window. Aesthetically, this is not very appealing. Although adequate for illumination, the 2x4 lay-in fluorescent light fixtures do not help the aesthetics.

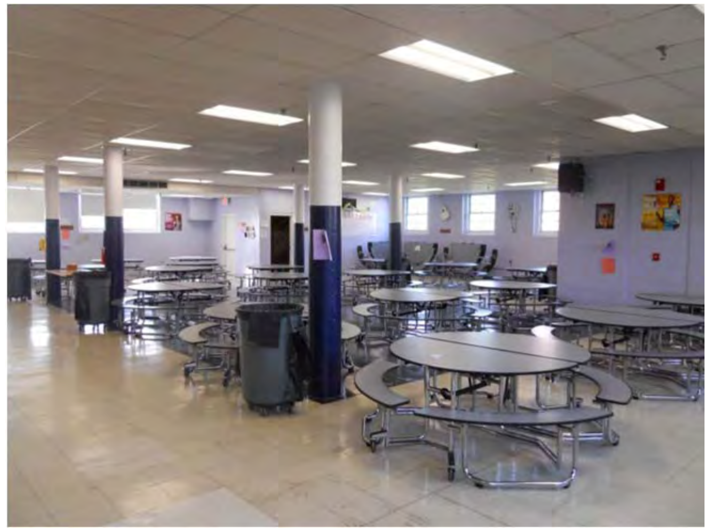
The cafeteria appears has enough space for the round table provided. During the lunch periods observed, there did not appear to be any overcrowding.

The serving lines are located in the cafeteria space itself. While not an ideal location to protect the equipment from damage, the layout appears to function well. The equipment is clean and appears maintained, as does the kitchen. The kitchen area itself also appeared clean and maintained, even When food prep was occurring during the walk through. Ceramic tile walls and quarry tile floors were well kept.

One deficiency to note was rusting ceiling tile near the cooking hood. Another is the severe inclined ramp for deliveries from outside down to the kitchen level, which could be extremely dangerous in wet or icy conditions, or when traversed with large or heavy loads.

Recommendations:

Although the cafeteria functions well, aesthetically it could use improvement. A new ceiling, possibly with additional height, and lights would improve this, along with a new ceiling in the kitchen.



The cafeteria functions adequately for its size and student load.

The serving equipment is located outside in the kitchen in the cafeteria.

Ramp access outside to the kitchen is extremely steep.

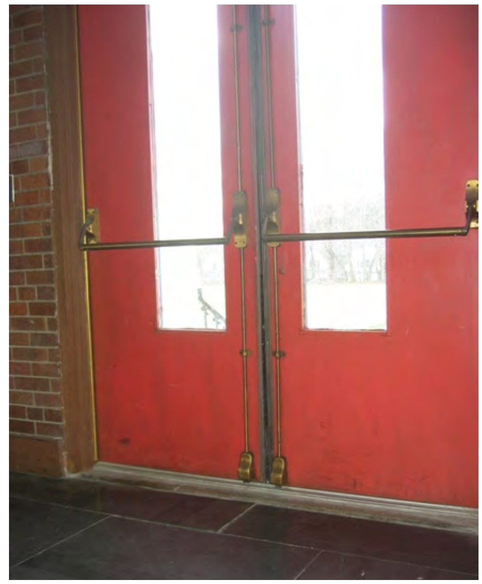
The kitchen is in very good condition despite its age.

IV. Code Review

Refer to Drawing Sheet #0, Code Analysis, for additional information.

Exterior Doors

All exterior doors and frames are in poor condition. Door hardware consists of older style exit devices with vertical rods. On the date of inspection, numerous security devices were seen effectively locking exterior doors. Thresholds are aluminum and in poor condition. Door widths vary.



Exterior doors from corner stair.

Recommendations:

Remove all existing doors and frames and restore the original masonry openings. Replace the doors with new smooth FRP clad or 70% Kynar painted aluminum and/or aluminum/glass doors in new aluminum frames. Provide new compliant exit devices and continuous hinges on all doors. Coordinate exterior hardware requirements with town. Elimination of levers on exit only doors and a new grand master key system is recommended for increased security. Door widths must be coordinated with egress loads. Existing frames less 72" wide should be provided with unequal leafs; one 36" wide and another +/-24" wide.
PRIORITY A

Exterior Stairs and Ramps:

Exterior stairs are present in three locations. The stairs connect to interior corridors and to one egress stair.
The existing handrails and guardrails are not code compliant. Also, the doors lead to a step down to a landing which does not provide the minimum clear width on the exterior.

Main entry ramp and stairs.

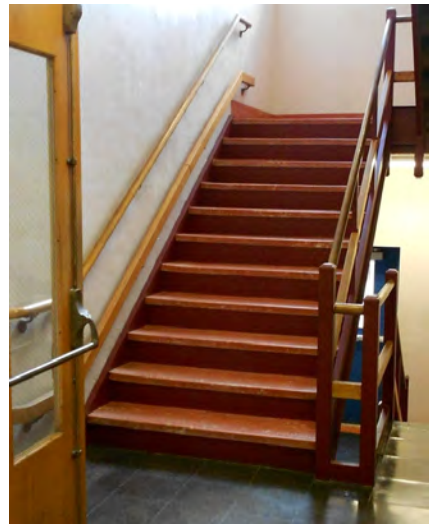
At the main entrance, the concrete ramp, stairs and railings are in poor condition. The ramp is 48" wide, with a slope of greater than 1:12. However, it is not fully MAAB compliant. It has a vertical rise of greater than 30 inches, lacks edge protection and does not have the required 60 inch turning radius at the area in front of the main entry. Also, the guardrails do not meet current building code requirements. The top of the guard is only 2'-9" high and does not have any provisions for fall protection.

Recommendations:

Remove and rebuild the main entry stairs and ramp. Construct new cast in place concrete stairs and ramp. Provide new, 42" high, "Colorgalv" metal guards with solid balusters at 4" o.c. on each side. At the ramp, include double handrails mounted at 18" and 34" above the ramp. Edge protection at the ramp to be provided via continuous bottom rail mounted 2" above the ramp. The other exterior stairs may remain; but new guard/handrails will be required. A variance request could be pursued for the exterior steps and landings.
PRIORITY A

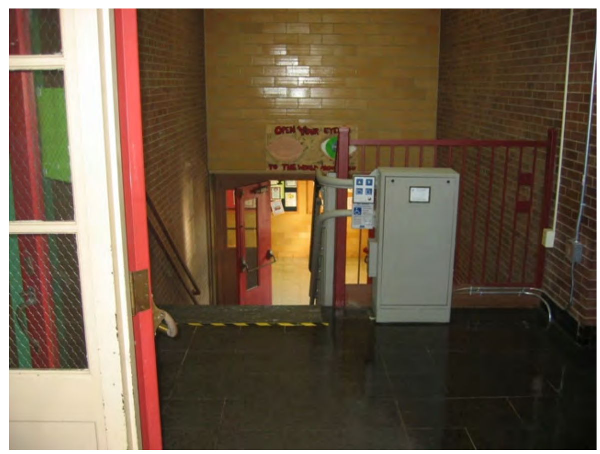
Interior Stairs and Ramps:

There are four existing egress stairs in this portion of the facility. All stairs are constructed of non-combustible materials. Treads and riser dimensions appear to be code compliant. The treads have either resilient or metal coverings. The southwest stair retains its original stone treads. Handrails and guardrails vary. In general, the stairs modified or constructed as part of the 1974 renovations do not have compliant guards. All of the existing handrails are non-compliant for cross-section, mounting height and continuity. Please refer to the code plans for additional information.


Exit stair in original building

The stair enclosures appear to be constructed of 2-hour fire rated equivalent masonry. An unrated opening was observed above the doors on the lower level in the stair nearest the main mechanical room. Utilities not serving the stairs were observed passing through the stair enclosures. This is not allowable by code. Also, penetrations into the stair enclosures were not firestopped. Refer to the interior door section for comments on the doors, sidelights and transoms into the stairs.

A handicapped lift is present in two of the stair enclosures. Technically, these lifts are MAAB compliant. However, they impeded the clear width required in each stair. Also, they are impractical due to the parameters of use. A handicapped person must utilize the lifts when no one else in on the stairs.


HC stair lift

The floors between the original building and the west wing are connected with ramps on both the main and upper levels. These ramps are not MAAB compliant. The ramps exceed the maximum 1:12 slope and do not have compliant handrails. Also, the ramps extend the full width of the corridor. This presents a problem where the ramp ends abruptly at the adjacent wall thus posing a problem with handicapped individuals.

Recommendations:

Stairs: Provide new 42” high painted steel guardrails with solid 3/4” square balusters at 4” o.c. Include 1 ½” nom. o.d. (1.25” o.d. actual) continuous post and wall mounted handrails on each side of the stairs. Provide new rubber treads in all stairs and paint the exposed metal risers. Seek variance for lack of clear stair width at HC lifts.
Alt. - Remove the existing HC lifts to provide the required clear stair width. Include alternate vertical accessible route.

Ramps: Remove the ramps, re-structure the surrounding floor construction and reconstruct new 1:12 sloped ramps with fully compliant double handrails. Post mounted rails must be used to limit the ramp width to the existing opening.
PRIORITY **A**


Ramp between original building and west wing

Elevator:
The existing elevator is located in the original stair tower of the 1917 building. This was converted during the 1974 renovations. This elevator currently serves the three floors located in the 1917 building and the 1930 additions. The elevator cab and controls appear to have been recently renovated. The elevator entrance is 34 inches wide. The inside cab measures 47 1/2" by 49 1/2". It is not MAAB compliant. However, the controls appear to be MAAB compliant. The elevator is currently operated via key switch. It is unknown if any variances exist for the present installation.

Recommendations:
Verify if any MAAB variances are in place. If none exist, remove the existing elevator and provide a new fully compliant holeless hydraulic elevator in a new 8" nominal CMU load-bearing hoistway. A new more central location would be recommended.
PRIORITY **A**

Elevator

Toilet Rooms:
The existing area has a multi-user core with boy's and girl's toilet rooms on the lower level. A girl's room is located on the main level. A boy's room is located on the upper level. Staff toilets consist of single-user restrooms located on the main and upper levels. The existing multi-user rooms do not have enough fixtures in accordance with the plumbing code. Also, the existing fixtures, partitions, accessories and room layout are not MAAB compliant. Refer to the Code Analysis sheet for additional information.

Typical gang toilet room.

Recommendation:
Re-design all existing restrooms as part of an overall renovation scope. Increase the number of fixtures at the lower level to adequately serve the assembly load in the cafeteria. Replace interior finishes, partitions, fixtures and accessories. PRIORITY **A**

Interior Doors:

Interior doors consist of wood doors in wood and metal frames, and painted hollow metal doors in metal frames. The wood doors typically have un-tempered glass panels at classrooms. Solid doors are present at janitorial, toilet rooms and administrative areas. The majority of the metal doors are located at egress stairs and to the exterior.

In the east wing, there is a historic door surround with sidelights and transoms separating the corridor from the egress stair. This frame is not fire rated and has standard wired glazing.

In general, the stair doors replaced in the 1970's bear the required UL labels. However, the glazing is not code compliant.

All existing door hardware consists of 1970's vintage knobs which are not MAAB compliant.

Recommendations:

Replace all interior fire rated doors. Replace all door glazing with 1/4" thick fully tempered glass. Fire doors shall receive wired tempered glazing. Replace all door hardware with new mortise type lever handle locksets. Egress doors and stair doors shall receive new compliant exit devices.
PRIORITY **A**

Typical wood classroom door.

Typical metal door at exit stair.

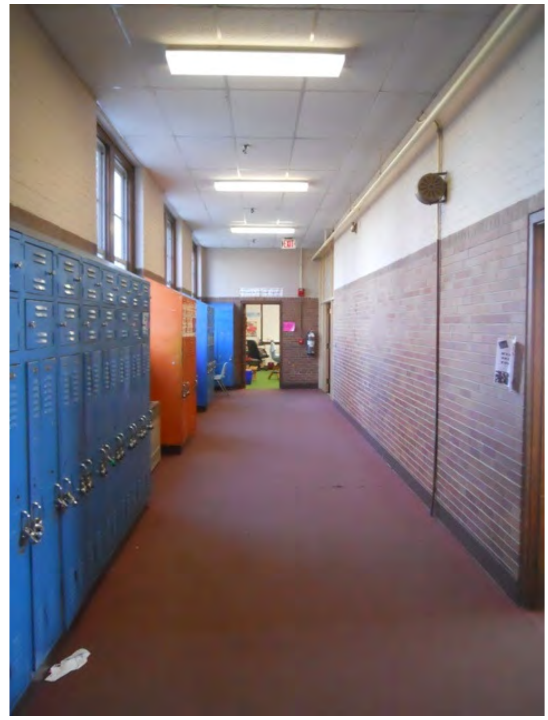
Historic frame with transom and sidelights at stair.

Interior Signage:

Interior signage is almost non-existent. Doors in some areas have painted room designations. Other rooms have paper mounted identification in plastic sleeves on the corridor walls outside classrooms. The existing “signage” is not MAAB compliant.

Recommendations:

Provide all new code compliant interior panel signs with Braille and room designations and numbers at all doors.
PRIORITY **A**



Typical corridor.

APPLICABLE CODE(S)

A. 780 CMR MA STATE BUILDING CODE - 8th EDITION (2009)
B. 521 CMR MA STATE ACCESSIBILITY CODE (MAAB)
C. 248 CMR UNIFORM STATE PLUMBING CODE
D. MA STATE MECHANICAL CODE
E. MA STATE ELECTRICAL CODE
F. 527 CMR 21, 23 AND 24 MA FIRE PREVENTION REGULATIONS
G. NFPA 10, STANDARD FOR PORTABLE FIRE EXTINGUISHERS

USE AND OCCUPANCY CLASSIFICATION

EXIST. EDUCATIONAL (E) AND ASSEMBLY (A-3) w/INCIDENTAL BUSINESS (B) AND STORAGE (S-1)

CONSTRUCTION TYPE

EXISTING CONSTRUCTION CLASSIFICATION: TYPE 3B
ORIGINAL BLDG - 1917
EAST & WEST WING ADDITIONS - 1930
FAR WEST WING - 1954
MAJOR RENOVATION IN 1974.

FIRE RESISTANCE RATED CONSTRUCTION

STRUCTURAL FRAME	(TABLE 601)
INCLUDING COLUMNS, GIRDERS, TRUSSES	0 HR
BEARING WALLS	
EXTERIOR	2 HR
INTERIOR	0 HR
NON-BEARING WALLS AND PARTITIONS	
EXTERIOR AND INTERIOR	0 HR
FLOOR CONSTRUCTION	
INCLUDING SUPPORTING BEAMS AND JOISTS	0 HR
ROOF CONSTRUCTION	
INCLUDING SUPPORTING BEAMS AND JOISTS (TABLE 601 & 1505.1)	0 HR/CLASS C
FIRE BARRIERS	
CORRIDORS (TABLE 1018.1):	0 HR w/SPRINKLERS
EXIT ENCLOSURES (SECTION 1022):	1 HR (>4 STORIES)
SHAFTS:	1 HR

FIRE PROTECTION SYSTEMS

1. SUPERVISED AUTOMATIC FIRE ALARM SYSTEM W/ AUTOMATIC DETECTION.
2. AUTOMATIC FIRE PROTECTION SYSTEM THROUGHOUT.
2. PORTABLE FIRE EXTINGUISHERS.

INTERIOR FINISHES

MINIMUM FINISH CLASS (w/SPRINKLERS) - (TABLE 803.9)

EXITS:	CLASS B
CORRIDORS:	CLASS C
ROOMS:	CLASS C

BUILDING HEIGHT AND AREA

BUILDING HEIGHT ALLOWABLE (STORIES/FEET)	2/55'-0"
EXIST. BLDG HEIGHT	3 STORIES / 52'-0" (UNCHANGED)
EXIST. BUILDING "A" FLOOR AREA:	± 15,560 SF - LOWER LEVEL
REMAINDER OF BLDG NOT REVIEWED.	
ALLOWABLE AREA PER FLOOR	14,500 SF
(w/OUT FRONTAGE AND w/OUT SPRINKLER SYSTEM INCREASE)	
(TABLE 503 & SECTION 504.2)	

USE GROUP E, TYPE 3B CONSTRUCTION PERMITS THREE STORIES IN HEIGHT W/THE SPRINKLER HEIGHT INCREASE.
THERE WILL BE NO CHANGE IN THE EXIST. BLDG AREA.
THESE CONDITIONS DATE TO 1974.

MEANS OF EGRESS

REFER TO CODE PLANS FOR ROOM OCCUPANT LOADS; NUMBER, LOCATION AND CAPACITY OF EXITS, AND MAX. TRAVEL DISTANCE - (TABLE 1004.4.1.1)

OCCUPANT LOAD FACTORS:	OCCUPANT/SQUARE FEET
CLASSROOMS:	1/20 GROSS
ASSEMBLY:	1/15 NET (TABLES & CHAIRS)
ACCESSORY BUSINESS	1/20 GROSS
ACCESSORY MECH & STORAGE:	1/300 GROSS
OCCUPANCY LOAD	REFER TO CODE PLAN
EXIT CAPACITY	REFER TO CODE PLAN

MIN. REQUIRED # OF EXITS/FLOOR (TABLE 1021.1):	
LOWER LEVEL:	3
MAIN LEVEL:	3
UPPER LEVEL:	3

MAX. ALLOWABLE TRAVEL DISTANCE:	300' w/SPRINKLERS
DEAD END CORRIDOR	50'-0"
EGRESS WIDTH:	INCHES/OCCUPANT
DOORS:	0.2 (1005.1)
STAIRS:	0.3
CORRIDORS:	0.2
OTHER EGRESS COMPONENTS:	0.2

ACCESSIBILITY ANALYSIS

1. ACCESSIBLE ROUTE BETWEEN FLOORS IS INCOMPLETE.
   a. NON-COMPLIANT ELEVATOR IS PRESENT ONLY IN THE 1917 PORTION OF THE BUILDING. THE CAB MEASURES 47½" X 49½" AND HAS A 34" W. DOOR. THE CONTROLS ARE MAAB COMPLIANT. OPERATED VIA KEY SWITCH.
   b. NON-COMPLIANT RAMPS ARE PRESENT IN THE BUILDING.
   c. EXISTING HC STAIR LIFTS ARE PRESENT IN TWO LOCATIONS. WHILE TECHNICALLY CODE COMPLIANT, THEY IMPEDE THE REQUIRED CLEAR WIDTH IN THE STAIRS. THEY ARE ALSO IMPRACTICAL DUE TO THE PARAMETERS OF USE. A HC PERSON MUST UTILIZE THE LIFTS WHEN NO ONE ELSE IS ON THE STAIRS.

ACCESSIBILITY ANALYSIS

2. TOILETS - NONE OF THE EXIST. TOILETS ARE HC ACCESSIBLE.
   a. A MULTI-USER CORE IS LOCATED ON THE LOWER LEVEL. THIS SERVES THE CAFETERIA.
   b. GIRL'S ROOM IS LOCATED ON THE MAIN LEVEL.
   c. BOY'S ROOM IS LOCATED ON THE UPPER LEVEL.
   d. STAFF - SINGLE USER RM LOCATED ON MAIN AND UPPER LEVEL.
3. DOOR HARDWARE - ALL EXISTING HARDWARE CONSISTS OF 1970'S VINTAGE KNOBS AND ARE NON-MAAB COMPLIANT.
5. DOOR CLEARANCES (PUSH/PULL) - EXIST. RECESSED DOOR NICHES DO NOT HAVE THE REQ'D PUSH/PULL DIM'S AS PER PARA 26.00.
6. STAIR HANDRAILS - EXIST. HANDRAILS ARE NOT CONTINUOUS OR ON BOTH SIDES OF THE STAIRS AS PER PARA 27.4.1. THEY DO NOT COMPLY w/CROSS-SECTION REQ. OF PARA 27.00.

PLUMBING FIXTURES

CAFETERIA (A-3) USE GROUP ANALYSIS
MAXIMUM OCCUPANCY = 280 P (DESIGN TOTAL = 140 M & 140 W)

MINIMUM FIXTURES REQUIRED:	MEN	WOMEN	MEN	WOMEN
WATER CLOSETS:	1/60	1/30	3 REQ'D	5 REQ'D
			1 EXIST.	2 EXIST.
URINALS:	50%		1 EXIST.	
LAVATORIES:	1/200	1/200	1 REQ'D	1 REQ'D
			1 EXIST.	2 EXIST.

NOTE: THESE EXIST. TOILET ROOMS DO NOT HAVE ENOUGH FIXTURES.

EDUCATION (E) USE GROUP ANALYSIS
MAXIMUM OCCUPANCY = 550 P (DESIGN TOTAL = 275 M & 275 W)

FIXTURES PROVIDED:	BOYS	GIRLS	BOYS	GIRLS
WATER CLOSETS:	1/60	1/30	5 REQ'D	9 REQ'D
			1 EXIST.	6 EXIST.
URINALS:	1/60	-	5 REQ'D	-
			4 EXIST.	-
LAVATORIES:	1/60	1/60	5 REQ'D	5 REQ'D
			2 EXIST.	2 EXIST.
DRINKING FOUNTAIN:	1/75		8 REQ'D	
			1 EXIST.	

NOTE: THESE EXIST. TOILET ROOMS DO NOT HAVE ENOUGH FIXTURES.

STAFF TOILETS ANALYSIS:
STAFF ARE SERVED CURRENTLY BY ONE SINGLE-USER TOILET IN THE OFFICE ON THE UPPER LEVEL. ANOTHER TOILET IS PRESENT IN THE MAIN ADMIN. AREA ON THE MAIN LEVEL. THE EXIST. FIXTURE COUNT IS ACCEPTABLE.
MAXIMUM OCCUPANCY = 24 P (DESIGN TOTAL = 12 M & 12 W)

MINIMUM FIXTURES REQUIRED:	MEN	WOMEN	MEN	WOMEN
WATER CLOSETS:	1/25	1/20	1 REQ'D	1 REQ'D
URINALS:	33%			
LAVATORIES:	1/40	1/40 = 1 REQ'D IN EA.		

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ARCHITECTS
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Town of Scituate
600 Chief Justice Cushing Highway - Scituate, MA

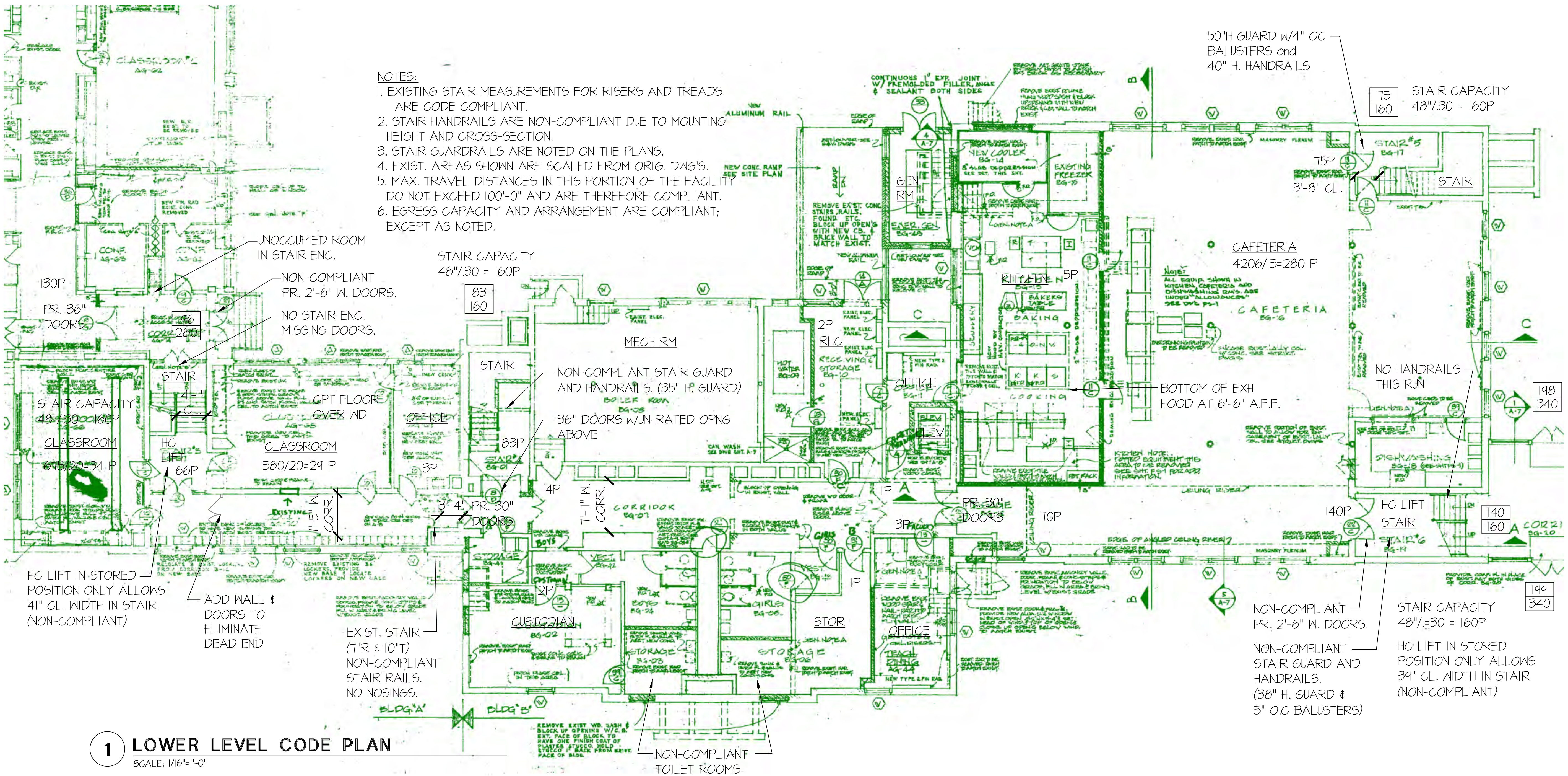
SCALE: 1/16"=1'-0"
FILE:
DRAWN: EC
JOB NO.: 1200

Gates Middle School
327 First Parish Road - Scituate, MA

ISSUED FOR: Code Analysis
DATE ISSUED: 2/3/12
REVISION DATE:

CODE ANALYSIS

0



1 **LOWER LEVEL CODE PLAN**
SCALE: 1/16"=1'-0"

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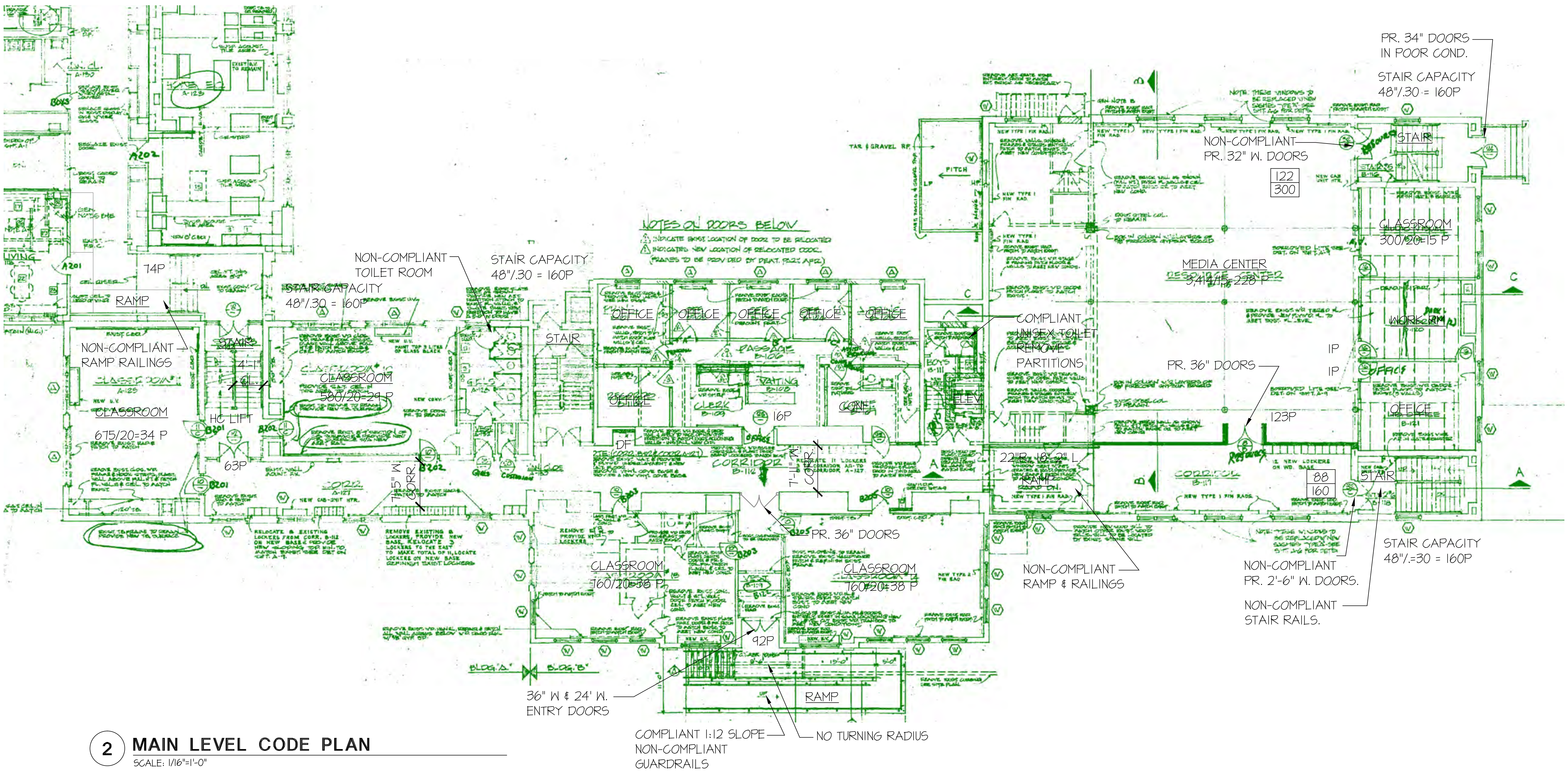
SCALE: 1/16"=1'-0"
FILE:
DRAWN: EC
JOB NO.: 1200

Gates Middle School
327 First Parish Road - Scituate, MA

ISSUED FOR: Code Analysis
DATE ISSUED: 2/3/12
REVISION DATE:

LOWER LEVEL CODE PLAN

1



2 MAIN LEVEL CODE PLAN

SCALE: 1/16"=1'-0"

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A R C H I T E C T S

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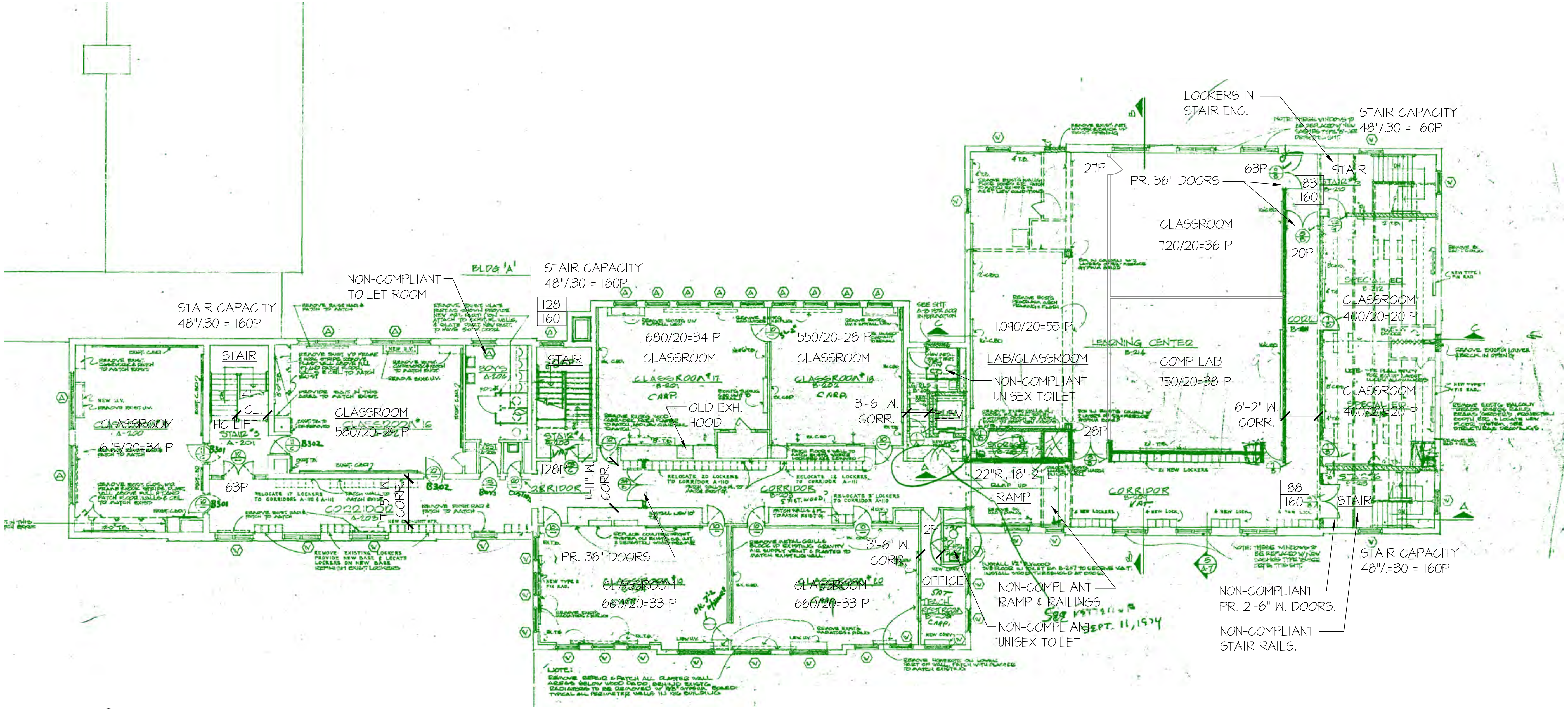
FILE:
DRAWN: EC
JOB NO.: 1200

Gates Middle School
327 First Parish Road - Scituate, MA

ISSUED FOR: Code Analysis
DATE ISSUED: 2/3/12
REVISION DATE:

MAIN LEVEL
CODE PLAN

2



3 UPPER LEVEL CODE PLAN

SCALE: 1/16"=1'-0"

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VIVEIROS WERENFELS
ARCHITECTS

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SCALE: 1/16"=1'-0"
FILE:
DRAWN: EC
JOB NO.: 1200

Gates Middle School
327 First Parish Road - Scituate, MA

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DATE ISSUED: 2/3/12
REVISION DATE:

UPPER LEVEL CODE PLAN

3

YODER +
TIDWELL, Ltd.
Architects and Engineers

February 16, 2012

Ashley Prester
Durkee, Brown, Viveiros & Werenfels Architects
111 Chestnut Street
Providence, RI 02903

Re: Gates Middle School – Scituate, MA
Structural Observations on 1-13-2012

Dear Mr. Prester,

At your request, I met with you on January 13, 2012 to make a structural assessment of the existing building located on First Parish Road in Scituate, Massachusetts. The building currently serves as the Middle School for the Scituate School Department. The focus of this structural assessment is on the three central portions of the building. This includes the original building constructed in 1917, the adjacent east classroom wing constructed in 1931, and the west gymnasium/auditorium wing also built in 1931. This west wing was renovated in 1974 and the gymnasium was converted to the current Resource Center and a second floor added to create the current Learning Center and additional classrooms. My assessment consisted of a walkthrough of the building, including attic and basement spaces, and visual observation of any exposed structural conditions. I have also reviewed the construction drawings from the 1931 additions as well as the 1974 renovation. No drawing information was available for the original 1917 building. The following report summarizes the results of my observations, identifies the primary structural deficiencies that were observed, and provides a general recommended course of action.

1.0 General Building Observations

1.1 Original Building (1917)

The original building constructed in 1917 is a three story structure. The lowest level is partially below grade (referred to as the ground level) leaving just two and a half stories of building exposed above grade. Nearly all of the structural framing is concealed behind finish materials. However, from my site visit and review of available drawings, it is clear that the structural framing consists of wood framed joists that span in the north/south direction. The joists are supported at the exterior walls and by the two interior bearing walls between the corridor and classrooms. The exterior walls appear to be 12” solid brick masonry and the interior bearing walls are a combination of wood stud in some locations, and solid brick masonry in others. The interior walls that are of brick masonry appear to occur at the locations of the original brick chases, probably for heating and ventilation.

The typical floor joists appear to be approximately 2”x12” and clear span from the corridor wall to the exterior wall. The exception to this is at the first floor level where an additional beam line was added in the boiler room/storage room to reduce the span of the joists. This was probably done to support the loads of the Library which was originally located directly above.

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Subsequently, the Library was moved and this location is the area of the current administration offices.

The roof of the original 1917 building was a flat roof which still remains and can be seen from the attic. The original roof framing was similar to the floors consisting of 2x12 joists spanning from the north and south exterior walls to the same two interior bearing lines. In the 1931 renovation, a gable roof was placed over a portion of the original flat roof. The gable roof extends from the front north wall to the second interior bearing wall on the south side of the corridor. The original flat roof and rafters remain from this wall over to the south exterior wall.

1.2 East Classroom Wing (1931)

This wing of the building was constructed in 1931 and is a three story structure similar to the original building. Nearly all of the structural framing is concealed behind finish materials. However, from my review of the 1930 drawings, the structural framing consists of structural wood decking spanning between 4x12 wood joists spaced at approximately four feet on center. The joists are supported by the exterior masonry walls and by two interior masonry bearing walls. In some areas the joists are supported by steel beams that clear span the classroom spaces. The steel beams are also supported by the exterior and interior masonry bearing walls therefore there are no steel columns in this wing of the building. The exterior walls, along with the interior bearing walls appear to be 12” solid masonry. The type of backup masonry for the face brick (brick, block, or hollow clay tile) is not indicated on the drawings.

1.3 West Wing (1931 Gymnasium/Auditorium)

This wing of the building was constructed in 1931 with the east classroom wing and originally was a two story structure with a Kitchen/Cafeteria on the ground floor and a Gymnasium/Auditorium on the first floor. In 1974, this wing was renovated and the first floor gymnasium/auditorium was changed to the current Resource Center. The balconies and stage were removed and another floor was added to create the current second floor classrooms and Learning Center. Nearly all of the existing structural framing is concealed behind finish materials. However, from my review of the 1930 and 1974 drawings, the structural framing consists of structural wood decking spanning between 4x12 wood joists spaced at approximately 3’-6” on center. The joists are supported by the exterior masonry walls and interior steel beams. The steel beams are also supported at the exterior by masonry bearing walls and at the interior by several steel columns. The first floor originally had only four interior columns and the roof beams clear spanned over the gymnasium/auditorium space. When the second floor Learning Center was added, additional columns were added on the first floor to support the new second floor. The roof continues to clear span as before allowing the Learning Center to be mostly column free. The exterior walls, along with the interior bearing walls appear to be 12” solid masonry, except for the original two story auditorium/gymnasium space which has 16” thick walls. The type of backup masonry for the face brick (brick, block, or hollow clay tile) is not indicated on the drawings.

2.0 Observed Structural Deficiencies

Because almost all of the structural elements are concealed by finish materials, the number of structural deficiencies that were observed during my site visit is very limited. The deficiencies listed below do not include those items that may be required for any potential future renovation or change of use to the building. Those structural issues will be identified in a separate study and report. The deficiencies listed below are those items that in my opinion will eventually require repair for the continued use of the building regardless of any major renovation or change of use.

2.1 Snow Drifting on Existing 1917 Roof Joists

When the gable roof was constructed over the existing flat roof in 1931, it created a significant potential increase for drifting snow load on the adjacent existing flat roof joists on the south side of the building. Along the west edge of this roof there is also a vertical projection created by the elevator mechanical room that was added with the 1974 renovation (See Photo 2.1). This vertical wall also creates the potential for significant localized drifting snow. Based on my observation of existing conditions and my review of the structural drawings for the 1931 and 1974 renovations, the additional drifting caused by these two conditions does not appear to have been addressed. In many cases, older codes did not address drifting conditions at all. Based on the current code, the additional drift potential is approximately 50 pounds per square foot above and beyond the base design snow load requirement of 35 pounds per square foot. This creates an increase in stress on the existing flat roof rafters of nearly twice the allowable in the area immediately adjacent to the mechanical room projection.

This condition is very significant structurally and so it is my recommendation that this portion of the roof framing be reinforced by sistering each of the existing rafters with 2x12 LVL's. This work should be done regardless of any future renovation to the building. Until this work has been completed, the snow should be removed from the lower roof during the winter so that the depth of snow on the existing flat roof never exceeds 12 inches.

2.2 Cracks in Southwest Stair Walls of West Wing

Several significant cracks were observed in the interior masonry walls of the southwest stair. The cracks varied in thickness from hairline to approximately ¼" in thickness. In some areas, there has been out of plane movement on opposite sides of the crack (See photos 2.2a and 2.2b). There are a couple of possible causes for these types of cracks. The diagonal cracking could be the sign of differential settlement. However, there do not appear to be any other typical indicators that settlement is a problem in the building. Also, settlement typically occurs early in the life of the building and these cracks appear to be much more recent. Settlement cracks also are not typically out of plane. Based on this, it is my opinion that the more likely cause of these cracks is that they are result of water infiltration into the wall. With this type of solid masonry wall, water infiltration can cause severe damage. If the water gets trapped and freezes, it causes the walls to crack and push out resulting in out of plane movement. It appears that the most likely entry point for water getting into the walls was with the original belt course detail near the top of the wall. This was removed and replaced during the most recent façade renovation and so it is likely that previously deteriorated belt course was allowing water into the wall. The cracks above the entry door are most likely related to failure of the flashing over the entry canopy roof which was also repaired during the 2006 façade renovation.

It is my recommendation that the masonry walls in this stair be repaired by removing localized portions of the cracked interior face and reconstructing. These existing conditions do not represent a severe structural deficiency, but something that should be addressed within the next couple of years.

2.3 Deteriorating Lintels

During the 2006 exterior renovations that were made to the building, many of the original exterior lintels over windows were replaced with new galvanized lintels. However, it was noted during my site visit that there were many existing lintels that were not replaced as part of this work. The original lintels are not galvanized nor painted (See photo 2.3). The lintels over these windows are currently exposed bare steel and will deteriorate over time if left unattended.

It is my recommendation that these lintels at the very least be cleaned and painted. Eventually, they will need to be replaced with galvanized steel angles. The existing lintel conditions do not represent an immediate structural deficiency, but something that should be addressed within the next couple of years.

3.0 Existing Floor Loading

As part of my assessment, I have performed a very general structural load analysis of the existing framing for the building. My analysis was based on observation of the limited visible areas of the structural framing as well as the information available on the construction drawings. Since most of the framing is not visible, my load evaluation is based on typical framing conditions. It is also based on members and connections that are assumed to be in sound condition and does not consider deterioration or damaged members. Based on my observations, review of the original drawings, and subsequent analysis, the following are the approximate live load capacities of the typical structural elements. See the attached analysis sheet at the end of this report.

3.1 Floor Live Load Capacity Summary

Original Building (1917)
- Classroom Floor = 40 psf
- Corridor = 80 psf
- Original Library Floor = 150 psf
- Flat Roof = 35 psf

East Classroom Wing (1931)
- Classroom Floor = 40 psf
- Corridor = 80 psf
- Flat Roof = 40 psf

West Wing
- First and Second Floor (including corridors) = 60 psf
- Roof = 40 psf

4.0 Recommendations

Based on my observations, the general overall structural condition of the building is satisfactory with the exception of the structural deficiencies noted in Section 2.0, and therefore is reasonable for the building to continue to serve its current use. The structural deficient items should be addressed as recommended in this report. It should be noted that future renovations and repairs (for example putting a new roof on the entire building) could also trigger other code required improvements that are not part of this report.

5.0 Limitations of Report

The conclusions and recommendations contained in this report are based on observation of those structural items that were visible at the time of my visit. It is also based on building conditions that existed at the time of my observation. This report is limited to that which could be reasonably assessed from visual observation alone. No detailed survey or probing was made of all structural joists, beams, and columns or all structural conditions. Due to finished ceilings in walls in most of the spaces, and limited access to some areas, many structural elements and conditions could not be observed.

If you have any questions or need any additional information in regards to this report, please contact this office.

Sincerely,

Loren Yoder, PE
President
Yoder + Tidwell Ltd.

Photos of Deficiencies

Photo 2.1 – Snow Drifting caused by Sloped Roof and Elevator Mechanical Room

Photo 2.2a – Out of Plane Crack in Southwest Stair Wall

Photo 2.2b – Out of Plane Crack in Southwest Stair Wall

Photo 2.3 – Unpainted Lintel

Analysis of Selected Members

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YODER + TIDWELL, Ltd.
Architects and Engineers

Gates Middle School
Scituate, MA
Typical Framing Member Capacities

	Typical Floor Joist (1917 Building) at North Classrooms	Typical Floor Joist (1917 Building) at South Classrooms	Typical Floor Joist (1917 Building) at Corridor	Typical Floor Joist (1917 Building) at Previous Library	Typical Roof Joist (1917 Building) at North Flat Roof	Typical Floor/Roof Joist (East Classroom Wing)	Typical Corridor Joist (East Classroom Wing)	Typical First Floor Joist (West Wing)	Typical Second Floor Joist (West Wing)	Typical Roof Joist (West Wing)
Joist Width (in)	2	2	2	2	2	3.5	2.5	3.5	1.5	3.5
Joist Depth (in)	11.5	11.5	11.5	11.5	11.5	11.5	9.5	11.5	11.5	11.5
Span (ft) =	22.50	24.50	14.00	12.25	24.50	16.00	9.75	18.00	18.00	18.00
Tributary Area (ft) =	1.33	1.33	1.33	1.33	1.33	3.75	3.75	3.00	1.33	3.50
Sx (in^3) =	44.08	44.08	44.08	44.08	44.08	77.15	37.60	77.15	33.06	77.15
Ix (in^4) =	253.48	253.48	253.48	253.48	253.48	443.59	178.62	443.59	190.11	443.59
E (psi) =	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000	1,700,000
Fb (psi) =	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
Deflection ratio limit, L/	360	360	360	360	360	360	360	360	360	360
Deflection limit (in) =	0.75	0.82	0.47	0.41	0.82	0.53	0.33	0.60	0.60	0.60
Allowable Moment (ft-lbs) =	5,327	5,327	5,327	5,327	5,327	9,322	4,544	9,322	3,995	9,322
Stress										
Maximum Allowable Linear Load (plf) =	84	71	217	284	71	291	382	230	99	230
Maximum Allowable Uniform Load (psf) =	63.3	53.4	163.5	213.5	53.4	77.7	102.0	76.7	74.2	65.8
Deflection										
Maximum Allowable Linear Load (plf) =	56	43	233	347	43	273	485	192	82	192
Maximum Allowable Uniform Load (psf) =	42.1	32.6	174.9	261.1	32.6	72.7	129.4	63.9	61.7	54.7
Actual Forces										
DL (psf) =	15	15	15	20	15	15	15	15	15	15
LL (psf) =	40	40	100	50	35	40	80	60	60	35
TL (psf) =	55	55	115	70	50	55	95	75	75	50
Uniform Line Load (plf) =	73	73	153	93	67	206	356	225	100	175
Moment (ft-lb) =	4,629	5,489	3,747	1,746	4,990	6,600	4,233	9,113	4,040	7,088
Stress (psi) =	1,260	1,494	1,020	475	1,358	1,027	1,351	1,417	1,466	1,102
Stress Unity =	0.87	1.03	0.70	0.33	0.94	0.71	0.93	0.98	1.01	0.76
Deflection (in) =	0.979	1.376	0.307	0.109	1.251	0.403	0.239	0.705	0.729	0.548
Deflection Ratio L/	276	214	548	1343	235	476	490	306	296	394
Deflection Unity =	1.305	1.685	0.657	0.268	1.532	0.756	0.734	1.175	1.215	0.914
Reaction (pounds) =	823	896	1071	570	815	1650	1737	2025	898	1575

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February 15, 2012

Ashley C. Prester, AIA, CEFPI, MCPPO
Project Manager
Durkee, Brown, Viveiros & Werenfels Architects
111 Chestnut Street, Providence, RI 02903

Reference: Gates School
Scituate, MA

Dear Sir:

As requested, we visited the Gates School on January 13, 2012 and February 10, 2012 to gather information on the existing MEP/FP systems.

This report is addressing the following issues:

1. Identify all issues associated with the building re-configuration and the disposition of the existing HVAC, Electrical and Plumbing systems.
2. Address the issue of the change of use of the Building.
3. Generally describe the scope of work for budgetary estimating.

GENERAL

The following reference standards were used for the system evaluation:

- International Mechanical Code
- National Fire Protection Association
- Eighth Edition, Massachusetts Building Code (780 CMR)
- National Electrical Code with Massachusetts Amendments (2011 NEC)
- National Fire Protection Association (NFPA)
- American National Standards Institute (ANSI)
- National Electrical Manufacturers Association (NEMA)
- Americans with Disabilities Act (ADA)
- National Electric Safety Code (NESC)
- Massachusetts Fuel Gas and Plumbing Code (248 CMR)
- International Energy Conservation Code (2009 IECC)

Assessments of the systems have been based on strictly visual observation and not dismantling and testing of equipment/systems. Engineering drawings showing mechanical and electrical systems were also reviewed and found to be accurate.

HVAC

Existing Conditions

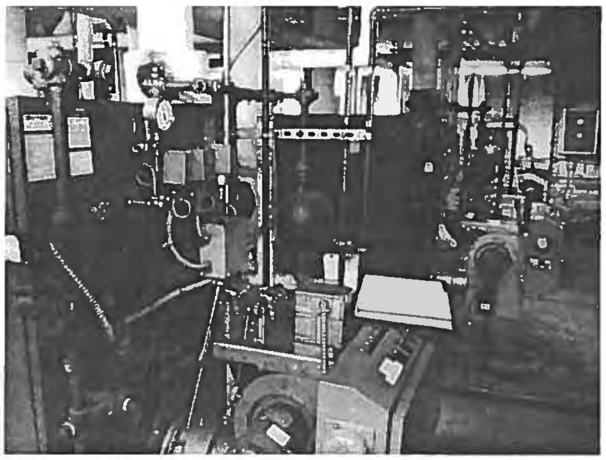
The existing boiler room is in the original building and houses three (3) Burnham, low pressure steam boilers. Each boiler is as follows:

- Model number V 1118
- Gross output 3580 MBH
- Net IBR Rating: Steam - 11583 Sq. Ft., Steam 2780 MBH, Water 3113 MBH
- Oil firing rate: 31 GPH

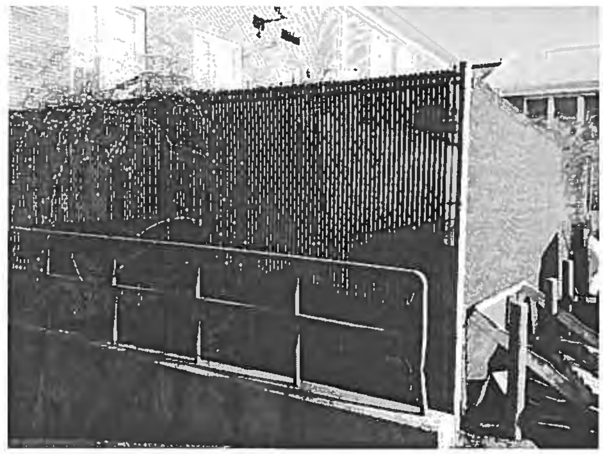
- Boiler manufacturing date indicated on the nameplate: 2000

The burners are dual fuel, made by Gordon-Piatt Energy Group, model number R10.2-GO-50. Oil tank is located outside behind the building. Even though the burner is dual fuel the gas piping is not connected to the burners.

The boilers are connected to an insulated breeching.



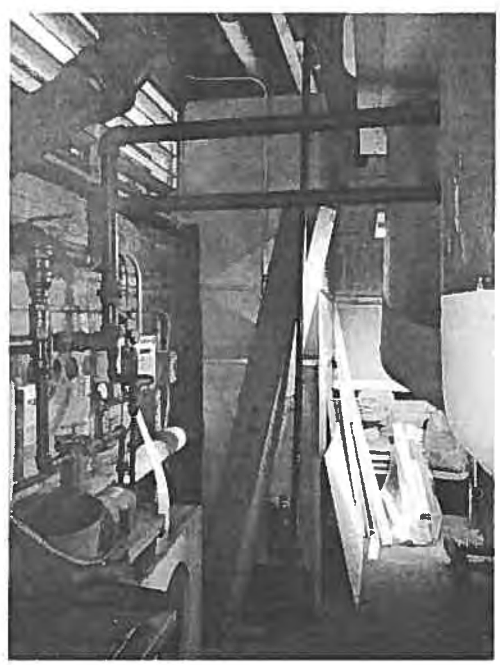
Boilers



Oil tank behind the enclosure

The boiler combustion air is supplied through two ducts – one located near the ceiling and the other low, near the floor. The high duct is 24" x 84", the low duct is 26" x 84". The openings are provided with motorized dampers.

Boiler dual-fuel burner



High and low boiler combustion ducts

The boilers are connected to an insulated steam distribution piping system. The piping system supplies steam to the classroom unit ventilators, but also serves miscellaneous terminal units including attic unit heaters. The piping in some areas is not insulated.

Portion of the building complex is heated by hot water heating system. There is a steam to hot water converter serving the Original and West Buildings.

Steam-to-hot water heat exchanger

Hot water circulating pumps

The room housing steam to hot water heat exchanger is provided with a ventilation system. A compressor producing compressed air for the control system is located in the same room.

Air Compressor serving school pneumatic controls

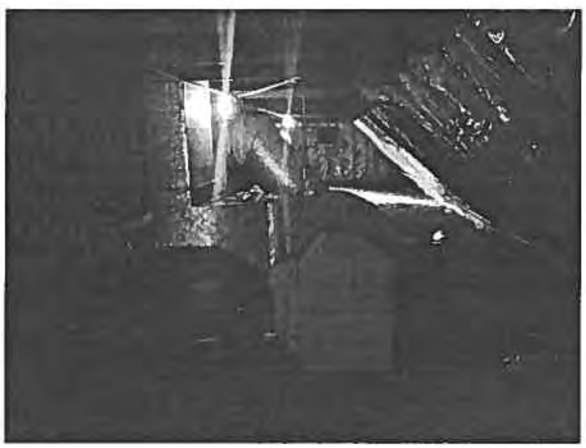
Heat exchanger ventilation system

The classrooms heating and ventilation is provided by unit ventilators. Some of the units are floor-mounted and some are ceiling mounted. The units are made by AAF Herman Nelson.

Floor-mounted unit ventilator

Ceiling-mounted unit ventilator

A ventilation fan located in the attic of the original building exhausts air through louvered tower to outside.



An exhaust fan located in the attic of the original building

An attic unit heater

Plumbing

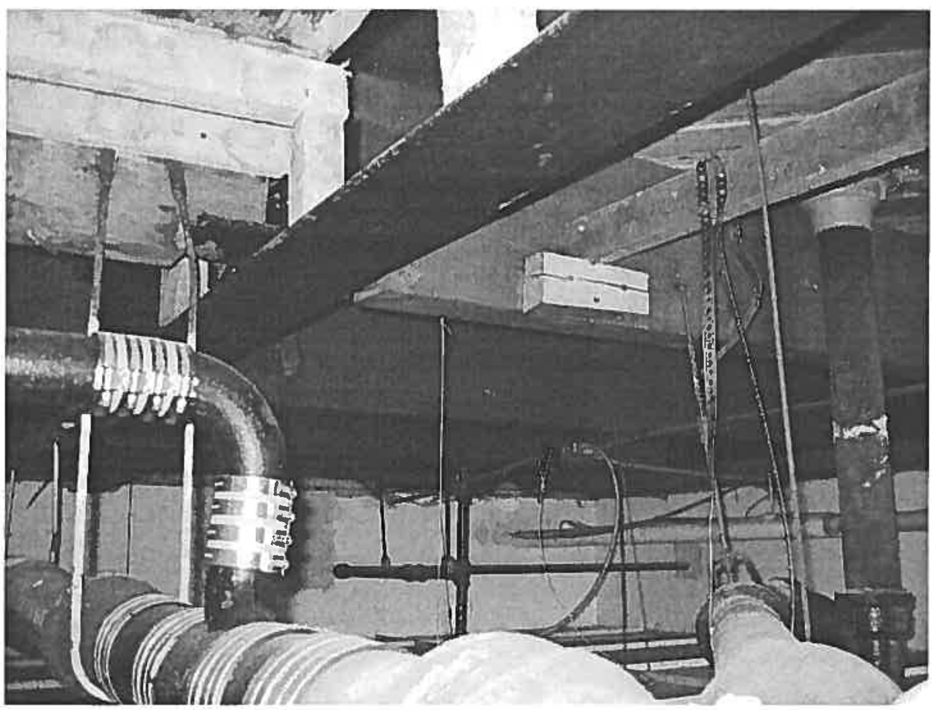
Sanitary, Waste and Vent System

The sanitary, waste and vent system consists of a combination of hub and spigot cast iron and no hub cast iron piping. Galvanized piping likely can be found in the venting systems. Piping appeared to be properly supported and appeared to be generally in good condition for the age. Building staff did mention that they have been experiencing leaks in areas.

Piping is run in crawl spaces and is also exposed in the lowest levels of the original building.

A grease trap internal to the building serves the kitchen waste.

Sanitary piping connects to a municipal sewer system through underground piping on the south and west side of the site. It is possible that sanitary runs under the far west wing based on the drawings furnished by the Town of Scituate.



Storm System

The storm system consists of gutters and downspouts spilling to grade on most of the building sections. Some areas include interior roof drainage connected to the storm system.

Domestic Cold Water System

The domestic cold water system consists of a 4" main service in the gym wing fire service room. From there, water is piped throughout the building. Soldered fittings likely include a 50/50 combination of tin and lead. A limited number of shut off valves were observed and given the age of the system the possibility exist that the valves will not operate properly.

Domestic Hot Water System

The domestic hot water system was provided to the building from a natural gas fired tank type domestic water heater located within a room adjacent the kitchen. The water heater is an AO smith model BC 670

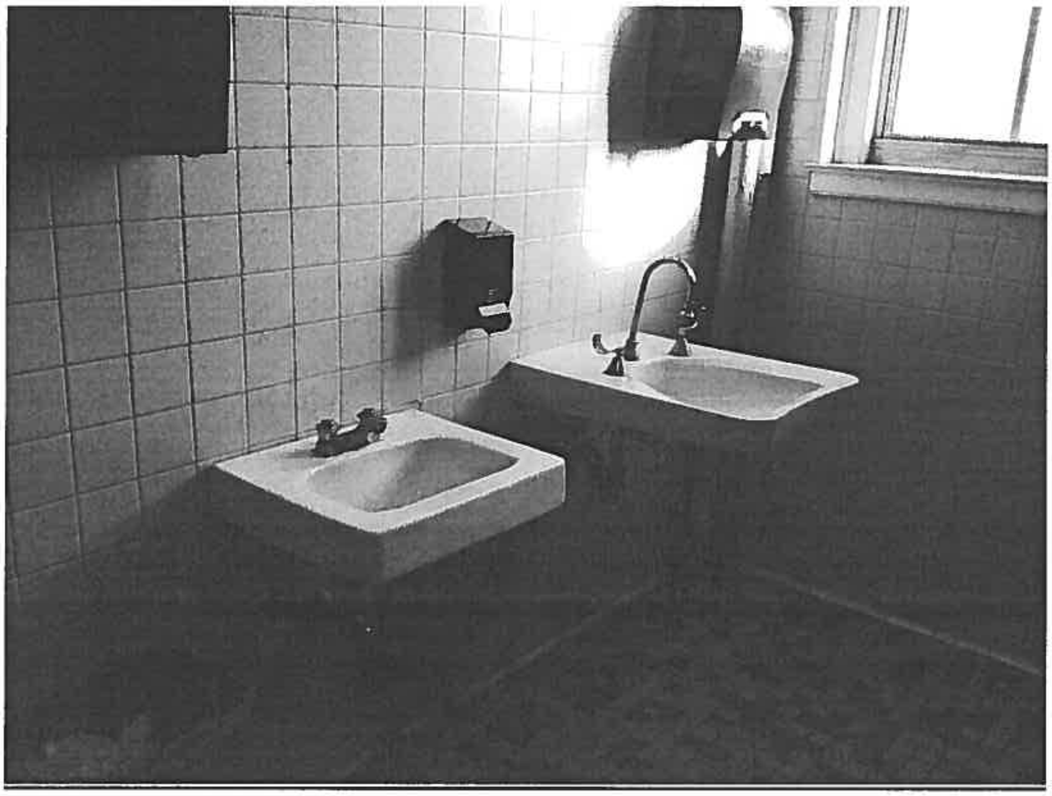
892 manufactured in 1991. The heater burner is atmospheric and the flue connects directly to the exterior and extends up the outside of the building. There are two insulated storage tanks which store water at 140F for the kitchen and 120F for other use. It could not be determined if the storage tanks have the required ASME stamp. There is hot water recirculation on both systems. Copper distribution piping consisting of non insulated type "L" copper with soldered fittings extends from the boiler room and supplies fixtures throughout the building. Soldered fittings likely include a 50/50 combination of tin and lead.

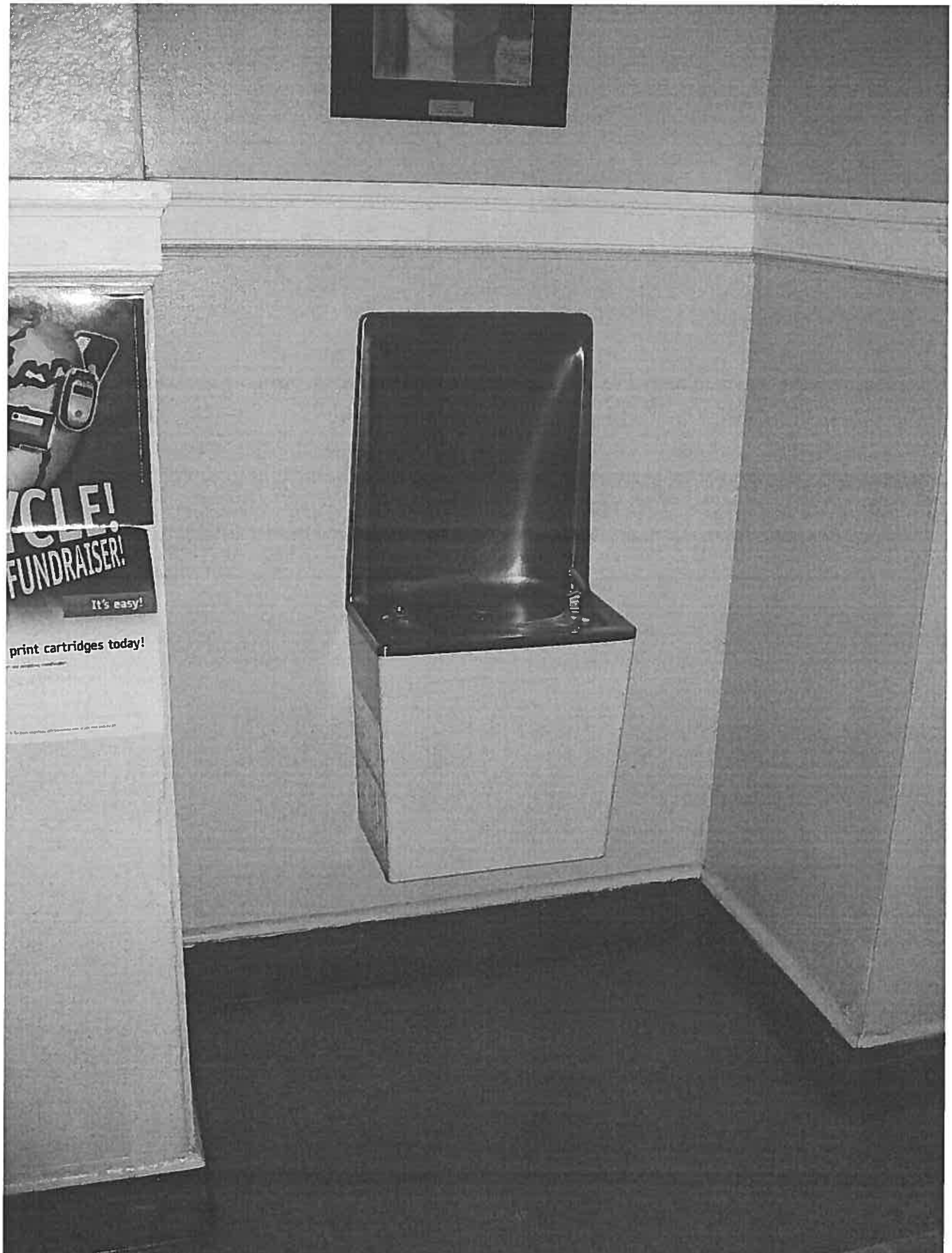
Natural Gas System

Natural gas begins at the gas meter located outside the building. A black steel main extends into the kitchen and branches off to supply the domestic water heating plant. Although the boiler burners are dual fuel type, gas is not extended to these burners.

Fixtures

The plumbing fixtures throughout the building include vitreous china waterclosets, lavatories and urinals. Fixtures throughout are visually in poor condition and do not all meet the requirements for accessibility or water conservation.

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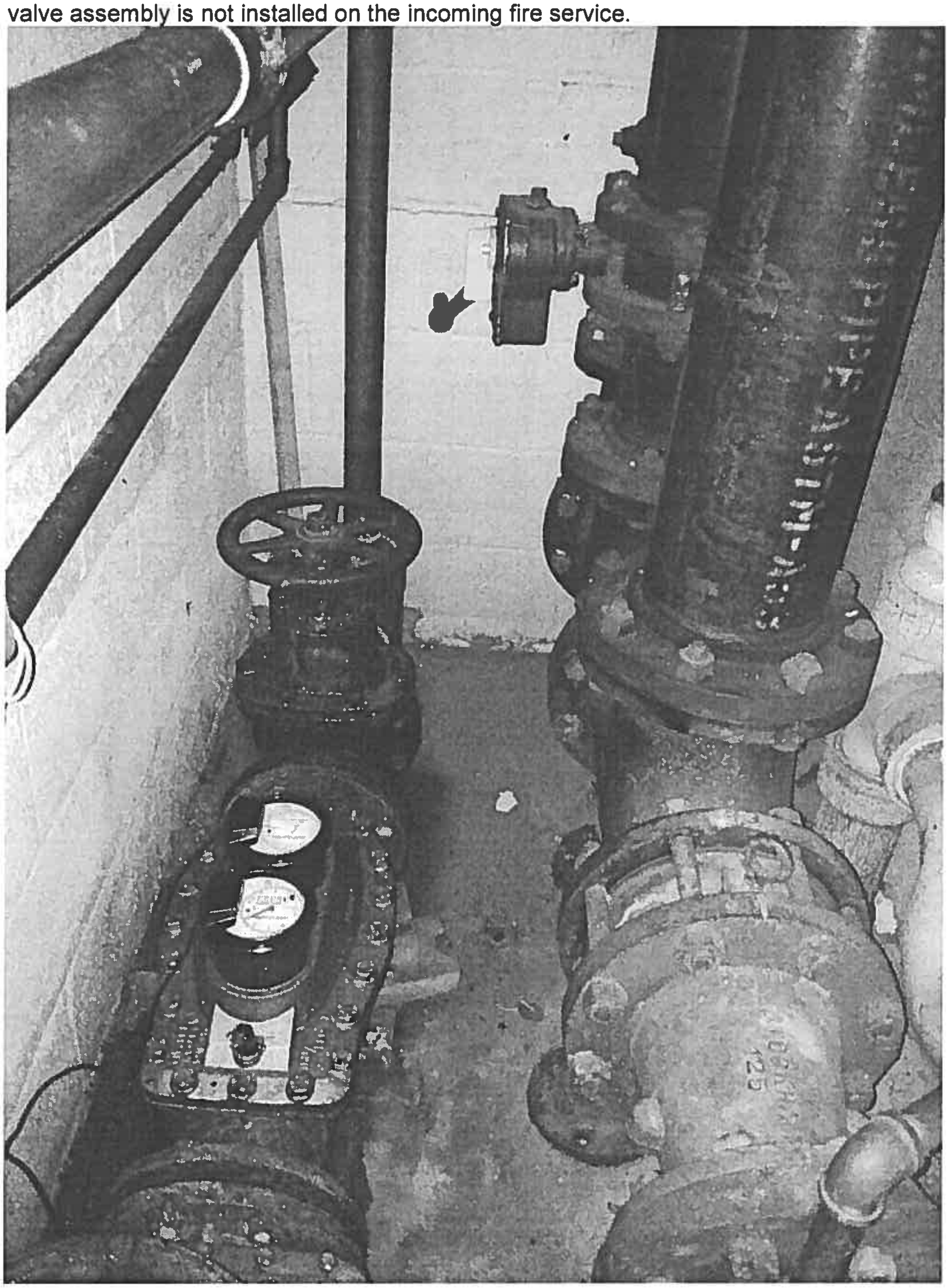
Fire Protection

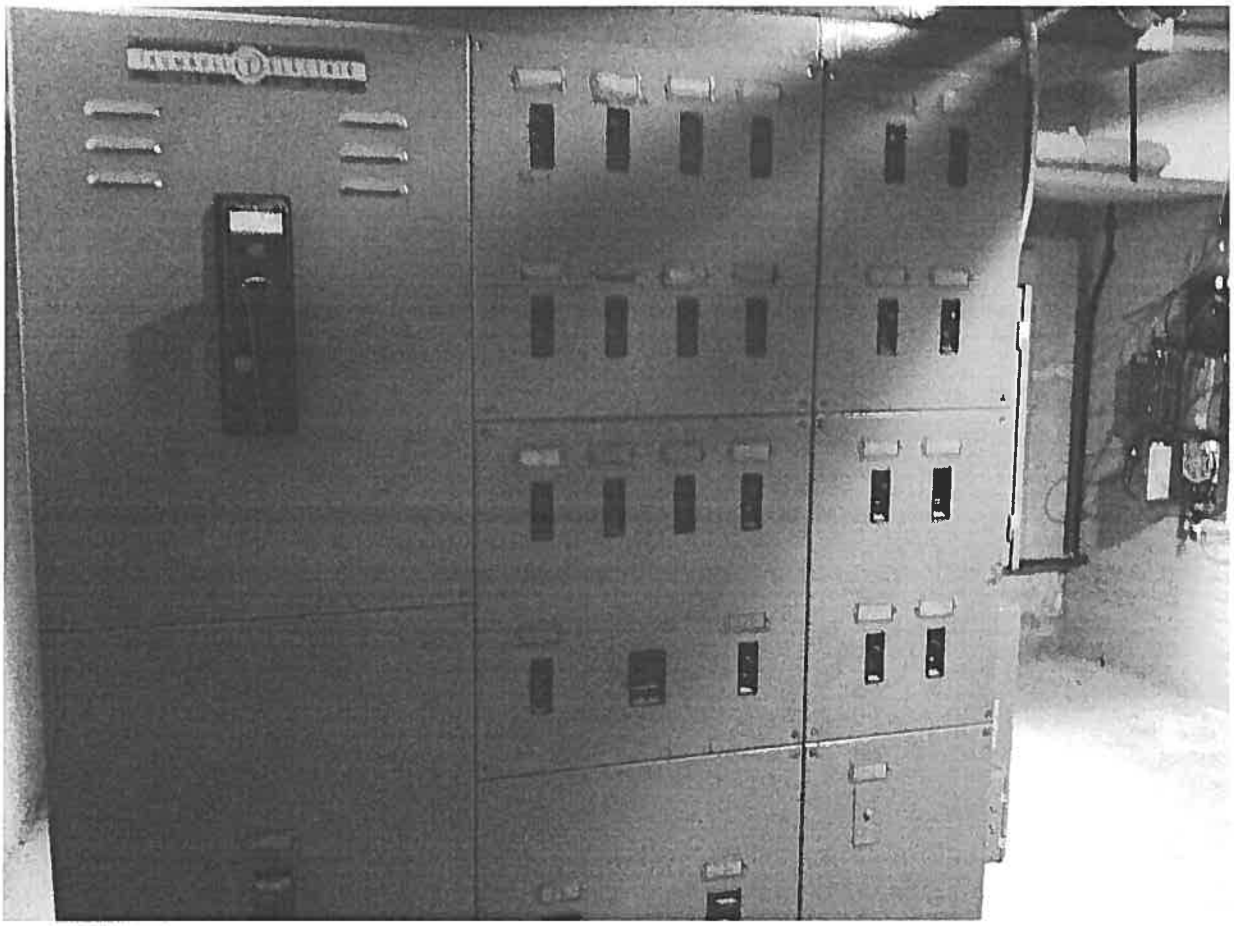
The building is equipped with a fire suppression system in most areas. The water and fire service room is in the far gym wing. The fire service room includes a vertical fire pump and controller. A double check valve assembly is not installed on the incoming fire service.



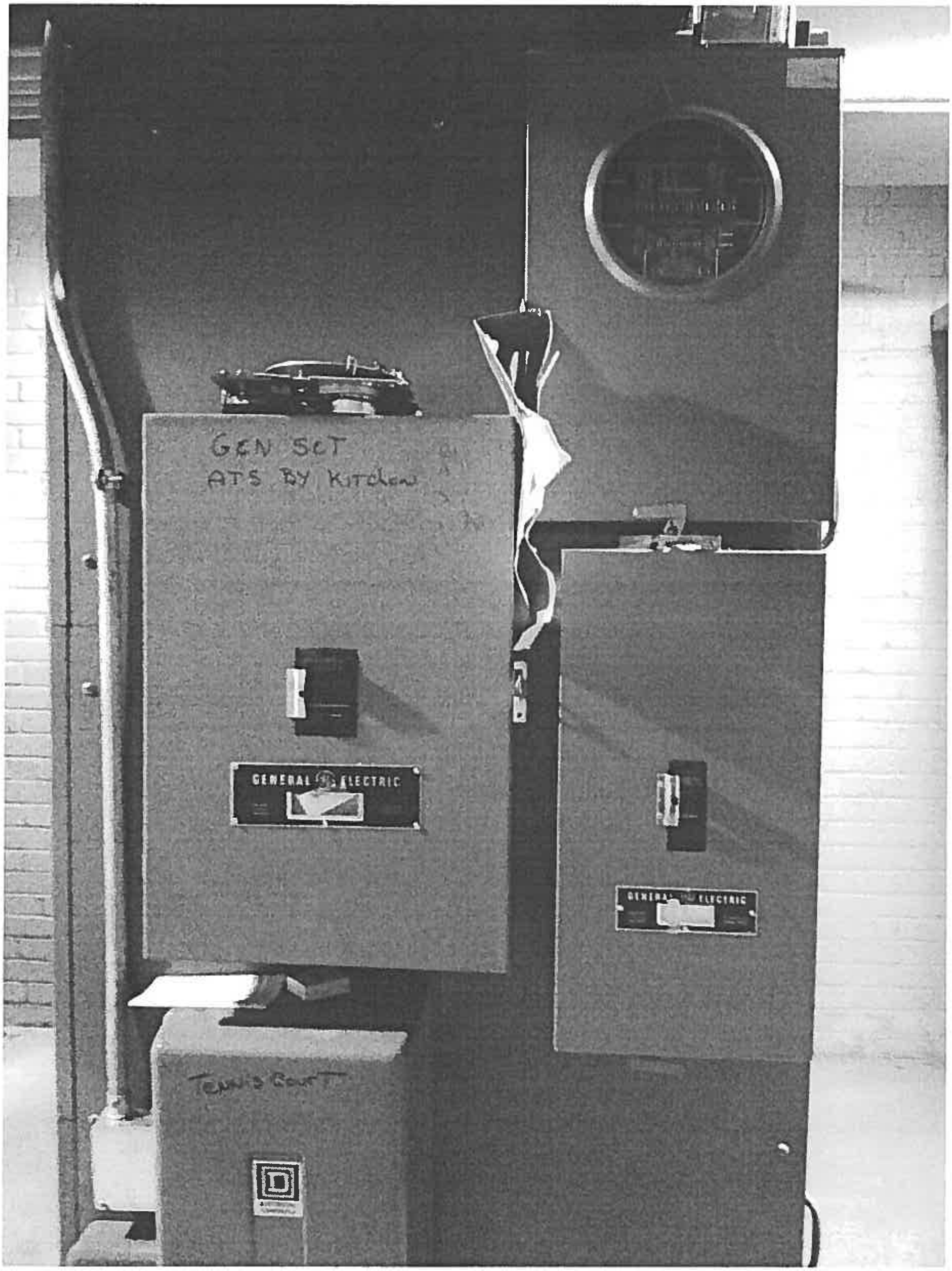
The attics are protected by a dry system.

Electrical

The existing electrical service for the building is located in the south wing basement or crawl space. The service is fed from an adjacent transformer, vault under the building accessible only from and exterior areaway. The primary utility service extends underground from a utility pole on the east side of the site.

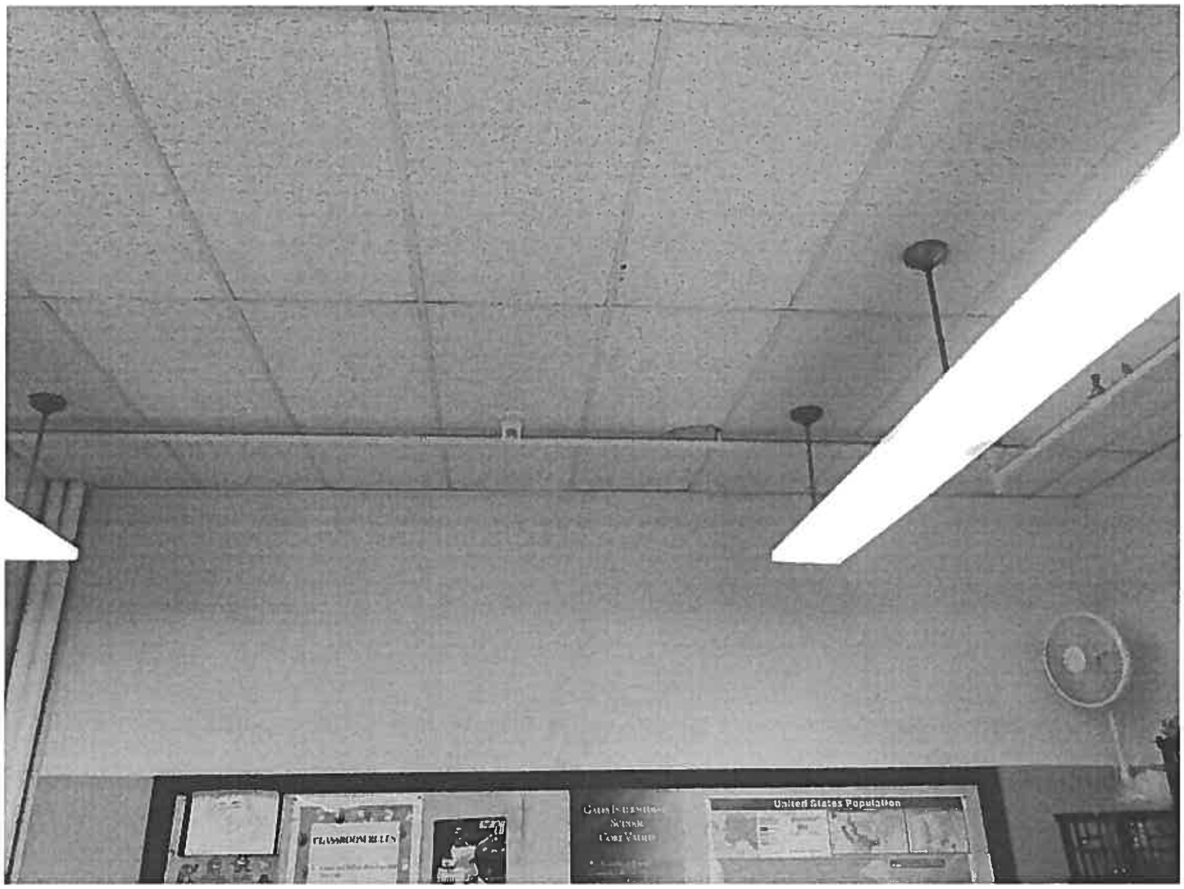


The existing electrical service is 1000A, 120/208V, 3 phase, 4 wire. This service feeds various panels in other areas of the building. A tap ahead of the main service disconnect feeds the fire pump via the fire pump controller.


GEN SET
ATS BY Kitchen
GENERAL ELECTRIC
TENNIS COURT

A 125kW Emergency / Standby Generator is located at the rear of the original building in a dedicated room accessible from the building exterior. The engine generator is diesel fired and an above grade fuel tank is located adjacent the generator room. The engine generator transfer switch is located in the passage area behind the kitchen. Loads on the generator include kitchen equipment, heating, fire alarm, the elevator and lighting.

Lighting is generally suspended fluorescent fixtures with recently installed occupancy sensors for automatic control.



The building is equipped with a hard wired fire detection system. The control panel is located in the main office with annunciation and drill switches. Another annunciator and Master Box is at the front of the gym wing. Notification devices have been upgraded from the original bell system to horn strobe devices.

We did not see any evidence of a UL listed lighting protection system on the building.

INITIAL OBSERVATIONS

GENERAL

The majority of the building services enter, are adjacent to, or are underground passing below the gym wing or south wing. The removal of these wings will need to involve building water, fire, sanitary and electrical services.

HVAC

Based on our visual inspection and information obtained during the survey it appears that the boilers have not exceeded their service lives. They are 12 years old. Service life is a median time during which particular equipment remains in its original service application and then is replaced. Replacement may occur for any reason, including, but not limited to, failure, reduced reliability, excessive maintenance cost. According to a nation-wide survey conducted by American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) the average service life of HVAC equipment is approximately 20-25 years.

The boilers are just 12 years old but the piping, unit ventilators, radiators, cabinet unit heater exhaust fans are well beyond their service lives.

Plumbing

The domestic water service is located in the gym wing fire service room. Continued domestic water service will need to be taken into consideration if this wing is removed.

Fire Protection

The fire protection service is located in the gym wing and includes a vertical electric fire pump. Continued fire protection service will need to be taken into consideration if this wing is removed.

Electrical

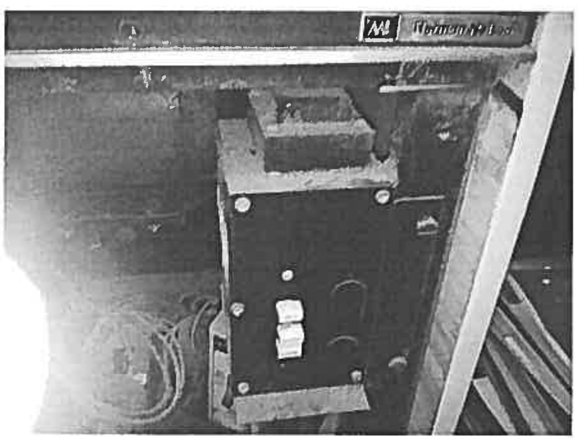
The electrical service is located in the south wing basement. The utility transformer vault is also located in this building space. Continued electrical service will need to be taken into consideration if this wing is removed.

Recommendations

HVAC

It has been indicated to us that the school maintenance contractor estimated that the majority of the unit ventilators shall be replaced. There are problems unit ventilator dampers operation, unit controls and heat output etc. Some of the units are noisy.

The control system is pneumatic type. It has been indicated to us that the pneumatic piping is leaky. Note that leaky piping does not allow the control system to function properly affecting the terminal unit performance.



Interior of an AAF Herman Nelson unit ventilator

Unit ventilator pneumatic controls (unit interior)

It has been reported to us that there are problems with the piping and radiator leakage.

We have noticed that the management has been making a serious effort to maintain the system operational regardless of its age. New boilers were installed in the year 2000. However, the piping is leaky, pneumatic control difficult to be managed due to the age of the compressor and leaky compressed air piping. Unit ventilators experience various operational problems.

Repairs of the system are possible and they may be expensive and disruptive to the building operation.

The boilers should remain. They are fairly new. The piping and the heating devices shall be replaced with new more efficient devices. The existing pneumatic control system shall be replaced with a digital system.

A possibility of converting the entire system to hot water heating system should be considered.

We realize that the above recommendation is difficult to implement in a fully occupied building but repairs to troublesome system may become too expensive to justify them.

The efficiency of the school ventilation system should also be addressed. For instance, based on our visual inspection, the exhaust system exceeded its service life and should be replaced with new more efficient system. A possibility of using energy recovery ventilators should be considered.

Plumbing

The domestic water service will need to be re-located into a new room if the gym wing is no longer part of the building. A new domestic water service would be sized to support the number of fixtures required for the new program.

New fixture counts will likely require the modification and addition to the existing toilet rooms. New toilet room layouts would include fully accessible fixtures as required.

Drinking fountains will also need replacement to comply with the current accessibility requirements.

Fire Protection

The fire protection service will need to be re-located into an area of the building's final configuration. A new fire pump will likely be required as well. All existing sprinkler heads need evaluation for replacement as well. It appears that some of the heads are of a style that is no longer compliant.

Electrical

A new electrical service will be required if only the original building and adjacent wings are to remain. The majority of the electrical distribution equipment is aged and should be replaced if a new electrical service is installed.

The existing fire alarm system does not meet the current building code requirements for Educational use. Current code requires emergency voice evacuation which the current system will not support. We recommend a new fire alarm system that provides code required notification.

Although the current lighting is in relatively good shape and has energy efficient controls in the classrooms the level of interior renovations may dictate new lighting throughout. Emergency egress lighting and signage also needs upgrading for full compliance with code requirements.

For Educational use fire pumps require a second source of power. If the final program and structure requires a fire pump as is currently installed the pump motor will require power from the emergency generator as well as the utilty source.

Should you have any questions, do not hesitate to call.

WOZNY/BARBAR & ASSOCIATES, INC.

Mark F. Rattenbury, PE

J:\12015 Gates School\MEP-FP System Report 2-15-12.doc

Conceptual Cost Estimate - B Wing only

Scituate, MA

Conceptual Scope to Repair Gates Middle School to Remain a School

DBVW Job #1200
November 12, 2012
Version 3.0

Division ID #	Work ID #	Work Description	Priority	Quantity		Unit Cost * (MA Prevailing Wage)				Priorirty Cost Allocation			Total Cost
				Qty	Qty UOM	Labor Cost per Unit	Material Cost per Unit	Equipment Cost per Unit	Total Cost per Unit	Priority One	Priority Two	Priority Three	
		Division 2 - Existing Conditions											
		None											
		Division 3 - Concrete											
3	1	Remove and replace non-compliant exterior concrete egress stairs (average rise 4', average width 7')	1	2	EA	$ 7,500	$ 10,000	$ -	$ 17,500	$ 35,000	$ -	$ -	$ 35,000
		Division 4 - Masonry											
4	1	Exterior masonry repointing allowance	2	1	EA	$ 12,000	$ -	$ -	$ 12,000	$ -	$ 12,000	$ -	$ 12,000
4	2	Interior masonry repointing allowance	1	1	EA	$ 9,000	$ -	$ -	$ 9,000	$ 9,000	$ -	$ -	$ 9,000
4	3	Rebuild areas of interior brick wall (west stair of B-Wing) where there has been out of plane shifting between units.	1	100	SF	$ 32	$ 18	$ -	$ 50	$ 5,000	$ -	$ -	$ 5,000
4	4	Stone and terracota repair allowance	2	1	EA	$ 15,000	$ -	$ -	$ 15,000	$ -	$ 15,000	$ -	$ 15,000
4	5	Remove and replace front stoop, stairs, and ramp - provide new 4' foundations w/ footings; 5' high plinth of 4" brick cavity wall over 8" cast concrete walls; cast concrete stairs, landings, and ramp; 75 LF of 8" high x 14" wide cast stone cap, painted galv steel handrails and guardrails	1	1	EA	$ 12,000	$ 18,000	$ -	$ 30,000	$ 30,000	$ -	$ -	$ 30,000
		Division 5 - Metals											
5	2	At all interior stairs, remove all existing guardrails and handrails - extend existing posts for new guardrail (except along walls), install 42" guard with 1-1/2" O.D. steel pipe top & bottom rails, 3/4" solid balusters @ 4" o.c., new 1-1/2" O.D. steel pipe handrails on both sides, paint all steel including existing stringers	1	9	FLIGHTS	$ 2,000	$ 3,000	$ -	$ 5,000	$ 45,000	$ -	$ -	$ 45,000
5	3	Provide compliant handrails and guardrails at new exterior concrete egress stairs (average rise 4')	1	3	EA	$ 3,000	$ 4,500	$ -	$ 7,500	$ 22,500	$ -	$ -	$ 22,500
5	4	Provide proper access to B wing attic with a 15' tall steel ladder, mount to floor and wall, 24" wide, rungs @ 12" oc	2	1	EA	$ 1,000	$ 1,500	$ -	$ 2,500	$ -	$ 2,500	$ -	$ 2,500
5	5	Remove existing deteriorated lintels and install new galvanized steel lintel and flashings (12 windows at B-Wing)	2	12	EA	$ 1,900	$ 600	$ -	$ 2,500	$ -	$ 30,000	$ -	$ 30,000
		Division 6 - Wood											
6	1	Rebuild wood-frames ramps for compliant slope and landings in A wing second floor classroom corridor and within B wing in front of the media center and rsource room on the second and third floors respectively.	1	2	EA	$ 900	$ 600	$ -	$ 1,500	$ 3,000	$ -	$ -	$ 3,000
6	2	Sister existing 2x12 flat roof rafters at 16" on center with full length 1.75x11.875 LVL's (south flat roof of 1917 portion of B-Wing)	1	2,000	SF	$ 13	$ 12	$ -	$ 25	$ 50,000	$ -	$ -	$ 50,000

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6	7	Wind uplift improvements for 1917 flat roof: Install 4x4x3/16 continuous angle bolted to exterior and interior brick bearing walls with 1/2" diameter epoxy anchors at 16" on center and bolted into underside of each rafter with 3/8" diameter x3" lag bolt.	1	300	LF	$ 35	$ 30	$ -	$ 65	$ 19,500	$ -	$ -	$ 19,500
6	8	Seismic improvements for 1917 floors: Install 4x4x3/16 continuous angle bolted to exterior and interior brick bearing walls with 1/2" diameter epoxy anchors at 16" on center and bolted into underside of each floor joist with 3/8" diameter x3" lag bolt.	1	600	LF	$ 35	$ 30	$ -	$ 65	$ 39,000	$ -	$ -	$ 39,000
		Division 7 - Thermal & Moisture Envelope											
7	1	Fully strip all EPDM roofs and replace with new TPO membrane, 1/2" coverboard, and 2" additional polyiso insulation - no haz mat incl	1	15,000	SF	$ 11	$ 7	$ -	$ 18	$ 270,000	$ -	$ -	$ 270,000
7	2	Remove and replace roof edges on all flat roofs (1753 LF total)	1	750	LF	$ 16	$ 20	$ -	$ 36	$ 27,000	$ -	$ -	$ 27,000
7	4	Remove and replace copper cladding on HVAC sheds on B wing roof (2 @ 200 SF ea)	1	2	EA	$ 6,000	$ 4,000	$ -	$ 10,000	$ 20,000	$ -	$ -	$ 20,000
7	6	Remove remains of tar and gravel room in attic of B wing - install one layer of 1/2" plywood subfloor over entire area - no haz mat incl.	1	2,500	SF	$ 20	$ 15	$ -	$ 35	$ 87,500	$ -	$ -	$ 87,500
7	7	Remove and replace all batt insulation and vapor barrier in the attic of B wing - ROOF, 10" thick - no haz mat incl	1	3,500	SF	$ 10	$ 5	$ -	$ 15	$ 51,800	$ -	$ -	$ 51,800
7	8	Remove and replace all batt insulation and vapor barrier in the attic of B wing - WALLS, 6" thick - no haz mat incl.	1	550	SF	$ 6	$ 4	$ -	$ 10	$ 5,280	$ -	$ -	$ 5,280
7	9	Remove all caulk at GFRP and B wing - clean joint, prep, and recaulk	3	800	LF	$ 8	$ 7	$ -	$ 15	$ -	$ -	$ 12,160	$ 12,160
		Division 8 - Openings											
8	1	Remove and replace all windows with aluminum double-hungs with insulated low-E argon-filled glazing (assume 3'x6' opn'g, excl. upper gym windows) incl. perimeter sealant & spray foam insul	1	182	EA	$ 1,000	$ 500	$ -	$ 1,500	$ 273,000	$ -	$ -	$ 273,000
8	3	Restore existing fan light over door (6 wide half-circle) @ B wing main entrance	3	1	EA	$ 200	$ 100	$ -	$ 300	$ -	$ -	$ 300	$ 300
8	7	Remove and replace all exterior metal doors and frames and replace with insulated painted galv metal doors and grouted painted galv metal frames - SINGLE	2	10	EA	$ 900	$ 300	$ -	$ 1,200	$ -	$ 12,000	$ -	$ 12,000
8	8	Remove and replace all exterior metal doors and frames and replace with insulated painted galv metal doors and grouted painted galv metal frames - PAIR	2	4	EA	$ 400	$ 2,000	$ -	$ 2,400	$ -	$ 9,600	$ -	$ 9,600
8	10	Remove and replace existing wood or metal louver with 5" deep storm-resistant aluminum louver - 16"x40" ea	2	24	EA	$ 100	$ 250	$ -	$ 350	$ -	$ 8,400	$ -	$ 8,400

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8	11	Remove and replace existing wood or metal louver with 5" deep storm-resistant aluminum louver - 30"x36" ea	2	2	EA	$ 100	$ 250	$ -	$ 350	$ -	$ 700	$ -	$ 700
8	13	Where possible, replace 5'-0" wide door pairs and hollow metal frames with new 6'-0" wide pairs of solid-core fire-rated wood doors in hollow metal frames - modify wall to suit (1 EA = 1 OPN'G)	1	2	EA	$ 750	$ 1,750	$ -	$ 2,500	$ 5,000	$ -	$ -	$ 5,000
8	14	Where adjacent construction prohibits the enlargement of 5'-0" wide door pairs, change doors to 3' and 2' leaves, modify existing frame to suit new hardware (1 EA = 1 OPN'G)	1	2	EA	$ 250	$ 250	$ -	$ 500	$ 1,000	$ -	$ -	$ 1,000
8	15	Replace glass in door with tempered wire or safety glass (1 EA = 1 Door Leaf)	1	25	EA	$ 200	$ 300	$ -	$ 500	$ 12,500	$ -	$ -	$ 12,500
8	16	Remove original wood and glass frame system at stair connecting B wing to A wing - Replace with gyp bd wall system with a pair or 4'-0" x 7'-0" fire-rated solid core wood doors with vision lites (Overal opn'g 12'W x 10'H)	1	3	EA	$ 1,000	$ 6,500	$ -	$ 7,500	$ 22,500	$ -	$ -	$ 22,500
8	17	Replace door with fire-rated solid core wood door with vision lite in existing frame (1 EA = 1 Door Leaf)	1	16	EA	$ 500	$ 750	$ -	$ 1,250	$ 20,000	$ -	$ -	$ 20,000
8	19	Provide motorized automatic door openers and electric strikes at strategic classrooms to provide wheelchair access to classrooms with deep entry niches	1	5	EA	$ 500	$ 1,500	$ -	$ 2,000	$ 10,000	$ -	$ -	$ 10,000
8	20	Replace knob hardware on all doors to level-style hardware - rekey the building to suit a Schlage Primus 6-pin restricted system	1	40,000	SF	$ 0.35	$ 0.35	$ -	$ 0.70	$ 28,000	$ -	$ -	$ 28,000
		Division 9 - Finishes											
9	1	Remove all existing resilient tile flooring and replace with new (excludes haz mat)	1	13,000	SF	$ 3	$ 4	$ -	$ 7	$ 91,000	$ -	$ -	$ 91,000
9	2	Remove all existing carpeting in classrooms and replace with resilient tile	1	8,000	SF	$ 3	$ 4	$ -	$ 7	$ 56,000	$ -	$ -	$ 56,000
9	4	Remove and replace carpet in Media Center and Resource Rooms	2	7,000	SF	$ 3	$ 4	$ -	$ 7	$ -	$ 49,000	$ -	$ 49,000
9	5	Remove and replace carpet in Administration	2	1,500	SF	$ 3	$ 4	$ -	$ 7	$ -	$ 10,500	$ -	$ 10,500
9	6	Renovate multi-fixture toilet rooms in their entirety w/ new CT floors, solid plastic partitions, china fixtures, & automatic flush valves (10 locations)	1	750	SF	$ 15	$ 35	$ -	$ 50	$ 37,500	$ -	$ -	$ 37,500
9	7	Renovate single-user toilet rooms in their entirety w/ new CT floors, china fixtures, & automatic flush valves (4 locations)	1	100	SF	$ 10	$ 20	$ -	$ 30	$ 3,000	$ -	$ -	$ 3,000
9	12	Prep and paint all interior wall surfaces, trim, door frames, etc (100% of floor area)	1	40,000	SF	$ 2	$ 0.50	$ -	$ 2.50	$ 100,000	$ -	$ -	$ 100,000
9	13	Remove and replace all suspended acoustic tile ceilings (assume 75% of overall building area)	1	30,000	SF	$ 2.00	$ 3.50	$ -	$ 5.50	$ 165,000	$ -	$ -	$ 165,000

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9	14	Prep and paint all exterior steel lintels (approx 4 LF ea)	1	750	LF	$ 6	$ 2	$ -	$ 8	$ 6,000	$ -	$ -	$ 6,000
		Division 10 - Specialties											
10	1	Replace existing fire extinguishers with new semi-recessed cabinets at proper ADA heights. (assume 10 locations)	3	10	EA	$ 75	$ 400	$ -	$ 475	$ -	$ -	$ 4,750	$ 4,750
10	2	Install braille signage throughout facility - directional and way-finding signage included (Based on bldg floor area)	1	40,000	SF	$ 0.15	$ 0.35	$ -	$ 0.50	$ 20,000	$ -	$ -	$ 20,000
10	4	Overlay existing built-in chalkboards in B wing with new marker board surfacing (Quantity calculated from Habeeb Report, assume 4'H x 10'L)	3	30	EA	$ 25	$ 100	$ -	$ 125	$ -	$ -	$ 3,750	$ 3,750
10	5	Remove approximately 800 7.5"W x 6'H metal corridor lockers with lockable book cabinets above - Install 800 new 12x12x72 metal corridor lockers with handle equipped for separate lock, slope top approximately 250 for B wing, built-in to the wall for the balance in A and C wings	3	250	EA	$ 100	$ 350	$ -	$ 450	$ -	$ -	$ 112,500	$ 112,500
		Division 11 - Equipment											
		None											
		Division 12 - Furnishings											
12	3	Replace B wing casework with new plastic laminate casework with PVC edgebanding - base and uppers	3	160	LF	$ 150	$ 550	$ -	$ 700	$ -	$ -	$ 112,000	$ 112,000
12	6	Replace all window shades, blinds, curtains, etc. with new roller shades. (Based on bldg floor area)	3	40,000	SF	$ 1	$ 4	$ -	$ 5	$ -	$ -	$ 200,000	$ 200,000
		Division 13 - Special Construction											
		None											
		Division 14 - Conveying Equipment											
14	1	Remove existing elevator cab, machinery, and two sides of shaft - construct new shaft with grouted reinforced 8" CMU walls, provide new 3500# roped hydraulic elevator	2	1	EA	$ 350,000	$ 350,000	$ -	$ 700,000	$ -	$ 700,000	$ -	$ 700,000
		Division 21 - Fire Protection											
21	1	Install sprinklers throughout the entire building, including attics (+/- 17,000 SF) and crawlspaces (+/-10,000SF) - limited existing sprinklers to be removed	1	50,000	SF	$ 3.00	$ 1.50	$ -	$ 4.50	$ 225,000	$ -	$ -	$ 225,000

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		Division 22 - Plumbing											
22	1	Provide new fixtures throughout Buildings A, B and C. Scope includes removing all fixtures and all associated piping within the existing chases back to existing stacks and risers located within existing chases. New installation includes new piping from all fixtures back to existing stacks and risers within existing chases. (see below for individual items)											
22	6	Building B: Provide floor outlet 1.6 gpf flush valve waterclosets including flush valves and all associated piping.	1	11	EA	$ 1,730	$ 770	$ -	$ 2,500	$ 27,500	$ -	$ -	$ 27,500
22	7	Building B: Provide wall hung lavatories complete with carrier fittings, temperature controlled metering faucets and all associated piping.	1	11	EA	$ 1,635	$ 765	$ -	$ 2,400	$ 26,400	$ -	$ -	$ 26,400
22	8	Building B: Provide urinals complete with 1.0 gpf flush valve, carrier fittings and all associated piping	1	1	EA	$ 1,730	$ 820	$ -	$ 2,550	$ 2,550	$ -	$ -	$ 2,550
22	9	Building B: Provide electric water cooler complete with all associated piping.	1	3	EA	$ 1,635	$ 1,050	$ -	$ 2,685	$ 8,055	$ -	$ -	$ 8,055
22	10	Provide new single lever (hot and cold) faucets and new angle supplies with stops at all sinks except science room sinks (see next item for science room sinks)	3	12	EA	$ 400	$ 350	$ -	$ 750	$ -	$ -	$ 9,000	$ 9,000
22	13	Provide allowance to install new 2" ball type shut off valves throughout	2	10	EA	$ 185	$ 65	$ -	$ 250	$ -	$ 2,500	$ -	$ 2,500
22	14	Provide allowance to replace existing water heater and storage tanks with new AO Smith XP condensing water heater and two (2) 200 gallon ASME storage tanks.	3	1	EA	$ 1,140	$ 17,360	$ -	$ 18,500	$ -	$ -	$ 18,500	$ 18,500
		Division 23 - Neating Ventilating and Air Conditioning											
23	1	Provide a central DDC energy management system, instead of local controls, for all new systems as discribed under Option "A" and "B" below. The system shall include a central computer, screen, software and all necessary devices.	2	40,000	SF	$ 1.8	$ 1.2	$ -	$ 3.0	$ -	$ 118,000	$ -	$ 118,000
23	4	Demolish existing steam heating piping. Provide new insulated hot water supply and return piping, a steam to hot water heat exchanger interfaced with the exisitng boilers , two end-suction circulating pumps, expansion tank, air separator etc and all associated controls. The exisitng pneumatic control system shall be abandoned. New DDC system control systems shall be provided.	1	40,000	SF	$ 5.0	$ 2.5	$ -	$ 7.5	$ 300,000	$ -	$ -	$ 300,000

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23	5.1	Option A - Replace exisitng cabinet unit heaters, unit ventilators and other heating devices with new devices of equal capacites. New classroom unit ventilators shall be provided with outside air intakes. Replace exisitng cabinert unit heaters and unit heaters with new devices as required. Provide new DDC controls as required.	1	40,000	SF	$ 2.5	$ 3.5	$ -	$ 6.0	$ 238,000	$ -	$ -	$ 238,000
23	5.2	Option B - Provide heavy duty fin-tube radiation in every classroom. Provide a new gas-fired, separated combustion type heating ventilating units, as required, supplying 100% outside air to the classrooms and the corridors. Provide complete air distribution system. Provide DDC controls for all HVAC devices.	1	40,000	SF	$ 6.5	$ 5.5	$ -	$ 12.0	$ 480,000	$ -	$ -	$ 480,000
23	6	The exisitng boilers are dual fuel devices. However, only an oil feed is provided. Provide a natrual gas feed for every boiler for the location of the exisitng gas meeter.	2	3	EA	$ 4,000	$ 1,500	$ -	$ 5,500	$ -	$ 16,500	$ -	$ 16,500
		Division 26 - Electrical											
26	1	New Electric Service 120/208V 2500A. Scope includes site work for new utilty transformer and new main electrical room.	2	1	LOT	$ 29,500	$ 162,000	$ -	$ 191,500	$ -	$ 191,500	$ -	$ 191,500
26	2	New Emergency/Standby Generator. Scope includes a 250kW packaged diesel generator, two transfer switches and three output breakers feeding the Fire Pump. Standby power (heating) and Life Safety egress lighting and signage.	2	1	LOT	$ 10,000	$ 15,000	$ -	$ 25,000	$ -	$ 25,000	$ -	$ 25,000
26	3	New Electrical Distribution including normal, standby and emergency distribution panels and panelboards throughout.	2	40,000	SF	$ 1	$ 3	$ -	$ 4	$ -	$ 140,000	$ -	$ 140,000
26	4	New Fire Alarm System. Scope includes a new voice evacuation system with detection in common areas, storage rooms and elecric,mechanical and service areas.	1	40,000	SF	$ 1	$ 2	$ -	$ 3	$ 100,000	$ -	$ -	$ 100,000
26	5	New lighitng and controls. Scope includes new direct/indirect lighting that allows for utility rebates with occupancy sensing in all areas. Assume 75% of entire square footage.	2	30,000	SF	$ 2	$ 4	$ -	$ 6	$ -	$ 180,000	$ -	$ 180,000
26	6	New branch wiring and receptacles. Scope assumes all raceways will be surface mounted wiremold.	2	40,000	SF	$ 2	$ 1	$ -	$ 3	$ -	$ 120,000	$ -	$ 120,000
26	7	New technology infastructure to include raceway and boxes only for wireless access points and data jacks.	2	40,000	SF	$ 2	$ 1	$ -	$ 3	$ -	$ 120,000	$ -	$ 120,000
26	8	New integrated communications sytem including clock, phone, voicemail and intercomm	2	40,000	SF	$ 0.50	$ 0.50	$ -	$ 1	$ -	$ 40,000	$ -	$ 40,000

Conceptual Cost Estimate - B Wing only
Scituate, MA
Conceptual Scope to Repair Gates Middle School to Remain a School

DBVW Job #1200
November 12, 2012
Version 3.0

				Quantity		Unit Cost * (MA Prevailing Wage)				Priorirty Cost Allocation			
Division ID #	**Work ID #**	**Work Description**	**Priority**	**Qty**	**Qty UOM**	**Labor Cost per Unit**	**Material Cost per Unit**	**Equipment Cost per Unit**	**Total Cost per Unit**	**Priority One**	**Priority Two**	**Priority Three**	**Total Cost**
		Division 31 - Earthwork / Sitework											
31	1	Lower grade around B wing first-floor windows, north side	2	5,000	SF	$ 1.00	$ 2.00	$ -	$ 3	$ -	$ 15,000	$ -	$ 15,000
									Subtotal without Mechanical Options	**$ 2,259,585**	**$ 1,818,200**	**$ 472,960**	**$ 4,550,745**
									Mechanical Option A	**$ 238,000**			**$ 238,000**
									Total	**$ 2,497,585**			**$ 4,788,745**
									Mechanical Option B	**$ 480,000**			**$ 480,000**
									Total	**$ 2,739,585**			**$ 5,030,745**

General Notes & Comments

1. All costs related to identification, testing, and/or abatement of hazardous material is excluded from this cost estimate
2. All costs above are based on Massachusetts Prevailing Wages for August/September 2012 as required for all public projects.
3. Owner's Soft Costs including, but not limited to, A/E fees, insurance, financing, bonding, testing, printing, moving, bid delivery, etc. are not included.
4. Functionality of the existing facility as a school, including space needs assessment, programming, space planning, and furniture are not part of this estimate and report.
5. Site conditions including utilities, parking, fields, landscape, etc. beyond those mentioned in Divisions 31/32 are excluded from this estimate and report.
6. All costs above do not include delivery method (GC or CM), nor public bidding under MA Chapter 149. Both items can greatly inflate the final project scope and overal project cost.
7. Quantities listed above are conceptual in scope and are not intended to represent true dimensional take-offs.
8. Escalation has not been added
9. Red text indicates adjusted quantities to reflect only B-Wing.