McCloskey Building & Site Repurposing Study
Town of Uxbridge, MA

Final Report
April 27, 2020

Prepared for:

By:

Central Massachusetts Regional Planning Commission
1 Mercantile Street, Suite 520
Worcester, MA 01608

Johnson Structural Engineering
101 Huntoon Memorial Highway
Rochdale, MA 01542
508-892-4884

Shepherd Engineering, Inc.
1308 Grafton Street
Worcester, MA 01604
508-397-8417

Kuhn Riddle Architects
28 Amity Street, Suite 2B
Amherst, MA 01002
413-259-1630

VAV International, Inc.
400 W. Cummings Park, S-4700
Woburn, MA 01801
781-935-7228

Hastings Consulting, Inc.
142 Hanlon Road
Holliston, MA 01746
508-397-8417

Contents

Executive Summary

The Central Massachusetts Regional Planning Commission, in partnership with Kuhn Riddle Architects, was retained by the Town of Uxbridge to prepare a Property Condition Assessment and Site Repurposing Study for the McCloskey Building in response to the Request for Proposal UMBR2019A issued in September, 2019. The property condition assessment was based on a site visit conducted by the assessment team on December 10, 2019. The assessment team included the following consultants:

- Architecture - Kuhn Riddle Architects
- Code - Hastings Consulting, Inc.
- Structural - Johnson Structural Engineering, Inc.
- Mechanical - VAV International, Inc.
- Electrical - Shepherd Engineering, Inc.

The team had access to existing conditions drawings that included the original 1936 structure and additions completed in 1988 and 1998. The drawings for the 1952 War Memorial and Junior High School addition were not available to the assessment team at the time of the study. The on-site assessment was limited to what was visible as no destructive exploration was conducted.

Notable findings include:

1. Any adaptive reuse of the McCloskey building will entail a gut-renovation as the majority of the building components are well past their useful life.

2. The extent of necessary future renovations will trigger code-required upgrades to the building's gravity and lateral force-resisting structural elements ranging from moderate to expansive depending on the configuration and type of future building uses.

3. The extent of necessary future renovations will trigger upgrades to the building's conformance with the Massachusetts Architectural Access Board regulations (CMR 521) such as new handicapped-accessible entrances and code-compliant elevators.

4. Roof leaks were observed throughout the building. Repairing roof leaks at a minimum or a complete reroofing (recommended) should be a high-priority item.

5. The exterior masonry walls are generally in good condition with mostly minor repointing needed throughout. There are a few locations with cracked/deteriorated masonry. Some of the steel window lintels are corroding, causing damage to the adjacent masonry. Repairing any damaged masonry or steel window lintels should be a high-priority item.

6. The majority of the building's interior spaces are of good architectural quality with high ceilings and access to daylight. Selective demolition of portions of the 1988 additions would restore access to daylight for large areas of the original 1936 building.

7. Locating an emergency operations center in the basement of the original 1936 building, as has been explored by Uxbridge, would trigger extensive structural upgrades to the entire building that may be more costly than building a new dedicated, independent structure.

8. The McCloskey building has sufficient square footage to be able to accommodate the Town's projected municipal needs under one roof with ample on-site parking (see next section).

9. The deed restriction associated with the War Memorial Gym could complicate selling the building outright or partitioning the building into public/private use areas.

It is recommended that high-priority items such as roof replacement and masonry and lintel repair be executed as soon as possible to minimize further deterioration of building components.

Assessing Current and Future Municipal Needs:

The McCloskey building offers a substantial amount of usable square footage that would lend itself to a variety of repurposing. On January 21, 2020, representatives from Kuhn Riddle Architects and the Central Massachusetts Regional Planning Commission met with Uxbridge Town officials to discuss the potential of municipal reuse of the McCloskey Building. Some of the potential municipal uses discussed were Town Hall offices, using the auditorium for lectures, arts performances and Town Meeting, a Senior Center with cafeteria, a commercial kitchen, office space for the School Department/School Committee, and an Emergency Operations Center.

A build-out analysis completed by the Central Massachusetts Regional Planning Commission for the Massachusetts Executive Office of Environmental Affairs in 2000 indicated that there were 11,147 developable acres in Uxbridge. If built out, this could result in a total population of 23,390 plus an additional 5.5 million square feet of commercial and industrial space. Due to its proximity to urban centers and available land, Uxbridge is likely to experience substantial additional commercial, industrial and residential development. Undeveloped parcels of 10 acres or more total more than 1,200 acres. Using CMRPC population projections, the Town will come close to the total build-out population by 2050.

Total Population Projections				
2010 population	**2020 population**	**2030 population**	**2040 population**	**2050 population**
13,457	15,981	18,681	19,722	22,432
55+ Population Projections				
3,370	6,424	9,315	10,460	15,617

Uxbridge Town Hall. Photo by Kenneth C. Zirkel

A build-out analysis is often used to estimate the future need for utilities, infrastructure, and other municipal services. It is also useful for determining spatial needs for municipal offices. Using a combination of staff interviews and population projections, the table below projects the spatial needs for Uxbridge Town buildings. Using the existing square footage as a baseline, department heads were asked about their specific needs. This included things like additional meeting space, storage space, and offices. These needs were added to the current square footage to establish Current Needs. Next, those Current Needs were extrapolated using CMRPC population projections to get the Projected Needs for 2050. Without changes in zoning, this also represents the total build-out population for Uxbridge so it is reasonable to assume the 2050 Projected Needs would represent a plateau.

Facility	Current SQFT	Current SQFT Needs	2050 Projected Growth	2050 Projected SQFT Needs
Cove Building (School Admin rent a portion)	7,022	2,500	182%	4,550
Senior Center	*3,456*	*3,456*		
Additional Kitchen		*750*		
Additional Large Meeting Space		*1,000*		
Additional Private Meeting Rooms, Additional Office Space		*500*		
Senior Center TOTAL	3,456	5,706	243%	13,865.58
Town Hall	*23,632*	*23,632*		
Additional Storage		*7,500*		
Additional Large Conference Room		*2,000*		
Additional Auditorium		*5,000*		
Additional Office Space		*3,000*		
Town Hall TOTAL	23,632	41,132	182%	74,860.24
Emergency Operations Center	1,000	3,000	182%	5,460
COMBINED TOTAL	**30,588**	**52,338**	**243% Senior 182% Total**	98,736

- *Growth rate based on population projections. Note the 55+ demographic is growing very quickly:* *https://cmrpc.maps.arcgis.com/apps/opsdashboard/index.html#/b1e235d60beb-4f03940ea9200f0650b3*
- *Population Projection Methodology* *https://www.dropbox.com/s/tegrn80b2yj6041/Population%20Projections%20Methods%20UMDI%20MassDOT.pdf?dl=0*

McCloskey Building Areas (square feet)						
1936 High School		**1952 Addition (War Memorial Gym)**		**1988/1998 Additions**		**Totals**
Basement	14,000					14,000
Auditorium	6,800	Gymnasium & 1st floor support spaces	15,400	Cafeteria & Kitchen	6,000	28,200
First Floor Classrooms	7,200	First Floor Classrooms	15,500	First Floor Classrooms	7,900	30,600
Second Floor Classrooms	7,200	Second Floor Classrooms	19,600	Second Floor Classrooms	8,000	34,800
Subtotal	35,200	Subtotal	50,500	Subtotal	21,900	**107,600**

Conclusions:

With the Town's projected needs for municipal facility space at 98,736 square feet, it is worth considering where those needs could be met. Reconstruction and renovation could be completed at current facilities like the Town Hall and Senior Center, but there are constraints at those sites that would limit square footage, parking considerations, and costs to temporarily relocate during renovations. As such, municipal use is an attractive reuse option for the McCloskey Building. Its size is reasonable to accommodate the present and projected future municipal space needs of the Town (see table below) and renovation work would not disrupt current municipal operations.

The McCloskey building also has unique programmatic space features such as the auditorium, cafeteria, and kitchen that Uxbridge currently lacks. In considering potential future municipal uses for the McCloskey building, Uxbridge should weigh the costs of a gut-renovation of the McCloskey building against constructing an equivalent amount of new square footage. Additional adaptive-reuse programming and cost analysis could inform the Town of the feasibility and cost-effectiveness of repurposing of the McCloskey Building for municipal use.

Entrance at original 1936 High School, McCloskey Building, Uxbridge, MA

Architectural Assessment

History

The McCloskey building is a sprawling complex of nearly 116,000 square feet and is composed of three primary structures constructed at different times. The oldest portion of the McCloskey building was constructed in 1937 to serve as the High School for Uxbridge. An addition in 1952 added the War Memorial Gym and a new classroom wing to house a Junior High School. Further additions and renovations came in 1967, 1989, and 1998.

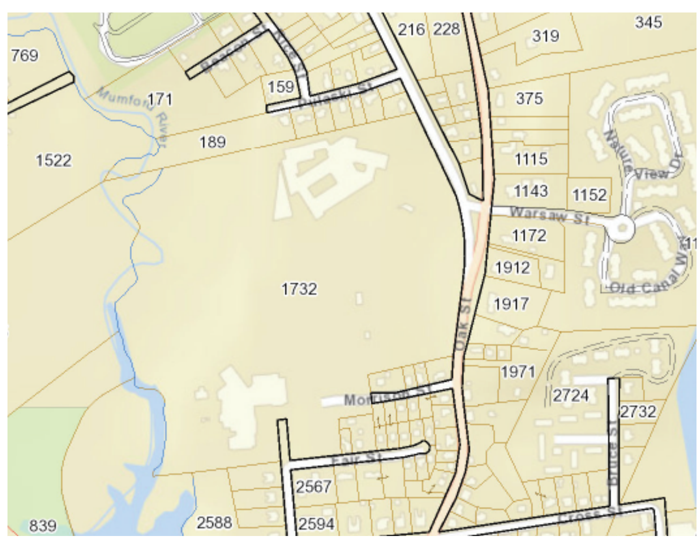
In 2003, the New England Association of Schools and Colleges placed the high school on warning status citing overcrowding, small or inadequate classrooms, inadequate laboratory facilities, windowless instructional areas, and limited space for collaborative work. A new high school building was completed in 2012, but the McCloskey building continued to serve as the middle school for Uxbridge until late 2017 when the school committee voted to close the McCloskey Middle School due to budget concerns, citing the need to replace HVAC systems, roofing and asbestos removal, and needed building envelope improvements.

The War Memorial Gym still serves civic functions as the Town's polling place and is required to continue to serve as a gym by a deed restriction.

Building Site

The McCloskey Building sits on a town-owned 36.3 acre parcel located in the Residential A zoning district. The McCloskey Building shares the property with the Taft Early Learning Center. There are shared playing fields and tennis courts between the two buildings. Access to the McCloskey building is via Capron St., a residential street that dead-ends at the facility.

Google Earth image of site (McCloskey Building at lower left)



GIS property map of site

Potential Constraints:

- While municipal and residential uses are allowed by right in the Residential-A zone, commercial uses currently are either not allowed or allowed only by special permit from the Zoning Board of Appeals or the Planning Board.
- The parcel may need to be split in the future so that the McCloskey Building and the Taft Early Learning Center each have their own parcel in which case the Town will have to decide if all of the playing fields will go to Taft or if some of the space is to be allocated to the McCloskey parcel.

Parking

There is a large asphalt parking area on the East side of the building that is currently striped with 159 parking spaces and an additional 4 accessible parking spaces with a turn-around drop-off. There is a small lot on the West side of the building with 9 parking spaces and an additional 4 accessible spaces. The asphalt is still largely intact but is cracking in many places.

Potential Constraints:

- The Town should consider patching the cracked asphalt at a minimum to mitigate further deterioration.
- Depending on the configuration of new building elements in the future, the parking area may need to be reworked to accommodate new uses and automobile and pedestrian circulation.
- There is very little shade in the parking area. The Town may want to consider adding islands with shade trees.

Accessibility

There is only one accessible entry located on the east side of the building at the 1952 Middle School addition via an accessible ramp. The 1980's and 1990's additions have at-grade accessible entrances on the west side of the building.

Potential Constraints:

- Lack of an accessible entrance at the 1936 High School building and auditorium are serious impediments, particularly if the building is to be split into different use areas.

Site Features

The site is relatively flat with about 10 feet of topographic relief from north to south and is bounded by thickly-settled residential areas on the north, east, and south, and by the Mumford River and Caprons pond on the west. Vegetation is primarily turfgrass at the playing fields with a small number of shade trees at the east parking area and adjacent to building entrances on the east side of the building.

Potential Constraints:

Currently, there is no fire truck access around the entire perimeter of the building. Depending on future building plans, the Fire Department may require expanded fire truck access.

Building Elements

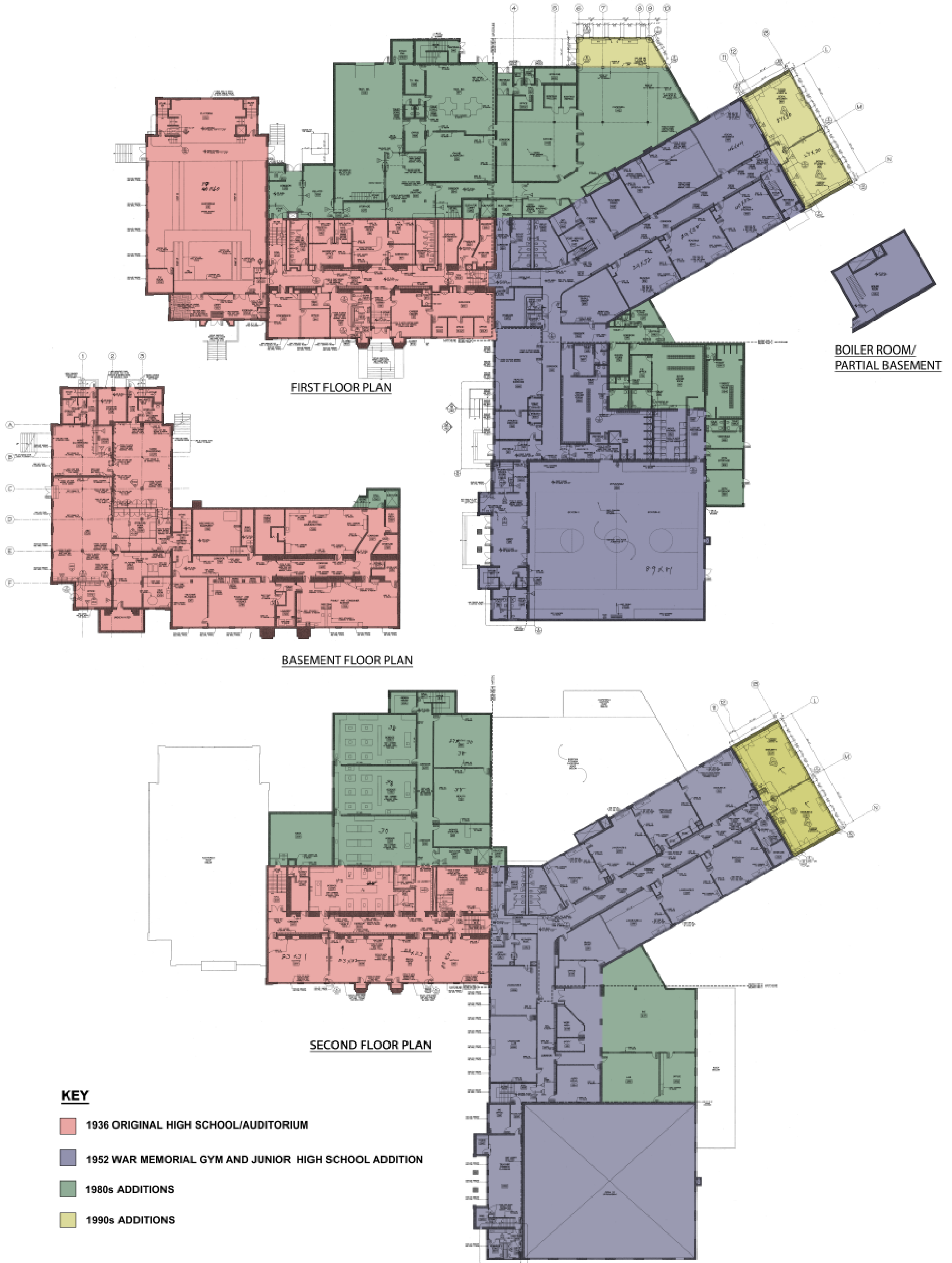
The total square footage of the McCloskey building is approximately 116,000 square feet with a building footprint of approximately 62,600 square feet. The original 1936 High School had a building footprint of approximately 14,000 square feet and approximately 41,250 square feet of building area. The 1952 addition added approximately 24,800 square feet to the building footprint and 41,150 square feet to the overall building square footage. The 1988 renovations and additions added approximately 18,000 square feet to the building footprint and approximately 29,300 to the overall building square footage. The 1998 additions added approximately 2,400 square feet to the building footprint and approximately 4,250 to the overall building area.

Roof

The current rubber membrane roof is in need of replacement; many roof leaks and large areas of ponding were visible during the assessment walk-through. The original copper flashing is over 80 years old and has exceeded its anticipated service life. There are a number of unused gravity vents and other roof penetrations that should be eliminated. As no test cuts were performed, it is unknown what lies between the current membrane roofing and the structural roof deck.

Potential Constraints:

- Due to the age of the building, it is possible that a multi-ply, built-up roof (BUR) is present under some areas of the membrane roof. If present, it is likely that the flashing contains asbestos and will require abatement.
- The roofing is in need of immediate replacement, and it is recommended that a complete reroof be performed which involves stripping all roof coverings and substrates to the roof deck which will trigger structural reinforcements (see structural report)
- The International Energy Conservation Code requires roof insulation R-values to be brought up to current code if the roof is stripped to deck. Adding additional insulation will increase the gravity loads on the roof structure which require further structural analysis (see structural report).


FIRST FLOOR PLAN
BOILER ROOM/
PARTIAL BASEMENT
BASEMENT FLOOR PLAN
SECOND FLOOR PLAN
KEY
1936 ORIGINAL HIGH SCHOOL/AUDITORIUM
1952 WAR MEMORIAL GYM AND JUNIOR HIGH SCHOOL ADDITION
1980s ADDITIONS
1990s ADDITIONS

Walls

Given the age of the building, the original brick masonry and cast stone are holding up reasonably well, but there are a number of areas that need to be repointed (see structural report.) The two masonry chimneys are both in need of immediate attention. Many of the joints in the cast stone water table and steps of the 1937 building have been repaired with sealant. It is recommended that the sealant be removed and the joints repointed with compatible mortar. As the building ages, the masonry and cast stone will continue to need periodic maintenance.

Based on the available documents, it appears that the original high school, auditorium, middle school addition, and War Memorial Gymnasium exterior walls are not insulated. The 1988 addition typically has 1" of rigid insulation in the walls. The small additions built in the 1990s have either 6" of fiberglass batts in metal stud walls or 2" of rigid insulation over concrete masonry unit (CMU) backup walls.

Some flaking paint and rust is evident on the steel window lintels. This should be addressed soon as some of the steel lintels on the original building are beginning to show signs of delamination and causing damage to adjacent masonry (see structural section). If this is allowed to continue, the lintels would need to be replaced.

Potential Constraints:

- Prior to the 1980s it was unusual to find reinforcing in solid masonry. Based on the available drawings, masonry reinforcing in the 1988 addition appears minimal. Depending on the proposed uses and level of renovation planned, some areas may require modifications to improve the lateral resistance of the exterior walls (see structural section).
- As an existing building, the code does not require that the exterior masonry walls be brought up to current code requirements for R-value although, from a building operations cost standpoint, it may be desirable to retrofit some insulation into the building envelope.

Windows

About half of the original window openings in the 1936 High School were blocked in as part of the 1989 addition. The remaining window openings are generous and provide excellent natural light. The windows are a mix of replacement aluminum double hung and slider units. The windows have either double pane insulated glazing or fixed spandrel panels. A number of windows have louvers or vents inserted in the spandrel panels. Many windows were observed with broken glazing seals and almost all of the windows appear to be at or near the end of their service life. It is unknown if the aluminum-framed windows are thermally broken. Given the assumed poor thermal performance and the condition of the existing windows, their replacement should be included in any future renovation plans.

Roof at Junior High School addition with areas of ponding

Exterior of original 1936 High School building

Exterior of 1952 War Memorial Gym

View with 1952, 1988, and 1998 additions all visible

Potential Constraints:

- Window replacement may require some reworking of the existing interior and exterior trim.

Replacement windows at 1936 High School

Interior Elements

Floors

There are a variety of vinyl tile floors of various ages throughout the building. It is possible that the pre-1980 portions of the building contain vinyl asbestos tile flooring that should be verified by testing. Both the War Memorial Gymnasium and some of the classrooms in the 1936 High School building have wood floors. It is possible that additional wood flooring is present under carpeting. The gym flooring is in good condition and appeared to have been recently refinished. None of the carpeting is salvageable. The locker rooms and 1936 High School basement have painted concrete floors.

Potential Constraints:

- Flooring and underlayment will need to be tested for hazardous materials.
- With the exception of wood floors, which may be salvageable, all flooring should be replaced to accommodate new uses.

Typical corridor at 1936 High School

Interior Doors

Doors and door frames are a mix of wood and hollow metal, and many are in poor condition. It is assumed that hollow metal door frames in CMU partitions have been grouted in place. UL labels were not observed.

Classroom entry doors in the original school building have wood and glass transoms over the doors. Given the age of the transom panels, the glazing may not meet the requirement for safety glazing.

Door hardware is a mix of level handle and knob sets. Most exit doors appear to have the required exit devices (panic hardware) and closers installed.

Typical upper level classroom at 1936 High School

Potential Constraints:

- Existing door frames in CMU partitions may be grouted in place. This makes removal and replacement difficult.
- A number of doors do not have the required clearances or hardware to comply with the current ADA and Massachusetts Architectural Barriers Board requirements.
- Existing transom panels may not comply with current building code requirements.
- The condition of the existing doors and frames is generally poor to fair.

Typical basement level classroom at 1936 High School

Interior Partitions

Basement areas in the 1936 High School have painted masonry wall finishes. Upper levels in the 1936 High School have plaster and structural glazed-tile wainscoting over a mix of masonry or wood framing. Where wood-framed walls are covered in plaster, it is assumed the plaster is on wire lath. The main entry and many classroom interior walls have wood wainscoting and built-in wood casework. The 1967 Gym and Junior High School addition has painted masonry and gypsum board or plaster wall finishes with some decorative plaster at the gym's main entrance lobby. The 1980's and 1990's additions appear to have gypsum board and painted masonry wall finishes. Many of the interior walls still have their blackboards and tackboards.

<u>Potential Constraints:</u>

- Structural glazed tile is fragile and nearly impossible to match with modern materials.
- Plaster and CMU partitions are difficult to modify.
- Load-bearing partitions should remain in place (see structural report).

Ceilings

Ceilings are a combination of plaster, gypsum, and 24" x 48" acoustic ceiling panels. The original High School entry and Auditorium have 12" x 12" acoustic tile ceilings. Many of the ceiling tiles, particularly in the 1980's additions, have sustained water damage from roof leaks. The acoustic ceiling tile in the 1936 portion of the building may or may not be adhered to the ceiling with asbestos containing adhesive. Any renovation should assume entirely new ceiling finishes.

<u>Potential Constraints:</u>

- The adhesive at the glued-up ceiling tiles in the original 1936 building may contain asbestos and should be tested.

Toilets

Toilet rooms were renovated in 1996 and are largely compliant with CMR 52 (see code report section). The bathroom floor finishes are a mixture of ceramic tile and painted concrete. Bathroom wall finishes are a mix of plaster, gypsum wallboard, and tile wainscoting.

<u>Potential Constraints:</u>

- Condition of existing plumbing is discussed elsewhere in this report.

Vertical Transportation

There is currently one 2,500-pound hydraulic elevator located in the 1980's addition and an enclosed wheelchair lift to allow wheelchair access to the auditorium stage. The owner has indicated a desire to decommission the elevator to reduce maintenance costs while the building sits unoccupied.

Interior of 1936 Auditorium

Interior of 1952 War Memorial Gym

Typical corridor at 1952 War Memorial Gym

Typical classroom at 1952 Junior High School

Potential Constraints:

- The elevator shaft does not have a cast-in-place sump and 3,000-gallon-per-hour sump pump required by the current elevator code. Since the elevator is an in-ground piston hydraulic elevator, an oil/water separator would be required on the pump's discharge line.
- It is unknown if the elevator has the fire recall and two-way communication devices required under the current elevator code.
- The existing elevator does not meet the current requirements for an emergency medical evacuation elevator.
- If the elevator is decommissioned, it may need to be brought into compliance with the current elevator code when it is brought back into service.

Stairs and Ramps

There are six sets of egress stairs. The two at the 1936 High School originally exited directly to the exterior, but after the 1967 and 1989 additions, they only provide exit access via interior corridors. There is no accessible means of egress at the 1936 high school portion of the building. The 1967 War Memorial Gym and Junior High School has two sets of egress stairs that exit directly to the exterior and one additional stair that provides exit access via the gymnasium lobby. Only one of the egress stairs at the 1967 War Memorial Gym and Junior High School serves as an accessible means of egress. There is one stair at the 1989 addition that provides direct exit access to the exterior that is also accessible. Two stairs, one at the 1936 building and one at the Gymnasium, are not currently enclosed.

Potential Constraints:

- See the Code Review section for additional information.
- If the building is sub-divided into different use areas in the future, new elevators and accessible means of egress will need to be added to make the building compliant with building and accessibility code requirements.

Kitchen/Cafeteria

See Mechanical Systems Assessment section of report for additional information.

Windowless classroom at 1988 addition

Stairwell at 1936 High School with non-compliant handrails and tread nosings

Ramp between 1936 High School and 1952 War Memorial Gym addition with non-compliant slope

HASTINGS CONSULTING

Building, Fire & Access Codes • Fire Protection Engineering

McCloskey Building

Uxbridge, Massachusetts

Existing Building Code Report

Prepared By: Kevin S. Hastings, P.E., LEED AP

Date: February 4, 2020

Table of Contents

Introduction

The McCloskey Building is a former public school building owned by the Town of Uxbridge. It was occupied as a middle school in 2016. Proposed future uses of the building include town offices and use of the various spaces in the building for community group offices, classrooms, performance, or recreation. This code summary is based on a review of available existing building documents and a site visit conducted on December 10, 2019.

Following is a list of applicable codes:

Code Type	Applicable Code (Model Code Basis)
Building	780 CMR: Massachusetts State Building Code, 9th Edition • Amended 2015 International Building Code (IBC) • Amended 2015 International Existing Building Code (IEBC)
Fire Prevention	527 CMR: Massachusetts Fire Prevention Regulations M.G.L. Chapter 148 Section 26G – Sprinkler Protection
Accessibility	521 CMR: Massachusetts Architectural Access Board Regulations 2010 ADA Standards
Electrical	527 CMR 12.00: Massachusetts Electrical Code • Amended 2017 National Electrical Code (NFPA 70)[A]
Elevators	524 CMR: Massachusetts Elevator Code • Amended ASME A17.1-2013/CSA B44-13
Mechanical	2015 International Mechanical Code (IMC)
Plumbing	248 CMR: Massachusetts Plumbing Code
Energy Conservation	2015 International Energy Conservation Code (IECC)[B]

A. The 2020 Edition of NFPA 70 is expected to be adopted in January, 2020.
B. The 2018 Edition of the IECC is expected to be adopted in 2020, however a specific date has yet to be announced.

International Existing Building Code

The 2015 International Existing Building Code with Massachusetts amendments allows for 3 separate compliance methods, the Prescriptive Method (in general, altered areas must comply with the code for new construction), Work Area Method (level of compliance is based on the classification of work), and Performance Compliance Method (numerical method that allows tradeoffs for deficiencies). This report is based on the Work Area Method, which is the most common option for the renovation of a building of this type and age.

1. Work Area and Classification of Work:

The requirements in the IEBC area based on the classification of the work as Alteration Level 1, 2 or 3. This is based on the extent of the project "work area", which is defined as the area within which architectural reconfiguration will occur (IEBC Chapter 2). Areas where the only work will be new finishes, furnishings, or installation of new building systems are not classified as part of the work area. The levels of work area defined as follows:

Level 1 Alteration	No architectural reconfiguration, no work area.
Level 2 Alteration	Aggregate size of work areas (architectural reconfigured area) does not exceed 50% of the gross building area.
Level 3 Alteration	Aggregate size of all work areas (architectural reconfigured area) exceeds 50% of the gross building area.

Level 1 Alterations must comply with IEBC Chapter 7. Level 2 Alterations must comply with IEBC Chapters 7 and 8, and Level 3 Alterations must comply with IEBC Chapters 7, 8, and 9. Buildings, or portions thereof, undergoing a change of use must also comply with IEBC Chapter 10.

This report considers the potentially code implications for a Level 2 or 3 Alteration and change in use.

2. Occupancy Classification:

Existing
- Use Group E (Educational)
- Use Group A-1 (Use of Auditorium for non-school events)
- Use Group A-2 (Use of Cafeteria for non-school events)
- Use Group A-3 / A-4 (Use of Gymnasium for non-school events with or without spectator seating)

Potential Future Uses
- Use Group B (Offices / Community Classrooms with < 50 occupants / Emergency Operations Center)
- Use Group A-1 (Auditorium)
- Use Group A-2 (Cafeteria use for non-school dining (Senior Center))
- Use Group A-3 / A-4 (Gymnasium)
- Use Group S-1 (Town Document Storage)

Based on the proposed future uses of the building, a change in occupancy classification will occur for many of the proposed options.

3. Construction Type:

Based on field observations and past building plans, the building appears to be a mix of construction types. The original buildings (Classroom, Auditorium & Gym) are classified as Type III construction based on the loadbearing masonry exterior wall construction and at least partial wood-framed interior construction. The additions are classified as Type IIB based on unprotected non-combustible structure.

Example Original Building Floor Framing

Example Construction in Additions

The original Auditorium and Gym are separated from the remainder of the building by existing masonry walls and fire-rated doors. The original classroom building is also separated by the existing masonry walls, although fire-rated doors are missing in some locations. These walls provide separation between the buildings and separate the Type III and Type IIB construction to some extent. Based on previous plans, the existing walls between the Auditorium and Gym were considered use group separation walls. These walls must be maintained since the overall area of the building would not comply with current code requirements for an assembly occupancy. Other than that, the existing building is not required to comply with the area limitations for new construction unless a change of use occurs. However even in that case the only proposed change in use would be from Use Group E to Use Group B or Use Group S-1, neither or which would not result in an increase in the relative hazard in IEBC Table 1012.5 and therefore would not require the building to comply with the limitations for new construction.

4. Fire Resistance Ratings:

The following table summarizes the required fire resistance ratings for existing building structural elements of Type IIB and IIIB construction, based on IBC Table 601:

Building Element	**Fire Resistance Rating (Hrs)**	
	Type IIIB	**Type IIB**
Primary Structural Frame	0	0
Exterior Bearing Walls including columns along the exterior wall	2	0
Exterior Non-Bearing Walls	0	0
Interior Bearing Walls	0	0
Floor Construction	0	0
Roof Construction	0	0

Depending on the scope of future renovations, and whether or not the existing elements are located within the work area, the IEBC includes the following fire rating requirements for existing non-structural elements:

Building Element	**Fire Resistance Rating (Hrs)**	**Opening Protectives (Hrs)**
Existing shafts < 4 stories (IEBC 803.2.1)	½	½
Corridor walls (IBC Table 1020.1)	0	0

A. Since the building is fully sprinklered, existing shafts up to three stories in height located within Use Group B areas do not require a fire rating (IEBC 803.2.1 Exception 5). In addition, two story stairs or other floor openings do not require a fire-rated enclosure (IBC 712.1.9).

5. Exterior Wall Openings

Existing exterior walls are only potentially subject to compliance with the fire rating and opening limitations for new construction if the building undergoes a change in occupancy classification (IEBC 1012.6). However, since the relative hazard for Use Group A, B, and E are all the same in IEBC Table 1012.6, none of the potential changes in occupancy would require further compliance. Nevertheless, the existing exterior walls are generally located more than 20 feet from lot lines and therefore would comply with the IBC exterior wall requirements for new construction anyway.

6. Vertical Openings:

Since the building is fully sprinklered, existing shafts up to three stories in height located within Use Group B areas do not require a fire rating (IEBC 803.2.1 Exception 5). In addition, two story stairs or other floor openings do not require a fire-rated enclosure (IBC 712.1.9).

The majority of the building is only two stories and therefore existing stairs do not require a fire rating, although they are generally enclosed in rated construction currently. The stairs extending three levels in the original building are also generally enclosed, but are missing doors in some locations. If the original classroom building is only used for a Use Group B occupancy in the future however the existing stairs would not require a fire-rated enclosure since the building is sprinklered (IEBC 803.2.1 Exception 5).

7. Interior Finishes:

The existing interior finish of walls and ceilings in the work area and in all exits and corridors serving the work area must comply with the code requirements for new construction (IEBC 803.4). All newly installed wall and ceiling finishes, and interior trim materials must also comply with IBC Table 803.11 (IEBC 702.1, 702.2, 702.3). The requirements are summarized below:

Walls & Ceilings (IBC Table 803.11)

Use Group:	A	B
Exit Enclosures	Class B	Class B
Exit Access Corridors	Class B	Class C
Rooms & Enclosed Spaces	Class C	Class C

Where exit stairs and exit access corridors serve more than one use group, the most restrictive interior finish is required.

8. Means of Egress:

Means of egress conforming to the requirements of the building code under which the building was constructed shall be considered compliant means of egress if, in the opinion of the code official, they do not constitute a distinct hazard to life (IEBC 805.1 Exception 2). A change of use from Use Group E to Use Group B would not require additional compliance for the existing means of egress since it would not result in an increase in the relative hazard in IEBC Table 1012.4. No hazardous egress conditions were noted during the site visit, although the exterior metal stairs providing egress from the Auditorium were corroded and should be inspected by a structural engineer before the building is re-occupied to confirm they are structurally sound. Other than that, the existing means of egress should be acceptable for continued use if the building is re-occupied.

Exterior Stairs From Auditorium

Level 3 Alteration

If the building undergoes a Level 3 Alteration, the following additional IEBC egress provisions apply (IEBC 905.1):

8.1 All rooms or spaces in the work area with a travel distance of over 75 feet or with an occupant load greater than 50 must be provided with two egress doors (IEBC 805.4.1.1).

The existing building generally appeared to include two means of egress from all rooms with more than 50 occupants.

8.2 In the work area and in the egress path serving the work area egress doors must swing in the direction of egress travel where serving an occupant load of 50 or more people (IEBC 805.4.2). Where the work area exceeds 50% of the floor the entire floor must comply with this section (IEBC 805.4.2.1).

Existing doors appeared to swing in the direction of egress where required.

8.3 In any work area, and in the egress path from the work area to an exit discharge, any doors that serve 100 occupants or more in Group A areas must be equipped with panic hardware (IEBC 805.4.4). Where the work area exceeds 50% of the floor this requirement applies throughout the floor (IEBC 805.4.4.1).

Existing doors from the assembly spaces include panic hardware.

8.4 In the work area the maximum existing dead-end corridor length must be < 35 feet or 2.5 times the least width of space. Less than 70 feet in other than Group areas where equipped throughout with an automatic sprinkler system installed in accordance with the IBC (IEBC 805.6).

The building work area does not contain dead-end corridors beyond 35 feet in length.

8.5 Doors into exit stairs must be self-closing or automatically closing by listed closing devices (IEBC 805.4.3).

The existing stair doors are typically self-closing, although the two story stairs could potentially be used as open-exit access stairs that do not require any doors (IBC 1019.3).

8.6 Illuminated exit signs and means-of-egress lighting must be provided in all work areas in accordance with the code for new construction. If the work area exceeds 50% of the floor area, this requirement applies to the entire floor (IEBC 805.7 & 805.8).

The building includes existing illuminated exit signs and emergency lighting throughout. Although a detailed review of the existing systems was not conducted, not significant deficiencies were noted during the walkthrough.

9. Required Fire Protection Systems:

The following fire protection systems are required:

- Automatic sprinkler system throughout work area if work area serves occupant load greater than 30 and work area exceeds 50% of floor area (IEBC 804.2.2). If the building is substantially altered, sprinkler protection can be required throughout by the fire official under Massachusetts General Law Chapter 148 Section 26G.

  The existing building appears to be, and is reported to be, fully sprinklered with the exception of the existing Gym which is not protected but is separated from the remainder of the building by 2-hour construction. If the building undergoes a substantial renovation sprinkler protection may be required under MGL Chapter 148 Section 26G. A renovation is typically considered substantial if more than 33% of the building area is renovated or the cost of a renovation exceeds 33% of the building's assessed value, however the final determination is subject to interpretation by the fire official.

- Fire Alarm – for a Level 2 Alteration existing previously-approved fire alarm systems are permitted to remain (IEBC 804.4.1 Exception 2). A Level 3 renovation requires a fire alarm system that complies with the code requirements for new construction (IEBC 904.2).

  The existing building has a relatively modern fire alarm system that should be sufficient for any Level 2 Alterations. If the building undergoes a Level 3 Alterations improvements to the system may be required.

- Fire extinguishers (527 CMR 1 Section 13.6 & IBC 906.1). Fire extinguishers must be located throughout the building so that the maximum travel distance to an extinguisher is less than 75 feet.

  The building has existing fire extinguishers throughout, however a detailed review of fire extinguisher locations was not conducted.

10. Energy Code Provisions for Existing Buildings

New work is subject to the 2015 International Energy Conservation Code (IECC) or ANSI/ASHRAE/IESNA 90.1 with Massachusetts Amendments (Massachusetts Energy Code). Level 2 or 3 alterations to existing buildings are permitted without requiring the entire building to comply with the energy requirements of the International Energy Conservation Code (IECC). The alterations (new elements) shall conform to the energy requirements of the IECC as they relate to new construction only (IEBC 811.1 & 908.1).

Roof replacement projects (removing and replacing the existing roof covering) where the existing roof assembly is part of the building thermal envelope and contains insulation entirely above the roof deck must provide insulation in accordance with the IECC requirements for new construction (IECC C503.3.1). However roof recovering projects (installing an additional roof covering over an existing covering without removing the existing roof) are not required to comply (IECC C503.1 Exception 5).

The Massachusetts Stretch Code as adopted by the Town of Uxbridge does not apply to existing buildings. (780 CMR Appendix AA 101.2).

11. Ventilation Requirements

All reconfigured spaces must provide mechanical or natural ventilation in accordance with the International Mechanical Code, except that existing ventilation systems are permitted to remain provided they achieve not less than 5cfm of outdoor air per person and not less than 15 cfm of ventilation air per person (IEBC Section 809).

12. Structural Provisions for Existing Buildings

Structural alterations to buildings must be evaluated by a registered structural engineer to determine compliance with the IEBC.

A change of occupancy classification can potentially require additional compliance with the code requirements for new construction (IEBC 1007). For example, an emergency preparedness center is classified as a Risk Category IV occupancy in IBC Table 1604.5 and the former school and assembly use is Risk Category III. This increase in Risk Category classification would require the building (or portion thereof) to comply with the seismic loads for new construction (IEBC 1007.3). Also, the change in occupancy from a school use to a storage archive for town documents would also result in an increase in the live load in IBC Table 1607.1 which would require the existing structure to comply with the gravity loads for new construction (IEBC 1007.1).

See the structural analysis section of the building assessment for more detailed information.

13. Accessibility for Persons with Disabilities

<u>Massachusetts Architectural Access Board Regulations</u>
Alterations to the building must comply with the requirements of the Massachusetts Architectural Access Board Regulations (521 CMR). For existing building alterations the requirements of 521 CMR are based on the cost of the proposed work:

A. If the cost of the proposed work is **less than $100,000,** only the new work must comply.

B. If the cost of the proposed work is **greater than $100,000** then all new work must comply and the existing building must include an accessible public entrance, toilet room, telephone and drinking fountain (if public phones and drinking fountains are provided) (521 CMR Section 3.3.1(b)). Exempt work when calculating the cost of work includes roof repair or replacement, window repair or replacement, and repointing and masonry repair work unless the exempt work exceeds $500,000.

C. If the cost of the proposed work is **greater than 30% of the full and fair cash value** of the existing building, the entire building is required to comply with 521 CMR (521 CMR

Section 3.3.2). There is no exempt work, i.e. the entire project costs apply to determining the 30% criteria.

The cost of all work performed on a building in any 36 month period must be added together in determining the applicability of 521 CMR (521 CMR Section 3.5). The full and fair cash value of the existing building is determined by using the 100% equalized assessed value of the building on record with the city assessor's office. If no assessed value exists or if the assessment is more than 3 years old, an appraised value may be substituted. The certified appraised value must be submitted to the Massachusetts Architectural Access Board for approval.

The building has an existing accessible entrance, toilet rooms, and drinking fountains and therefore would comply if the renovation cost exceeds $100,000 but is less than 30% of the building's assessed value.

		
Accessible Entrance	**Accessible Toilet Room**	**Accessible Drinking Fountain**

If the renovation triggers the 30% threshold, all portions of the building open to the general public (students, visitors, etc) must be upgraded to comply in full with the current requirements of 521 CMR. Any employee-only areas such as staff lounges, staff bathrooms, and staff work areas are not required to comply with 521 CMR, as long as student and public access is not permitted. Although the building is generally accessible with accessible routes to all public areas, including an elevator that exceeds the 4' x 4' minimum required for an existing building, if full compliance with the provisions of 521 CMR is required many improvements to the building would be necessary, including the following building significant features (note this is not a comprehensive list of existing deficiencies):

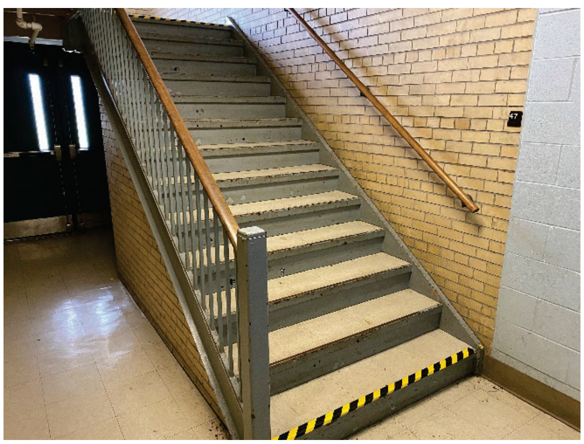
- All public entrances must be accessible (521 CMR 25.1)

  The building has an accessible entrance, however all entrances are not accessible (i.e. the main entrance to the original building and direct entrances into the Auditorium and Gymnasium are not accessible).

Accessible Entrance

Auditorium Entrance

- Many of the interior and exterior handrails are not compliant due to lack of extensions, continuous inside rails, etc. (primarily in the original buildings) and would have to be replaced (521 CMR 27.4).



Non-Compliant Interior Handrail

Main Entrance Lacking Handrails on Both Sides of Stair

- Doors in various locations are lacking the required clear floor space (i.e. extending 18" beyond the latch on the pull side of the door) (521 CMR 26.6).

Inadequate Door Clearance

- Neither the Auditorium or the Gymnasium bleachers include the required integrated wheelchair seating locations (521 CMR 14.4).

Americans with Disabilities Act Guidelines

The ADA Guidelines are not enforced by the Commonwealth of Massachusetts, they can only be enforced through a civil lawsuit or complaint filed with the U.S. Department of Justice. Compliance with the ADA Guidelines is triggered by renovations to the existing building. All renovations to the building must be made to ensure that, to the maximum extent feasible, the altered portions of the facility are readily accessible to and usable by individuals with disabilities (28 CFR Part 36 Section 36.402(a)). Alterations made to provide an accessible path of travel to altered areas and accessible facilities (i.e. provide accessible toilet facilities) are not required if the cost exceeds 20% of the total cost of the alteration (28 CFR Part 36 Section 36.403(f)). However, if the cost to meet these accessibility requirements does exceed 20%, alterations are still required to the maximum extent that the area can be made accessible without exceeding the 20% criteria (28 CFR Part 36 Section 36.403(g)). The ADA also contains less stringent dimensional requirements for some building elements in an existing building where it is infeasible to meet the requirements for new construction (ADA Section 4.1.6).

JSE JOHNSON STRUCTURAL ENGINEERING, INC.
101 Huntoon Memorial Highway (Rt. 56), Rochdale, MA 01542 (508) 892-4884 Fax (508) 892-0477

February 10, 2020

Kuhn Riddle Architects
28 Amity Street
Amherst, MA 01002
Attn: Charles Roberts

Re: McCloskey Building Assessment
62 Capron Street
Uxbridge, MA 01569

Dear Mr. Roberts:

As per your request, Johnson Structural Engineering (JSE) has performed a structural assessment of the McCloskey Building located at 62 Capron Street in Uxbridge, Massachusetts. The purpose of the structural assessment was to identify any issues with the existing building structure and the structural implications for any future renovations and alterations. The structural assessment included a site visit to review the existing building structure, structural analysis of the existing building structure (gravity system only), and a structural code review. This report has been prepared to provide the town of Uxbridge, Massachusetts an assessment of the structural concerns, repairs, and reinforcing that would be required for the proposed alterations and renovations to the existing school structure.

Your office provided us with electronic copies of the existing structural drawings that were available of the McCloskey building. The drawings included the 1936 original structure and the 1988 additions. A full set of the existing architectural and structural drawings for the original building were prepared by S. W. Haynes & Asso. Architects and were dated January 10, 1936. A portion of the architectural drawings and a full set of the structural drawings for the 1988 additions were prepared by Harvey and Tracy Consulting Engineers and were dated February 29, 1988. There were no existing drawings available for the 1952 and 1990's additions. The original building is a two-story structure with a full basement. The remainder of the building (previous additions) is a two-story structure with a first-floor concrete slab-on-grade.

In addition to the information provided on the existing structural drawings, Travis Alexander and Tyler Kornacki of JSE performed a site visit on December 10, 2019 to document and review the existing building structure and its condition. The following summarizes the structural systems of the existing building.

<u>1936 Original Structure</u>
A full set of the existing architectural and structural drawings were provided for the 1936 original structure. The existing drawings indicate the following:

- The roof structure is comprised of wood decking supported by wood rafters that are supported by steel beams and steel columns along interior bearing lines and exterior masonry bearing walls.
- The roof structure over the auditorium is comprised of wood decking supported by wood rafters that span between steel beams. The steel beams span between steel trusses, which are supported by steel columns that are located in the exterior walls of the auditorium. The roof structure over the projector room is comprised of a 4" thick reinforced concrete slab spanning between steel beams and wood planking spanning between wood rafters. The steel beams and wood rafters are supported by the interior masonry and exterior terracotta block walls.
- The second-floor structure for the classroom space is comprised of wood decking supported by wood joists. The second-floor structure for the corridor and bathroom spaces is comprised of gypsum planking supported by steel beams. The wood joists and steel beams are supported by steel girder beams and columns along interior bearing walls and are wall bearing along the exterior masonry walls.
- The first-floor structure for the classroom and auditorium spaces is comprised of wood decking supported by wood joists. The first-floor structure for the corridor and bathroom spaces is comprised of gypsum planking supported by steel beams. The wood joists and steel beams are supported by steel girder beams and columns along interior bearing walls and bear on the foundation wall along the exterior bearing lines.
- The basement level is comprised of a concrete slab-on-grade.
- The foundation is comprised of concrete foundation walls and isolated concrete footings at column locations.
- The exterior walls are multi-wythe masonry walls. The exterior walls are load bearing.
- There are interior masonry walls around the stairwells, mechanical, and electrical rooms. The masonry walls appear to be bearing walls.

1952 Addition

There were no existing architectural or structural drawings provided for the 1952 addition. The following summarizes what was observed during JSE's site visit:

- The roof structure over the academic areas is comprised of metal deck supported by steel joists. The steel joists are supported by steel beams and steel columns along interior bearing walls and are assumed to be wall bearing along the exterior bearing lines.
- The roof structure above the gymnasium is comprised of metal deck supported by steel beams. The steel beams are supported by steel trusses that clear span over the gymnasium and are supported by steel columns located in the masonry walls around the gymnasium (see photograph #1 indicating that the masonry walls are not tied to the roof structure).
- The roof structure for the gable roof over the first-floor lobby / second-floor common area is comprised of wood trusses that are supported by wood stud walls located on steel beams. The steel beams bear on the interior and exterior masonry walls. There are small flat roof areas around the gable roof that are comprised of wood planking, which is supported by steel beams and continuous wood ledgers attached to the inside face of the exterior masonry walls.

- There is a loft located below the gable roof. The loft is comprised of plywood decking supported by wood joists. The wood joists are supported by steel beams that span between the masonry walls.
- The second-floor structure is comprised of a concrete slab that is supported by steel joists. The steel joists are assumed to be supported by steel girder beams and columns along interior bearing lines and are wall bearing along the exterior masonry walls.
- The addition appears to be structurally attached to the original 1936 structure.
- The first-floor is a concrete slab-on-grade.
- The foundation is comprised of concrete foundation walls and assumed isolated concrete footings at column locations.
- The exterior walls consist of masonry bearing walls.

1988 Addition

A portion of the existing architectural drawings and a full set of the existing structural drawings were provided for the 1988 additions. The following summarizes what was detailed in the existing drawings and what was observed during JSE's site visit:

- The roof structure is comprised of metal deck supported by steel joists. The joists are supported by steel girder beams and columns along exterior and interior bearing lines. Please note that portions of the roof structure are wall bearing in new (1988 addition) and existing (pre 1988 addition) masonry walls (see photograph #2).
- The second-floor structure is comprised of a concrete slab reinforced with welded wire fabric on metal deck (4" total thickness) supported by steel joists. The steel joists are supported by steel girder beams and columns along exterior and interior bearing lines. Please note that portions of the second-floor structure are wall bearing in new (1988) and existing (pre 1988 addition) masonry walls.
- The addition appears to be structurally attached to the original 1936 structure and the 1952 addition.
- The first-floor is a concrete slab-on-grade.
- The foundation is comprised of reinforced concrete foundation walls with continuous concrete footings and isolated reinforced concrete footings at steel column locations.

1990's Addition

There were no existing architectural or structural drawings provided for the 1990's addition. The following summarizes what was observed during JSE's site visit:

- The roof structure is comprised of metal deck supported by steel joists, which are supported by steel beams and steel columns.
- The addition appears to be structurally attached to the 1952 addition and the 1988 addition.

Existing Conditions, Issues, and Recommendations

The following summarizes the issues observed during our site visit on December 10, 2019 and our recommendations for repairs throughout the building.

- Please note that access to the floor structure and roof structure at each floor level was limited to the various existing openings in the hard ceilings throughout the building.

- In the basement of the original 1936 structure, an "Unexcavated" titled room beneath the auditorium main entrance stairs has large amounts of water damage, cracks in the foundation wall, and deteriorating masonry (photographs #3 and #4). The cracked and deteriorated masonry should be replaced and masonry joints repointed. All loose concrete should be removed back to sound material and the areas of deteriorated concrete should be repaired with the appropriate Sika concrete repair product to prevent further degradation to the exposed concrete. Further investigation should be performed to verify if there are ongoing water leaks.
- In the loft area above the gym in the 1952 addition, there is water damage to the wood planking and ledger along with substantial efflorescence and deterioration along the exposed brick beneath (see photographs #5 and #6). Further investigation should be performed to verify if there are ongoing water leaks. The rotted / deteriorated wood planking will need to be replaced. The deteriorated masonry should be repaired and masonry joints repointed.
- In the second-floor "Science" and "Math" rooms at the rear of the 1988 addition there are large areas of water damage in the ceiling (see photograph #7). Further investigation should be performed to verify if there are ongoing water leaks coming from the roof.
- In the library from the 1988 addition there is a large vertical crack along the angled corner of the exterior CMU wall (see photograph #8). The cracked CMU should be repaired and the masonry joints repointed.
- In the library from the 1988 addition there is water damage at the back corner of the room (see photograph #9). Further investigation should be performed to verify if there are ongoing water leaks coming from the roof.
- In the "Cafeteria" from the 1988 addition there are numerous water leaks (see photographs #10 and #11). Further investigation should be performed to verify if there are ongoing water leaks coming from the roof.
- In general, the exterior masonry is in good condition with minor repointing required throughout.
- There are some areas with broken masonry at multiple locations along the exterior wall (see photograph #12). The cracked and deteriorated masonry should be replaced and masonry joints repointed.
- Some of the exterior window lintels are corroded. It appears that the corroded lintels have caused cracking to occur in the masonry at multiple locations (see photograph #13). The corroded lintels should be cleaned to remove all debris and surface corrosion in preparation for a new coat of paint.
- In the exterior walls there are areas of masonry shifting at multiple locations (see photographs #14). The shifted masonry should be replaced and masonry joints repointed. Shoring may be required during these repairs.
- Along the exterior foundation wall there are large cracks beneath the masonry bearing wall at multiple locations (see photograph #15).

Structural Code Review

JSE has performed a structural code review for any future alterations and renovations to the existing building. For the structural code review, the *International Existing Building Code, 2015* (IEBC) and the *9th Edition of the Massachusetts Amendments to the*

International Building Code, 2015 (780 CMR) were referenced. The structural code review assumed that the work area will exceed 50% of the building area. As a result, the work is classified as Level 3 Alterations per IEBC Section 505. It was stated that the town of Uxbridge is considering an emergency response center (risk category IV) in the basement below the current first-floor auditorium in the original 1936 structure. It was also stated that the auditorium in the original 1936 structure could remain for performances. The gymnasium and associated spaces in the 1952 addition may be renovated for a recreational center. The remainder of the building may be renovated into town offices, a senior center, or a combination thereof. The structural code review assumes that there will be a change of use as a result of the alterations and renovations.

Gravity System

A structural analysis was performed based on the existing drawings and what was observed during the site visit. The purpose of the structural analysis was to determine and verify the live load capacities of the existing floor and roof structures. Table #1 indicates the live load capacities of the existing structure for the 1936 original building and the 1988 additions. Live load capacities for the 1952 and 1990's additions are not included because the existing structural drawings were unavailable at this time. Selective demolition and further investigation will need to be conducted on these structures in order to document the existing framing. Table #2 indicates the required live load capacities for the potential future uses specified in the IBC for new construction. Based on the final use, reinforcing may be required for the existing framing in order to comply with the live load capacities specified in the *International Building Code, 2015* (IBC) for new construction.

Table #1 – Existing Live Load Capacities

Area (Year)	**Live/Snow Load Capacity**
Auditorium Roof (1936 Original Structure)	35psf
Projection Room Roof (1936 Original Structure)	30psf
Corridor & Classroom Roof (1936 Original Structure)	35psf
Corridors (1936 Original Structure) - Floor	100psf
Classrooms (1936 Original Structure) - Floor	70psf
Auditorium Lobby (1936 Original Structure) - Floor	100psf
Auditorium Stage (1936 Original Structure) - Floor	150psf
Auditorium Seating (1936 Original Structure) - Floor	100psf
Auditorium Projection Room (1936 Original Structure) - Floor	50psf
Storage Around Projection Room (1936 Original Structure) - Floor	20psf
Roof (1988 Addition)	35psf
Cafeteria Roof (1988 Addition)	125psf
Classrooms (1988 Addition) - Floor	50psf
Corridors & Public Areas (1988 Addition) - Floor	100psf
Storage & Mechanical Room (1988 Addition) - Floor	125psf
Library (1988 Addition) - Floor	225psf

Table #2 – IBC Required Live Load Capacities

Type of Space	IBC Design Live/Snow Load Capacity Requirement
Roof Snow Load	35psf + Applicable Drifting
First Floor Corridors	100psf
Corridors Above First Floor	80psf
Classrooms	40psf
Office + Partitions	50psf + 20psf
Assembly Stage Floor	150psf
Assembly Fixed Seats	60psf
Assembly Lobby	100psf
Assembly Projection Room	50psf
Uninhabitable Storage	20psf
Light Storage	125psf
Library	150psf

If the classrooms in the 1988 addition are proposed to be used as office space, then the locations and extents of any new partition walls will need to be reviewed during the design phase as the floor structure only has a 50psf live load capacity.

A preliminary structural analysis was also performed on the existing roof structure to verify its snow load capacity. The results of the analysis indicate that the existing high roof portions of the original 1936 structure and 1988 addition comply with the current design snow load for its current occupancy and also complies if its occupancy increases to risk category IV due to the addition of an emergency response center (calculated to be 35psf) based on the IBC loads for new construction. The low roof framing of the cafeteria in the 1988 addition also complies with the current design snow load and applicable drifted snow based on the IBC loads for new construction. The roof framing of the projection room will need to be reinforced as the current framing does not comply with the current design snow load and applicable drifted snow load. Please note that JSE was not provided with the existing structural drawings for the 1952 and 1990's additions and were unable to analyze the roof structures at this time. Selective demolition and further investigation will need to be conducted on these structures to document the existing framing. It is likely that reinforcing will be required to comply with the current design snow load and drifted snow in the snow drift zones of these additions. If it is proposed to replace the roofing on the existing building, then it is our recommendation that the weight of the new roofing does not exceed the weight of the existing roof and that the R-value of the new roofing insulation does not exceed the R-value of the existing roof insulation.

Section 707.3.2 of the IEBC states that if more than 50-percent of the roofing is removed and replaced on a building located in a region where the ultimate design wind speed is greater than 115 miles per hour (mph), then the roof to masonry wall connections must be evaluated. The roof to masonry wall connections must be able to resist 75-percent of the wind load specified in the IBC for new construction. Per 780 CMR, the ultimate design wind speed for office space (risk category II) and / or an emergency response center (risk category IV) located in Uxbridge, Massachusetts exceeds 115mph. Therefore, the roof to masonry wall connections for this building will need to be analyzed. If the existing roof to masonry wall connections do not have the capacity to resist 75-percent of the current wind load specified in the IBC of new construction then wall ties will be required along all exterior and interior masonry walls at the roof level. It is likely that new wall ties will be required. The wall ties will likely include 6x4x1/4 by 4” long angles that are field welded to the perimeter steel beams and anchored to the masonry walls with an adhesive anchor.

If it is proposed to add new mechanical equipment on the existing roof, then existing roof structure will likely require reinforcing to support the increased loads. Typical reinforcement will either include reinforcing the existing steel joists with continuous rebar on each side of the top and bottom chords, installing additional supplemental beams, or installing galvanized steel platforms above the roof to support any new equipment.

Lateral System

Based on the existing structural drawings, it is assumed that the lateral system of the existing building is comprised of the exterior and interior masonry walls acting as shear walls. At the time of this report it is uncertain what the future use of the building will be. If the structure is used for a recreation center, senior center, and town offices, then it is viable to assume that less than 30-percent of the total floor and roof areas will be involved in structural alteration. Therefore, the lateral system of the existing building can remain as is (IEBC Section 907.4.4). It should also be noted that the alterations to the building must not increase the demand-capacity by more than 10 percent. Essentially, any new openings in the existing masonry walls cannot exceed 10 percent of the solid wall length where the opening would be located.

If the proposed emergency response center (risk category IV) is included in the basement below the auditorium, then the existing building must conform to a reduced IBC seismic design force (IEBC section 1007.3). Since the previous additions are structurally attached to the original 1936 building, all additions of the building will need to comply with the reduced IBC seismic design force, which will include major seismic upgrades. The seismic upgrades will likely include steel braced frames (or steel moment frames) that are strategically placed throughout the building. The braced frames must align floor to floor and be continuous from the roof down to the lowest level. The braced frames will require new reinforced concrete foundations. If the emergency response center is pursued, then a geotechnical engineer will need to be hired to survey the soil conditions, verify the soil bearing pressure, and provide recommendations on the foundation type required to support the new steel frames. The Seismic Design Category for the existing building was determined to be C (the soil site classification was assumed to be D since no geotechnical information is available at this time). As a result, wall ties will be required for all existing unreinforced masonry walls (IEBC Section 907.4.5), and bracing will be required for all unreinforced masonry parapets (IEBC Section 907.4.6).

Conclusion

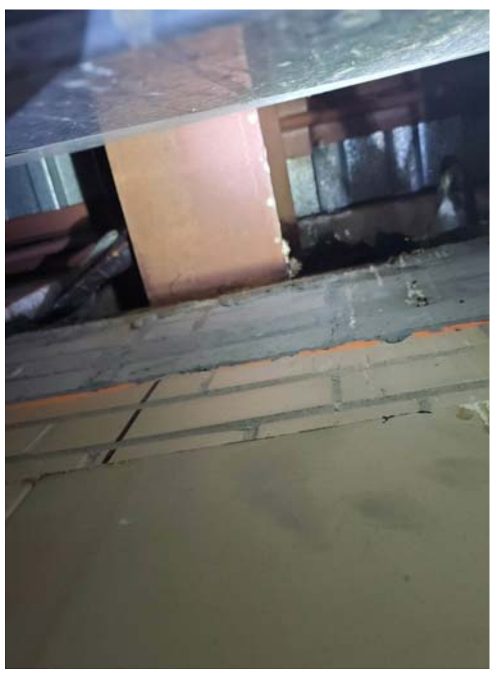
- The floor structure of the original 1936 structure and the 1988 alterations comply with the applicable design live loads specified in the IBC based on the proposed use. The partition layout for the office space will require further review during the design phase.
- Existing structural drawings for the 1952 and 1990's additions were not provided. JSE was unable analyze the structures at this time. Selective demolition and further investigation will need to be conducted to document the existing framing.
- The high roof structure of the original 1936 structure, high roof structure of the 1988 addition, and the cafeteria roof structure of the 1988 addition comply with the applicable design snow load, including drifted snow. If it is proposed to replace the roof, then it is our recommendation that the weight and R-value of the new roof does not exceed the weight and R-value of the current roof.
- The roof structure of the projection room in the original 1936 structure does not comply with the applicable design snow load, including drifted snow, and the wood rafters will need to be reinforced.
- If more than 50-percent of the roof is reroofed, then wall ties will be required to tie the existing masonry walls to the roof structure.
- If it is proposed to add new mechanical equipment on the existing roof, the existing roof structure will likely require reinforcing and / or new galvanized steel framing above the existing roof to support the equipment.
- If it is decided to include an emergency response center (risk category IV) in the basement of the original 1936 structure, or if structural alterations exceed 30-percent of the total floor area, then the lateral system of the existing building will require major upgrades for seismic considerations. The seismic upgrades will likely include steel braced frames (or steel moment frames) supported by new reinforced concrete foundations. A geotechnical engineer will also need to be hired to verify the existing soil conditions and bearing pressure, and provide recommendations. Wall ties will be required for the existing un reinforced masonry walls bracing is required at unreinforced masonry parapets.
- The existing exterior masonry walls are in relatively good conditions. Minor repointing is required throughout, and repair work is required at certain locations.
- The steel lintels in the exterior walls should be cleaned to remove all debris in corrosion in preparation for a new coat of paint.
- There are a few locations where the top of the exposed concrete along the foundation wall has cracked that will require a further geotechnical investigation into the cause, extent, and repair for the damage.
- There are many locations of water damage that must be repaired and further investigation should be performed to verify if there are ongoing water leaks.
- JSE has noted areas where we believe the existing foundation has settled. Further review and geotechnical investigation will be required to determine if remedial work is required to prevent further settlement.

If you have any questions regarding this report, please do not hesitate to call.

Sincerely Yours,
Johnson Structural Engineering, Inc.

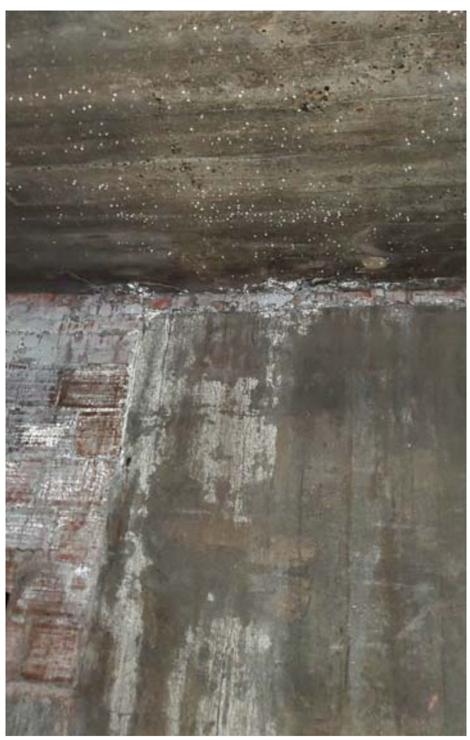
Robert A. Johnson, P.E.
President

Photograph #1 – Lack of Masonry Wall Ties – 1952 Addition

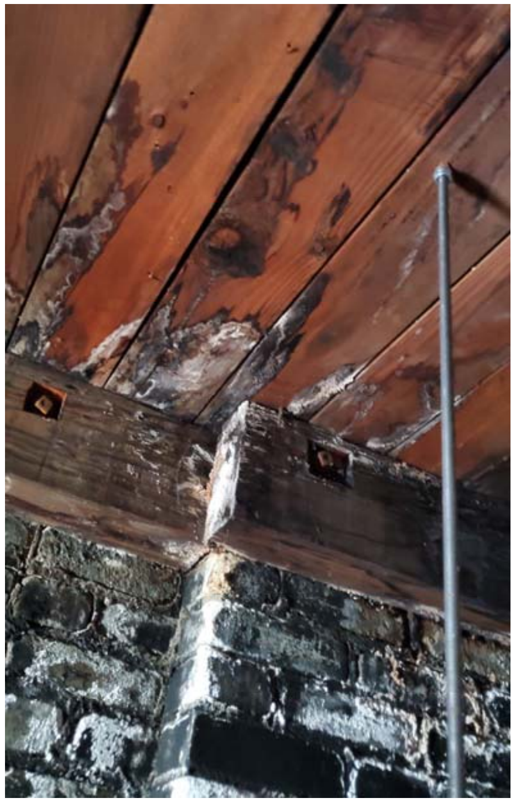


Photograph #2 – Beam From 1988 Addition Bearing on Original Masonry Bearing Wall – 1988 Addition and 1936 Original Structure

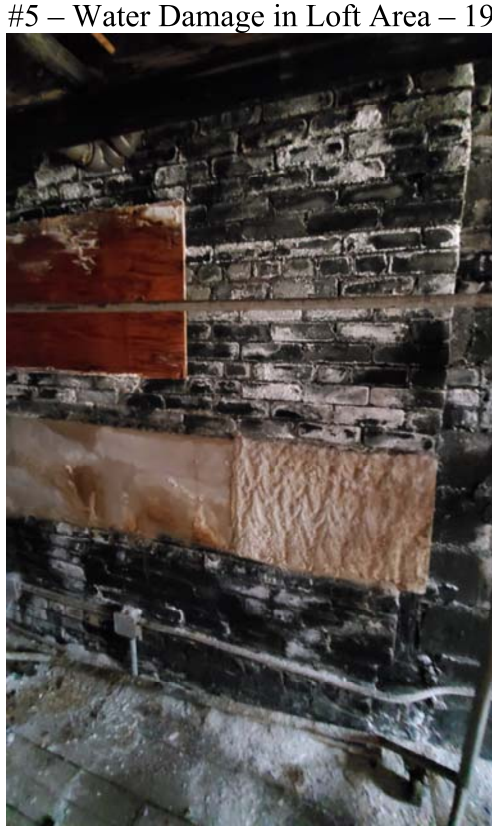
Photograph #3 – Water Damage in an “Unexcavated” Room – 1936 Original Structure



Photograph #4 – Cracked Concrete and Deteriorated Masonry in an “Unexcavated” Room – 1936 Original Structure



Photograph #5 – Water Damage in Loft Area – 1952 Addition



Photograph #6 – Efflorescence Masonry Wall in Loft Area – 1952 Addition

Photograph #7 – Water Damage in “Science” and “Math” rooms – 1988 Addition

Photograph #8 – Vertical Cracks in Library Masonry Wall – 1988 Addition

Photograph #9 – Water Damage in Library – 1988 Addition

Photograph #10 – Water Damage in "Cafeteria" (1) – 1988 Addition

Photograph #11 – Water Damage in "Cafeteria" (2) – 1988 Addition

Photograph #12 – Broken Out Masonry in Exterior Wall – Multiple Locations

Photograph #13 – Cracking Caused by Corroded Lintels – Multiple Locations

Photograph #14 – Shifting Masonry in Exterior Wall – Multiple Locations

Photograph #15 – Cracked Concrete Foundation Wall – Multiple Locations

McCloskey Building - Uxbridge, MA

Mechanical Systems Assessment

2/7/20

A. SCOPE OF WORK:

1. Assess the existing conditions through a brief site survey.

2. Provide recommendations for re-purposing the building.

B. GENERAL:

1. The McCloskey building is an approximately 100,000 sf former Junior High and High School building that was vacated in 2018.

2. The building was built in phases. The original 2-story plus Basement building was built in 1936 as a High School. In 1952, the War Memorial Gym and Junior High Addition were built. The building was added to in the 1980s and 1990s.

C. HVAC:

1. Heating System:

a. The boiler plant is located in the Basement Level Boiler Room-032 in the 1952 Addition and consists of two (2) gas-fired steam boilers and provides heating to the entire building.
b. Boiler B-1 is a Smith cast iron sectional boiler with 4,283 mbh heating capacity. The cover for boiler B-1 has been removed and not replaced suggesting sections may have been leaking.
c. Boiler B-2 is a Weil-McLain Model 1688 cast iron sectional boiler with 4,283 mbh heating capacity.
d. Boilers were replaced in 1996 and are now 14 years old.


(L - Steam Boilers B-1 and B-2, R - B-1 cover removed)

e. A steam-to-hot water heat exchanger and duplex hot water pumps are provided in Boiler Room-032.
f. Hot water pump P-6 is a Taco FE-2508 frame mounted end suction pump selected for 250 gpm and 60' Head.
g. Hot water pump P-7 is a Taco FE-3008 frame mounted end suction pump selected for 400 gpm and 50' Head.
h. Hot water pumps P-6 and P-7 were replaced in 1996 and are now 14 years old.


(L - Steam-to-Hot Water Heat Exchanger, R - Hot Water Pumps)

i. A second hot water pumping system is located in Basement Level Mechanical Room-019 in the original 1936 building. The system consists of a steam-to-hot water heat exchanger and duplex hot water pumps.
j. Hot water pumps P-1 and P-2 are Taco FE-2508 frame mounted end suction pump selected for 145 gpm and 75' Head.
k. Hot water pumps P-1 and P-2 were installed in 1996 and are now 14 years old.
l. The hot water pumping system serves 4-pipe unit ventilators in the classrooms.

Hot Water Pumps P-1 and P-2

m. To improve efficiency and address the antiquated steam system, recommendation is to replace the steam boilers and steam heating system with new high efficiency condensing boilers and a new hot water piping system.
n. To improve efficiency and meet energy code requirements, new hot water pumps to be provided with variable frequency drives to create a variable pumping system.

2. Cooling System:

a. The building is partially air conditioned. Cooling is provided to the First and Second Floor classrooms. The cooling plant consists of a 100-ton Trane air-cooled chiller located outdoors on grade and triplex chilled water pumps located in Basement Level Mechanical Room-019 in the original 1936 building.
b. Chilled water pumps P-3, P-4 and P-5 are Taco Model FE-2510 frame mounted end suction pump selected for 220 gpm and 60' Head.
c. The cooling plant was installed in 1996 and is now 14 years old.


(L - Air-Cooled Chiller, R - Triplex Chilled Water Pumps)

d. To improve efficiency and meet energy code requirements, new chilled water pumps to be provided with variable frequency drives to create a variable pumping system.

3. Classrooms:

a. First and Second Floor classrooms are provided with 4-pipe unit ventilators.
b. Basement Level classrooms are provided with 2-pipe heating only unit ventilators.
c. Fresh air intake louvers are located at the exterior walls.
d. The unit ventilators were installed in 1996 and are now 14 years.

(L - Classroom Vertical Unit Ventilator, R - Classroom Horizontal Unit Ventilator)

e. Classroom air is exhausted through wall exhaust openings, vertical exhaust ducts and roof mounted exhaust fans.

f. Roof exhaust fans are original and are now 84 years old (original 1936 building) and 58 years old (1952 Addition).

(L - Typical Classroom Exhaust Opening, R - Roof Exhaust Fans)

4. Auditorium:

a. The Auditorium is located on the First Floor of the original 1936 building and originally was used as a Gymnasium.

(L - Auditorium, R - Auditorium Ceiling and Wall Grilles)

b. The Auditorium HVAC system consists of a heating and ventilating unit located in a penthouse mechanical room above the stage. Access to the mechanical room is through a small wall access door.

c. The heating and ventilating unit is a Trane central station air handling unit with a hot water heating coil and 3-way pneumatic automatic control valve.

d. The heating and ventilating unit is assumed to be 58 years old.

e. Supply ductwork is not insulated.
f. The Auditorium is not air conditioned.


(L - Mechanical Room Access Door, R - Heating and Ventilating Unit)

5. Gymnasium:

a. The Gymnasium is located on the First Floor of the 1952 Addition.
b. The Gymnasium HVAC system consists of two (2) heating and ventilating units located in the Attic space above. Supply and return ductwork run horizontally above the ceiling of the Gymnasium. Return air is via low return grilles.
c. The heating and ventilating units are assumed to be 58 years old.
d. Supply ductwork is not insulated.
e. The Gymnasium is not air conditioned.

(L - Gymnasium, R - Low Gymnasium Return Grille)

6. Cafeteria:

a. The Cafeteria is located on the First Floor was added to the building in 1988.
b. The Cafeteria HVAC system consists of two (2) vertical unit ventilators having hot water heating coils and the original exhaust system.
c. The unit ventilators were replaced in 1996 and are now 14 years old.
d. Roof exhaust fans are 22 years old.
e. The Cafeteria is not air conditioned.

7. Kitchen:

a. The Kitchen is located on the First Floor was added to the building in 1988.
b. The Kitchen HVAC system consists of an original abandoned air handling unit (AHU-6), a kitchen exhaust system, kitchen make-up air system and dishwasher exhaust system.
c. The kitchen hood exhaust fan and make-up air unit are 22 years old.

(L - Kitchen Exhaust Hood, R - Dishwasher)

8. Steam System:

   a. Low pressure steam supply and condensate return piping run horizontally in pipe tunnels beneath the building.
   b. The original steam heating system piping are now 84 years old.

(L - Steam Radiator and Steam Trap, R - Steam Pipe Tunnel)

   c. Recommendation is to replace all steam system piping throughout with new hot water pipe mains from a new hot water heating plant.

9. Controls:

   a. Existing controls are original antiquated pneumatic controls.
   b. An air compressor serving the pneumatic control system is located in Basement Level Mechanical Room-019 in the original 1936 building.

(L - Pneumatic Thermostat, R - Pneumatic Control Panel)

   c. Recommendation is to replace the entire pneumatic control system with a new DDC (Direct Digital Control) control system.

10. Mechanical System Remaining Useful Life (as per BOMA):

Components	Useful Life	Remaining Useful Life (- means past)
Boilers, steam, cast iron:	30 years	+16 years
Hot Water Pumps:	15 years	+1 year
Air-Cooled Chiller:	20 years	+ 6 years
Chilled Water Pumps:	15 years	+1 year
Heating & Ventilating Units:	20 years	-38 years
Exhaust Fans (1936 building):	25 years	-49 years
Exhaust Fans (1952 Addition):	25 years	-33 years
Exhaust Fans (Cafeteria & Kitchen):	25 years	+3 years
Insulation (1936 building):	20 years	-54 years
Insulation (1952 Addition):	20 years	-38 years
Condensate Return Pump:	15 years	+1 year
Steam Piping (1936 building):	30 years	-44 years
Hot Water Piping (1952 Addition):	30 years	-28 years
Unit Ventilators:	20 years	+4 years
Cast iron radiators, steam:	40 years	-34 years
Ductwork, galvanized:	30 years	-28 years
Controls, Pneumatic:	20 years	-38 years
Chimney, metal:	30 years	+16 years
Conclusion:	Majority of the components are well past its useful life.	

D. PLUMBING:

1. The domestic water service and water meter are located in Basement Level Mechanical Room-019 in the original 1936 building.

2. The building is provided with a natural gas service that serves the gas-fired heating boilers and gas-fired kitchen make-up air unit.

3. Domestic hot water is provided by the hot water heating boilers. A horizontal domestic hot water storage tank is provided in Basement Level Mechanical Room-019 in the original 1936 building.

4. A Plumbing upgrade project was completed in 1996. The project upgraded bathrooms and Plumbing fixtures throughout the building. Water closets are wall-hung with exposed manually operated flushometers. Urinals are wall-hung with exposed manually operated flushometers. There is no evidence of piping replacement.

5. There are a number of roof leaks. One of the roof leaks is associated with a damaged glass acid vent-thru-roof.

6. In the Kitchen, an interior grease trap is missing from a 2-compartment pot sink.

7. In Science Rooms, emergency eyewash/shower stations are fed from cold water (not tempered water).

8. Mechanical System Remaining Useful Life (as per BOMA):

Components	Useful Life	Remaining Useful Life (- means past)
Piping (1936 building):	30 years	-44 years
Piping (1952 Addition):	30 years	-28 years
Conclusion:	Piping is well past its useful life.	


(L - Domestic Water Service, R - Handicap Accessible Plumbing Fixtures)


(L - Wall-hung Urinals, R - 2-compartment pot sink without interior grease trap)


(L - Roof Leak at Damaged Glass Acid VTR, R - Emergency Eyewash/Shower Station)

(L - Gas Service and Gas Meter, R - Horizontal Domestic HW Storage Tank)

9. Plumbing Recommendations are:

   a. Repair the damaged glass acid VTR.
   b. Install an interior grease trap at the Kitchen 2-compartment pot sink.
   c. Replace all water, waste, vent, gas and rainwater leader piping that is over 50 years old with new.
   d. Install a tempered water system(s) to serve the emergency eyewash/shower stations.

E. FIRE PROTECTION:

1. The building is fully sprinkler protected.

2. A 6” fire service enters the building in the Basement. A 6” double check valve assembly is located in Basement Level Mechanical Room-019 in the original 1936 building.

3. A sprinkler system upgrade project was completed in 1996.

4. A dry sprinkler system is provided for the Attic.

(L - Sprinkler Riser Station, R - Dry Sprinkler Valve)

5. Sprinkler piping and sprinkler heads in the original 1936 building are now 84 years old and well past their useful life.

6. Sprinkler piping and sprinkler heads in the original 1952 Addition are now 68 years old and well past their useful life.

7. Recommendation is to replace all sprinkler piping and sprinkler heads that are over 50 years old with new.

McCloskey School
Uxbridge, MA

EXISTING CONDITIONS REPORT
ELECTRICAL

McCLOSKEY SCHOOL - ELECTRICAL EVALUATION

BUILDING DESCRIPTION

A. SYSTEMS

The existing systems of this facility are a mixture of original to fairly new (1990's). The main service equipment is located in the Boiler Room, in the 1952 War Memorial Gym & Junior High School Addition. The switchboard is rated for 1600 ampere, 120/208 volt, three phase, four wire, manufactured by General Electric Company. An indoor 55-Kw Generator is located in the same area, adjacent to the Main Switchboard; the automatic transfer switch is located in the room next to the Boiler Room. The lighting is fluorescent and installed a combination of surface-mount, pendant-mount and recessed throughout the building. There are a minimal number of receptacles throughout the facility; many are surface-mount style. The fire alarm system appears to have been upgraded in the 1990's. The building is equipped with a sprinkler system. The addressable system is manufactured by Simplex Company; it is not equipped with voice notification. The communications systems consist of surface intercom/clock/sound system; most of the clocks were missing.

B. ELECTRICAL DISTRIBUTION SYSTEM

The primary service originates from an exterior utility company pad-mount transformer located on the back side of the building, near the entrance to the Kitchen/Receiving Area. The utility primary lines run from a utility pole on the corner of Fair and Capron Street, overhead on utility poles to the back of the property. From the last Utility Co. pole in the back, the primary services runs underground to the Utility Co. pad-mount transformer. The secondary service feeders enter the ground level Boiler Room directly from the pad-mount utility company transformer and connects into the main switchboard. The Utility Company meter is installed on the side of the pad-mount transformer.

Utility Co. Pole on Capron Street

Utility Co. Pole at back of building

Utility Co. Pad-mount Transformer

Utility Co. Meter

The secondary service feeders enter the basement Boiler Room directly from the pad-mount transformer and connects into a General Electric Company, 1600 Amp, 120/208 Volt, three phase main switchboard. The main switchboard has a 1600 Amp main circuit breaker and distribution section with feeder circuit breakers that provide power to sub-panelboards located throughout the building.

The panelboards located throughout the building provide power to lighting, receptacles, mechanical equipment and miscellaneous loads. Most panels appeared to be at capacity.


Main Switchboard


Feeder Circuit Breakers Panels

The main switchboard and most of the sub-panels appear old and in poor condition. The main board does not have proper clearance in the Boiler Room.

C. INTERIOR LIGHTING

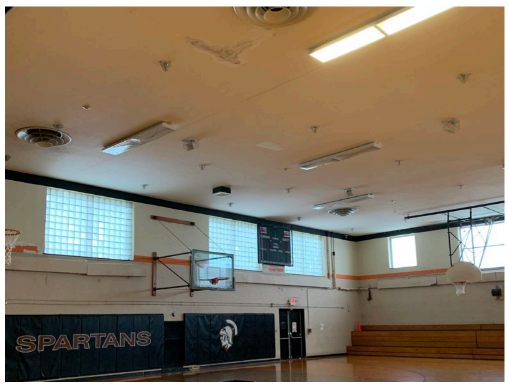
The lighting consists mostly of recessed-mount and surface-mount, 4-lamp, acrylic lens, fluorescent light fixtures. They appeared to be 32-watt T8 lamps installed. The fixtures throughout appeared to be in poor condition. Classrooms, Corridors and large public areas appeared to be poorly lit. The lighting does not meet the energy conservation code, as stipulated in Article 13 of the Massachusetts State Building Code, 8th Edition. Local wall mounted switches are used for lighting control. There is no occupancy sensor control observed. The corridor lighting is controlled with key switches at each end of the corridors.
The Gymnasium lighting appeared to be fairly new. The lights consisted of surface 1'x4' – (6) T5 lamp fluorescent light fixtures. The lamps were protected with cages. The light fixtures were controlled via ceiling occupancy sensors and manual wall switches. The space appeared to be adequately lit.


Corridor surface 4'x4' –
4 lamp fluorescent light fixtures


Classroom recessed 2'x4' –
4 lamp fluorescent lensed light fixtures

Cafeteria surface 1'x4'-
4 lamp fluorescent lensed light fixtures

Auditorium surface 1'x4' –
4 lamp fluorescent lensed light fixtures



Gymnasium surface 1'x4' –
6 lamp T5 fluorescent light fixtures with cages

D. EXTERIOR LIGHTING

There are exterior flood lights installed on wooden Utility Company poles; there are three (3) poles that illuminate the main parking lot; there are also flood lights installed on the Utility Company poles that serve the primary service feed along the side and back of the building . There are exterior wall-mounted wall pack, metal halide light fixtures near all egress doors. The exterior light fixtures are controlled via time clocks, located in the Boiler Room.

Exterior Flood Light on Utility Co. Pole

E. EMERGENCY SYSTEM

Emergency lighting is provided via emergency circuits fed from select light fixtures in the corridors, gymnasium/auditorium, Lobbies and Toilet Rooms to the emergency panel in the Boiler Room or via remote battery powered wall-mounted emergency lighting units. There are a combination of paper exit signs and Illuminated exit signs to mark egress paths; there are a minimal amount installed throughout the building. The generator is 55-Kw, 120/208-3Ph-4W, manufactured by Superior Company. It is located in the Boiler Room and appears to be in poor condition; the generator has not been operational for years. The automatic transfer switch, also located in the Boiler Room, appeared to be in poor condition. A more comprehensive survey of the emergency lighting and generator system is needed to properly assess what the generator powered during a power loss and if the battery units are operational. Life safety circuits appear to be combined with the standby power circuits with no separation.

Indoor Generator

F. FIRE ALARM SYSTEM

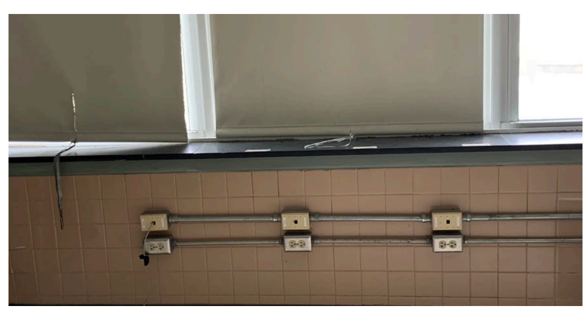
The fire alarm system consists of an addressable system, manufactured by Simplex Company, Model #4020. It appears that it was installed in 1996. Pull stations are installed at egress doors. In most locations, the height of devices do not meet ADA requirements. Horn/strobe devices are on the walls and smoke detectors on the ceilings in the corridors, lobbies, Cafetorium and Gymnasium; there are no signal devices or smoke detectors in the Classrooms. Heat detectors and an Ansul System are installed in the Kitchen. There are signal devices in the small toilet rooms. There are magnetic door holders at some of the Corridor doors; it was unknown at the time of the visit whether or not these devices were connected to the fire alarm system. The building is protected with a sprinkler system.

The fire alarm device coverage and system are inadequate for a school building and is not compliant with current codes for voice evacuation and notification.

Fire Alarm Control Panel

G. WIRING DEVICES

On average, there are approximately eight (8) receptacles installed in typical Classrooms The devices appeared to be old and in poor condition.



Surface receptacles and data devices

H. BUILDING INTERCOM, SOUND, BELL & CLOCK SYSTEMS

The intercom/sound system was is not operational; many of the system components have been removed from the building. It appeared that all paging was achieved through the telephone system at the main reception area to wall-mounted telephones in the Classrooms (all telephones in the Main Reception Area and Classrooms have been removed).

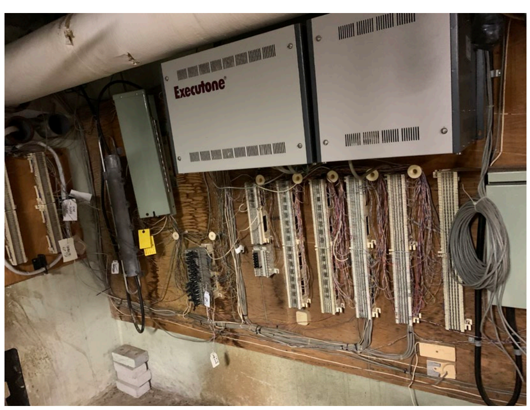
The clock system, manufactured by Simplex Company, with bell/chime features, is located at the main reception desk. Most of the clocks throughout the building have been removed. The main sound system has been removed from the building. Therefore, the systems are not operational.

Clock Panel in Main Office Area


Empty Chime/Clock Casing

I. TELECOMMUNICATIONS

There is a Telecommunications Room located on the Second Floor of the 1980's addition . There are a minimum amount of devices in each classroom; it appears that most devices were added(surface-mount) during the 1980's and 1990's renovations. The components in the Telecommunications Room have been removed, therefore the system is not operational. The telephone system in the room behind the Boiler Room appears to be old and non-functioning.



Telephone Punch-downs

J. RECOMMENDATIONS

Overall, all of the existing electrical systems appear to be in poor condition. Updating and/ or replacement will be required to support any reuse of the building to meet current codes and standards. The following are recommendations if the school were to undertake any type of renovation or addition.

Main Distribution Service and Sub-Panelboards
The main service equipment installed appears to be original to the building and the equipment appears to be in poor condition. Replacement parts for this equipment are very difficult to purchase. It is evident that the equipment has not been maintained or tested over the years. At a minimum, the main distribution board and related breakers should have an infrared scan performed to ensure that the components are not deteriorating and are still capable of operating in the manner for which they were designed. The breakers should be cleaned and load tested for failure analysis. The grounds should be tested as well as the branch circuit conductors reviewed to ensure that they are still structurally sound. All connections should be tightened in accordance with manufacturer's recommendations. In accordance with the National Electric Code (NEC) Article 110.26, an electric service rated 1200 ampere and above is to have the capability of having two means of egress or be capable of allowing for a person to safely egress the room to avoid being trapped. Currently the room does not allow a minimum of three feet clearance in front of the board. It is recommended that the board and secondary feeder be replaced.

The 1600 Ampere Service appears to be adequate for the building's current use. Once a new building use has been established, a load analysis will need to be performed to ensure that the current incoming power is sufficient for the building's intended use.

The sub-panels throughout the building are a mixture of old to fairly new (1990's). It appears that panels and feeders are at their end of life cycle. At a minimum, all branch circuit panels should have an infrared scan performed to ensure that the components are not showing signs of overloading as well as deterioration. Each panel should be properly balanced per phase. It is recommended that the panels and associated feeders be replaced.

Lighting:
The majority of the lighting throughout appears to be old and in poor condition in the building. Due to the age of the fixtures, they are showing signs of deterioration and will require maintenance or replacement. The lighting should be replaced with a more efficient lighting system which will properly illuminate the spaces, meet the energy conservation code as stipulated in Article 13 of the Massachusetts State Building Code 9th Edition and meet the standards of the Illuminating Engineering Society (IES). Incorporate occupancy/vacancy sensor controls in all applicable areas to automatically control the lighting during occupied and unoccupied times. Add photo-control sensor controls near perimeter windows for day-light harvesting. Replace all light fixtures with more energy efficient light fixtures to meet the energy conservation code, as stipulated in Article 13 of the Massachusetts State Building Code and the standards of the Illuminating Engineering Society (IES). If the light fixtures were to be replaced with LED energy efficient fixtures, then the power consumption would be reduced by at least fifty percent. It is recommended that all light fixtures and associated branch circuitry be replaced.

Emergency System:
The emergency systems throughout the building do not currently meet the requirements of NEC Article 700 Emergency Systems. If upgrades occur, the normal and emergency systems must be separated. A comprehensive analysis should be conducted throughout the facility to determine exactly what is currently operating on the system. As each piece of equipment is identified it should be labeled and documented on a set of building plans. If a new Generator is installed to serve the emergency needs, emergency equipment serving life safety circuits are to be installed in a dedicated two-hour fire rated environment. All emergency panel feeders are to be minimum 2-hour fire rated. Not all exterior egress doors have emergency lighting to allow for safe passage from the facility. Additional energy efficient lighting would be proposed to properly illuminate the exterior egresses and related parking areas. The lighting would conform to the International Building Code (IBC) 2015 section 1006 – Means of Egress Lighting and the NFPA 101 Life Safety Code. The illumination level shall not be less than one (1) foot-candle along the walking area surface. An average of one (1) foot-candle shall be maintained along the area of exit discharge with a minimum of 0.1 foot-candles along the egress path at floor level. The emergency lighting power will be required to provide power for not less than 90 minutes utilizing self-contained storage batteries or an on-site generator.

EXISTING CONDITIONS REPORT
ELECTRICAL

With respects to the interior emergency lighting, in accordance with the International Building Code (IBC-2015), section 1006 "Means of Egress Illumination", the egress discharge emergency lighting from a space shall not be less than one foot-candle (11 lux) at the walking surface and a minimum of 0.1 foot-candles measured along the path egress at floor level. In the event of a performance, within the assembly spaces, the foot-candle level can be reduced to not less than 0.2 foot-candles provided that the lighting is automatically brought back to 100% during a fire alarm alert. The exit signs are to be continuously illuminated connected to the line side of the local lighting circuit.

It appears that the existing emergency lighting installed throughout is not connected to the normal lighting circuit protecting the immediate area. If the lighting circuit were to fail, the emergency lighting would not automatically come on. The emergency lighting would only operate if the building power were to fail or if the branch circuit to the emergency lighting panel were to fail. In accordance with Life Safety 101, the emergency branch circuit is to energize in the event of a normal lighting failure within the area of protection. Various methods are used to accomplish this – emergency self-contained battery units can be installed throughout, connected to the line side of the local lighting circuit or self-contained LED drivers can be installed within the light fixtures to illuminate in the event of a power outage. It is recommended that all emergency lighting be replaced with new.

Fire Alarm System:

If renovations occur, remove the existing fire alarm in its entirety and replace with a new, addressable, ADA compliant system that meets NFPA standards, National Electric Code, 9th Edition Massachusetts State Building Code and local fire department requirements. Install a new voice activated system that is compliant with NFPA72-2013 and the 9th Edition Massachusetts State Residence Code- Chapter 9 and Town of Uxbridge Fire Department Standards. The system is currently required to meet the requirements of Use Group "E" for Education.

1. *The system will be comprised of the following:*
   a. *Upon the activation of a new manual pull station, photo-electric smoke detector, photo-electric duct smoke detector, the following shall occur:*
   b. *The exterior beacon will activate and flash.*
   c. *All speaker strobes will activate A pre-alert tone of one round code 4 will sound on all floors, followed by a voice message regarding evacuation procedure, which will be repeated twice. "Attention Please: The signal tone you have just heard indicated a report of an emergency in this building. If your evacuation signal sounds after this message, walk to the nearest stairwell and leave the floor".*
   d. *This will be followed by an evacuation tone in the temporal pattern on the floor of the alarm and floor above as well as the floor below.*
   e. *All building systems will activate as programmed, (elevator recall,).*
   f. *Photo-electric smoke beam detectors where required within the theater - existing.*
   g. *The floor of alarm will annunciate at the fire alarm control panel in the command center located adjacent to the main entrance vestibule.*
   h. *Device in alarm is displayed on the main FACP LCD Display.*
   i. *Fire department shall be notified via the U.L. Approved Central Monitoring Station which will contact the Boston Fire Department within 90 seconds of an alarm condition or approved digital radio box. The phone number of the U.L. approved central monitoring company shall be clearly labeled within the fire alarm cabinet. Fire department approved digital communicator will activate.*
2. *Upon the activation of the sprinkler system tamper switch, the following shall occur:*
   a. *Activation of the tamper switches shall initiate a supervisory signal per 780 CMR-903. The electric bell for the sprinkler must ring on flow only regardless of the condition of the fire alarm panel.*
3. *Upon the activation of a duct smoke detector or a smoke detector protecting a smoke damper, the following shall occur:*
   a. *All fire alarm visuals within the building of alarm shall be activated.*
   b. *All fire alarm speakers within the building of alarm shall be activated.*
   c. *HVAC units shall be shut down as required.*
   d. *The smoke damper will automatically close.*

  e. *Fire department shall be notified via the Town of Uxbridge Fire department the existing monitoring system currently protecting the building. Trouble and supervisory signals are not to be transmitted to the fire department.*

4. *The alarm activation of any elevator lobby smoke detector shall cause the elevator cab to be recalled according to the following sequence:*
   a. *If the alarmed detector is on any floor other than the main level of egress, the elevator cab shall be recalled to the main level of egress.*
   b. *If the alarmed detector is on the main egress level, the elevator cab shall be recalled to the predetermined alternate recall level as determined by the local authority having jurisdiction.*
   c. *The alarm activation of the elevator machine room smoke detector shall cause the elevator cab to be recalled to the predetermined alternate recall level as determined by the local authority having jurisdiction.*
   d. *The louver located at the top of the elevator shaft will open upon an alarm condition. Once the condition has cleared, the louver will automatically close.*
   e. *Remote control capability of the elevator cab, shall be installed within the fire command center utilizing a visual display or approved method of indicating where the elevators are located during an alarm or testing condition when over-ridden by the fire fighters key.*
5. *Install an exterior beacon on the front of the building in accordance with the City of Worcester's requirements. Install a remote exterior fire fighters key box.*
6. *In accordance with 780 CMR 9th Edition Massachusetts State Building Code, a Bidirectional Radio Amplification (BDA) System will be installed where necessary within the building to allow for full emergency responder radio coverage.*

Wiring Devices:
The general receptacle power located throughout the facility is minimal and in poor condition. Devices should be upgraded as renovations occur, along with all associated branch circuit wiring.

Telecommunications Systems:
The telephone, intercom and sound/clock system are not operational. All existing equipment and devices cannot be retrofitted. Complete new systems will need to be installed,

END OF ELECTRICAL CONDITIONS REPORT

February 14, 2020

Mr. Connor Robichaud
Regional Projects Coordinator
Central Massachusetts Regional Planning Commission
1 Mercantile Street – Suite 520
Worcester, MA 01608

RE: Hazardous Building Materials Visual Inventory
Former McCloskey Middle School
62 Capron Street
Fuss & O'Neill Reference No. 20200040.A10

Dear Mr. Robichaud:

On December 10, 2019, Fuss & O'Neill, Inc. (Fuss & O'Neill) representative, Mr. Lou Dias, performed a preliminary, visual inventory for suspect hazardous building materials at the former McCloskey Middle School located at 62 Capron Street in Uxbridge, Massachusetts (the "Site"). This summary report was prepared for the exclusive use of the Central Massachusetts Regional Planning Commission (the "Client").

The information summarized in this report is solely for the abovementioned materials only. The work was performed in accordance with our scope of services emailed to the Client on September 30, 2019, and our written proposal dated January 30, 2020.

Fuss & O'Neill services included a visual inventory of the following:

- Suspect asbestos-containing materials (ACM);
- Suspect lead-based paint (LBP)-coated building components;
- Fluorescent light ballasts;
- Mercury-containing light tubes, switches, and equipment; and
- Suspect polychlorinated biphenyls (PCB)-containing building materials.

Asbestos-Containing Materials (ACM)

A property owner must ensure that a thorough ACM inspection is performed prior to possible disturbance of suspect ACM during renovation or demolition activities. This is a requirement of the United States Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation located at Title 40 CFR, Part 61, Subpart M.

108 Myrtle Street
Suite 502
Quincy, MA
02171
t 617.282.4675
800.286.2469
f 617.481.5885

www.fando.com

California
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Mr. Dias is a Commonwealth of Massachusetts-certified Asbestos Inspector. At the Client's request, no samples were collected for laboratory analysis as part of the scope of work for this visual inventory. Note that this visual inventory does not satisfy United State Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations located at Title 40 CFR, Part 61, Subpart M.

For the purposes of this visual inventory, suspect ACM that typically contain asbestos (as determined from our professional experience) have been assumed to contain asbestos without sample collection and laboratory analysis. Suspect ACM are listed in Table 1 attached by material type, location, and asbestos probability.

Prior to renovation or demolition, a thorough asbestos inspection is required in accordance with NESHAP regulation. All noted building materials will require laboratory analysis to determine asbestos content, or may be removed and disposed of as assumed ACM.

If the materials listed are determined (or assumed) to contain asbestos, they must be removed by a Commonwealth of Massachusetts Department of Labor Standards (MADLS)-licensed Asbestos Contractor prior to any proposed renovation and/or demolition activities that may impact the materials. This is a requirement of the Massachusetts Department of Environmental Protection (MassDEP), MADLS, and the EPA NESHAP standards for asbestos abatement.

Lead-Based Paint

During the building walkthrough, Fuss & O'Neill observed several types of coated building components. Based on the age of the buildings, all coated building components are assumed to be coated with LBP.

Fuss & O'Neill recommends that the coated building components be screened (prior to disturbance) for LBP using an X-ray fluorescence (XRF) analyzer or paint chip sampling.

OSHA published a Lead in Construction Standard (OSHA Lead Standard) 29 CFR 1926.62 in May 1993. The OSHA Lead Standard has no set limit for the content of lead in paint below which the standards do not apply. The OSHA Lead Standards are task-based and are based on airborne exposure and blood lead levels.

Testing can provide guidance to contractors for occupational exposure control to lead. Building components containing lead levels above industry standards may cause exposures to lead above OSHA standards during demolition and renovation activities. Additionally, waste generated during building demolition is recommended to be characterized for disposal using Toxicity Characteristic

Leachate Procedure (TCLP). Testing paint and determining locations of lead paint can assist with defining materials to be included in TCLP testing. A TCLP sample of representative building components anticipated to be in the waste stream should be collected and analyzed.

Presumed Polychlorinated Biphenyl (PCB)-Containing Materials

Based on the age and construction of the former McCloskey Middle School, PCB-containing source building materials (e.g., caulking, glazing compounds, etc.) may be present. Sampling of suspect PCB-containing building materials is presently not mandated by the EPA. However, significant liability risk exists for improperly disposing of PCB- containing waste materials. Recent knowledge and awareness of PCBs within matrices such as caulking, glazing compounds, paints, adhesives and ceiling tiles has become more prevalent, especially among remediation contractors, waste haulers, and disposal facilities.

The EPA requirements apply and require removal of PCBs once identified, regardless of project intent as an unauthorized use of PCBs. Therefore, if buildings are to remain for re-use and PCBs are identified, the EPA still requires PCB material removal once it is determined that PCBs are present. In addition to identification of source materials containing PCBs, if PCBs are present at certain concentrations, additional sampling and analysis of adjacent surfaces in contact with PCB sources, or which may have been contaminated from a source of PCBs (e.g., soil), must also be performed or remediated.

EPA requirements apply only if PCBs are present in concentrations above a specified level. Presently, PCB-containing materials at concentrations equal to or greater than (≥) 50 parts per million (ppm), or equivalent units of milligrams per kilogram (mg/Kg) are regulated.
Note materials containing less than (<) 50 ppm PCBs may also be regulated, unless proven to be an "Excluded PCB Product". The definition of an Excluded PCB Product includes those products or source of the products containing <50 ppm PCBs that were legally manufactured, processed, distributed in commerce, or used before October 1, 1984.

The following table identifies the suspect PCB-containing source building materials at the Site by location and material type.

Table 2
Suspect PCB-Containing Source Building Materials

Location	Material Type
Auditorium & Main Building	Window Caulking
Auditorium & Main Building	Window Glazing Compound
Auditorium & Main Building - Concealed at Building Additions	Concealed Window Caulking & Glazing Compounds
1940s Building - Lower Roof	Roof Caulking
1940s Building	Window Glazing Compound
1940s Building	Door Caulking
1940s Building	Doorlite Glazing Compound
Rear Side & Northeast Wing Additions	Window Caulking (on Aluminum Frames)

Identified materials should be presumed to contain regulated concentrations (≥ 50 ppm) of PCBs until sample analysis indicates otherwise. These materials should be removed and disposed of at an EPA-approved facility as regulated PCB Bulk Product Waste.

Fluorescent Light Ballasts & Mercury-Containing Equipment

Fluorescent light ballasts manufactured prior to 1979 may contain capacitors that contain PCBs. Light ballasts installed as late as 1985 may contain PCB capacitors. Fluorescent light ballasts that are not labeled as "No PCBs" must be assumed to contain PCBs unless proven otherwise by quantitative analysis. Capacitors in fluorescent light ballasts labeled as non-PCB-containing may contain diethylhexyl phthalate (DEHP). DEHP was the primary substitute to replace PCBs for small capacitors in fluorescent lighting ballasts in use until 1991. DEHP is a toxic substance, a suspected carcinogen, and is listed under RCRA and the Superfund Law as a hazardous waste. Therefore, Superfund liability exists for landfilling both PCB- and DEHP-containing light ballasts. These listed materials are considered hazardous waste under RCRA and require special handling and disposal considerations.

The fluorescent lights and light ballasts were not accessible at the time of the inspection. Therefore, light ballasts should be assumed to be PCB/DEHP-containing until proven otherwise.

Fluorescent lamps/tubes are presumed to contain mercury vapor, which is a hazardous substance to both human health and the environment. Thermostatic controls and electrical switch gear may contain a vial or bulb of liquid mercury associated with the control. Mercury-containing equipment is regulated for proper disposal by EPA RCRA regulations.

According to the EPA, mercury-containing equipment is characterized as a hazardous waste and mercury lamps/tubes are characterized as a Universal Waste. The mercury-containing equipment and fluorescent lamps/tubes at the Site must be recycled, reclaimed, or disposed of as hazardous waste or Universal Waste prior to disturbance.

If you should have any questions regarding the contents of this letter, please do not hesitate to contact me at (617) 282-4675, extension 4703. Thank you for this opportunity to have served your environmental needs.

This report was prepared by Environmental Technician, Lou Dias.

Reviewed by:

Dustin A. Diedricksen
Associate/Environmental Department Manager

DD/rs

Attachments:

Table 1: Summary of Suspect Asbestos-Containing Materials
Asbestos Inspector State Certification & EPA Accreditation

Kuhn & Riddle

McCloskey Building
February 2020
Fuss & O'Neill Reference No. 20200040.A10

Material Type	Observed Locations	Probability of Containing Asbestos	Comments
Auditorium & Main Building			
Stair Tread Mastic	Stairways	Low	Not Identified in Prior Survey
12" x 12" Floor Tile	Throughout	Medium	
9" x 9" Floor Tile	Throughout	High	Prior Survey Identifies Some 9" x 9" Tiles as ACM
Mastic Associated with Floor Tile	Throughout	High	Prior Survey Identifies Some Mastics as ACM
Pipe & Mudded-Fitting Insulations	Throughout	High	Prior Survey Identifies Material Types as ACM
Wall & Ceiling Plaster (Skim & Rough Coats)	Throughout	High	Prior Survey Identifies Some Areas as ACM
Gypsum Board	Throughout	Low	Not Identified in Prior Survey
Joint Compound Associated with Gypsum Board	Throughout	Medium	Not Identified in Prior Survey
Composite Countertops	Throughout	Low	Not Identified in Prior Survey
Composite Window Sills	Throughout	Low	Not Identified in Prior Survey
Cove Base & Associated Adhesives	Throughout	Medium	Not Identified in Prior Survey; 4" & 6" Types
Composite Chalkboard	Throughout	Low	Not Identified in Prior Survey
Cementitious Fume Hood	Class Room 204	High	Not Identified in Prior Survey
Linoleum & Associated Mastics	Throughout	Medium	Not Identified in Prior Survey

Material Type	Observed Locations	Probability of Containing Asbestos	Comments
Carpet Adhesive	Throughout	Low	Not Identified in Prior Survey
2' x 4' Suspended Ceiling Tile	Throughout	Low	Not Identified in Prior Survey; 3 Types Observed
1' x 1' Suspended Ceiling Tile	Throughout	Low	Not Identified in Prior Survey
Pipe-Thread Sealant	Throughout (Associated with Water & Gas Pipes)	Low	Not Identified in Prior Survey
Ceramic Floor Tile Grout & Thin Set	Restrooms & Dish Wash Room	Low	Not Identified in Prior Survey
Ceramic Wall Tile Grout & Thin Set	Restrooms	Low	Not Identified in Prior Survey
Sink Undercoating	Throughout	Low	Not Identified in Prior Survey
Glue Daubs Associated with Wall Panels	Throughout (Observed in Guidance/Meeting Rooms)	Medium	Not Identified in Prior Survey
Duct-Seam Sealant	Throughout (Observed in Basement, Kitchen, & Art Room)	Low	Not Identified in Prior Survey
Fire Doors	Throughout (Observed in Basement)	Low	Not Identified in Prior Survey
Wall Panel Adhesive	Throughout (Observed in Cafeteria)	Low	Not Identified in Prior Survey
Walk-In Refrigerator Components	Kitchen	Low	Not Identified in Prior Survey
Textured Wall Material	Throughout (Observed in Northeast Classroom Wing)	Medium	Not Identified in Prior Survey
Chimney Flue Cement	Boiler Room	Low	Not Identified in Prior Survey
Gaskets Associated with Mechanical Equipment	Boiler Room	Medium	Not Identified in Prior Survey
Window Caulking	Exterior Throughout	Medium	Not Identified in Prior Survey
Window Glazing Compound	Exterior Throughout	Medium	Not Identified in Prior Survey

Material Type	Observed Locations	Probability of Containing Asbestos	Comments
Concealed Window Materials	Concealed Window Systems (at Building Additions)	Medium	Not Identified in Prior Survey
Roofing Materials	Exterior Roof (Multiple Roofing Systems Observed)	Medium	Not Identified in Prior Survey
Textured Ceiling	Third Floor	Medium	Not Identified in Prior Survey
1940s Building			
Roofing Materials	Exterior	Medium	Not Identified in Prior Survey
Black Siding Paper	Exterior	Medium	Not Identified in Prior Survey
Caulking	Exterior Lower Roof	Low	Not Identified in Prior Survey
Wall & Ceiling Plaster (Skim & Rough Coats)	Throughout	Medium	Not Identified in Prior Survey
Parging Cement	Basement	Medium	Not Identified in Prior Survey
Window Glazing Compound	Basement	Medium	Not Identified in Prior Survey
Flue Cement	Basement	Medium	Not Identified in Prior Survey
Wire coating (Knob & Tube)	Basement	Low	Not Identified in Prior Survey
Wall-Panel Glue	First Floor	Low	Not Identified in Prior Survey
Black Floor Tile	First Floor	Medium	Associated with Red Floor Tile; Not Identified in Prior Survey
Cove Base & Associated Adhesives	Throughout	Medium	Not Identified in Prior Survey
Thermal Paper (Associated with Radiators)	Throughout	Medium	Not Identified in Prior Survey
Gray Leveling Compound	Throughout	Low	Not Identified in Prior Survey
Black Felt Paper	Throughout	Low	Not Identified in Prior Survey

Material Type	Observed Locations	Probability of Containing Asbestos	Comments
Window Glazing Compound	Second Floor	High	Prior Survey Identifies Material Type as ACM; Two Windows Remain / Not Abated
Green Floor Tile	Second Floor Closet	High	Prior Survey Identifies Material Type as ACM; Abated at Other Areas of Building
Wall Paper (Thick)	Throughout	Low	Not Identified in Prior Survey
Roofing Materials	Exterior	Medium	Not Identified in Prior Survey
12" X 12" Floor Tile & Mastic	Interior	Medium	Not Identified in Prior Survey
Door Caulking	Interior	Low	Not Identified in Prior Survey
Doorlite Glazing Compound	Interior	Low	Not Identified in Prior Survey
Rear Side & Northeast Wing Additions			
Asphaltic Roofing Materials	Exterior Main House	Medium	Not Identified in Prior Survey
Slate Roofing Shingle Adhesive	Exterior Main House	High	Not Identified in Prior Survey
Asphaltic Siding Materials	Exterior underneath Vinyl Siding	Low	Not Identified in Prior Survey
Asphaltic Siding Paper	Exterior underneath Asphaltic Siding	Low	Not Identified in Prior Survey
Flashing Sealant	Exterior at Basement Bulkhead Access	Medium	Not Identified in Prior Survey
Window Caulking	Exterior on Aluminum Frames	Medium	Not Identified in Prior Survey
Flue Cement	Basement	Medium	Not Identified in Prior Survey
Red Duct-Seam Sealant	Basement	Low	Not Identified in Prior Survey

Material Type	Observed Locations	Probability of Containing Asbestos	Comments
Wire coating (Knob & Tube)	Basement	Low	Not Identified in Prior Survey
Paper Dampproofing	First Floor underneath Hardwood Flooring	Medium	Not Identified in Prior Survey
Ceramic Floor Tile Grout & Thin Set	First Floor Entryway	Low	Not Identified in Prior Survey
Textured Ceiling	Kitchen Behind Newer Ceiling	High	Prior Survey Identifies Material Type as ACM; Abated at Other Areas of Building
Textured Ceiling	Second Floor	High	Residual Unabated Material
Chimney Parging	Second Floor	Low	Not Identified in Prior Survey
1990s Cafeteria & Northeast Classroom Wing			
Roofing Materials	Exterior	Medium	Not Identified in Prior Survey
Heater Vent Caulking	Exterior	Medium	Not Identified in Prior Survey
Window Frame Caulking	Exterior	Medium	Not Identified in Prior Survey
Door Frame Caulking	Exterior	Medium	Not Identified in Prior Survey
Material Associated with Wall Heaters	Interior Throughout	Low	Not Identified in Prior Survey
Joint Compound & Gypsum Board	Throughout	High	Prior Survey Identifies Material Type as ACM; Abated at Other Areas of Building
Cove Base & Associated Adhesives	Throughout	Low	Not Identified in Prior Survey
Carpet Adhesive	Throughout	Low	Not Identified in Prior Survey
Wall-Panel Glue Daubs	First Floor Restrooms	Medium	Not Identified in Prior Survey

Material Type	Observed Locations	Probability of Containing Asbestos	Comments
Stair Tread Mastic	Throughout	Low	Not Identified in Prior Survey
Pipe Thread Sealant	Throughout	Low	Not Identified in Prior Survey
Paper Dampproofing underneath Hardwood Flooring	Throughout	Medium	Not Identified in Prior Survey
Flue Cement	Basement	Medium	Not Identified in Prior Survey
Yellow 12" X 12" Floor Tile & Mastic	Basement	Medium	Not Identified in Prior Survey
Boiler Flange Gaskets	Basement	Medium	Not Identified in Prior Survey
Joint Compound & Gypsum Board (Older Material)	Basement	Medium	Not Identified in Prior Survey
Residual White Material	Basement on Boiler Exhaust Duct	High	Possible Residual Breeching Material (ACM)
Red Duct-Seam Sealant	Second Floor	Low	Not Identified in Prior Survey
Linoleum & Black Paper Underlayment	Second Floor Small Room underneath Carpet	Medium	Not Identified in Prior Survey
Sink Undercoating	Second Floor	Low	Not Identified in Prior Survey
Interior Chimney Cement	Second Floor	Low	Not Identified in Prior Survey