EXISTING CONDITIONS ASSESSMENT

EXISTING SITE & BUILDING DATA

General Site Description

Newman Elementary School is one of eight public schools in the town of Needham, Massachusetts and one of five schools serving grades K-5. The school is located at 1155 Central Ave., in the west section of town. Large playfields are located on the west and north west side of the school and an extensive wooded area of conservation land borders the fields and property to the south. The north side of the property includes tennis courts and a large parking lot and abuts a residential neighborhood. A walking path connects the school property and fields to Great Plain Ave. To the east is Central Ave. and a small residential neighborhood is situated between the school and Central Ave. Vehicular access is limited to the entrance drive from Central Ave.

Topography

The site topography is relatively flat from Central Ave to the first wing of the building. A steep grade transition occurs through the middle courtyard (Image 3) and again on the far west side of the building adjacent to the playfields (Image 4). A 2010 property survey plan notes the school site is 2,644,296 sq.ft. (60.7 acres). A full size copy of this survey is included in the appendix of this report.

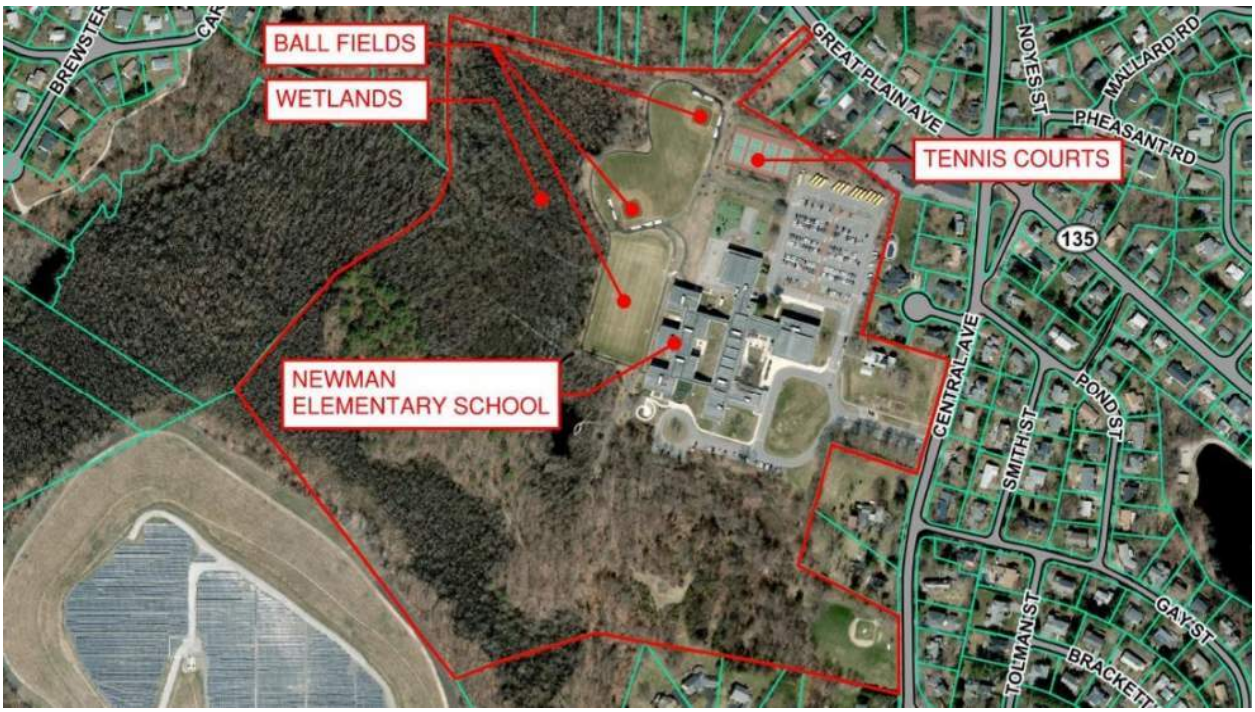


Image 1 - MA GIS aerial image of Pollard Middle School

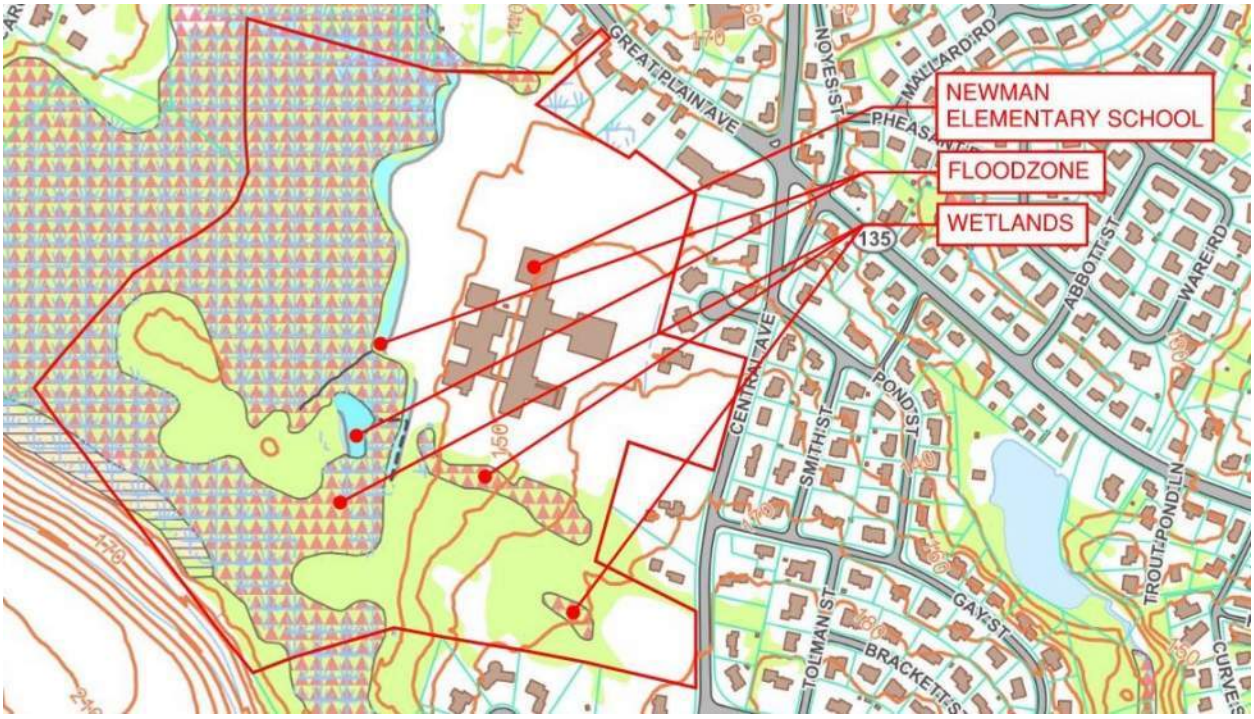


Image 2– MA GIS map of Newman Elementary School property

Parking and Site Circulation

A vehicular entrance to the school is located on Central Ave. The long entrance transitions into three student drop-off zones. The first exit from the entrance drive leads to a large parking area on the north side of the building. A one-way loop around the parking area provides a large queue for parent / student drop-off and pick-up (Image 6). This parking area is striped for 176 cars and 19 buses. The loop at the front of the school is reserved for buses and vans. A drive aisle on the south side of the building leads to a smaller drop-off loop. This zone is used for the parent / student and van drop-off for the Pre-K school, which is located on the lower level of the Newman School. Parking for 37 cars is located along the south driveway. An additional 7 parking spaces are located adjacent to the main entrance drive.

Handicap accessible spaces are provided in the small lot along the entrance drive, in the north parking lot and in the south parking area. There are a total of seven accessible parking spaces, including designated spaces for vans. Ramps and sidewalks connect the spaces to the main entrance and to student entrances located near the student drop-off areas. However, the distance to the front door may exceed the allowable travel distance for visitor parking. Handicap accessible spaces are also located in proximity to the tennis courts and playfields and paved paths lead from the spaces to these areas.

Sidewalks are provided in the adjacent neighborhoods and to the building. The Town of Needham is part of the “Safe Routes to School” program. Access around the entire perimeter of the building and to all building entrances is also provided via paved or concrete sidewalks.

Image 3– Topography in center courtyard

Image 4—Grading on far west side of building

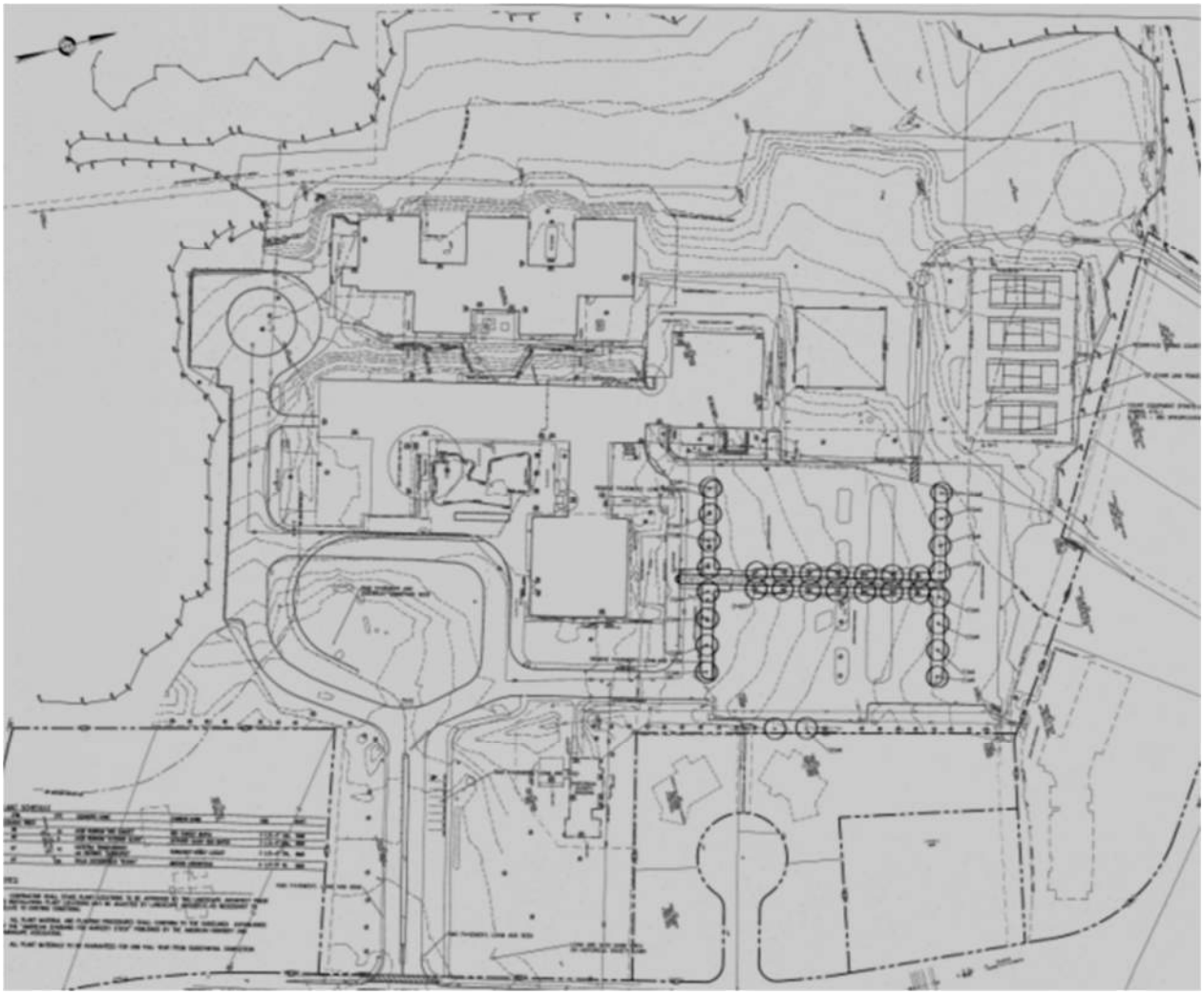


Image 5—2010 Site Plan

Emergency vehicle access is limited to the main entrance drive and to approximately half of the building area due to the topography.

Fields & Playgrounds

The Newman School has extensive playfields that have been developed for shared use with the Town. A dedicated playground for Pre-K students is located adjacent to the Pre-K drop-off and entrance (Image 7). The K-5 playground includes play equipment, a hardscape play area, and gaga pit on the north side of the building and a large hardscape area with basketball hoops on the west side of the building. In general the tennis courts, ballfields, and playfields are not used by the school but reserved for community sports programs and high school athletics.

The Town has installed walking paths and a boardwalk from the athletic fields through the Eastman Conservation Area. These paths are handicap accessible and used as part of the district-wide science program. An outdoor classroom gathering space exists at the head of the trail.

Raised garden beds are located on the west side of the building (adjacent to hardscape basketball court) and used as part of the elementary school gardening program (Image 11)

Image 6: Student drop-off loop around north parking lot

Image 7—Pre-K playground

Image 8—K-5 playground

Image 9—Outdoor classroom (photo from website)

Image 10—Trails to conservation area

Image 11—Fenced garden area

Zoning & Land Use

The 2019 property tax card (see appendix FX.2) indicates that the facility sits on 60.70 acres of land with a land value of $632,100.

The Newman Elementary School is located in zoning district 'Single Residence A (SRA)'. Public Schools are permitted in this zone. The existing school is compliant with current zoning regulations. Special Permits and Waivers were requested and granted in 2010 as part of the 'Newman Renovation' project. These included: parking illumination, 25' transition area, major project site plan procedure.

Information from the 'Table of Use Regulations' from the October 14, 2010 submission to the planning board for the 'Newman Renovation' project and updated zoning information, and the 'Table of Special Permits (SP) and Waivers (W) ' from the Planning Board submission are provided in the charts on the following page.

The topographical site plan below (included in appendix) shows the steep grades through the courtyard and the west side of the school. Also included is the wetlands flagging and the 100' jurisdictional buffer zone.

TABLE OF USE REGULATIONS / ZONING DIMENSION TABLE –NEWMAN ELEMENTARY SCHOOL			
	SCHOOL - UPDATED 10/2017 SRA REQ.	EXST. CONDITIONS*	
MIN. AREA	43,560 S.F.	2,644,296 S.F.	complies
MIN. FRONTAGE	150'	350 '	complies
MIN YARD - FRONT	30'	401'	complies
MIN YARD - SIDE	25'	356'	complies
MIN YARD - REAR	25'(d)	738 '	complies
MAX F.A.R.	0.3	0.046	complies
MAX % LOT COVERAGE	15%	3.2%	complies
MAX STORIES (schools)	3	2	complies
MAX HEIGHT (schools)	45'	35'	complies

Existing conditions dimensions are noted from the 2010 site survey

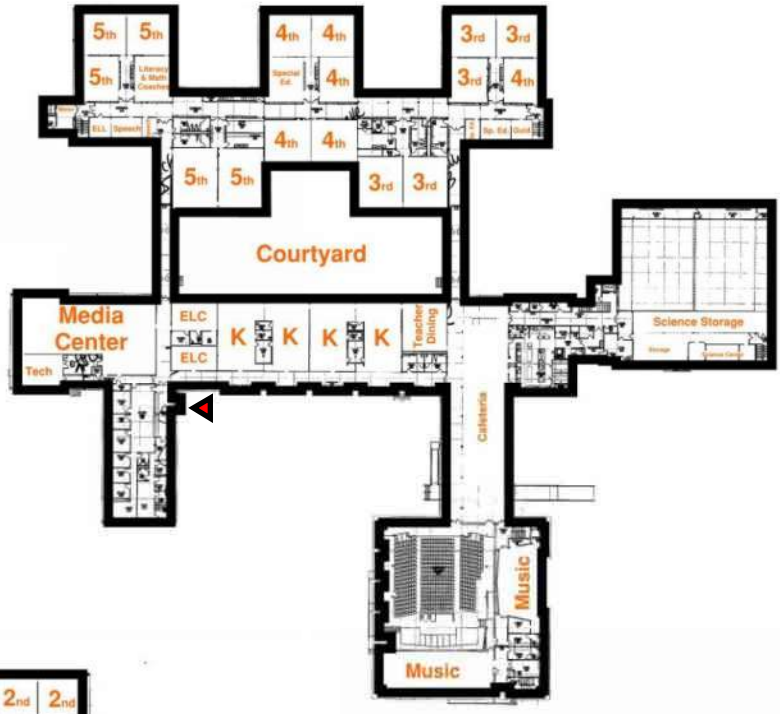
TABLE OF SPECIAL PERMITS & WAIVERS - NEWMAN RENOVATION –2010		
BY-LAW SECTION	SP / W	DESCRIPTION
7.4	SP	Request for a major project (more than 25 new parking spaces)
1.4.6	SP	Request for change and extension of lawful pre-existing, non-conforming use
4.1.6.3	SP	Exterior Lighting Plan
4.2.8.4	W	Waiver for 25 foot transition area per section 4.2.8

** See approved site plan for additional information*

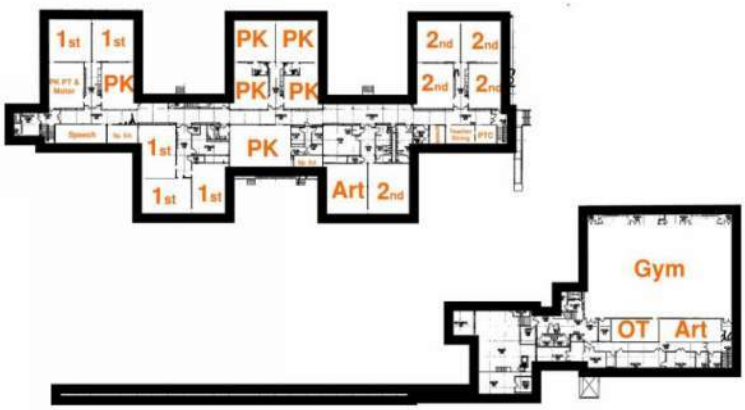
General Building Description

The original (1960) building was designed to serve as a middle school / jr. high school. The building was decommissioned as a school from 1986 to 1993 when it was re-opened as an elementary school. The building underwent extensive renovations from 2010 –2012 which included roof replacement, accessibility upgrades, upgrades to the auditorium, upgrades to kindergarten classrooms, upgrades to building the mechanical, ventilation, and electrical systems and improvements to the functional use of the building. The building currently serves approximately 625 students in grades PK-5.

The 2019 property tax card (included in the appendix) indicates that the 139,710 sq. ft. facility has a value of $30,086,800. Floor plans showing the current use of spaces are located below.



Main Level



Lower Level

Image 1 - Main entrance façade—looking west

Image 2—Main entrance façade—looking east

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REGULATORY ASSESSMENT

Introduction

This Regulatory Assessment will seek to convey to what degree the **Newman Elementary School**, in its current condition, complies with current building codes and regulations. The Assessment does not attempt to define a scope of work, but rather highlight specific non-complying conditions and identify which conditions would require correction if a repair, alteration, addition, or change of use were to be proposed for the facility.

It is important to note that a building or a portion of a building does not require correction simply because it does not comply with current codes; any building that is legally occupied and adequately maintained can remain so without bringing the building into full compliance with codes and regulations. This *principal of non-conforming rights* (that a newly adopted regulation cannot impose the undue burden of compliance on legally existing occupancies) is reflected in how the codes identify to what degree existing buildings must be brought into compliance when a scope of work is proposed. The greater the scope of work, the greater the burden of compliance with a given code or regulation will be required.

For some regulations, such as 521 CMR Accessibility Rules or the Massachusetts special sprinkler provisions of MGL c.148 s.26G, these compliance thresholds are “hard lines” comprised of specific dollar value thresholds. When determining the dollar value thresholds for compliance, the cash value of the building is used as the basis for determining the requirements for compliance. The full and fair cash value of the *building*, as determined from the Town Assessor's online database, is calculated as follows:

Property Value	**$ 30,718,900**
Land Value	**($ 632,100)**
Full and Fair Cash Value	**$ 30,086,800**

This value will be used later in this Assessment to calculate the applicable compliance thresholds. The Existing Building Code uses the type of work and the affected area to determine when increasing levels of compliance are required. When considering a proposed scope of work for the building, a careful consideration of the various degrees of compliance will need to be considered. Refer to the Regulatory Overview section of this report for a more detailed description of the various compliance paths outlined in the Existing Building Code.

The International Existing Building Code (IEBC)

The Performance Compliance path provides a simple yet comprehensive overview of the general life safety aspects of a building. Although designed as a building code compliance path, it can also be used as an assessment tool. This assessment will utilize the value and scoring based method of the Performance Compliance path to assign a score to the building as it is currently configured and maintained. Similar to previous comments, a failing score in any category as part of an assessment

does not compel any corrective action: it simply indicates how the building would be viewed under current codes. It is intended to illustrate the relative general and life safety performance of the existing building.

The Newman School was originally constructed in 1960. This original construction consists of non-combustible structural elements (cast in place concrete slabs, frame, and steel framing components). Alterations in subsequent years, including those in 2010, were prepared under the assumption that the building is Type II-B construction (unprotected, non-combustible construction); therefore, this assessment assumes that the entire facility most closely corresponds to Type II-B construction.

The incorporation of essentially modern life safety systems and equipment (sprinkler system, new fire alarm and detection systems, emergency power systems, and upgraded HVAC systems) as part of the 2010 alterations brought the building into compliance with the IEBC Work Area Compliance path. However, the facility is not segregated with compliant fire walls or pedestrian walkways and therefore the building exceeds the allowable area for the construction type. This large fire area results in a liability under the Performance Compliance Path used as part of this assessment. Additionally, the classroom "pods" of four classrooms grouped around a common exit access corridor creates a non-compliant means of egress for the majority of spaces throughout the school. From the perspective of the building code, the four classrooms grouped together and provided with one means of egress to the corridor would be viewed as one "space". This grouping of classrooms results in a common path of egress travel over the permitted 75 feet and each group of four classrooms would have a occupant load well over 50, which would require two exit access doors from the space separated by a distance equal to or greater than 1/3 the diagonal of the space. This non-compliant means of egress results in significant negative value and a failing score for all categories under the performance compliance path.

Although the resulting scores show the facility "failing" all 3 categories, the facility has been documented to comply with IEBC Work Area requirements and would be considered to be in compliance with the code for existing buildings at the time of the 2010 alterations.

Future alterations should consider adding smoke rated door assemblies to the west end of each of the two connecting bridges. This segregation would permit the bridges to be considered "pedestrian walkways" in accordance with chapter 31 of the IBC and would effectively result in two separate buildings as defined by the code. This reduction of fire area would drastically improve the life-safety aspects of the facility.

Sprinkler Protection Requirements

The Newman Elementary School was renovated in 2010. At that time the automatic sprinkler system was installed throughout the facility, which means it is in compliance with M.G.L. c.148 s.26G. Because the building is larger than 7500 Gross Square Feet (GSF), any additions would require the sprinkler system to be extended throughout the addition. In Massachusetts, a building's *fire area* includes all portions of the building enclosed by the exterior walls regardless of interior sub-division with fire walls, fire barriers or, in the case of the Newman School, pedestrian walkways.

Table 1401.7 Summary Sheet - IEBC PERFORMANCE COMPLIANCE - ORIGINAL WITH 2010 ALTERATIONS

Existing Occupancy	**Educational**	Proposed Occupancy	**Educational**		
Year building was constructed	**1960**	Number of Stories	**2**	Height in feet	**24**
Type of construction	**II-B**	Area per floor	**39,571 / 71,726**		
Percentage of open perimeter increase	**100%**				
Completely Supressed	**Yes**	Corridor wall rating	**0 hr**		
		Type	**N/A**		
Compartmentation	**No**	Required door closers	**No**		
Fire resistance rating of vertical opening enclosures	**N/R**				
Type of HVAC system	**Fin Tube, Unit Heaters, VAV.**	serving number of floors	**2**		
Automatic fire detection	**Yes**	Type and location	**Smoke, pull station. Loc varies**		
Fire alarm system	**Yes**	Type	**Horn/Strobe, Voice Activation**		
Smoke control		Type			
Adequate exit routes	**Yes**	Dead ends	**No**	Length in feet	
Maximum exit access travel distance	**221**	Elevatory controls	**No**		
Means of egress lighting	**Yes**	Mixed Occupancies	**No**		
Standpipes	**No**	Patient abilty for self preservation	**N/A**		
Incidental use	**Yes**	patient concentration	**N/A**		
Smoke compartment less than 22,500 sq. ft.	**No**	Attendant-to-patient ratio	**N/A**		

Safety Parameters	Fire Safety (FS)	Means of Egress (ME)	General Safety (GS)
1401.6.1 Building Height	4	4	4
1401.6.2 Building Area	-5	-5	-5
1401.6.3 Compartmentation	0	0	0
1401.6.4 Tenant and Dwelling Unit Separations	0	0	0
1401.6.5 Corridor Walls	0	0	0
1401.6.6 Vertical Openings	7	7	7
1401.6.7 HVAC Systems	0	0	0
1401.6.8 Automatic Fire Detection	8	8	8
1401.6.9 Fire Alarm System	5	5	5
1401.6.10 Smoke Control	****	0	0
1401.6.11 Means of Egress	****	-10	-10
1401.6.12 Dead Ends	****	2	2
1401.6.13 Maximum Exit Access Travel Distance	****	2	2
1401.6.14 Elevator Control	2	2	2
1401.6.15 Means of Egress Emergency Lighting	****	4	4
1401.6.16 Mixed Occupancies	0	****	0
1401.6.17 Automatic Sprinklers	6	3	6
1401.6.18 Standpipes	0	0	0
1401.6.19 Incidental Use	0	0	0
1401.6.20 Smoke Compartmentation	0	0	0
1401.6.21.1 Patient Ability for Self-preservation	****	0	0
1401.6.21.2 Patient Concentration	****	0	0
1401.6.21.3 Attendant-to-patient Ratio	****	0	0
Building Score - total value	27	22	25

Table 1401.9 Evaluation Formula

1960 Original Construction Including 2010 Alterations Evaluation:

				Score	Pass	Fail
27	(FS) -	*29*	(FS)=	-2		X
22	(ME) -	*40*	(ME)=	-18		X
25	(GS) -	*40*	(GS)=	-15		X

(FS)= Fire Safety (ME)= Means of Egress (GS) = General Safety

Accessibility

Any proposed work will be required to comply with the accessibility requirements of 521 CMR (The Massachusetts Architectural Access Board, or MAAB Rules) and the 2010 ADA Architectural Guidelines (ADAAG). When the building was substantially renovated in 2010, the entire facility was required to be brought into compliance with the current accessibility regulations. No significant deficiencies in the accessibility features of the facility were noted.

Standards for the Treatment of Historic Structures

The building and property is not listed on, nor is it eligible for listing, on the National Register of Historic Buildings. See section 3.1.4 A for Historical Regulations.

CIVIL ASSESSMENT

General Building Information

Nitsch Engineering has performed research of the existing site conditions for the Newman Elementary School at 1155 Central Avenue in Needham, Massachusetts. Nitsch Engineering also conducted a site visit on December 13, 2019 to observe the overall site, take pictures and provide a preliminary outline of short and long term needs for the school. Nitsch Engineering included anticipated site permitting requirements for the Newman Elementary School for any proposed site work in this report.

Nitsch Engineering's research included an initial site visit/walk through the school and review of existing conditions plans compiled by Dore and Whittier. Nitsch Engineering's observations and findings are summarized on the following pages.

Newman Elementary School is located in a residential neighborhood and bordered by wooded areas to the South and West. The entrance to the school is on Central Avenue and leads to a large student drop off loop. Off of the loop, there is a large parking lot to the north of the school and a smaller parking lot to the south.

A hard surface basketball court, playground area, and tennis courts are located to the north of the school building. There is a large athletic field to the west of the building and two baseball fields at the northwest corner of the site. There are wooded wetlands to the west of these athletic fields.

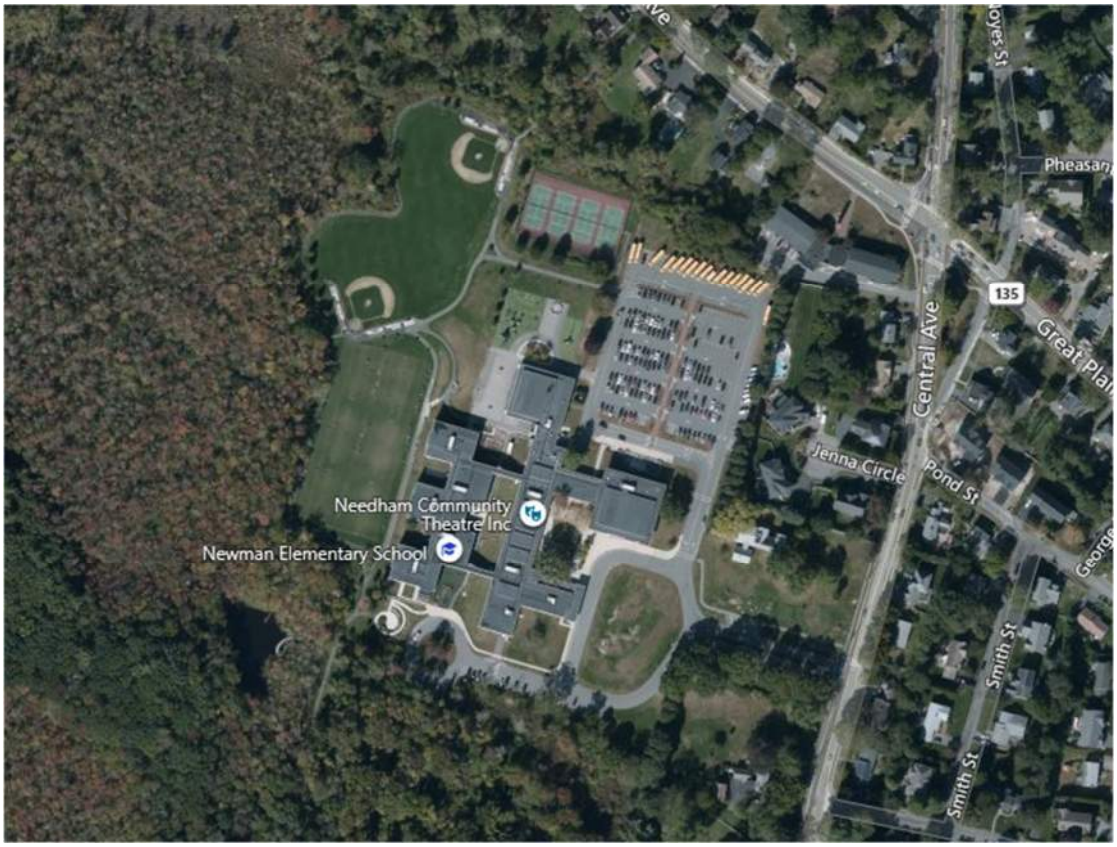

Image 1: Aerial view of school and adjacent property

Parking and Access

The main entrance drive is accessed from Central Avenue and leads to a one-way loop at the front of the building. This loop is used for buses and vans. The sidewalk in this area is level, providing an accessible entrance for students. Parent drop off for K-5 students takes place on the north side of the building. Parents are directed around the perimeter of the parking area to allow for maximum queuing. An accessible ramp is provided on this side of the building. Pre-K drop-off occurs on the south side of the building. An accessible entrance is provided.

The parking lot to the north of the drop off loop has 169 striped spaces, 7 handicap spaces, and 19 spaces for school buses. The parking lot to the south of the loop has 26 spaces for staff, 9 spaces for visitors, and 2 handicap spaces. Pavement in the drop-off loops, driveway, and parking areas is in good condition. Some bituminous curbing has been damaged from plows and vehicles.

Concrete sidewalks with granite curbs are located at the front and north and south sides of the building. Some bituminous sidewalk with granite curbing is located along the west side of the north parking area. Sidewalks and curbs are in good condition. Sidewalks have sloped ADA compliant curb cuts where transitions are made. These connect to marked crosswalks. Sidewalks provide access around the entire perimeter of the building and up to all building entrances. Ramps are provided for the side and rear entrances to the school. These appear to meet the required slope for accessibility and are in good condition.

Specific Issues	*Recommendations*
HC marked parking spaces are located far from the main entrance door.	Parking spaces should be made available near the main entrance door.
Damaged bituminous curbing. (Image 4).	Repair damaged bituminous curbing.
Stormwater from two roof drains in the courtyard have caused considerable amount of erosion in the path to two catch basins. (Image 5 & 6).	Develop proper drainage path and connection from downspout to catch basin.

Image 2: View of entrance drive from Central Ave.

Image 3: View of drop-off loops and parking

Utilities

Water

The Newman School is serviced by municipal water. A new 6" fire protection line was installed as part of the 2010 renovation project. This line enters the building on the east face of the north classroom wing. There are four fire hydrants on the property: one is located on the drop-off loop (Image 4), one is located in the parking lot to the south of the loop (Image 24), one is located along the entrance to the large parking to the north of the loop (Image 25), and one is located between the large parking lot and the playground area.

Gas

A gas line was installed as part of the 2010 renovation project. This line enters the building on the northwest face of the auditorium.

Sewer

Sewer service was upgraded during the 2010 renovations.

Drainage

Drainage for Newman Elementary School consists of swales and catch basins. The driveway entrance drains to a swale that leads to the parking lot north of the building. The parking lot then sheet flows to either baseball fields or two small retention ponds between the tennis courts and playground. Stormwater from the drop-off loop and smaller parking lot to the south is collected by multiple catch basins. Stormwater along the western side of the site drains to a series of catch basins that run along the perimeter of the athletic fields. There is a courtyard located in the middle of the building which is serviced by three catch basins. Stormwater from two roof drains in this courtyard have caused considerable amount of erosion in the path to two of these catch basins.

It appears that the drainage system is adequate for moving stormwater off the site.

Electric

Electric service comes from Central Avenue underground to an electric riser on the north side of the school. Telecommunications service comes in from Central Avenue.

Wetlands

There are considerable wetlands surrounding the building. The 100' jurisdictional buffer is as close as 6'-0" to the building on the south side and crosses the building footprint on the southwest corner. The 100' buffer wraps around the building and encompasses most of the north parking area (see site plan in appendix for location of 100' Buffer).

Permitting

Any site work at the Newman School would require Planning Board Approvals, compliance with MADEP stormwater management, and Conservation Commission Approval.

Image 4: Front drop-off loop—damaged bituminous curb

Image 5: Under connecting bridge

Image 6: Area of erosion

Image 7: West side of building

Image 8: Erosion due to roof drain

Image 9: Drainage at front driveway loop

Image 10: Downspout and sidewalk

Image 11: Drainage at access driveway

Image 12: View of connection bridge from courtyard

Image 13: Outdoor classroom

Image 14: Walkway on west side of school

Image 15: Roof drain at front of school

Image 16 : Storm drain at entrance plaza

Image 17: Drainage and walkways to playfields

Image 18: Drainage and walkway to courtyard

Image 19: Drainage on south access drive

Image 20: Drainage in walkway adjacent to PK playground

Image 21: Retention pond (not shown on site plan)

Image 22: Retention pond

Image 23: Drainage outlet

Image 24: Hydrant on south side

Image 25: Hydrant on north side

Image 26: Gas meters

STRUCTURAL ASSESSMENT

Basis of the Report & General Information

The purpose of this report is to assess the structure of the existing building and provide comments regarding the existing structure and the structural integrity of the building.

This report is based on visual observations during our site visit on January 27, 2020 and a review of the available drawings of the original construction of the school prepared by The Architects Collaborative, dated June 6, 1960, drawings of the renovations to the school prepared by Peterson Griffin Architects, dated March 24, 1995, drawings for renovations to the school prepared by HKT Architects, Inc., dated April 7, 1997 and drawings for renovations to the school prepared by DRA Architects, Inc., dated August 24, 2012. During the visit we did not remove any finishes or take measurements; so, our understanding of the structure is limited.

Existing Conditions

The school is located on Central Avenue in Needham, Massachusetts. The school is essentially a one to three story concrete structure. The typical roof and the floors are cast-in place ribbed and flat slabs, the lowest level floor is a concrete slab on grade and the foundations are traditional reinforced concrete foundations.

The existing structure is in sound condition. We noted some cracks in the interior masonry walls at several locations, but they are not a structural concern. We noted spalled concrete and cracks in the exterior overhanging concrete elements at some locations, but overall the exposed concrete is in good repair. We observed spalled concrete underside of some supported exterior concrete stairs where the reinforcing bars have been exposed. We also observed spalled concrete at the locations where the railing posts are embedded in the concrete stairs and ramps. We observed minor cracking at a few locations in the exterior masonry façade.

Findings

The structure is in good repair and performing well. We did not observe any signs of foundation settlement or undue vibrations due to footfall. We did not observe any structural deficiencies during our walk-through other than what is noted above.

Recommendations

We would recommend that the spalled concrete underside the exterior stairs and at the railing post locations be repaired. Other items that were observed can be addressed as part of the ongoing maintenance program.

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ARCHITECTURAL ASSESSMENT

General Building Information

Originally built in 1961 as a middle school it was designed by The Architects Collaborative in a style and layout that was on the leading edge of design at the time. After the building was 'mothballed' in the 1980s, due to declining student populations and program shifts, the facility was re-opened in 1993 as an elementary school. The facility continues to operate as an elementary school today. In 2010 major renovations were undertaken to modernize the systems, spaces, and support areas. Since then, repairs and improvements have continued to be made including upgrades to HVAC equipment, system controls connected to the Town BMS system, replacement of the floor in the media center, and in 2019 the complete removal and replacement of the 'Iron Bound' wood gymnasium floor system, which had been severely damaged and was buckling.

The building is primarily cast in place concrete and unit masonry. Large 'floating' slabs extend outboard of the building envelope creating a strong horizontal aesthetic. The large overhangs not only reinforce the aesthetic but provide weather protection and sun shading as well. Some of the integral components to those extended 'shelfs' such as rainwater drain pipes and penetrations, have failed or are missing parts. One significant issue with the design is that the interior and exterior are dramatically thermally bridged due to this design. The relatively new thermally broken insulated glazing systems installed during the renovations prior to the re-opening of the school contribute to improved energy efficiency, as do the newer HVAC systems, and most spaces within the school appear to provide adequate thermal tempering.

The building is in good condition overall as the Town has continued to maintain the building structure, systems & finishes.

The following information addresses specific architectural issues observed during our recent site visit.

EXTERIOR

Foundation Walls

The foundation is reinforced cast in place concrete. No perimeter insulation was observed. The structure is in good condition but has numerous areas where the exposed concrete is stained. Minor cracks and areas of spalling were observed.

Drainage for roofs and the perimeter appears to be designed to carry water away from the foundation.

Specific Issues	*Recommendations*
Efflorescent staining and minor surface discoloration	Pressure wash / clean with appropriate materials and make ready for concrete sealer, install sealer.
Minor cracks and spalling	Remove loose material adjacent to and in areas to be repaired, patch with cementitious or flexible materials depending on location or depth of damage.
Uninsulated foundation and slabs on grade	Consider a complete perimeter insulation 'wrap' on all exposed cast in place concrete areas as part of a comprehensive envelope improvement project.

Image 7: Column pier and foundation wall

Image 8: Exposed (painted) foundation wall

Image 1: Floating slab over foundation wall

Image 2: Exposed Foundation wall

Image 3: Exposed foundation wall

Image 4: Exposed foundation with minor spalling

Image 5: Exposed foundation wall

Image 6: Spalling at exposed foundation wall

Retaining Walls

There are multiple retaining walls on the site. In the plaza of the main entrance a smaller poured in place concrete retaining wall defines a garden and out door classroom area (Image 9). A masonry wall with stone veneer and stone cap lines the walkway that leads to the fields on the west side of the building (Image 10). Curved granite “steps” terrace the landscape above the wall (Image 12). In the center courtyard a field stone wall is used to retain the landscape and create an area for a walking path (Image 11). On the north side of the building large concrete blocks and a poured in place concrete wall are used to create access to the lower level (Image 13). Poured in place concrete wall is used on the south side of the building to retain a green space outside of the classrooms and create a sloping walkway to the outdoor classroom.

With the exception of the stone wall in the central courtyard, these walls appear to be in good shape and functioning well. The stone wall in the central courtyard is in need of repair. Several areas have missing stones and deteriorating grout.

Specific Issues	*Recommendations*
Stone wall in courtyard has missing stones and grout	Remove all loose stones. Replace stones and re-grout wall. Consider replacing existing wall with poured in place concrete wall for improved maintenance.

Exposed Structural System

Several portions of the building were designed with structural elements, such as columns, exposed on the exterior of the building. This was a common practice in the 50's and 60's but over the years has proved to be detrimental to the integrity of the structural system and the thermal envelope. Exposing structural elements to the exterior accelerates weathering and deterioration of the structural elements themselves. At each location where structural elements need to pass through the thermal envelope (the insulating layers of the building), several complicating factors are introduced. Every such location creates a "thermal bridge" where cold steel members are exposed on the warm air interior of the building; these locations can introduce condensation and further deterioration of structural elements and finishes. Each of these locations are difficult to properly seal and also create opportunities for air leakage through the building envelope.

The photos attached are typical conditions around the building where the structural system is exposed to the weather. In the case of the Newman School, the structural integrity of the columns and exposed floor slabs has been maintained. These elements appear to be in generally good condition.

Image 9: Retaining wall at front plaza

Image 10: Retaining wall on west side

Image 11: Retaining wall in courtyard

Image 12: Terraced retaining area—west side

Image 13: Retaining walls on north side

Image 14: Retaining wall on south side

Specific Issues	*Recommendations*
Structural columns and floor slab that are exposed to the exterior conditions	Review opportunities to reduce thermal bridging

Exterior Walls

The exterior walls are primarily constructed of brick veneer with concrete block back-up walls. The brick walls are in good condition throughout the building. In a few locations where the brick extends to or below grade there is evidence of staining and algae.

In some areas concrete panels are located above door transoms (Image 20). Some of these are in poor condition as the it appears that water has been allowed to infiltrate behind the panel. The freeze / thaw cycle has caused damage to the lower portion of the concrete panel.

Specific Issues	*Recommendations*
Algae growth on face of brick	Power wash and scrub existing algae from brick and mortar. Treat with anti-algae cleaner.
Spalling of concrete panels	Review and treat cause of water infiltration. Scrape loose concrete from panel. Patch and repair.

Image 21A: Brick façade of theater

Image 21B: West elevation

Image 15: Typical building structure—exposed slab

Image 16: Typical structure—exposed columns

Image 18: Elevation of Building

Image 19: Brick with algae

Image 20: Concrete panel above transom window

Doors

The exterior doors consist primarily of aluminum storefront and curtain wall doors, as well as hollow metal doors with hollow metal frames. The aluminum curtain wall and storefront doors are in good condition, and the hollow metal doors and frames are in good to fair condition. There are several doors where the exterior paint is faded or scratched. These should be repainted to prevent further damage or rusting.

Door hardware is in good condition and operable. There are minor issues that include hardware in need of adjustment, and loose / missing weather seal hardware. The pull hardware should be reviewed to verify that it meets ADA / MAAB requirements for operating with a closed fist.

Specific Issues	*Recommendations*
There are several doors where the paint is faded or scratched	Repaint doors that have faded or have scratches
Door hardware	Review door hardware for compliance, continue to maintain operable hardware and sealers.

Exterior Windows & Vents

The primary exterior window type is aluminum curtain wall infill assemblies with insulated glazing & operable venting sections (Image 26 & 27). The windows as a whole are in good to excellent condition; no obvious damage or deficiencies were observed.

Building vents are in good condition.

Specific Issues	*Recommendations*
None	

Image 28: Building vent

Image 29: Building vent

Image 22: Doors located on the north side of the building

Image 23: Door to Science Center

Image 24: Typical door

Image 25: Student entrance door on north side of building

Image 26: Typical windows

Image 27: Typical windows

Soffits & Facia

The building is designed with concrete soffit sun-shading at both the first floor and second floor levels. These soffits are part of the concrete floor and roof slabs (Image 30). The first floor soffit has a built in gutter system (Image 31) that drains toward holes in the slab for drainage (Image 32 & 33). The waffle concrete soffits have infill panels. On the west side of the building the waffle slab soffits do not include infill panels (image 34). In general the soffits are in good condition however, there is considerable staining, efflorescence, and some spalling. The effloresce is an indication of water or moisture infiltration.

The concrete facia around the building shows considerable staining from efflorescence. A metal MCM fascia and roof cap has been installed over the concrete. This material is in good condition.

Specific Issues	*Recommendations*
Soffits stained with dirt and efflorescence, and spalling concrete	Power wash and scrub soffit areas. Determine if water is seeping into the concrete or not drying properly. Resolve any water infiltration.
Concrete fascia is stained from efflorescence	Power wash and scrub fascia.

Roof Drainage

The roof drains to exterior scuppers and downspouts. The unique downspouts are open faced (Image 36). Most of the downspouts deposit the water at grade. In some areas this causes a wash out area in the landscape as noted in the civil section of this report. Some downspouts on the west side drain to underground drainage locations (Image 37). In one location it appears that washout from the downspout has exposed the underground drainage system (Image 38). These exposed pvc drainage pipes are susceptible to freezing and cracking. In one particular location the downspout was installed directly above a concrete retaining wall (Image 39). A makeshift drainage path has been installed using sheet metal and planks (Image 40).

Specific Issues	*Recommendations*
Roof drains that have caused washout	Place splash blocks in areas where washout has occurred. For larger area create positive flow with landscaped drainage areas
Exposed PVC drainage pipes	Infill drainage washout and cover PVC piping with appropriate level of dirt to provide insulation and prevent freezing
Makeshift drainage path	Install downspout extension to proper drainage area

Image 30: Soffit conditions at first & second floors

Image 31: Built in gutter system

Image 32: Drainage holes in concrete slab

Image 33: Drainage holes in concrete slabe

Image 34: Soffits without infill panels

Image 35: Concrete fasia

Ramps, Stairs, Railings & Guardrails

In general, exterior railings, ramps, and guardrails are all in very good condition and meet ADA / MAAB requirements. A handrail located at the steps to the auditorium exit does not include the required extension beyond the last step (Image 41). In some areas the railings have chipping paint (Image 42). Concrete steps show spalling on both the risers and treads and gaps between the nosing and the concrete that are subject to further damage by water infiltration and freezing (Image 43). Severe deterioration of concrete has occurred on the steps and landing leading to the Science Center (Image 44).

Specific Issues	*Recommendations*
Missing extension of handrail at bottom landing	Replace existing handrail with handrail that provides extensions at the top and bottom of steps. Install additional handrail on opposite side of steps
Handrails have chipping paint exposing the metal	Re-paint handrails that are chipping
Concrete steps and risers are spalling	Repair concrete steps and risers where spalling has occurred
Concrete steps and risers at Science Center are deteriorating	Repair steps and landing

Image 43: Spalling on steps

Image 44: Concrete deterioration

Image 36: Open face downspout

Image 37: Underground drainage

Image 38: Exposed drainage pipes

Image 39: Steps with missing handrails

Image 40: Handrails with chipped paint

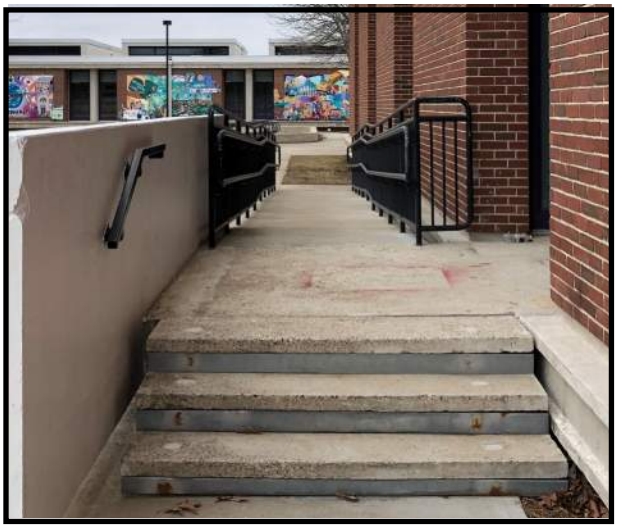

Image 41: Handrail missing extension

Image 42: Handrail with chipped paint

Interior

Floors

The building has a broad range of flooring materials and systems throughout. The main entrance includes a stone flooring that is in good condition (Image 1). Hallways, classrooms, cafeteria, and library all have vinyl composition tile (VCT) floors. Most of these floors were replaced during the 2010 building renovation and are in good condition (Image 2 & 3). Cracking and breaking of tiles has occurred in areas of transition (Image 4 & 5) and in a few locations throughout the corridors and classrooms (Image 6).

The auditorium space (Image 7) includes carpet in the aisles, exposed concrete below the seats, and a wood stage (Image 8). The auditorium was renovated as part of the building project and these materials are all in good condition.

Restrooms have mosaic ceramic tile (CT) which is in good condition. The flooring, grout, and wall base are in need of deep cleaning (Image 9).

Stair landings, risers and treads have a raised rubber flooring with applied yellow nosing strip at the top landing and bottom step. The stair material is in fair to poor condition (Image 10 & 11). Replacement materials should be assessed for color contrast to assist visually impaired students.

The original gymnasium floor was completely removed and replaced with a new wood strip floor in 2019. The floor is in excellent condition (Image 12).

Back of house spaces have multiple flooring types, mosaic ceramic flooring, exposed concrete, sealed concrete and quarry tile. In general these are in good to fair condition. The transition of materials in the electrical space should be reviewed as this is a potential tripping location (Image 14).

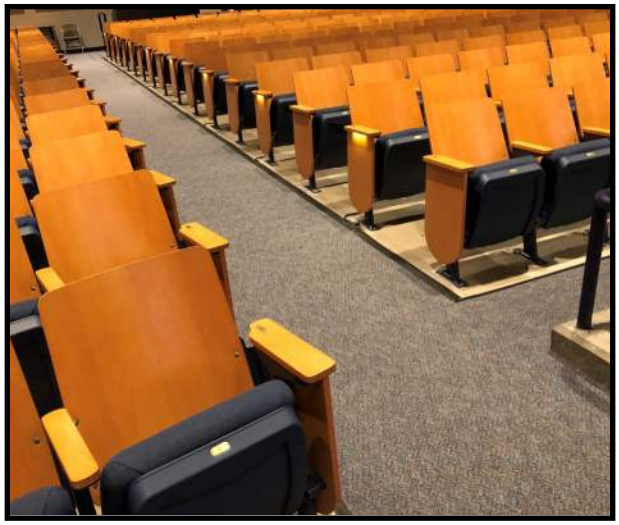

Image 7: Auditorium

Image 8: Stage floor

Image 1: Stone floor at entrance lobby

Image 2: Typical corridor with VCT floor

Image 3: Typical classroom with VCT floor

Image 4: VCT transition area

Image 5: VCT transition area

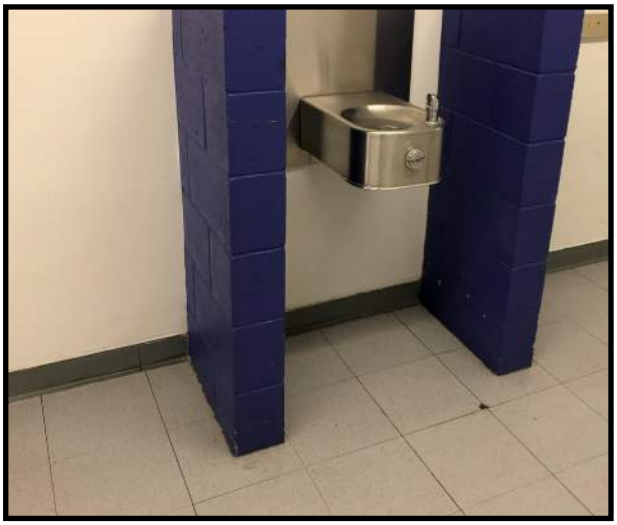

Image 6: Damaged flooring in corridor

Specific Issues	*Recommendations*
Damaged flooring at transition areas	Removed and replace damaged flooring add transition strips and thresholds to prevent continued cracking in these locations.
Damaged flooring in classrooms and corridors	Remove and replace VCT. Replace damaged tiles with like material OR remove small areas and replace with tiles to create a pattern
Mosaic tile and grout are stained and dirty	Deep clean tile and grout
Tape and marks and stains on stage	Remove tape from stage floor. Clean and remove adhesives
Rubber stair treads are in fair to poor condition	Remove stair treads and replace with new raised rubber treads that provide color contrasting nosing
Tripping potential at back of house space	Replace existing patched flooring with smooth level flooring material

Walls

Interior wall systems and finishes include exposed brick (Image 2), painted concrete masonry units (CMU), wood paneling, and painted gypsum wall finishes. Most walls are in good to very good condition and were refinished as part of the 2010 renovation project. Some classrooms have a wood panel wainscot over the painted CMU (Image 15), the wainscoting is in fair condition.

The gymnasium wood panel walls are original and in fair condition (Image 12)

Bathrooms have glazed ceramic tile walls in good condition, however the grout at the base of the wall should be cleaned with grout cleaner (Image 9).

The auditorium has gypsum drywall finish with acoustical panels. These walls and panels are in very good condition (Image 21).

The library has a mix of painted CMU (Image 18) and painted drywall (Image 19). In general the walls are in good condition but the space would benefit from the addition of acoustical panels.

Specific Issues	*Recommendations*
Wood panels in the gym are in fair condition	Sand an refinish existing wood wall panels or replace with wall pads
Library walls do not have acoustical sound absorption	Add acoustical panels to library walls

Image 9: CT floor in restroom

Image 10: Raised rubber flooring on stairway

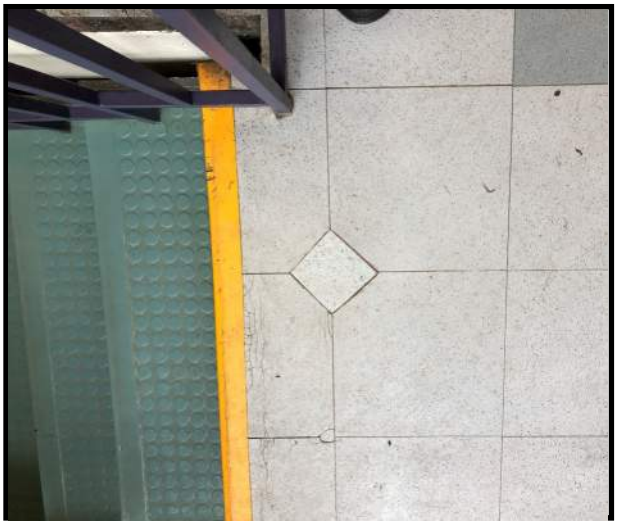

Image 11: Raised rubber flooring on stairway

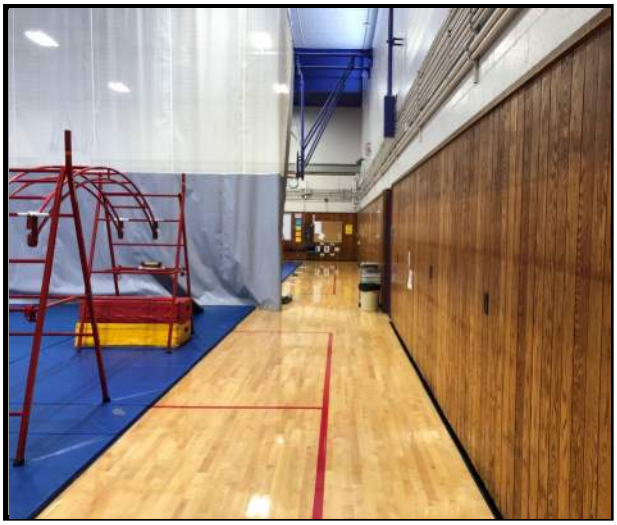

Image 12: New gym floor

Image 13: Back of house flooring

Image 14: Back of house flooring

Ceilings

Ceiling finishes in corridors are mostly dropped acoustical ceiling tiles (ACT) (Image 15 & 16) or gypsum ceiling panels and soffits (Image 15 & 17). Acoustical ceiling tiles and grid are in good condition throughout.

General classrooms and the library have exposed concrete structural system that has been painted (Image 18 & 19). The classrooms do not have any acoustical absorption.

Original 12 x12 acoustical tiles glued to structure (Image 20) can be found in the gym and between the structural Ts of the library ceiling (Image 19).

The auditorium includes large acoustical panels (Image 21) for directional sound.

Other back of house spaces and utility areas have exposed structure (Image 22).

Overall ceilings are in good condition.

Specific Issues	*Recommendations*
Exposed ceilings in classrooms do not have acoustical absorption	Review acoustical options for classrooms - consider a dropped ceiling in these spaces

Image 21: Acoustical panels in auditorium

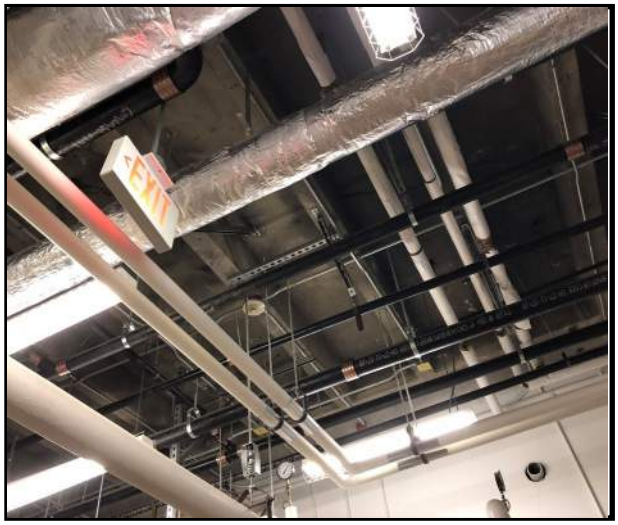

Image 22: Back of house ceiling

Image 15: ACT ceiling with gyp soffit

Image 16: ACT ceiling in corridor

Image 17: Gypsum ceiling in corridor

Image 18: Exposed concrete structure (general classroom)

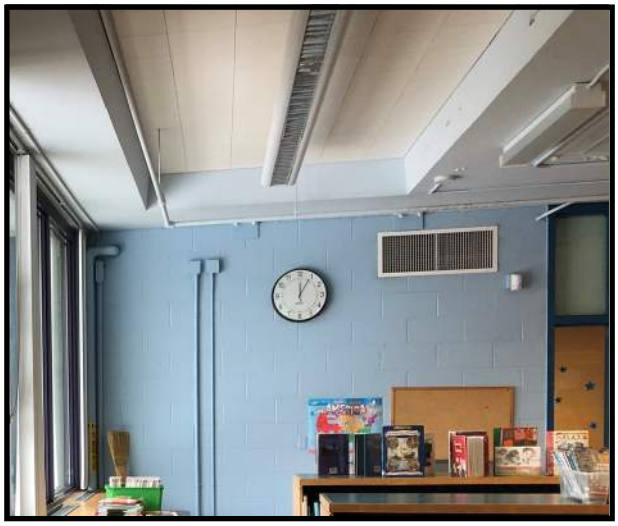

Image 19: Exposed structural system with acoustical tiles

Image 20: Acoustical tiles in gymnasium

Doors, Frames & Hardware

The interior doors are a mix of solid wood, wood with glazing or vision panels, and hollow metal. Door frames are hollow metal frames or an aluminum storefront system. Typical classrooms and instructional spaces have solid wood doors with hollow metal frames with sidelights. In general the doors and frames are in good condition.

All doors appear to have ADA / MAAB compliant hardware and hardware appears to be in good working order. A few thresholds were found to be loose or mis-aligned.

There are a number of oversized openings where a non-active smaller leaf is paired with a larger one to provide proper clearance within the existing opening.

Specific Issues	*Recommendations*
Loose or mis-aligned thresholds	Adjust, tighten or replace loose thresholds

Windows

Interior glazing is a mix of clear vison glass (Image 24) and wire safety glass in corridors (Image 27) or frosted wire glass (Image 28). The wire glass was originally installed as a fire rated glazing which is no longer accepted by code. This glazing should be replaced with tempered glass as part of an upgrade to the building.

Specific Issues	*Recommendations*
Wire glazing is located through out the corridor	Replace all wire glazing

Built-In furnishings & Equipment

Built-in millwork including cabinets, storage shelves, cubbies, book cases, and work stations are in good to fair condition. Most built-ins are composed of clear finished birch or white oak to match other interior finishes.

Throughout the school there are a number of built in display cases mounted to the wall (Image 30) used for art, science, awards, and the display of student work. In general these are in good condition

Metal lockers are located in the main corridors. Most of the lockers in corridors are in good condition (Image 29) however, these larger lockers may not be appropriate for the younger students. Hooks have been added in the corridor area and classroom spaces to accommodate student's belongings (Image 30 and 31).

Image 23: Solid wood doors to auditorium

Image 24: Typical K class room door

Image 25: Connecting classroom door

Image 26: Retrofit accessible hardware

Image 27: Wire glass sidelights in corridor

Image 28: Frosted wire glass in corridor

Classrooms have built-in cabinets and sinks with laminate counter tops (Image 32). In general these are in fair to poor condition. General classrooms have built-in shelving along the perimeter wall as well (Image 33). The shelving is in good condition. Care should be exercised to prevent blocking the vents located in the top of the units.

Most multi-user restrooms fixtures and partitions are in good condition.

Specific Issues	*Recommendations*
Classroom cabinets and sinks are in fair condition	Replace cabinets, sinks and countertops
Large student lockers may not work well for younger students	Consider removal of existing bank of lockers and replace with lower more age appropriate student lockers or cubbies

Functional Use of Space

Many corridors throughout the building function as teaching spaces. Some of these areas have been formally set up as teaching spaces (Image 34) and others are more adhoc (Image 35).

There is an obvious lack of storage for musical instruments, as these were seen piled in the corridor (Image 36)

Specific Issues	*Recommendations*
Adhoc teaching spaces	Review program needs and determine if additional teaching spaces are needed
Review musical instrument storage needs	Purchase and install instrument storage units

Image 36: Music instrument storage

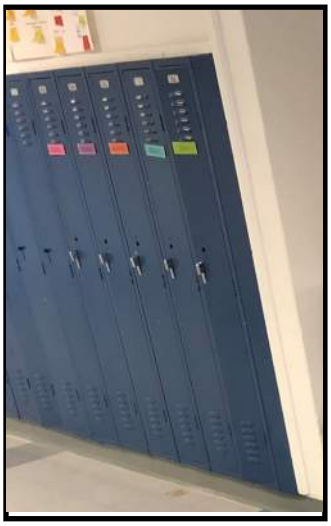

Image 29: Lockers in corridor

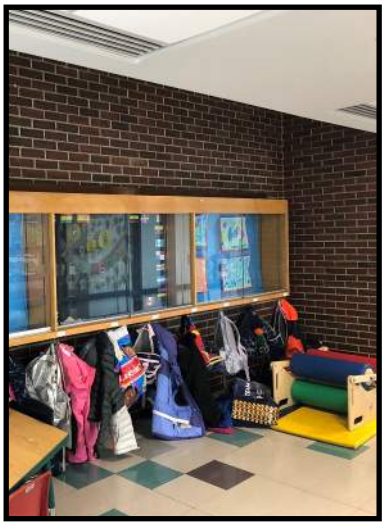

Image 30: Hooks in corridor

Image 31: Hooks in classroom

Image 32: Classroom sinks and cabinets

Image 33: Built-in shelving at window area

Image 34: Teaching spaces in corridor

Image 35: Teaching space in corridor

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MECHANICAL ASSESSMENT

General Building Information

In general the mechanical systems at the Newman Elementary School are in good condition. Many parts of the system were installed in 2010 as part of the building renovation project. Overall, the building and its' systems are energy efficient.

The following information is provided per the Building Design and Construction Department as additional information for this report: *During the recent retro-commissioning process in preparation for reopening of the schools during the pandemic the ALC controls system was found to have numerous deficiencies. While he town is considering converting all buildings to a StrucxureWare controls system, there was not enough time or funding to make this conversion during the summer of 2020. Repairs and replacement of parts for the ALC system have now (fall 2020) been made to keep the existing HVAC systems operating.*

Heating System

The building is heated by a high efficiency gas fired hot water boiler plant. There are two (2) hot water boilers. The boilers were manufactured by CAMUS (Model Dynaforce) (Image 1). Boiler B-1 has a capacity of 2500 MBH input and Boiler B-2 has a capacity of 1600 MBH input. The boilers and boiler plant equipment were installed in 2010, are approximately 10 years-old, and appear to be in very good physical condition. The boilers are vented through an individual stainless steel breeching system, which appears to be in very good condition.

Hot water is distributed to the building heating equipment by a primary-secondary distribution system. Each boiler is equipped with a primary inline circulator pump, and there are three secondary distribution pumps (Image 2). The secondary pumps (P-3, P-4 & P-5) are arranged in a primary, lead/lag/standby manner and each pump is equipped with VFD drive (Image 3). Hot water accessories including air separator and expansion tanks are also installed. The boiler is properly piped to a condensate neutralizer tube and associated drain piping (Image 4). The pumps and accessories appear to be in good condition.

Building heating equipment consists of hot water fin tube radiation, unit heaters, convectors and duct mounted VAV (variable air volume) terminal box heating coils. The majority of rooms in the building with exterior walls and windows have perimeter fin tube radiation heating. Entryways are typically heated by unit heaters and corridors and hallways are heated by a combination of fintube radiation heating and hot water convector units. The hot water terminal heating equipment generally appears to be in good condition (Image 5). While a few of the convector heaters appear to be from the original building construction, the majority of building terminal heating equipment appears to have been installed during the 2010 building renovation.

Specific Issues	*Recommendations*
Overall the building hot water heating system appears to be in good condition, and it is our understanding that it has been operating properly.	Continue providing HW system preventative maintenance.

AIR HANDLING & Ventilation System

The majority of building areas are ventilated by packaged rooftop energy recovery units. The units were installed in 2010 and were manufactured by Johnson Controls (York). The rooftop units are approximately 10 years old and appear to be in good condition.

The units contain supply air fans, return/exhaust fans, filters, gas fired heating section, direct expansion (DX) refrigeration, electric cooling and condensing sections and energy recovery sections. Most of the rooftop air handling systems are equipped with sound attenuators that are located within the rooftop unit curbs. The Media Center and Administration areas have air handling ductwork that has

Image 1:

Image 2:

Image 3:

Image 4:

Image 5:

Image 6:

duct mounted sound attenuators.

There are eleven (11) rooftop units and one (1) make-up air unit. (Image 6)

ERU-1,2&3 serves the rear pod classrooms. The units are variable air volume units, each with a capacity of 11,585 CFM.

ERU-4 serves the Left Center Pod classroom, is a variable air volume unit with a capacity of 17,695 cfm.

ERU-5 serves the Right Center Pod classroom, is a variable air volume unit with a capacity of 13,425 cfm.

ERU-6 serves the Media Center Pod classroom, is a variable air volume unit with a capacity of 7,195 cfm.

ERU-7 serves the Kindergarten Class Pod, is a variable air volume unit with a capacity of 12,670 cfm.

ERU-8 serves the Cafeteria, is a variable air volume unit with a capacity of 9,750 cfm.

ERU-9 serves the Admin Offices, is a variable air volume unit with a capacity of 4,700 cfm.

ERU-10 serves the Auditorium, is a variable air volume unit with a capacity of 14,500 cfm.

ERU-11 serves the Gym, is a variable air volume unit with a capacity of 4140 cfm.

The kitchen make-up air unit **MUA-1** was installed in 2011 and has capacity of 4,300 CFM. The make-up air unit is only provided with heating and does not have a cooling section.

The majority of building classrooms and offices are served by overhead supply air distribution systems. The classroom and administration areas are served by VAV (variable air volume) terminal boxes that modulate supply airflow to these areas. The majority of classroom supply air ductwork is round exposed ceiling suspended ductwork. (Image 7).

The larger single zone spaces such as the Gym, Cafeteria, Auditorium and Media Center are single zone variable air volume systems with overhead ductwork distribution. (Image 8 & Image 9).

There are roof-mounted and inline exhaust fans installed throughout the building that appear to be in good condition. Overall there are fifteen (15) exhaust air fans. The exhaust fans serve the Main Electric Room, Sub Electric Rooms, Trash Room, Gymnasium, Kitchen Exhaust and Kitchen Dishwasher exhaust. Exhaust air from classroom areas is ductwork back to the ERU units.

The building Rooftop energy recovery units, make-up air unit, exhaust fans and associated ductwork systems were installed in 2010 and appear to be in good condition.

Image 7:

Image 8:

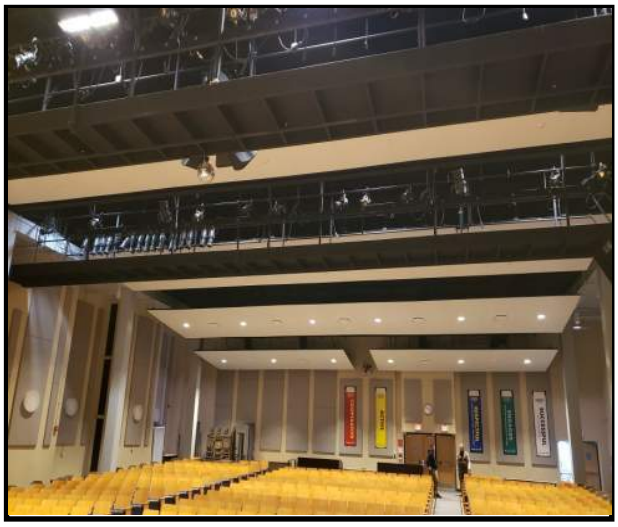

Image 9:

Image 10: Cooling in Head End Room

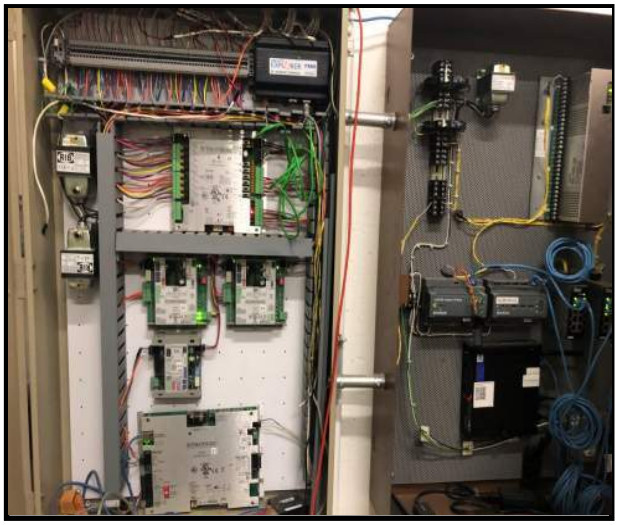

Image 11:

Image 12: Kitchen range hood

Specific Issues	*Recommendations*
None; it is our understanding that the school air handling systems are operating properly.	Continue preventative maintenance of building air handling and ventilation systems.

Cooling System

The building is not provided with a central cooling system.

The Electrical Room and Head End IT Room are air conditioned by ductless split system AC units. The units appear to have been installed in 2010, manufactured by Carrier and appear to be in good condition. (Image 10)

Specific Issues	*Recommendations*
None	Continue preventative maintenance

Controls

The building HVAC systems are controlled by a direct digital control system. The control system was installed in 2010 and was manufactured by Automated Logic with a Johnson Facilities Explorer Front End interface controller. The control system is currently maintained by ENE Systems. (Image 11)

Specific Issues	*Recommendations*
None	Continue preventative maintenance

Image 13:

Image 14:

Image 15:

Image 16:

ELECTRICAL ASSESSMENT

General Building Information

The original school was constructed in 1960. There have since been substantial upgrades to the electrical systems in 1997 and 2010. A majority of the electrical systems have been upgraded and are in good to fair condition, however it was noted that some original vintage 1960's equipment remains in use.

Life safety systems have been upgraded and are code compliant.

Power Distribution System

The building is fed from an underground service and is served by an Eaton 3000 ampere, 277/480V, 3 phase, 4 wire service. An Eaton SPD series surge control panel is installed at the main.

The electrical service was upgraded in 1997 along with new distribution panels however existing original vintage distribution equipment has been back-fed and remains operational. The upgraded portions of the electrical distribution system are in good condition, where the original vintage equipment varies in condition from fair to poor.

Specific Issues	*Recommendations*
There are some remaining original vintage panelboards that are still in operation and back fed from upgraded switchgear that are beyond their serviceable life. (Image 1) (Image 2)	Replace original vintage panelboards where they are still in operation.

Interior Lighting

Interior lighting, in general, consists of high efficiency fluorescent lamps with electronic ballasts. The fixtures are in good condition and light levels are adequate.

A relay based automated lighting control system manufactured by WattStopper is utilized in conjunction with local low voltage control systems with occupancy sensors and daylight dimming sensors.

Classroom lighting consists of linear pendant direct/indirect fluorescent fixtures.

The lighting control sequence in the classrooms is via line voltage switching. There does not appear to be any daylight dimming.

Corridor lighting consists of recessed 2x2 fluorescent fixtures with acrylic lenses

Cafeteria lighting consists of linear direct fluorescent fixtures.

The Gymnasium is well lit and consists of 6 lamp, T5HO fluorescent high bays.

Specific Issues	*Recommendations*
Lighting levels appear adequate for classrooms and offices. Fixtures are in good condition but are inefficient. (Image 3) (Image 4)	Lighting throughout the building should be upgraded to energy efficient LED lighting

Image 1:

Image 2:

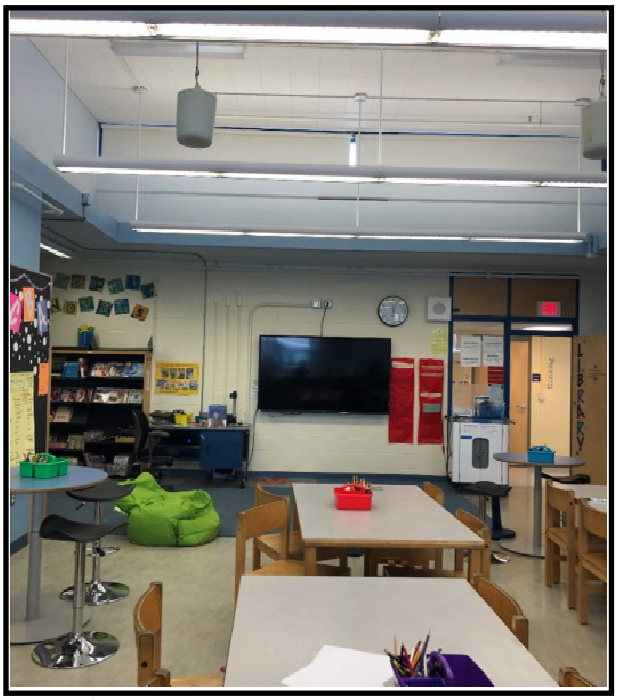

Image 3:

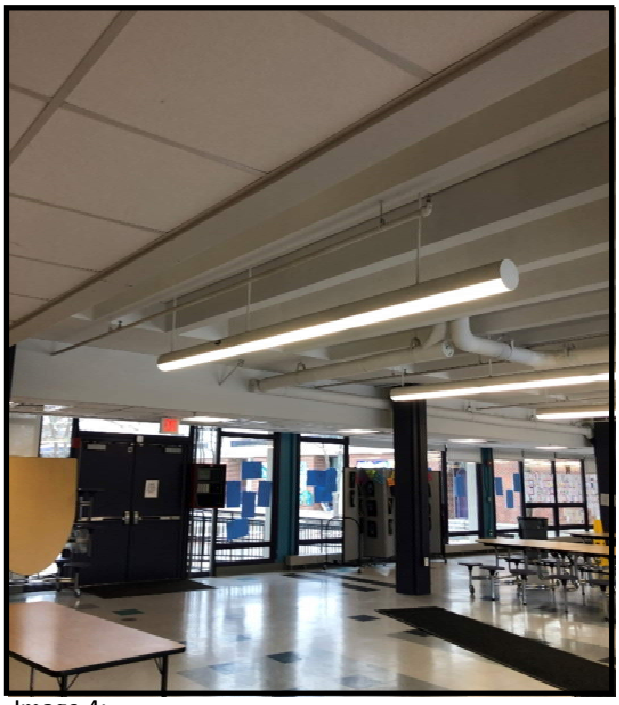

Image 4:

Exterior Lighting

Building mounted sconces are installed at egress doors and HID flood lights are installed around the building for safety and security lighting. These lights are not dark sky compliant.

Specific Issues	*Recommendations*
Flood lights mounted to building are HID and non-dark sky compliant (Image 5)	As they fail or as part of an energy saving initiative replace with LED dark sky compliant fixtures.

Emergency Stand-By System

The facility has a natural gas fired 350 kW Kohler generator mounted exterior adjacent to the building. The generator is manufactured by Kholer. There are two automatic transfer switches, one for life safety and the other for optional stand-by loads.

The generator is in good condition and is adequately sized for its current use.

Emergency lighting system utilizes normally off lights.

Specific Issues	*Recommendations*
None	

Fire Alarm System

The fire alarm system is an addressable Notifier NFS 3030 with voice evacuation. The system is in excellent condition. Smoke detectors are installed in egress paths. A/V devices and manual pull stations are installed and seem to be fully code compliant.

Specific Issues	*Recommendations*
None	

General Miscellaneous

The facility does not have a lightning protection system. The facility does not have a bi-directional system.

Specific Issues	*Recommendations*
There is no BDA system present in the building, although this is not a requirement for existing buildings, the fire dept. may require this to improve safety.	Contract with a radio systems vendor on the state contract to determine if the building requires a BDA system.

Image 5:

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PLUMBING ASSESSMENT

General Building Information

Presently, the Plumbing Systems serving the building are cold water, hot water, sanitary waste and vent system, storm drain system, and natural gas. The original facility was constructed in 1960; there have since been substantial upgrades to the systems in 1997 and 2010.

In general, the plumbing systems are in good condition.

Plumbing Fixtures

Water closets are wall hung vitreous china with exposed manual flush valves. (Image 1)

Urinals are wall hung china with manual flush valves. (Image 2)

Lavatories are wall hung vitreous china with manual metering faucets. (Image 3)

Classroom/Staff sinks are counter mounted stainless steel with gooseneck faucets. (Image 4)

Janitor's sinks are trap standard enamel sinks with wall mounted faucet equipped with vacuum breakers. (Image 5)

Drinking fountains are wall mounted stainless steel.

The kitchen fixtures are in good condition. Three-bowl pot sink is connected to a grease interceptor. Grease interceptors are located in mechanical room below kitchen. (Image 6)

Specific Issues	*Recommendations*
None	Consider replacing toilet fixtures with high efficient, low flow fixtures to increase water savings.

Domestic Water System

The water service enters the building's Mechanical Room. Water service is 4-inch in size. There is a 3-inch compound water meter (Image 7) .

Water piping, where exposed, is copper tubing with sweat joints. Piping is in good condition. Majority of piping is insulated. Service piping to the meter is not insulated.

The hot water is generated through natural gas fired, tank type water heater, PVI model 560 N 250A-PV. Water heater has a natural gas input of 399,000 BTUH and 250 gallon water storage (Image 8). Water heater is in good condition. The system includes a thermostatic mixing valve which is in good condition (Image 9). There are two temperatures provided to the building fixtures. There is a 120 degree F water loop for general fixtures and a 140 degree F loop for the kitchen. The hot water systems are circulated through the building (Image 10).

Specific Issues	*Recommendations*
Piping at water meter is not insulated.	Provide insulation on all uninsulated water piping.

Image 1:

Image 2:

Image 3:

Image 4:

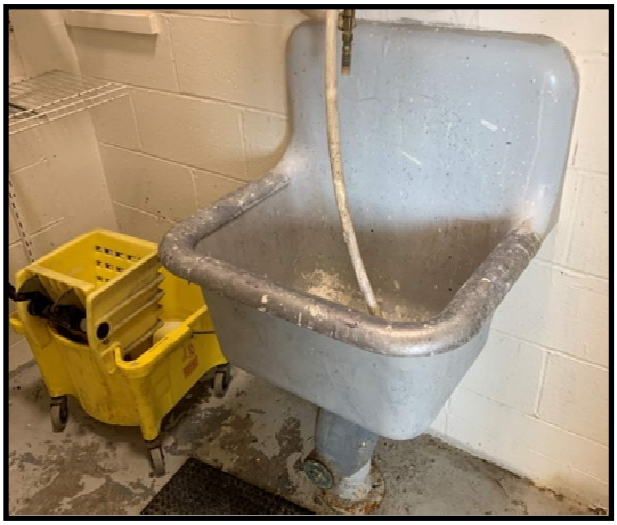

Image 5:

Image 6:

Natural Gas Systems

Natural gas is provided to the building. Gas meter is located on the exterior (Image 11). Gas supplies the heating boilers, water heaters, kitchen and rooftop HVAC equipment.

Gas piping is black steel with threaded or welded fittings, depending on pipe size.

Kitchen cooking equipment is gas fired. Gas supply includes an emergency gas valve interlocked with CO detectors adjacent to kitchen hood. The kitchen hood is equipped with a fire suppression system (Image 12).

Specific Issues	*Recommendations*
None	None

Drainage Systems

Sanitary, waste and vent piping is no-hub cast iron with no-hub couplings. Drainage piping appears to be in good condition where visible (Image 13).

Specific Issues	*Recommendations*
None	None

Image 7:

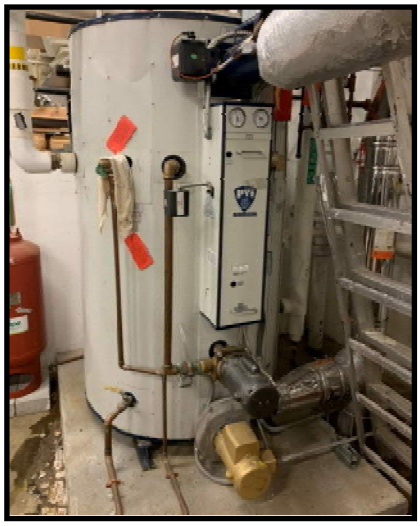

Image 8:

Image 9:

Image 10:

Image 11:

Image 12:

Image 13

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FIRE PROTECTION ASSESSMENT

General Building Information

The Newman Elementary School was renovated in 2010. At that time the automatic sprinkler system was installed. The building is fully protected with an automatic sprinkler system fed from the municipal water supply. The system components are in good condition.

EXISTING CONDITION

The fire service is located in a dedicated room and includes a 6” double check valve assembly (Image 1).

There are three (3) 6” alarm valves. Alarm valve #1 supplies A-B Wing, alarm valve #2 supplies C Wing, and alarm valve #3 supplies D-E-F Wing (Image 2).

All sprinklers are quick response type. Sprinklers in ceiling areas are semi-recessed pendent type. (Image 3) Sprinklers where piping is exposed are upright type (Image 4). In the Auditorium fully recessed sprinklers are provided in ceiling clouds.

Fire hose cabinets are located on both sides of the stage (Image 5).

Fire Department connection is 4” Storz type.

Specific Issues	*Recommendations*
None	In the event of a renovation or addition, the existing automatic sprinkler system can be modified or extended to suit the proposed work.

Image 1:

Image 2:

Image 3:

Image 4:

Image 5:

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	NEWMAN ELEMENTARY SCHOOL	Health, Safety & Welfare	Code Compliance	Functional Use of Building or Site	Handicap Accessibility	Extending the Life of the Building (Maintenance)	Energy Efficiency / Energy, Water Saving	Hazardous Material Abatement	Quantity	Cost of Repair / Replacement (xx)	Designer / Pricing Contingency (15%)	Soft Cost (20%)	Estimated Project Cost (2020)	High Priority (1-3 yrs.)	Medium Priority (4-6 yrs)	Low Priority (7-10 yrs)	On Going Maintenance	High Priority (1-3 yrs)	Medium Priority (4-6 yrs)	Low Priority (7-10 yrs) or under full renovation project	On Going Maintenance	Notes
	139710 GSF																					
1	**Site & Civil**																					
1.01	Review locations of HC parking and proximity to front entrance. Create accessible parking within 150 ft of main entrance				x				add 1 standard and 1 van parking space near front entrance	$8,625	$1,294	$2,480	$12,398		X				$12,398			
1.02	Repair damaged vituminous curbing at main entrance loop			X					approximatly 150 ln ft	$3,450	$518	$992	$4,959	X				$4,959				
1.03	Update roof drainage outlet locations to minimize erosion or stabilize steep slopes at current roof drain outlets.			X					two locations	$4,600	$690	$1,323	$6,613	X				$6,613				
	TOTAL									$16,675	$2,501	$4,794	$23,970					$11,572	$12,398	0	0	$23,970
2	**Structural Elements**																					
2.01	Spalled concrete underside the exterior stairs and at the railing post locations to be repaired.			X					1 location	$1,500	$225	$431	$2,156	X				$2,156				
	TOTAL									$1,500	$225	$431	$2,156					$2,156	$0	$0	$0	$2,156
3	**Exterior Architectural Elements**																					
3.01	Pressure wash and clean areas of stained concrete foundation wall					X			10% exposed foundation wall	$15,640	$2,346	$4,497	$22,483		X				$22,483			
3.02	Patch and repair cracks and spalling concrerete at foundation					X			5% exposed foundation wall	$23,460	$3,519	$6,745	$33,724	X				$33,724				
3.03	Repair or replace stone wall in center coutyard			X		X			entire wall (lenth of courtyard)	$111,780	$16,767	$32,137	$160,684		X				$160,684			
3.04	Clean algae growth around base of brick					X			5% of brick wall	$23,460	$3,519	$6,745	$33,724				X				$33,724	
3.05	Repair spalling concrete panels					X			3 locations	$1,725	$259	$496	$2,480	X				$2,480				
3.06	Repaint exterior doors					X			all doors	$21,850	$3,278	$6,282	$31,409				X				$31,409	
3.07	Power wash and scrub efflorescence from soffits and facia					X			entire building	$78,200	$11,730	$22,483	$112,413				X				$112,413	
3.08	Install downspout extension and re-direct drainage flow					X			1 location	$575	$86	$165	$827	X				$827				
3.09	Cover PVC drainage pipes to prevent cracking					X			1 location	$1,725	$259	$496	$2,480	X				$2,480				
3.10	Replace existing handrail at auditorium exit with handrail that provides extensions at the top and bottom of steps. Install additional handrail on opposite side of steps		X		X				1 location	$288	$43	$83	$413	X				$413				
3.11	Repaint chipping handrails and guardrails					X			entire building	$5,520	$828	$1,587	$7,935				X				$7,935	
3.12	Repair concrete steps and risers where spalling has occurred					X			25% of steps	$17,250	$2,588	$4,959	$24,797	X				$24,797				
3.13	Repair concrete landing at Science Center Entrance	X		X		X			1 location	$5,750	$863	$1,653	$8,266	X				$8,266				
3.14																						
	TOTAL									$307,223	$46,083	$88,326	$441,632					$72,985	$183,166	$0	$185,481	$441,632
4	**Interior Architectural Elements**																					
4.01	Remove and replace damaged VCT flooring			X		X			25% doorways; 2.5% of general floor area	$71,202	$10,680	$20,471	$102,354				X				$102,354	
4.02	Replace raised rubber stair treads	X		X		X			all stairways	$23,805	$3,571	$6,844	$34,220	X				$34,220				
4.03	Patch and replace flooring transition at electical room					X			1 location	$575	$86	$165	$827	X				$827				
4.04	Sand and refinsih wood panels in gym or replace with new wood panels and crash pads	X		X		X			entire gym	$138,000	$20,700	$39,675	$198,375	X				$198,375				
4.05	Add acoustical panels to the library walls			X					library space	$23,000	$3,450	$6,613	$33,063			X				$33,063		
4.06	Add acoustical ceiling tiles or dropped ceiling to classrooms			X					all clesrooms	$554,981	$83,247	$159,557	$797,785		X				$797,785			
4.07	Adjust or replace loose door thesholds					X			1% doors	$519	$78	$149	$746				X				$746	
4.08	Replace wire glazing throughout the facility		X						all coorridor glazing (doors and classrooms)	$110,400	$16,560	$31,740	$158,700	X				$158,700				
4.09	Replace sinks and cabinets in classrooms			X					50% classrooms	$172,500	$25,875	$49,594	$247,969	X				$247,969				
4.10	Remove existing student lockers and replace with student cubbies and storage cabinets			X					2 main corridors	$241,000	$36,150	$69,287	$346,437			X				$346,437		
4.11	Provide cabinets and shelving for music instrument storage			X					1 location	$23,000	$3,450	$6,613	$33,063	X				$33,063				
4.12																						
	TOTAL									$1,358,982	$203,847	$390,707	$1,953,537					$673,153	$797,785	$379,500	$103,100	$1,953,537
5	**Mechanical - HVAC**																					
5.01	no issues noted																					
	TOTAL																	$0	$0	$0	$0	$0
6	**Electrical**																					
6.01	There are some remaining original vintage panelboards that are still in operation and back fed from upgraded switchgear that are beyond there serviceable life. Replace original vintage panelboards where they are still in operation.			X					two panel boards	$11,500	$1,725	$3,306	$16,531	X				$16,531				
6.02	Replace Lighting throughout the building with energy efficient LED lighting			X			X		entire building	$963,999	$144,600	$277,150	$1,385,749		X				$1,385,748.56			
6.03	Flood lights mounted to building are HID and non-dark sky compliant. Replace with LED dark sky compliant fixtures.			X			X		entire building	$10,350	$1,553	$2,976	$14,878			X				$14,878		
6.04	There is no BDA system present in the building, add BDA system			X					one	$80,500	$12,075	$23,144	$115,719		X				$115,719			
	TOTAL									$1,066,349	$159,952	$306,575	$1,532,877					$16,531	$1,501,467	$14,878	$0	$1,532,877
7	**Plumbing**																					

	NEWMAN ELEMENTARY SCHOOL	Health, Safety & Welfare	Code Compliance	Functional Use of Building or Site	Handicap Accessibility	Extending the Life of the Building (Maintenance)	Energy Efficiency / Energy, Water Saving	Hazardous Material Abatement	Quantity	Cost of Repair / Replacement (xx)	Designer / Pricing Contingency (15%)	Soft Cost (20%)	Estimated Project Cost (2020)	High Priority (1-3 yrs.)	Medium Priority (4-6 yrs)	Low Priority (7-10 yrs)	On Going Maintenance	High Priority (1-3 yrs)	Medium Priority (4-6 yrs)	Low Priority (7-10 yrs) or under full renovation project	On Going Maintenance	Notes
7.01	Replace existing toilet fixtures with high efficient, low flow fixtures, to increase water savings.			X			X		entire building	$202,400	$30,360	$58,190	$290,950		X				$290,950			
7.02	Piping at water meter is not insulated. Provide insulation on all uninsulated water piping.			X			X		entire building	$11,500	$1,725	$3,306	$16,531	X				$16,531				
	TOTAL									$213,900	$32,085	$61,496	$307,481					$16,531	$290,950	$0	$0	$307,481
8	**Fire Protection**																					
8.01	In the event of a renovation or addition, the existing automatic sprinkler system can be modified or extended to suit the proposed work.																					
	TOTAL																	$0	$0	$0	$0	$0
9	**Hazardous Material**																					
	HAZMAT ALLOWANCE											$0	$0								$0	
	TOTAL									**$2,964,629**	**$444,694**	**$852,331**	**$4,261,654**					**$792,929**	**$2,785,767**	**$394,378**	**$288,581**	**$4,261,654**

GENERAL NOTES

1. Refer to each section of the Report for more detailed information. Before moving forward with a specific project, a detailed review of the scope of work and a re-assessment of the cost estimate for that scope should be performed.

2. Some items should be completed in combination with other items. Some of these suggestions may be noted above. We recommend that once a scope of work is desired to be pursued, a mini-study should be done to confirm which work should be done together. See the next general note below for additional information.

3. Due to the conceptual nature of these recommendations and estimates and the complexity of existing conditions, several solutions may be provided to achieve the end result. Existing conditions in some areas may limit the ability to fully implement the proposed scope of work. Part or all of this work may trigger other renovation requirements related to code, seismic, sprinklers or handicap accessibility. Once a determination is made to move forward with a specific improvement line item, a mini study specific to the scope of work should be done to confirm the scope of work, prepare sketches as necessary and prepare a refined cost estimate.