BELLEVUE COMMUNITY SCHOOL DISTRICT

Elementary School Facility Assessment Report

December 2021

MAHLUM

OPN ARCHITECTS

Contents

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Executive Summary

In August 2021, OPN Architects and MODUS Engineering met with Superintendent Tom Meyer and Maintenance Director Brett Ernst to tour the existing Bellevue Elementary School facility. Following this meeting, OPN and MODUS were selected by district leadership to perform a facility assessment. A kick-off meeting to initiate the process and discuss details of the assessment was held in September 2021. Detailed observation visits were performed in late October and early November 2021. Deficiencies related to code, ADA accessibility, building condition, and mechanical and electrical systems were recorded and are compiled in this report (December 2021).

A summary of our observations is outlined below, with detailed assessments for each topic on subsequent pages.

Code Compliance
The original 1848 facility and the later additions were found to have a number of significant code and life safety challenges. No portion of the elementary school contains an automatic sprinkler system, which requires certain elements such as doors and walls at corridors to be a fire-rated construction. We observed only a handful of fire-rated assemblies. The 1848 building does not have any accessible means of egress out of the building, and many routes were found to be non-compliant and would require modification to the building layout, likely to the detriment of existing academic spaces. Certain exits such as the exterior fire stairs from the second floor of the 1848 building cannot be made compliant and would potentially require a new stair tower to be constructed.

Many corridors in the 1848 building are narrow and do not meet minimum exiting requirements. Many restrooms and toilet stalls throughout the building do not meet the minimum clearances required by current plumbing codes and would require significant reworking of these spaces to be brought into compliance. Most stairs in the original building or later additions were found to be non-compliant and would need significant modification or complete replacement.

ADA Accessibility
All portions of the elementary school have ADA deficiencies, but the greatest number were found in the 1848 facility. Tight corridors create restrictive spaces at classroom doorways, many of which cannot be made ADA compliant without creating a new recessed doorway. None of the restrooms in the elementary facility were found to be fully ADA compliant. All restrooms have varying degrees of non-compliance, but several would require significant modifications or the construction of new accessible restrooms.

There are many instances where ramps have been installed to connect variations in floor elevation at both the interior and exterior, however most of these were found to be a non-compliant slope, requiring the construction of a new ramp. Many classroom sink casework, transaction counters, serving counters, and drinking fountains are not ADA accessible and would need to be replaced.

Exterior Conditions

Generally, the envelope of the building masonry was found to be in fair condition. We found several areas where moisture is causing damage to the brick, usually at windows, that would need further investigation to determine the source and repair. Some roof materials are at the end of their life and would need replacement in the near future. The metal siding on the gym is also at the end of its life. There are several sections of the building that do not have gutters, which is causing moisture issues at the base of the building.

The existing walls at the cafeteria and gym are single-wythe concrete masonry and do not have insulation, which results in high heating and cooling loads. We also observed that the vast majority of existing windows are non-insulated single-pane glazing, which also result in high energy consumption versus modern double-pane glazing.

Mechanical

The existing 25-year-old boiler room, serving all of the site, is located in the 1973 building on the first level. A new heating plant comprised of two condensing heating water boilers (one boiler for backup) should replace the existing steam boiler. All steam infrastructure should be removed. Steam is an obsolete and fuel inefficient source of heating for schools. The existing steam infrastructure is past its service life and should be removed.

The 1960 and 1973 wings and the 1848 building should be served by new dedicated outside air RTUs with energy recovery. A fan coil system using chilled water and heating water, or a VRF fan coil system, should be retrofitted to these areas.

Heating, cooling, and ventilation for the cafeteria / gym should be provided by RTUs with energy recovery. All three functions are integral to these RTUs.

Electrical

Due to the age and condition of the existing electrical service, it should be replaced with a new 208/120V, 3ø, 4-wire 800-amp distribution panel with a surge protection device and appropriate quantity and rating of breakers. Additional branch panels may need to be replaced one-for-one to update branch circuit grounding requirements and allow for additional breaker space.

In several classrooms there are charging stations for student laptops. More power and receptacles should be added in these areas to accommodate for charging station needs.

Lighting

Fluorescent lighting should be replaced with new LED lighting and update lighting controls with occupancy sensors where code allows. Emergency lighting should be added where indicated on the electrical plans to meet the one foot-candle average per NFPA 101.

Telecommunications

Due to the age of the existing access control system, an upgraded access control system would ensure exterior doors are monitored and secured. The security camera system should be upgraded to a modern IP based NVR (network video recorder) system. A synchronized clock system is also recommended. Exposed cabling should be cleaned up to minimize accidents.

Fire Alarm

The current Simplex zoned system should be replaced with a new addressable system with voice capability to satisfy code requirements. Full detection would be required.

Building History

Bellevue Elementary School consists of an original structure with a series of additions that span over a period of 170 years. The original building is among the oldest structures in the state of Iowa that continues to serve as an elementary school.

1848-1890

The first building was constructed in 1848 as a two-story T-shaped structure with a basement level and belfry tower [Fig. 1, 4]. This would serve as the first Jackson County Courthouse and was designed in a vernacular Greek Revival style. An intense rivalry between Bellevue and the nearby community of Andrew led to the county seat moving between the two towns several times. However, in 1873, the growing railroad community of Maquoketa became the permanent county seat.

When not used as a courthouse, portions of the building served as a city hall, masonic lodge, jail, and contained space for the local newspaper. At some point before 1870 the building was converted into a public school.

The first major addition to the building occurred in 1870. A two-story wing was added to the northwest corner of the original building that year, and in 1872 a symmetrical wing was added to the southwest corner [Fig. 5]. It appears the 1848 building was also renovated around this time as there is a slight variation in the brick that indicates windows were added and others were filled in [Fig. 6]. Building height was increased on the north and south wings, and the east wing of the building was reworked to add a large triangular pediment with an arched window above the main entrance.

In 1889, a two-story west wing was added to the building containing two classrooms on each floor, a central circulation corridor connecting to the existing building, a pair of restrooms on first floor tucked into the courtyard, and library space and restrooms on the second floor [Fig. 7, 9]. The open space

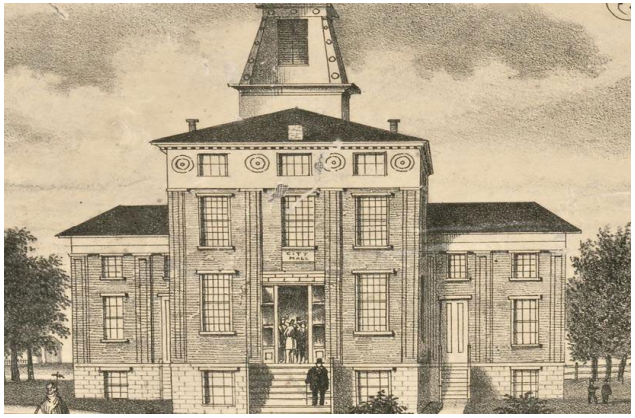


Fig. 1: Drawing of the original 1848 design.
Source: Bellevue Elementary School HSR Report

Fig. 2: 1910 photo showing renovations made in 1870 and 1872.
Source: courthousehistory.com

Fig. 3: 2021 photo showing present day conditions of the existing building.

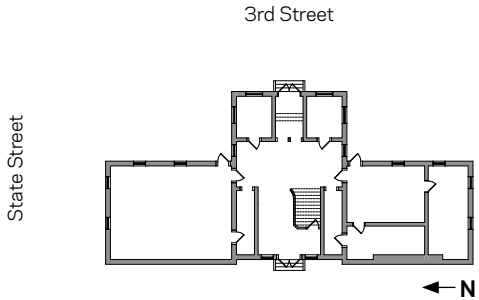


Fig. 4: 1848 floor plan.

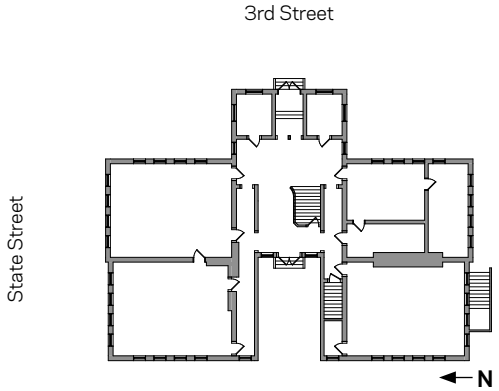


Fig. 5: 1872 plan following the completion of the northwest and southwest wings.

Fig. 6: Evidence that previous door and window openings from 1848 were removed or modified in the 1870s can be seen by variations in brick color. The north and south wings of the building also appear to have been raised several feet in height.

Building History

between the 1870 and 1872 additions was infilled. According to reports from local newspapers at the time, an extensive exterior and interior renovation of the 1848 building was also completed in 1890.

1920-1973

For many years the school had no dedicated gymnasium space. A converted church across the street from the school was utilized as a gymnasium beginning in 1920. Twenty years later, the district and community developed plans to construct a new gymnasium next to the school, and Works Progress Administration funds were awarded in 1941. However, the structure was never built; funding was withdrawn in 1943 when the WPA was dissolved.

In the late 1940s, the community successfully passed a bond referendum to fund the construction of a gymnasium. A concrete masonry structure with a barrel vault roof was completed in 1949. The facility also included a stage, locker rooms, and a second-floor music room. The gymnasium originally contained several windows to bring natural light into the space that were infilled in subsequent years [Fig. 8]. At some point, metal cladding was added to the exterior [Fig. 10].

Beginning in 1960 a series of several expansions would add greatly increase the footprint of the school to meet demands due to enrollment growth.

The first of these additions was a new two-story wing attached to the west elevation of the 1889 wing. This addition, completed in 1960, contains three classrooms on each floor and a corridor that separated the classrooms from the 1889 building [Fig. 14]. The exterior of the building is finished with brick, and large ribbon windows span the length of each classroom [Fig. 11] .Based on the materials used, it is also believed that the small vestibule connecting the gymnasium was completed around this time.

Fig. 7: Photo of the 1889 addition.
Source: Bellevue Elementary School HSR Report

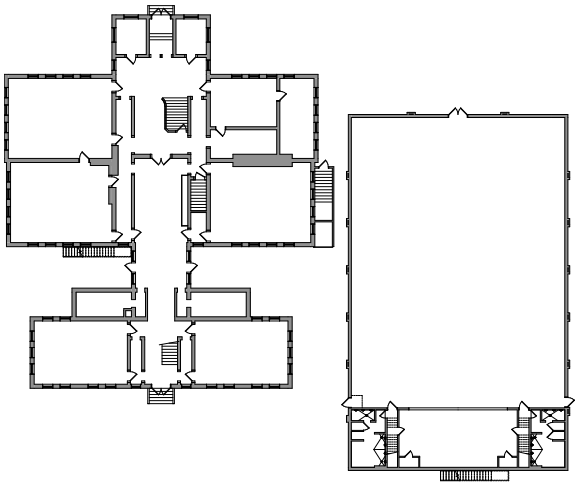


Fig. 9: 1949 plan showing the 1889 addition and new gymnasium.

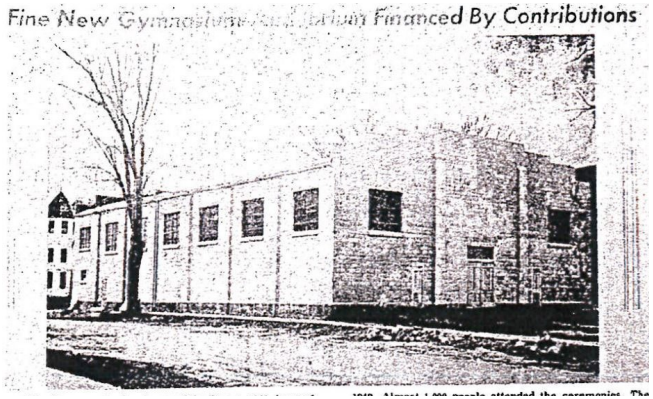


Fig. 8: 1949 gymnasium addition with original windows.
Source: Bellevue Elementary School HSR Report

Fig. 10: The gymnasium in 2021 with the 1962 cafeteria addition.

Building History

A new kitchen to serve the gymnasium was completed in December 1960. Shortly after the kitchen was completed, construction began on a new cafeteria directly to the east of the kitchen. News reports from the time show photos of the cafeteria under construction in 1961, and was likely completed the following year. These two additions were constructed with concrete masonry and rectangular single-pane windows. The original roof was flat; a pitched shingle roof was added in later years.

Over a decade later, 1973 ushered in the completion of another addition to the school and also resulted in the demolition of the 1889 wing. This two-story addition to the north added seven new classrooms, a boiler room, a recessed east entrance, and a stair with large glass windows [Fig. 13]. The west wall of the 1889 building remained integrated into the 1960 addition. It was refaced with new brick on the exterior and a new plaster coating on the interior. Where the 1889 addition was removed, an additional two-story addition was constructed in 1973 with restrooms on each floor, a second stair, and a one-story corridor connecting the 1960 addition to the 1848 building [Fig. 12].

Recent Renovations

The elementary school has only had minor additions and renovations since 1973. An elevator and stair tower was constructed in 2005 connecting the 1848 building to the 1973 addition. The exterior of this tower consists of EIFS, an insulated wall cladding with an exterior finish similar in appearance to stucco.

In 2013, the original recessed east entrance of the 1973 addition was enclosed to create a new secure entrance and administration office for the elementary school [Fig. 15]. This renovation includes a reception area, nurse office, and attached restroom. Visitors to the school are buzzed into the building via a two-way communication device at the main entrance.

Fig. 11: Classroom addition completed in 1960.

Fig. 12: 1973 infill structure with tan block between the 1870 and 1872 additions, and a one-story corridor connection to the 1960 addition.

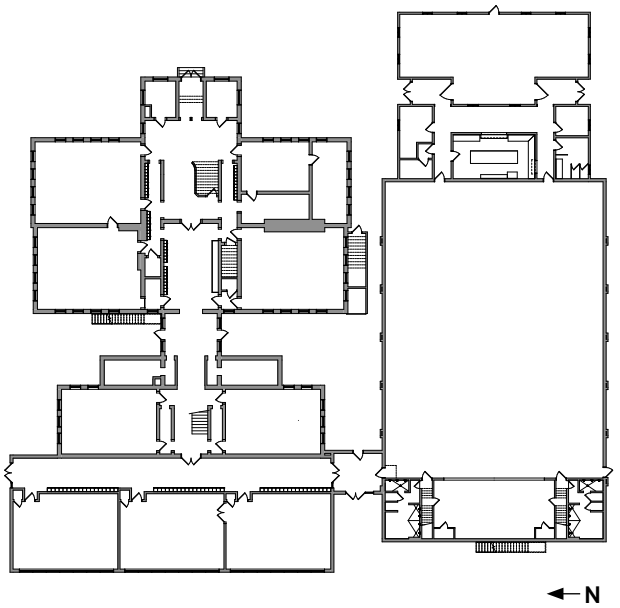


Fig. 14: 1962 floor plan showing the recently completed classroom, kitchen, and cafeteria additions. The 1889 addition was still in use during this time but would be demolished 11 years later.

Fig. 13: The 1973 addition next to the 1848 original building. A remodel in 2013 converted the previous recessed entrance into a new administration office and secure entrance for the elementary school.

Building History

Site

The site that the school sits on is a city block that was originally a public square with ample green space and several trees [Fig. 16]. However, by 1970 most of the trees had been removed and all of the grass had been replaced with asphalt paving [Fig. 17]. Several play structures and mulch play surfaces have been added at the northeast and southeast corners of the site. A basketball court is located directly east of the original building.

As additions were constructed over time, two paved courtyard spaces have been created in the center of the site. The north courtyard is used as a play area for younger children.

Fig. 15: The 2013 first floor administrative office renovation is slightly visible by variations in brickwork and brick joint lines. The 2005 elevator tower addition is visible in the background, tucked between the 1848 building and the 1973 addition.

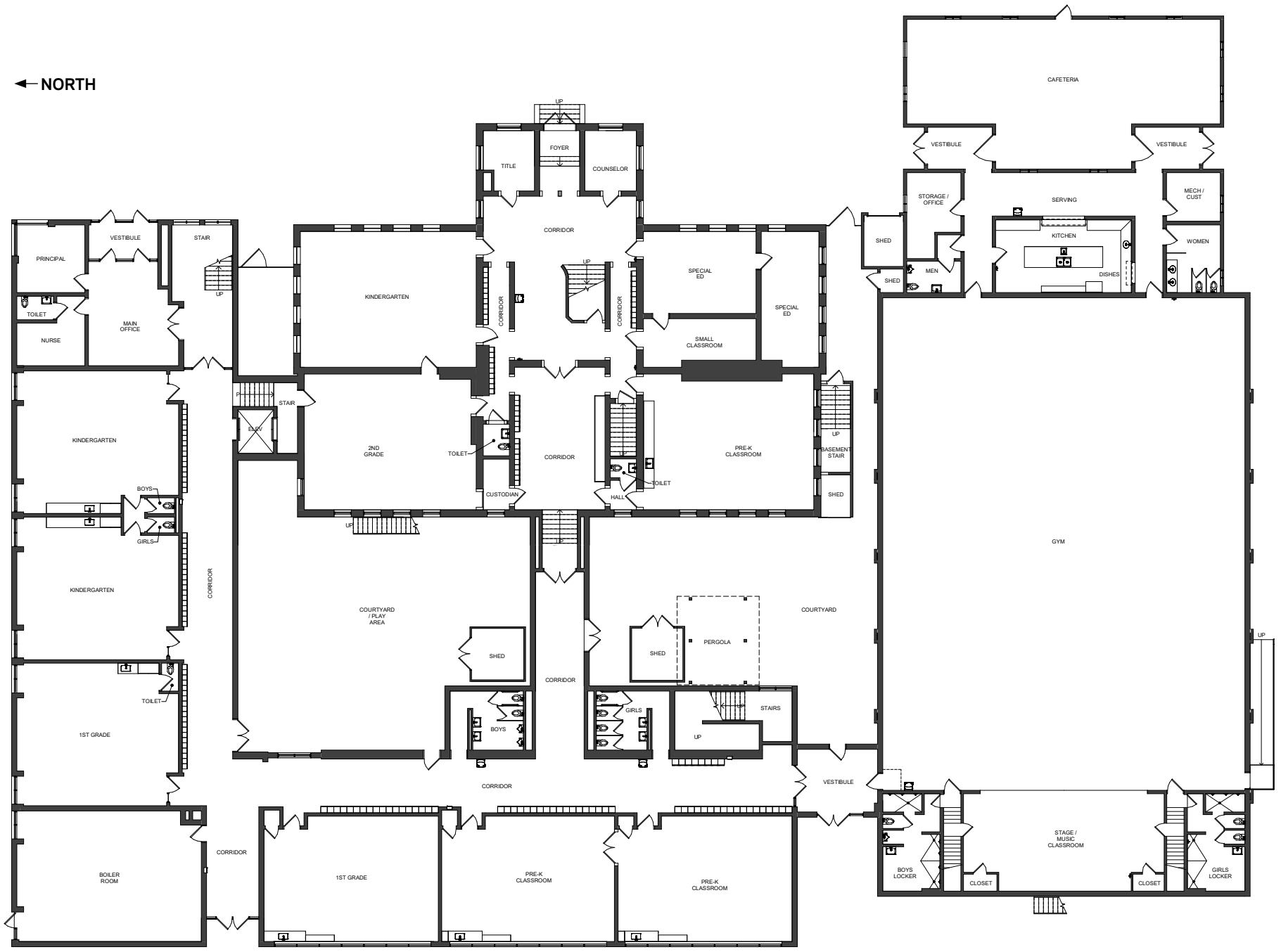
Fig. 16: 1910 school site with green space and many trees.

Fig. 17: Present day school site with asphalt paving and play structures.

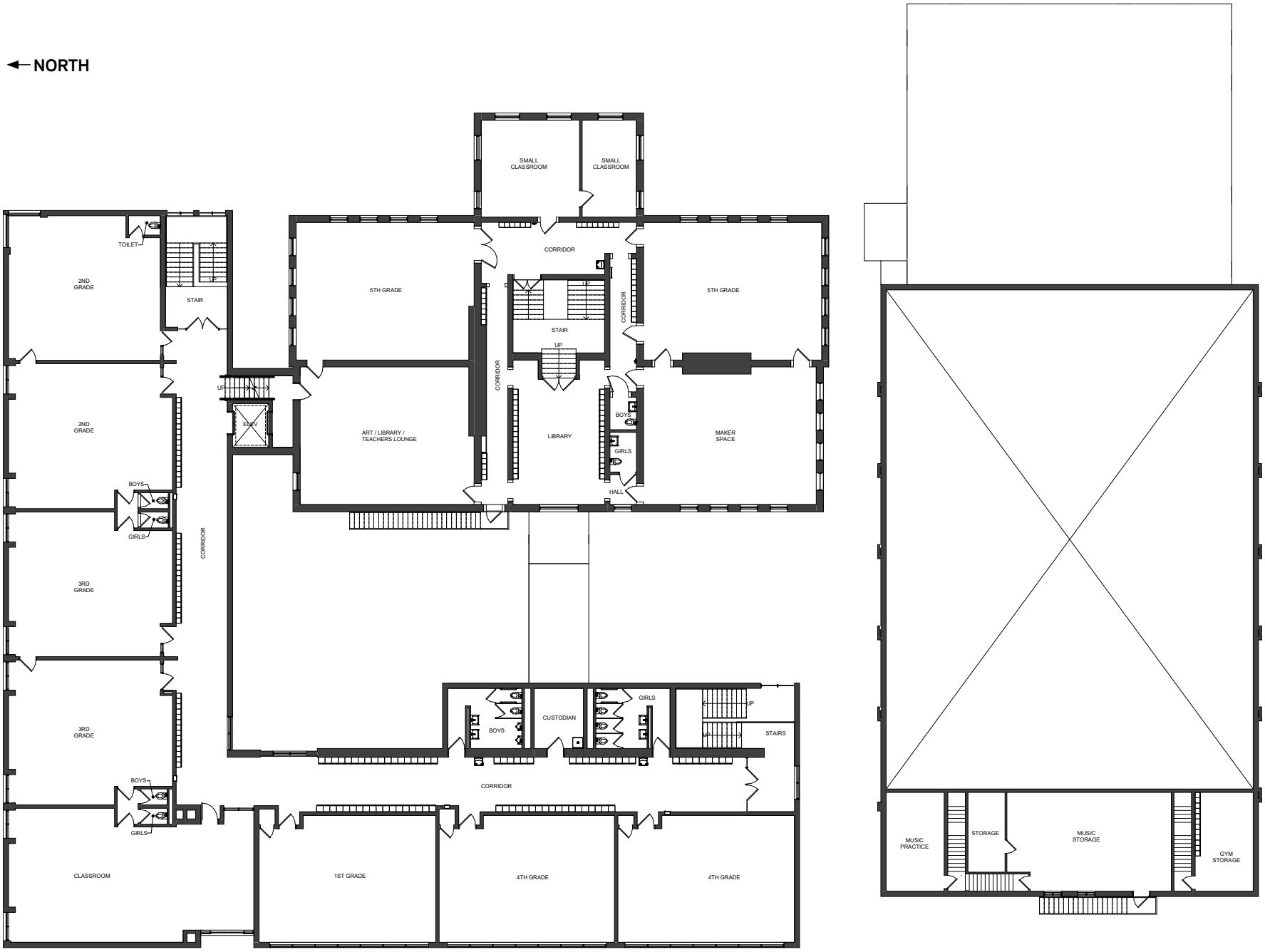
Construction Timeline

Fig. 18: A current plan of the first floor of Bellevue Elementary School, showing different ages of the building's construction.

Existing Building Floor Plan - First Floor



Existing Building Floor Plan - Second Floor



OBSERVATIONS | 2

Code Compliance

Code Compliance

OPN analyzed the current elementary school building against the 2015 International Building Code, which is the baseline code adopted by the State of Iowa. The International Building Code (IBC) is a model building code that sets minimum requirements for the health and safety of occupants within a building. Chapters within the IBC address fire prevention, means of egress, combustibility of materials and finishes, and many other topics related to life safety in the event of an emergency. Numerous deficiencies related to egress and fire prevention were noted during the assessment. A high level overview of these findings are found in the following paragraphs, with more detailed information noted on floor plans in subsequent pages.

Egress Stairs

The IBC has a number of requirements for egress stairs to allow occupants to safely exit the building in an emergency. These requirements include specific dimensions for stair rise and run, size and spacing of guardrails, height and shape of handrails, and appropriately sized landings that allow occupants of all abilities to exit in an efficient manner. The code also sets requirements for the placement of stairs within the building and the maximum allowed travel distance.

The original 1848 building contains a central stair that serves as the main fire egress from the second floor. There are two ancillary egress stairs, one exterior metal stair, and one interior stair adjacent to the elevator that was built in 2005. Despite several underlying code issues with all three stairs from a total egress standpoint, neither of the two ancillary stairs can be brought into compliance as a secondary means egress without major modifications to the existing building layout or the construction of a new code-compliant stair tower. Currently, both secondary stairs require the occupant to pass through intervening spaces such as classrooms, the courtyard, and the 1973 addition to reach the public way (another term for a public space adjacent to the street) [Fig. 1]. Building code does not allow occupants to pass through intervening spaces once they are in an exit corridor.

The composition of other existing stairs was also found to be an issue. The central stair of the 1848 building does not have adequate landing space or clear space at doors and therefore would need to be significantly reworked to bring it into compliance. The historic exterior limestone stair at the main entrance of the 1848 building was noted to have a rise and run larger than the maximum 7-inch rise and 11-inch allowed by code.

The 1973 circulation stair adjacent to the main administration office entrance has open risers, which are no longer allowed by code [Fig. 2]. The 1949 gymnasium stairs that lead to the second floor and surrounding the stage have a steeper rise and run than code allows and also do not have appropriate clearances at landings and doorways [Fig. 11]. These two stairs would need to be replaced to be brought into compliance.

Many stairs had non-compliant handrails and guardrails. The code has specific requirements for handrail and guardrail dimensions, extensions, and maximum openings that would require replacement of many existing handrails and guardrails. Code does not allow any object equal to or larger than a four-inch diameter sphere to pass through stair guardrail openings. The 1973 main stair has baluster spacing that is approximately 11 inches wide and therefore not compliant [Fig. 2].

Egress Corridors and Pathways

The 1848 building has narrow corridors on both floors that are problematic from an egress standpoint. One first floor corridor was found to have a non-compliant minimum width due to lockers installed that reduce the total width to less than

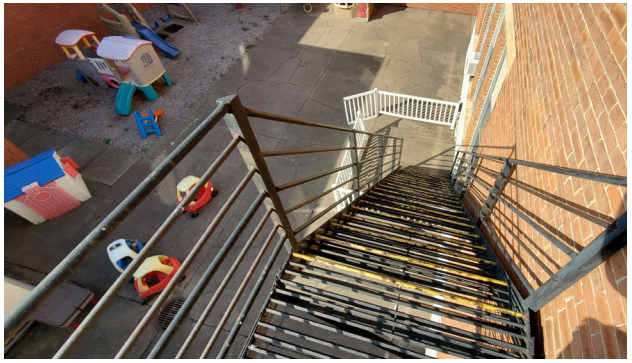


Fig. 1: Fire egress stair from the 1848 original building exits into an intervening space (enclosed courtyard), which requires re-entry into the 1960 & 1973 additions to exit to the public way (street). This is not allowed by code.

Fig. 2: The egress stairs in the 1973 addition have risers that are open to below and are not compliant with current codes. The vertical guardrail balusters are wider than code allows, and the handrails are a non-compliant shape and size for accessibility.

Code Compliance

44 inches [Fig. 5]. All other corridors met the minimum width based on occupancy, but they remain problematic in many areas due to door swings that reduce the corridor width to less than 50% when the door is fully open, which is not allowed by code. These are noted in the code compliance floor plans on the following pages as item number 13.

As mentioned in the previous section, the 1848 building has several stairs and pathways listed as exits, and none of them are currently compliant as an exit. However, we did analyze the travel distance for an exterior door that was labeled an exit out of the corridor between the 1848 building and 1960 building. It was found that even if this pathway to the public way was brought into compliance, it exceeds the maximum 200-foot travel distance from any point in the 1848 building as allowed by code for non-sprinkled buildings.

Other corridors in the 1960 and 1973 additions were found to be wide enough based on the occupant load out of these spaces.

Egress Doors and Ramps

Doors and ramps that serve as a means of egress in various areas of the building have many issues.

The northwest exit door out of the gymnasium ramps down into the vestibule connecting the 1960 addition and is steeper than code allows. Bringing this elevation change into compliance would be difficult due to limited space to create a ramp that meets the maximum 1:12 rise over run ratio the IBC requires. It would likely require enlarging the vestibule to create a longer ramp.

None of the three exits out of the cafeteria are an accessible means of egress due to ramps that are steeper than allowed or steps down to grade level [Fig. 4]. For an assembly space such as a cafeteria where the maximum occupancy is 50 or more, code requires two accessible means of egress. Two compliant ramps would need to be constructed.

Fig. 3: Door opens wrong direction for fire egress and does not have compliant stair landings. Egress corridor space is being utilized as a library.

Fig. 4: The concrete pad outside of the south cafeteria door exceeds the maximum ramp slope allowed by code to act as an accessible means of egress.

The building code requires egress doors to swing in the direction of travel to avoid panic situations when a large number of people are attempting to exit a space in an emergency. It also requires panic door hardware when 50 or more occupants are exiting through a door. We noted a few doors out of classrooms, corridors, and the courtyard swing the wrong direction to be considered a means of egress [Fig. 3]. These doors and corresponding hardware would need to be replaced. Many other doors also had non-compliant hardware.

Fire prevention

No portions of the current elementary building, including later additions, have a sprinkler system installed. This presents additional challenges when meeting fire and egress requirements. Non-sprinkled educational buildings are required to have corridor walls that meet a one-hour fire

Fig. 5: Exit corridor only 34 inches wide, less than the 44 inches minimum required by code.

Code Compliance

rating, and doors and windows within those walls must also be rated. While the underlying structure of the corridor walls of the 1848 building are likely masonry, and therefore would meet a one-hour rating, the doors and transom panel are not compliant and all would need to be replaced with new fire-rated doors and frames [Fig.6].

The central stair in the 1848 building is completely open between first and second floor [Fig. 7]. Additionally, there is an enclosed stair below which leads to the basement. From a code compliance standpoint, there is no fire-rated separation between the basement and upper floors, which creates a three-story space and is not allowed by code unless there is a two-hour fire separation between two of the floors or an automatic sprinkler system is installed. The purpose of this requirement is to prevent a chimney effect where fire and smoke travels easily between several floors.

In other areas of the building such as the 1973 addition, we discovered the classroom windows along the corridor have wire glass which is no longer allowed by code for educational spaces due to the tendency for the window to shatter and cause injuries in an emergency [Fig. 8]. These would also need to be replaced with new one-hour fire-rated doors and windows.

Materials

The code defines whether non-combustible materials are required based on the building type, use, and whether it has an automatic sprinkler system. Generally, non-combustible materials are required for education buildings and combustible materials such as wood must be fire-treated. We noted that there is extensive wood wainscoting and ceilings throughout the 1848 building and much of it has been treated with an intumescent paint, which is a special type of paint that swells in reaction to heat and fire in order to protect the surface below.

Fig. 7: The central stair in the 1848 building is open to adjacent spaces and does not have any fire separation between the basement and upper floors, creating a three-story space. No other stairs in this portion of the building are compliant with egress or fire separation.

Many areas in corridors have this paint applied, but not all, and we noted several areas where the intumescent coating did not appear to be uniform in application [Fig. 9].

Interior spaces throughout the later 1949, 1960, and 1973 additions are mostly concrete block, which is non-combustible and provides the required fire separation between exit corridors and occupied spaces. In the gym, a fire-retardant spray foam was added at some point to the steel and wood roof structure. However, we noted areas where this foam has fallen off and would need to be re-applied.

Plumbing Fixtures

OPN performed a plumbing count based on occupancy. The building has an adequate number of plumbing fixtures for academic day activity. However, for after hours activities, if the academic portion of the building is locked and only the restrooms adjacent to the gym and cafeteria can be used, the total number of plumbing fixtures is not sufficient to meet

Fig. 8: Wire glass windows in the 1973 addition are no longer allowed by code due to the tendency to shatter and cause injuries.

Fig. 6: No doors or windows from classrooms to corridor spaces are fire-rated. Rated doors are required in educational buildings that do not have an automatic sprinkler system installed.

Code Compliance

current code requirements, and additional toilet and sink fixtures would need to be provided.

None of the restrooms in the original building and later additions, including the nurse's office restroom that was added in 2013, meet code or ADA requirements for accessibility [Fig. 10]. ADA requires a minimum of one accessible toilet room for each gender, per floor, and per accessible area of the building. Accessible restrooms must be accessed from a common space such as a corridor. Due to elevation changes between the three main buildings, and the distance separating many of these spaces, this likely means several existing restrooms would need to be modified to be accessible, or new accessible single-use restrooms would need to be constructed.

ADA deficiencies will be discussed in the next section.

Fig. 10: A non-accessible restroom in the 1848 original building.

Fig. 9: Intumescent paint applied to wood wainscoting in the 1848 building. The application is not uniform.

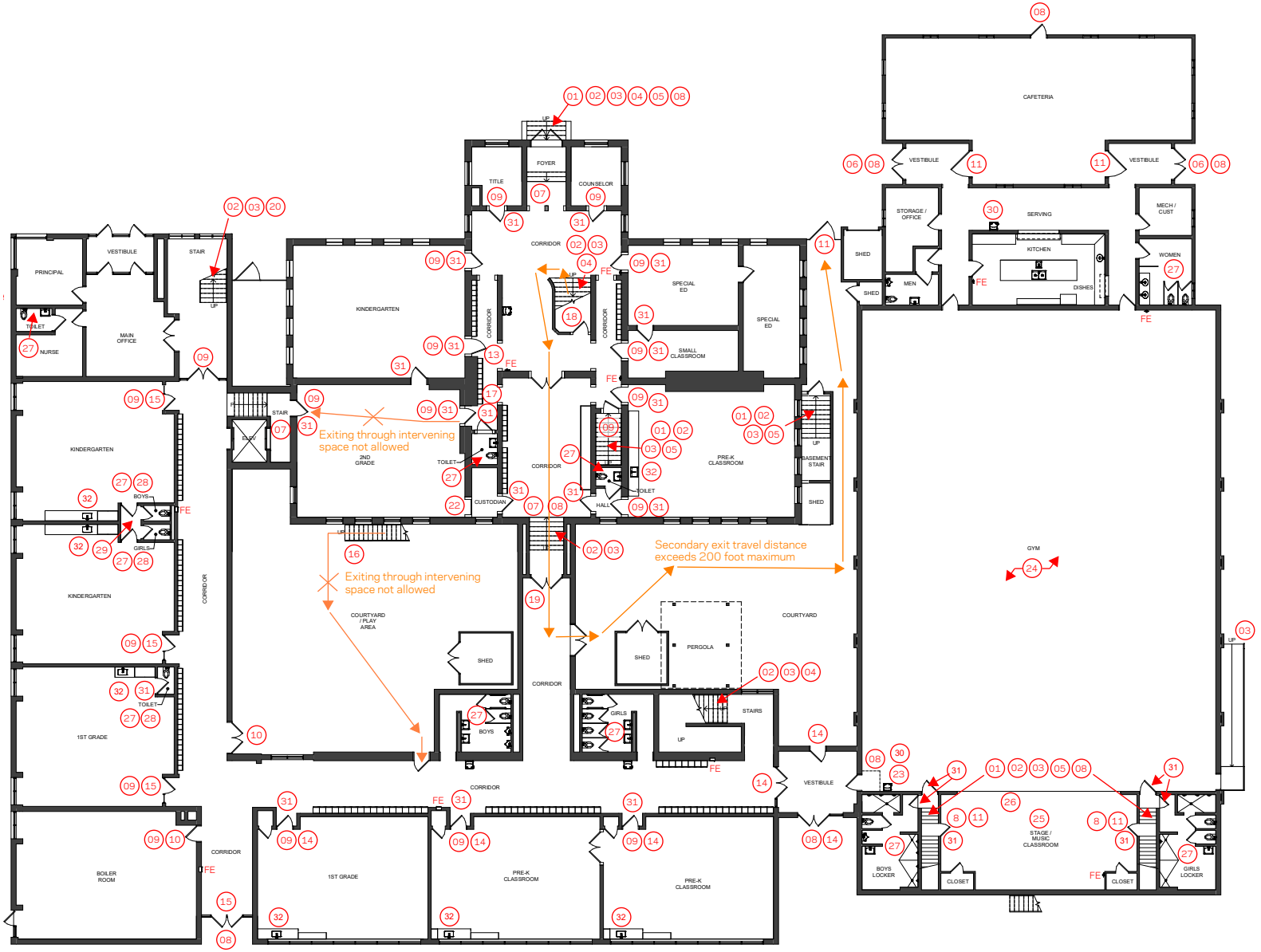
Fig. 11, Left: Both of the 1949 stairs connecting upper level rooms adjacent to the gymnasium have numerous code issues and would need complete replacement. Issues include non-compliant handrails, non-compliant landings, lack of clear space at doorways, and a stair rise and run that is steeper than code allows.

Code Compliance

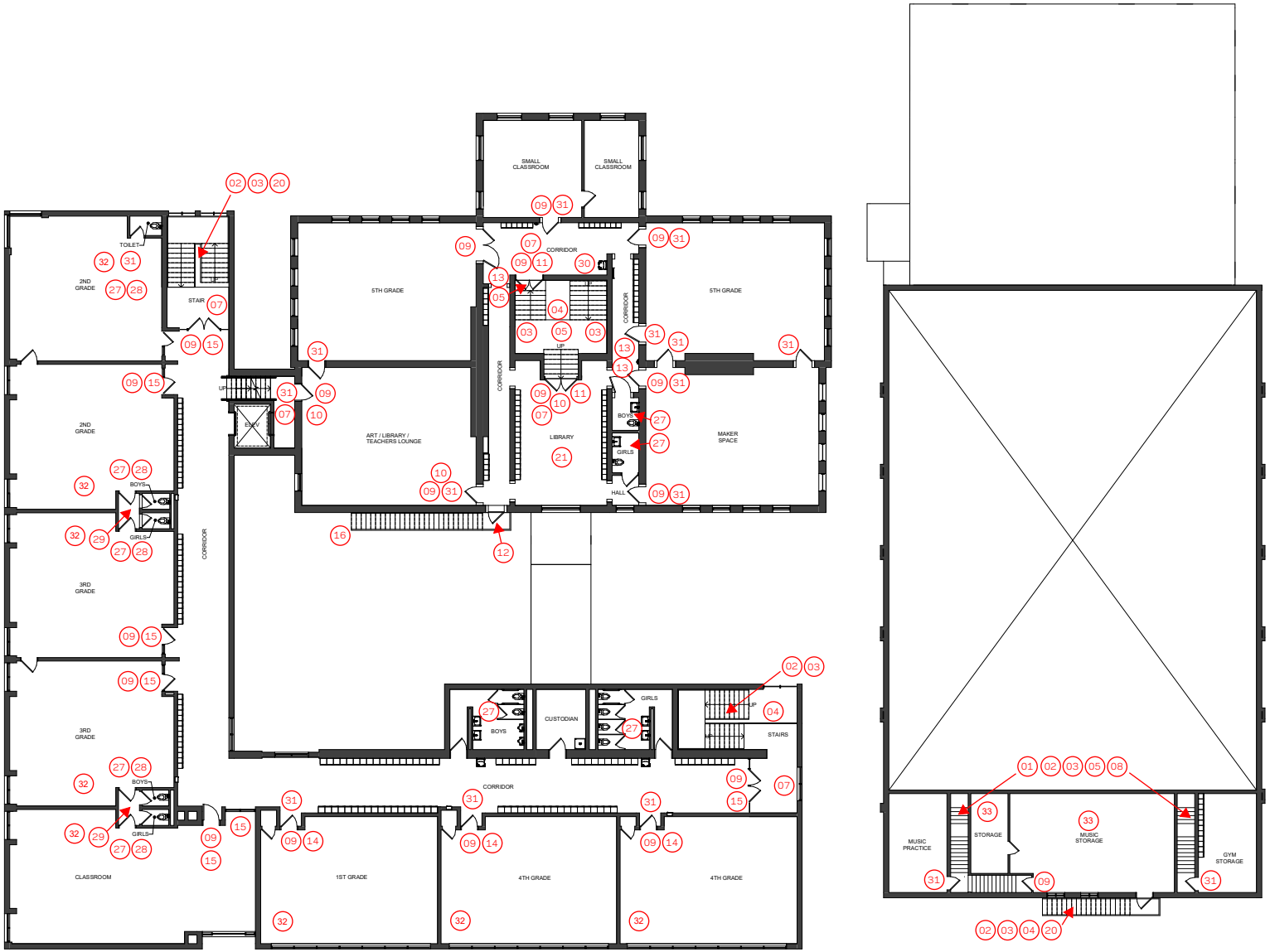
The following pages are a summary of the code deficiencies noted during our assessment of the first and second floor.

01. Non-compliant stair rise or run (2015 IBC)
02. Non-compliant handrail (2015 IBC)
03. Non-compliant or non-existent handrail extensions (2015 IBC)
04. Non-compliant guardrail (2015 IBC)
05. Non-compliant stair landing (2015 IBC)
06. Non-compliant ramp (2015 IBC)
07. Non-compliant area of refuge for persons with mobility impairments during a fire (2015 IBC)
08. Non-accessible exit (2015 IBC)
09. Door and/or window not properly fire-rated (2015 IBC)
10. Door swings in wrong direction for egress (2015 IBC)
11. Non-compliant door egress or access hardware (2015 IBC)
12. Door width non-compliant (2015 IBC)
13. Door swing reduces width of corridor / opening by more than 50% (2015 IBC)
14. Glass not tempered (2015 IBC)
15. Wire glass not allowed (2015 IBC)
16. Egress into enclosed courtyard not allowed (2015 IBC)
17. Exit corridor width less than code allows (2015 IBC)
18. No fire separation between basement and upper levels (2015 IBC)
19. Improperly labeled exits (2015 IBC)
20. Open stair risers not allowed (2015 IBC)
21. Exit corridor space being used as library storage
22. Remove abandoned door and replace with fire-rated wall assembly (2015 IBC)
23. Object impedes clear egress space (2015 IBC)
24. Gaps in structural fireproofing (2015 IBC)
25. Music classroom not wheelchair accessible (ICC 117.1)
26. Stage curtain not fire-rated (2015 IBC)
27. Non-accessible restroom (ICC 117.1)
28. Non-compliant door swing into toilet room (2015 IPC)
29. Non-accessible hallway (ICC 117.1)
30. Non-accessible drinking fountain (ICC 117.1)
31. Non-accessible door clearance (ICC 117.1)
32. Non-accessible sink (ICC 117.1)
33. S-1 storage space required to have fire-rated walls, doors, and floor below (IBC 2015)

Code Compliance Plan - First Floor



Code Compliance Plan - Second Floor



ADA Compliance

ADA Compliance

The Americans with Disabilities Act (ADA) is a 1990 Federal civil rights law that requires public and commercial spaces to be accessible to users with disabilities, including limitations due to mobility, eyesight, hearing, range of motion, and mental health. The 2010 ADA Standards for Accessible Design is the current version of the Department of Justice publication that provides design guidelines for creating accessible spaces.

New construction completed after the legislation passed in 1990 was required to meet all ADA accessibility standards. Existing buildings built before 1990 were grandfathered; however, the ADA has a provision that states architectural barriers must be removed from existing facilities if readily achievable. When major alterations are made to a structure, or there is a significant expense incurred to update a building, this typically requires areas of the building being altered to be brought into compliance with current guidelines.

1848 building

Of the many additions to the elementary school, the original 1848 building has the greatest number of ADA challenges. Like many buildings of its age, the main level is raised a few feet above grade level, with several steps required to reach the main floor. The first and second floor of the 1848 building are at different elevations than the first and second floor of the adjacent 1973 addition. An elevator tower was added in 2005 to provide wheelchair accessibility to these four distinct levels [Fig. 1].

However, as noted in the previous section, this elevator is separated from the exit corridors in the center of the 1848 building by a classroom (an intervening space), making this stair area non-compliant as a means of egress from the 1848 building [Fig. 2]. Even if a corridor through the classroom was added, no portion of the existing school has a fire sprinkler system. This requires the 2005 stair and elevator to be retrofitted with fire-rated walls and doors to prevent smoke intrusion and a two-way communication system to allow someone in a wheelchair to call for help. A sprinkler system would eliminate the latter items, but an egress corridor would be required in any scenario to connect the elevator to the rest of the 1848 circulation space.

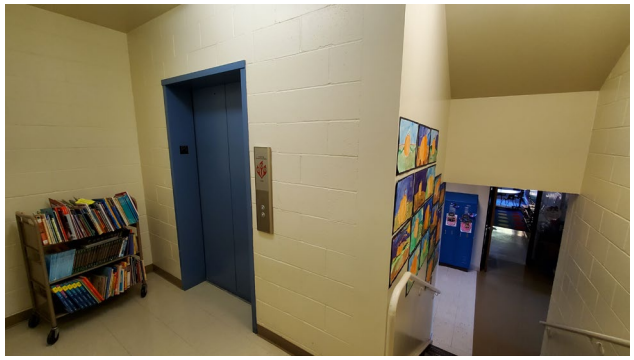
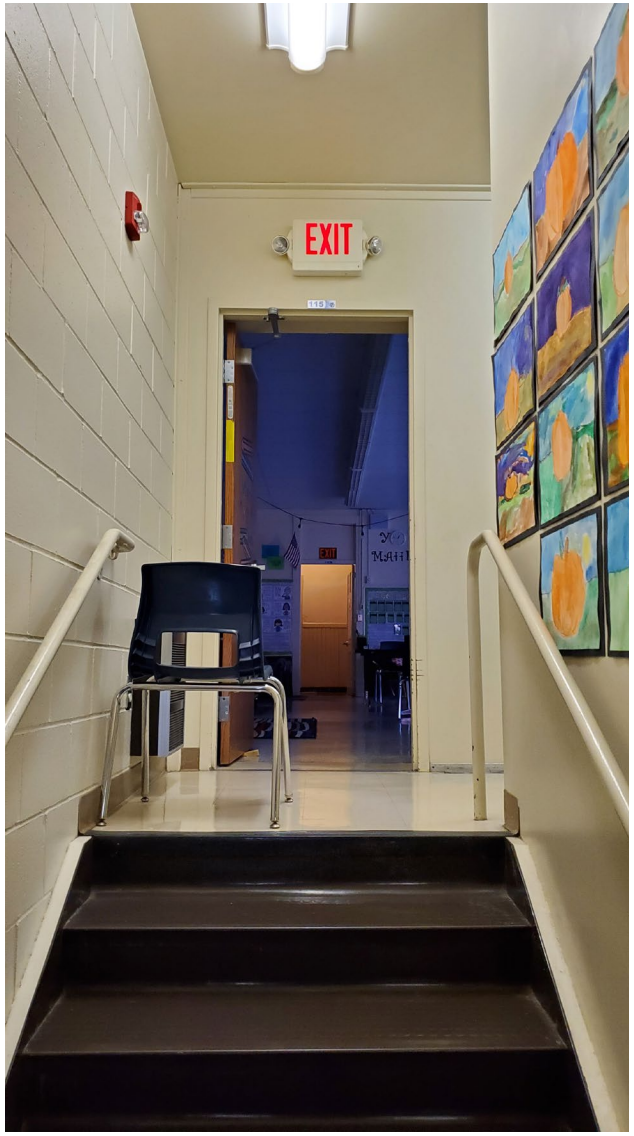


Fig. 1: The elevator and stair landing is not enclosed with fire-rated doors and does not have a two-way communication device for a disabled individual to call for help, which is required for non-sprinkled buildings.

Right, Fig. 2: Access to the elevator from 1848 corridors passes through a classroom. Exiting through this classroom in either direction is not allowed by code and is not an accessible route to the elevator.



Bottom, Fig. 3: Stairs leading up to the main entrance of the 1848 building exceed the maximum rise and run requirements, the handrails are non-compliant, and there is no accessible ramp to access this doorway for a person in a wheelchair.

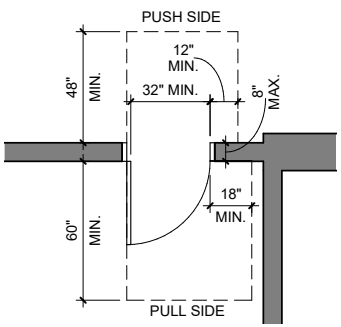
ADA Compliance

The limestone stair at the east entrance to the original building exceeds the maximum 7-inch rise and 11-inch run dimensions allowed by ADA [Fig. 3]. The handrails do not provide the proper extension beyond the last step, and in several areas, the handrails did not provide minimum clearance away from the brick wall. Based on the occupant count for the 1848 building, two accessible exits to grade are required. The existing east entrance in the 1848 building is a logical location with its proximity to the playground. To make it accessible, a ramp would be required to be added. With a handful of steps directly inside the building, this would also require raising the doorway approximately 18 inches in height to match the finish floor level at the corridor.

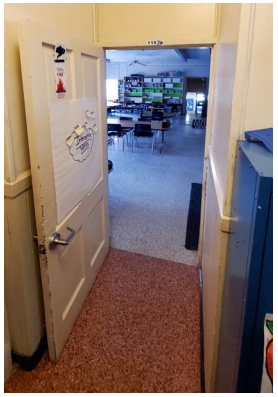
Most doors throughout the 1848 building do not have the proper clearance required on the push and/or pull side for an individual in a wheelchair to operate the door, which requires these openings to be modified by to meet accessibility. [Fig. 4, 5] This would likely involve carving additional space out of the classrooms to create an accessible doorway due to the thickness of existing walls, which do not meet ADA requirements for maximum wall thickness at a doorway.

It was also observed that many wall-mounted devices exceed the 48 inch maximum height allowed by ADA to be able to be accessed by an individual in a wheelchair. This included items such as light switches, thermostats, call buttons, and fire extinguishers.

As noted during the code portion of this report, the central stair in this space is problematic for several reasons, many of which overlap with ADA compliance. Deficiencies observed included landings that do not meet minimum depth requirements, a pair of doors that swing the wrong direction for egress, handrails that do not have correct extensions, and the lack of a compliant guardrail height and no compliant handrail in the interior



Above Left, Fig. 4: Standard ADA door clearance requirements



Above Right, Fig. 5: Classroom door in the 1848 building that does not meet the required clearances.

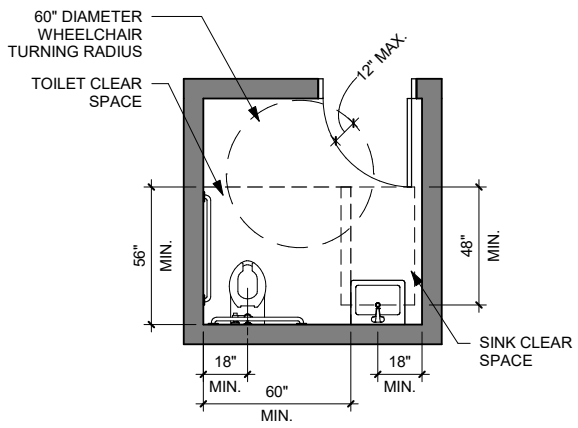


Fig. 6: An example of a typical single-use toilet room meeting the minimum required clearances for ADA. Note several different required clearances at the toilet, sink, and a turning radius for a wheelchair.

portion of the stair. [Fig. 9] Many other doors into classrooms and other spaces have traditional door knobs, which is not allowed by ADA due to difficulty with grasping and turning the knob by persons with range of motion disabilities. [Fig. 7, 8]

A final item to note for the 1848 building is that there are

Fig .7: A door knob into a classroom, which is not allowed by ADA.

Fig 8: An existing door which has been modified with an ADA-compliant lever door handle.

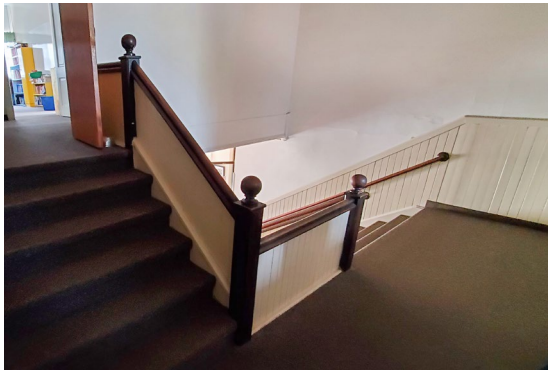


Fig. 9: The central stair does not have a compliant handrail, and the guardrail height is lower than allowed by code and ADA. Landing depths are also non-compliant at doorways.

no accessible male or female restrooms. ADA requires a minimum of one accessible restroom for each gender per floor. The 1848 building effectively acts separate structure from a code and ADA standpoint due to changes in floor elevation and physical separation from the 1960 and 1973 additions. Adding accessible restrooms would likely require removing additional classroom space. Physical limitations with structural walls and tight corridors make it difficult to modify the current restrooms to incorporate adequate clearances and turning radius for wheelchairs. An example of an accessible restroom can be seen in Figure 6.

1949 gym and 1962 cafeteria

The finish floor level of the gym and cafeteria are approximately 16 inches above the finish floor level of the vestibule that connects the gym to the 1960 addition. There is a slight elevation change of a few inches between the vestibule and the 1960 addition. The ramp that connects the gym to the vestibule is steeper than the 1:8 ratio allowed by ADA for existing ramps; it also does not have handrails which are required when the rise is greater than six inches [Fig. 10]. To create an accessible route to the rest of the building, the vestibule would likely need to be enlarged to the east to allow installation of a longer ramp.

As noted earlier in the code portion of this report, the cafeteria does not have any accessible egress routes to the exterior due to ramps that slope too steeply to grade. A minimum of two egress routes with compliant ramps and handrails would need to be constructed to meet ADA and code requirements out of this space.

The stage adjacent to the gymnasium is currently being used as a music classroom [Fig. 11]. To comply with ADA and be accessible by all, a ramp would need to be constructed to provide access to this space. Due to the height of the stage and resulting length of the ramp to meet a 1:12 rise over run ratio

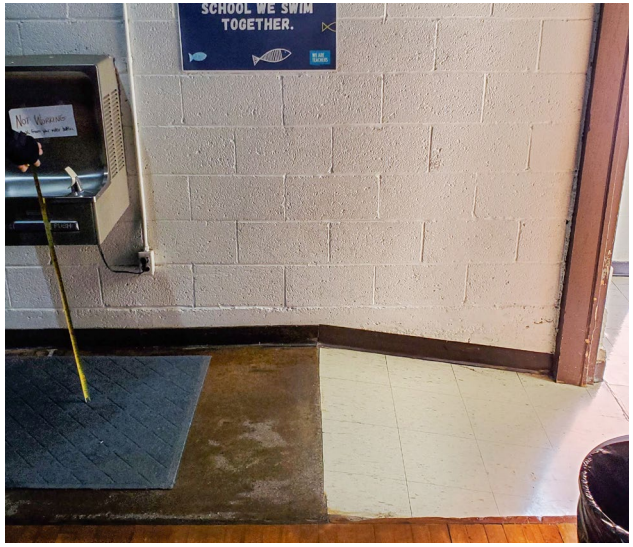
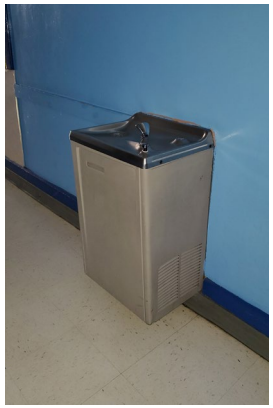
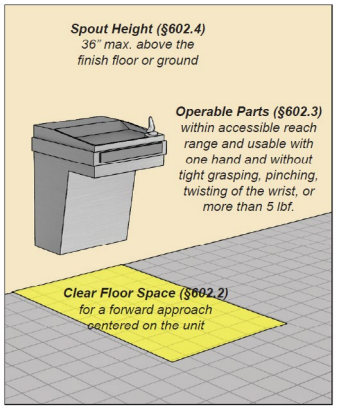


Fig. 10: A non-compliant ramp that is steeper than allowed by ADA for an accessible route. A drinking fountain projects out greater than 4" into the accessible route, which is also not allowed by ADA.

Fig. 11: The existing stage, currently being utilized as a music room, does not have an accessible ramp to allow wheelchair access.

Fig. 13: Both the kitchen serving window and the dish return window have a counter height that is higher than the 34" maximum allowed by





Above left: Fig. 14: A drinking fountain near the cafeteria does not allow wheelchair accessibility.

Above right: Fig. 15: An example of an accessible drinking fountain. *Source: accessboard.gov*

ADA Compliance

for the construction of a new ramp, it would likely require an intermediate landing.

The gymnasium contains an exit at the southwest corner of the space with an exterior concrete ramp that leads down to grade. While the ramp appears to be mostly compliant with ADA, the existing railings would need to be modified or replaced because they do not have the required handrail extensions.

None of the restrooms serving the gym or cafeteria are ADA compliant. Issues include: a lack of grab bars, inadequate space for a handicap accessible stall, and the lack of an accessible route to enter and use the restrooms [Fig. 12]. Many of these restrooms, especially the two former locker rooms, would require extensive renovation of the space to remove walls and other obstructions that create barriers to entering the restrooms. Extensive plumbing work would need to be performed to relocate fixtures to create space for wheelchair-accessible stalls.

The kitchen serving counter and dish return counter both exceeded the 34 inch maximum counter height allowed by ADA [Fig. 13]. The window openings and counters need to be lowered.

Throughout the building, only a few drinking fountains are ADA-accessible. ADA requires at least one drinking fountain in an area of a building, per floor, to be accessible. There are three accessible drinking fountains: one on each floor of the 1960 addition and one on the first floor of the 1848 original building. The second floor of the 1848 building and the gym and cafeteria do not have accessible drinking fountains that provide front-approach for an individual in a wheelchair [Fig 14, 15].

1960 and 1973 classroom wings

Both the 1960 and 1973 classroom wing additions were constructed at the same finish floor elevation. The east entrance of the 1973 addition, which enters the administration office,

Fig. 12: A non-accessible women's restroom near the cafeteria. This restroom does not have a wheelchair-accessible stall with grab bars or adequate clear space at the sink fixtures.

Fig. 17: A girls restroom adjacent to the 1960 classroom wing that does not have a wheelchair-accessible stall, adequate wheelchair turning radius, or compliant grab bars. Exposed piping under sinks must be covered with a protective shroud to prevent burns by wheelchair users.

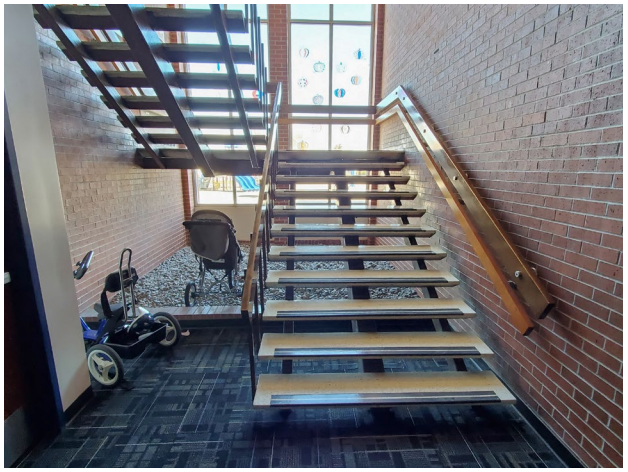


Fig. 16: Both stairs constructed in 1973 do not meet ADA requirements for handrails and guardrails, and the stair adjacent to the administration office contains open risers which are not permitted.

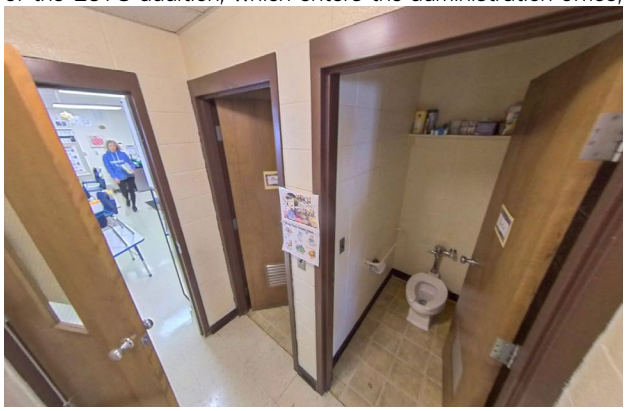


Fig. 19: Non-compliant single-use restrooms and hallway connecting two 1973 classrooms.

ADA Compliance

contains the only compliant ADA-accessible entrance to enter the building.

Both stairs serving these two wings were constructed in 1973 and have a number of code and ADA compliance issues that will require significant modification or complete replacement. One of the issues is open stair risers, which can be seen in the stair near the administration office [Fig. 16]. Open stair risers with no solid nosing create a safety issue for individuals with limited eyesight or limited range of motion and are no longer allowed. These stairs also have guardrails that exceed the 4-inch wide maximum threshold between balusters, and none of the handrails are a compliant shape or size and would need complete replacement.

All of the classroom doors in the 1960 classroom wing addition do not meet required ADA clearances on the pull side to operate the door. Currently, the perpendicular wall opposite of the hinge side of the door is too close to the door opening. To make these accessible, this opening would need to be widened and walls would need to be reconstructed. This would impact adjacent floor and ceiling surfaces.

None of the restrooms in the 1960 and 1973 additions are ADA compliant. As noted earlier, ADA requires each area of a building to have one accessible restroom for each gender, per floor. The existing main restrooms off the 1960 corridor do not have enough space for a wheelchair-accessible stall, and the girls restroom does not have enough clear space for a 60 inch turning radius [Fig. 17]. Due to space limitations in all of these existing multi-stall restrooms, new single-use male and female restrooms would likely need to be constructed for each floor.

Each classroom in the 1973 addition contains a single-use restroom. Many of these restrooms are adjacent to one another with a narrow connecting hallway between classrooms. While the restrooms do not meet ADA requirements, they also do not meet the minimum room footprint required by the International Plumbing Code. All single-use restrooms in the classrooms would need to be enlarged [Fig. 18].

In addition to the single-use restrooms being a smaller footprint than allowed, a connecting hallway allows access into the restrooms and each adjoining classroom. These connecting hallways are narrow and the doors swing inward, which does not provide proper ADA clearance [Fig. 19]. Both the restrooms and the hallway would need to be enlarged, removing square footage from the existing classrooms which are currently approximately 790 square feet.

All classrooms in the 1960 and 1973 additions contain base cabinets with a sink. However, these were all constructed before requirements were put in place to provide clear space below the sink for an individual in a wheelchair to access and use the sink [Fig. 21]. ADA requires sinks used primarily by children to allow for forward approach with the proper knee and toe clearance underneath [Fig. 22]. Therefore, a section of the casework in each classroom would need to be replaced to be compliant with ADA.

The last item of note related to ADA is the reception casework in the administration office. ADA requires all surfaces used by the public to have an accessible portion for users in a wheelchair. A portion of the desk would need to include a counter surface at a maximum height of 34 inches. Currently the transaction counter on this desk exceeds the maximum height allowed by several inches [Fig. 20].

Fig. 20: The reception casework in the administration office does not have an ADA-accessible transaction counter.

Fig. 21: A non-compliant sink that does not provide wheelchair accessibility for the sink or drinking fountain.

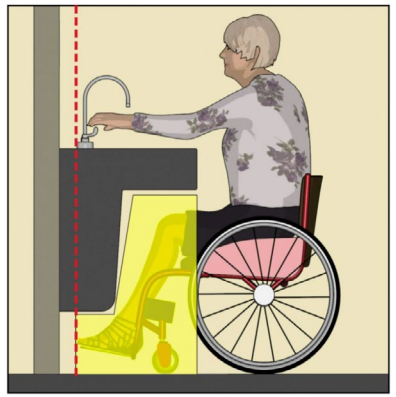


Fig. 22: A sink providing required knee and toe clearance for individuals in a wheelchair.

Source: accessboard.gov

ADA Compliance

Fig. 23: This restroom has a number of issues that make it not compliant with ADA: 1) A toilet without the minimum required clearance away from the wall and clearance from the urinal. 2) No grab bars installed at the toilet. 3) Toilet paper dispenser installed higher than the maximum height. 4) Mirror installed higher than the maximum 48 inch height. 5) No protective shroud around the piping under the sink.

Fig. 24, 25: Wall devices such as light fixtures, fire alarm pulls, thermostats, fire extinguishers, and call buttons must be installed at a maximum of 48 inches off the floor to the operable portion of the device. These are two examples that exceed 48 inches and would need to be lowered.

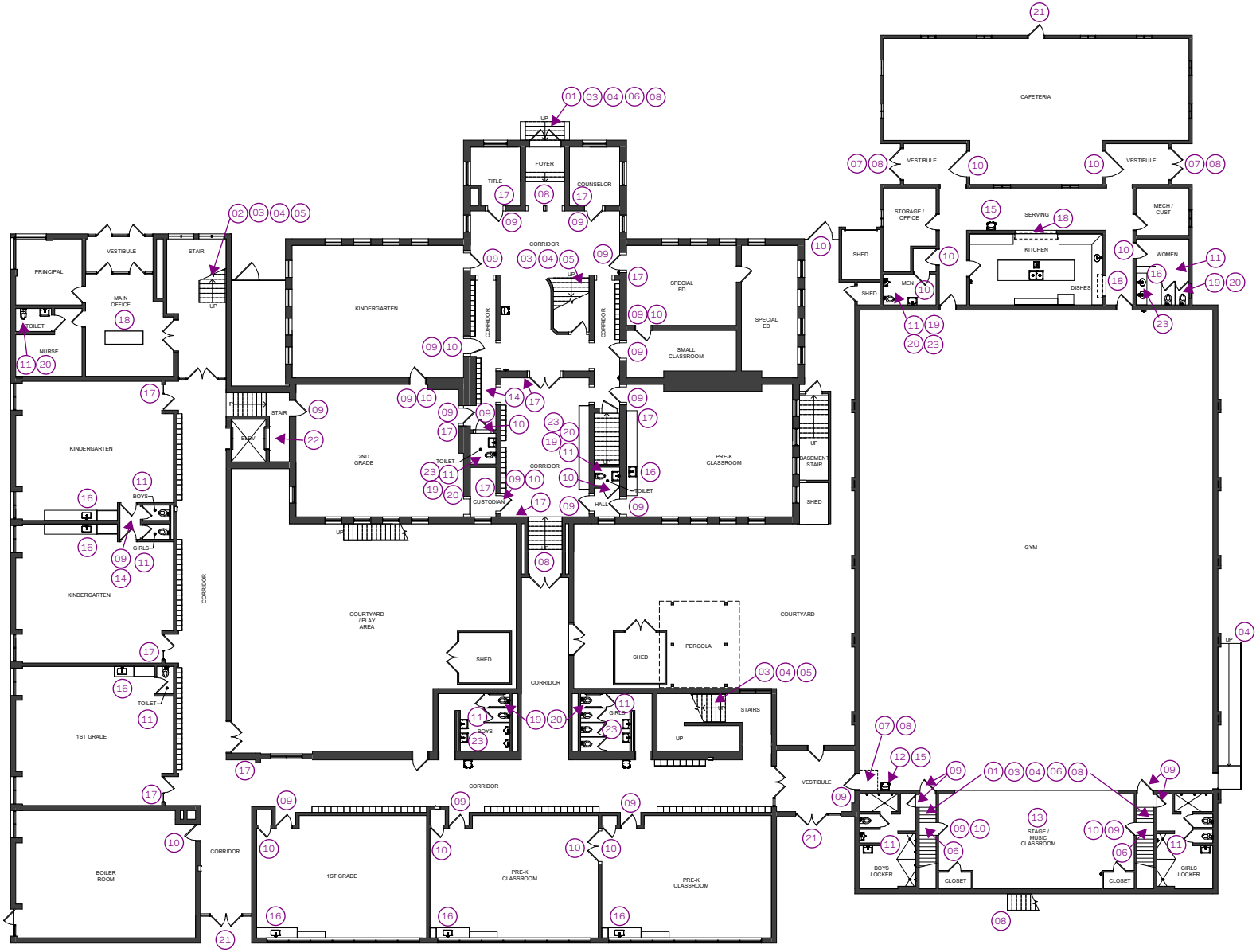
Fig. 18: A non-compliant single-use restroom in one of the 1973 classrooms

ADA Compliance

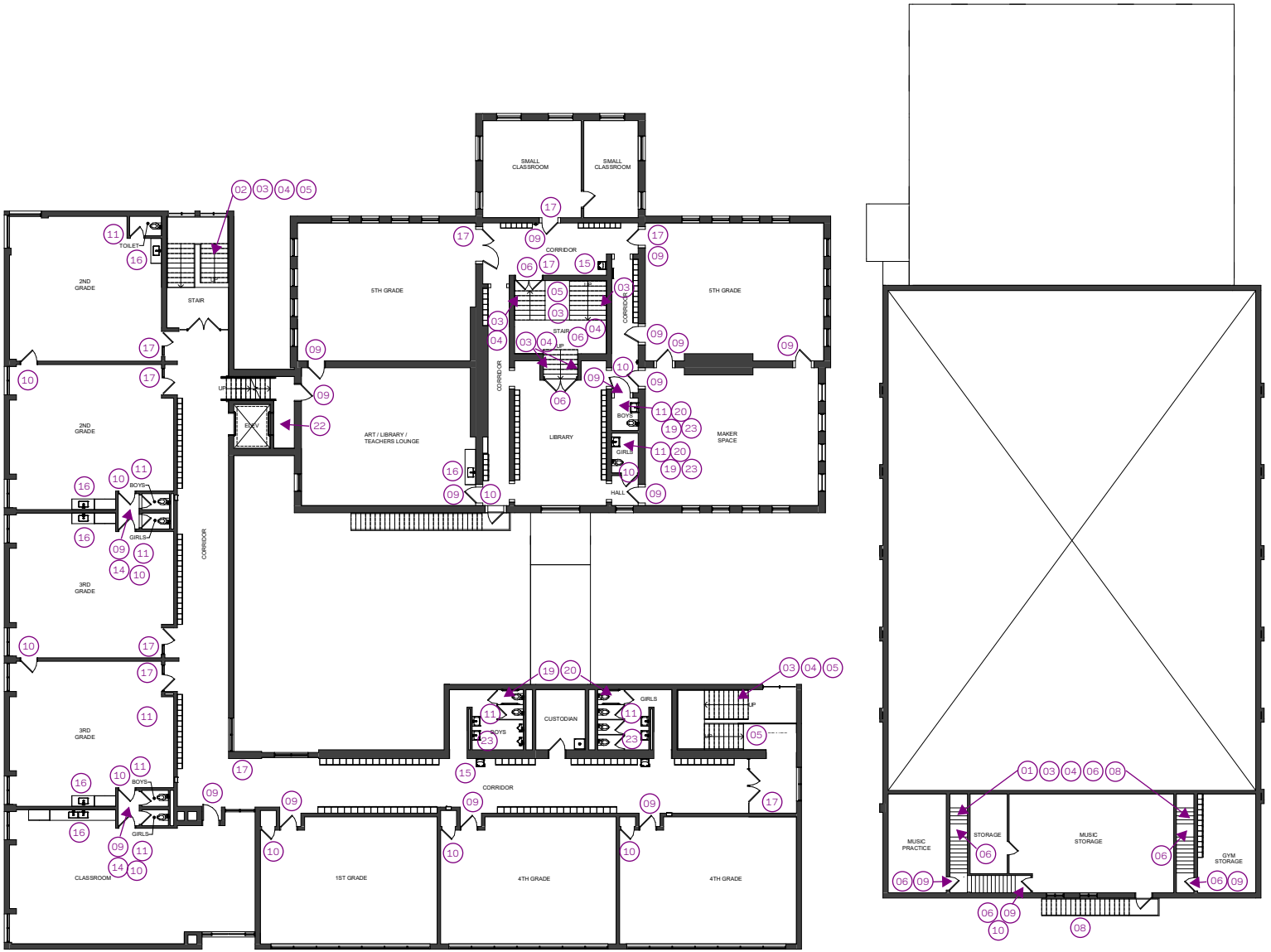
The following pages are a summary of ADA accessibility deficiencies noted during our assessment of first and second floor.

01. Non-compliant stair rise or run
02. Non-compliant stair risers
03. Non-compliant handrail
04. Non-compliant or non-existent handrail extensions
05. Non-compliant guardrail
06. Non-compliant stair landing
07. Non-accessible ramp
08. Non-accessible exit
09. Non-accessible door clearance
10. Non-accessible door hardware
11. Non-accessible restroom
12. Object protrudes greater than 4 inches into accessible route
13. Classroom space is not wheelchair accessible
14. Corridor / hallway does not have accessible clearances
15. Non-accessible drinking fountain
16. Non-accessible sink / cabinet
17. Wall device mounted higher than allowed for accessibility
18. Non-accessible counter / transaction surface
19. Missing or non-compliant toilet grab bars
20. Toilet clear space not compliant for accessibility
21. Change in elevation / step exceeds 1/4" - not an accessible doorway
22. Elevator landing does not have required turning radius
23. No protective shroud at sinks

ADA Compliance — First Floor



ADA Compliance — Second Floor



Exterior Conditions

Exterior Conditions

OPN's analysis the exterior surfaces and materials of the building documented moisture issues, settlement cracking, damage to brick, deterioration of metals, and other damage that has occurred over time. We also noted doors and windows with single pane glass, and doors with non-tempered glass.

1848 Building

The original 1848 building is in good exterior condition despite its age, with minimal issues related to cracking or spalling of brick. The foundations are solid limestone and generally appear to be in good condition with the exception a few locations that have mold and mildew growth and a few minor locations where limestone spalling had occurred. Brick mortar is generally in good condition. The exterior walls are solid masonry, approximately 16 to 20 inches thick, and likely do not have any sort of cavity insulation. A few areas on the northeast facade have mold and mildew growth on the brick indicating moisture issues underneath [Fig. 2].

All windows on the 1848 building are single pane non-insulated glazing [Fig. 1]. Many of these are newer aluminum operable windows with a spandrel panel above, which appears to have been replaced in either 1960 or 1973. These windows provide very little insulation compared to modern double-pane insulated glazed windows. The main double doors at the east entrance were likely replaced the same time as the windows, and are very likely to be non-tempered glass as most codes did not require tempered glass until after 1977. Other windows, such as the arched windows above the east entrance, are much older, likely dating to the 1870s or 1889 renovation [Fig. 3].

The roof consists of asphalt shingles that were replaced 20 years ago and appear to be in good condition overall. There are no gutters installed on the 1848 building, which allows water to shed directly off the roof and onto adjacent wall surfaces. This appears to be causing some of the water issues observed in the northeast corner of the building.

Minimal exposed wood on this portion of the building includes a wood jamb surround around the arched window and main door with cracked and chipping paint. The arched windows may contain asbestos window putty and would need further investigation.

1949 Gym

The gym is a concrete block wall construction with an aluminum siding overlay that is at the end of its life and does not appear to have any insulation underneath. Several areas at the base of the siding and the foundation below have mold and mildew growth due to a lack of gutters to capture

Fig. 1: Newer single-pane operable windows and older single-pane arched windows. Building cornices do not have gutters and allow water to drip onto wall surfaces, which is causing moisture issues at the base of the building.

Exterior Conditions

water shedding off the roof [Fig. 5]. One location where the siding has been removed has significant staining, indicating there may also be moisture leaking under the siding. The foundation of the gym is poured concrete with several areas where minor cracking was observed.

Most gym windows have been infilled. Two windows remain on the west facade at the second floor storage room above the stage. They are original, single-pane windows with several subdividing muntins.

To the right of these windows is a second floor exit door and painted steel fire escape. While the fire escape has several issues that make it non-compliant with current codes, it is also in poor condition with a significant amount of rust and flaking paint [Fig. 6]. On the south facade of the gym, there is an existing ramp and painted steel handrail in fair condition but needing modifications to be code compliant.

The roof of the gym is an EPDM rubber material that was installed 30 years ago and is toward the end of its life.

1962 Cafeteria Addition

The cafeteria is similar to the gym's painted concrete block wall construction, with similar single-pane windows that are in poor condition. The block wall is single wythe and does not contain insulation. Settlement cracking was noted at the corner of the north and south doorways. Overall, the condition of the cafeteria structure is fair, but lack of insulation and modern insulating windows creates significant heating and cooling needs for this space.

There are three exterior doors at the cafeteria. Two are aluminum doors with full glass lites that are of a similar age as other areas of the building and likely do not contain tempered glass. The third door is a hollow metal door with fading, flaking

Left, Fig. 2: Mold and mildew growth at base of brick and limestone foundation.

Fig. 3: Arched single-pane window on 1848 building with possible asbestos putty.

Fig. 4: Spalling brick on the 1848 exterior wall.

Fig. 5: Water sheds directly off roof and onto gym siding below, as can be seen by streaking on the siding and mildew growth on the foundation.

Fig. 6: Gym fire escape in poor condition

Exterior Conditions

paint and several areas of rust.

The roof is a pitched asphalt shingle roof that appears to be in good condition and of the same age as the shingle roof on the 1848 building (20 years). Unlike the gym, the cafeteria does have gutters that allow water to shed away from the building.

1960 Classroom Wing

The 1960 classroom wing northwest of the gym consists of brick exterior walls, aluminum ribbon windows, and a flat roof with internal roof drains. The foundation is poured concrete and some cracking and spalling was noted at the corner by the gym entrance [Fig. 7].

Several areas of brick were noted to have water intrusion, usually at the head of windows [Fig. 8]. This is likely caused by a lack of weeps to draw water out as it travels down the internal wall cavity. The water intrusion has also led to corrosion on many of the window lintels at the head of the windows.

The anodized aluminum windows are in below average condition for their age. All windows on the 1960 addition are single-pane glass with very little insulating value. The gasketing around the windows is cracked and dry, which is allowing water into the window frame [Fig. 8]. In one location, the aluminum sill below the window has separated, allowing water and pests to enter the wall cavity [Fig. 9]. Gaskets around the windows would need to be investigated for asbestos. Pressure plates were noted to be popping out from the window frame in a few locations.

The roof was originally a built-up tar roof assembly that was later covered with new rigid insulation and an EPDM rubber roof membrane. Similar to the gym, this roof is approximately 30 years old and toward the end of its life.

1973 Classroom Wing

Like the 1960 addition, the neighboring 1973 wing consists of brick, aluminum windows, and a flat roof with internal roof drains. The brick was generally noted to be in fair to good condition for the majority of wall surfaces, but similar to the 1960 wing we noticed several areas where water is intruding into the wall cavity due to poor design of window sills and a lack of drainage weeps.

Each window opening has deeply recessed windows frames with a brick window ledge, which does not project outward to create a drip edge [Fig. 11]. This design is problematic because it allows moisture, especially snow, to sit for long periods of time and absorb into porous brick and mortar material with little resistance. This results in mold and mildew growth, along with efflorescence which creates a white, chalky appearance on brick.

Fig. 7: Cracking and spalling concrete foundation on the 1960 addition

Fig. 8: Damage to window head lintels due to water intrusion into the brick cavity on the 1960 addition. Cracking window gaskets are also visible.

Fig. 9: Damaged window sill in 1960 addition, allowing water and pests into wall cavity

Fig. 10: Rusting steel lintel on the 1973 addition

Fig. 11: Water intrusion into the 1973 brick window sill, resulting in mold, mildew, efflorescence, and deterioration of the brick and mortar.

Exterior Conditions

Over time, constant moisture causes the brick and mortar to break down and spall off. Nearly every window on the 1973 addition was noted to have some sort of water damage at the sill, the only exception being the corner administration office window added in 2013 with an aluminum sill. At the heads of windows, we also noted most of the steel lintels were beginning to rust due to water damage [Fig. 10]. With no intervention, the rust will eventually impact the structural integrity of the lintel that supports the brick above.

The last item to note is the elevator tower, built in 2005. It has an EIFS finish, which is a stucco-like material, and it is generally in good condition. However, the lack of gutters on the adjacent 1848 building is allowing water to shed onto this wall surface, which is causing mold and mildew growth on the surface [Fig. 12].

The roof on the 1973 addition was also originally a built-up tar roof assembly but has since been overlayed with new rigid insulation and a TPO roof assembly approximately two years ago.

Fig. 12: Mold and mildew growth on the 2005 elevator addition EIFS panels due to a lack of gutters on the 1848 building.

Fig. 13: Galvanic action occurring between the steel lintel and aluminum windows on the 1973 addition, which causes accelerated corrosion of both metals. Water intrusion into the brick above is also causing significant rust on the lintel and damage to the mortar.

Exterior Conditions

The following pages are a summary of exterior envelope deficiencies noted during our assessment of first and second floor.

01. Single-pane, non-insulated windows

02. Single-pane, non-insulated and non-tempered door glass

03. Non-insulated hollow metal door

04. Brick moisture issues / efflorescence

05. Mold / mildew growth on wall due to lack of gutters

06. Limestone spalling

07. Rust / corrosion on structural lintels

08. Cracking foundation

09. Crack in exterior wall

10. Metal siding in poor condition / no insulation

11. Exit stair in poor condition / rust

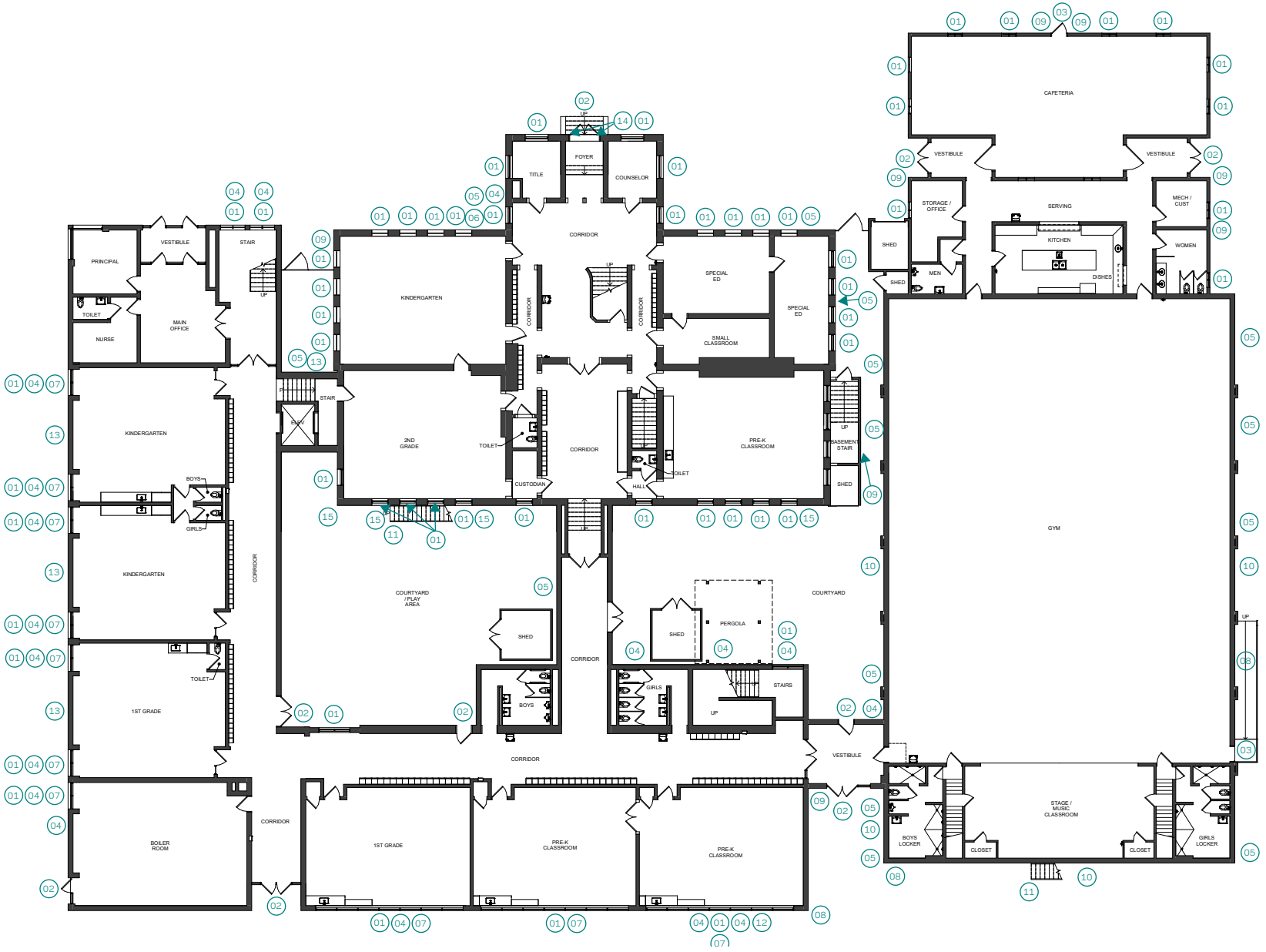
12. Damaged window sill / exposed wall cavity

13. Damaged mechanical louvers

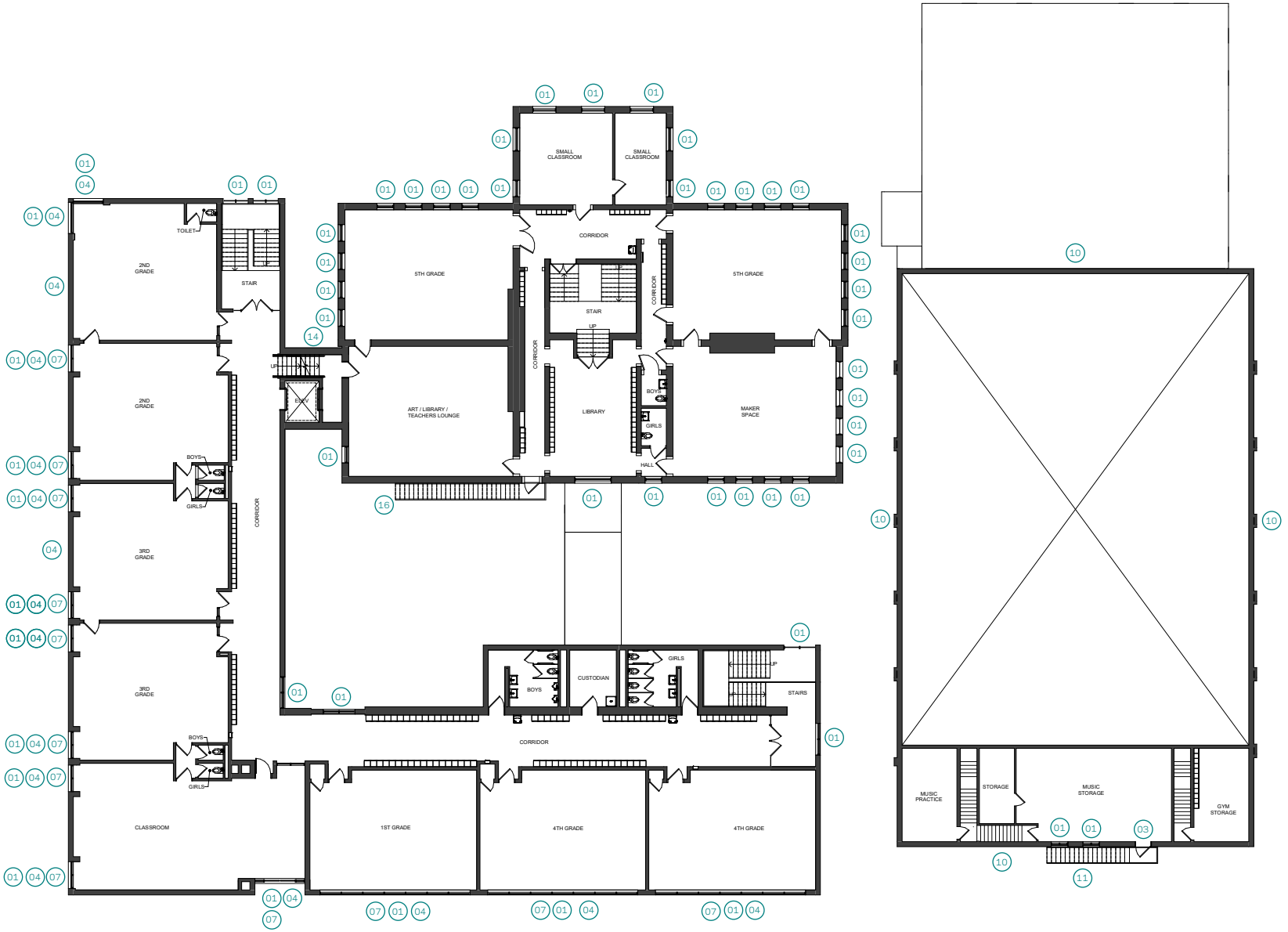
14. Paint flaking off wood jambs

15. Parge coating at base of wall failing

Exterior Conditions - First Floor Plan



Exterior Conditions - Second Floor Plan



Mechanical Code Compliance and Systems Condition

Mechanical - Code Compliance and System Condition

Plumbing

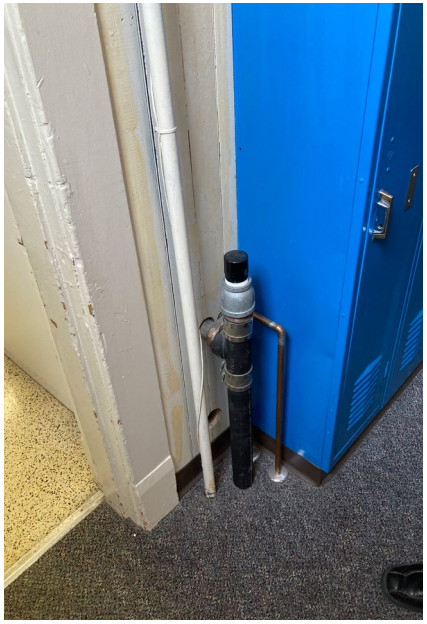
Facility personnel did not indicate pervasive problems with plumbing systems. However, certain fixtures require updating and some piping needs to be addressed.

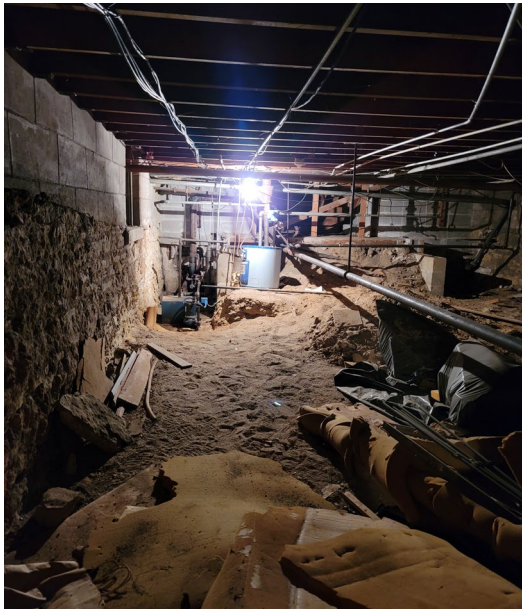
In the 1848 building, plumbing is exposed to the space, including an autovent in one of the hallways. This vent should be taken up above the ceiling and tied to existing venting or taken to the roof. A major retrofit, if decided, should include moving exposed waste, vent, and domestic water into soffits or chases.

Several electric water coolers (EWCs) throughout the buildings are not ADA compliant; approximately four EWCs need replaced for compliance or due to maintenance issues. Some lavatories do not have protective covers on the traps.

The water heater for the 1848 building is tucked into a crawlspace with a dirt floor. If the 1848 building is renovated, a new mechanical space should be created for a properly accessible water heater installation.

The cafeteria did not appear to have a grease trap. Good practice and code requires a grease trap downstream of dishwashers and grease producing sinks.





Mechanical - Code Compliance and System Condition

Heating, Cooling, and Ventilation

Some areas are lacking required exhaust.

- Required restroom exhaust is lacking in the 1848 building 2nd level boys restroom.
- Required restroom exhaust is lacking in the cafeteria south restroom
- In the cafeteria kitchen, the dishwasher should have a hood and exhaust fan to remove humidity from the dishwasher.

Ventilation is not properly provided for any space in the buildings.

- The cafeteria is served by a furnace with a roof mounted AC condenser. Ventilation air is not provided to the furnace.
- The gym is heated by one steam unit heater. The other steam unit heater is out of service. No cooling is provided. No ventilation air is provided to the space.
- The 1848 building is heated via steam unit heaters and radiators and cooled with window mounted air conditioners. No source of year-round ventilation air is provided. Operable windows are impracticable for summer or winter use for ventilation.
- The 1960 and 1973 wings have original to the building hot water unit ventilators and newer Samsung min-split air conditioners.
    - The unit ventilators were intended to provide ventilation without air conditioning. However, the unit ventilators do not currently ventilate air to the classrooms.
    - Unit ventilators are an obsolete style equipment that are difficult to operate and keep in service for ventilation. They have been heating only units for some time.
    - There is no way to ventilate and cool simultaneously using the unit ventilators and the Samsung air conditioners, regardless of the condition of the unit ventilators.

Boiler room in the 1973 addition.

The building does not have modern HVAC controls. Modern HVAC controls allow facilities staff to remotely monitor the status of cooling and heating operations, and enables central control of room temperature setpoints, affording feedback on system performance system beyond user complaints. Properly executed controls also permit troubleshooting of system problems including lack of ventilation.

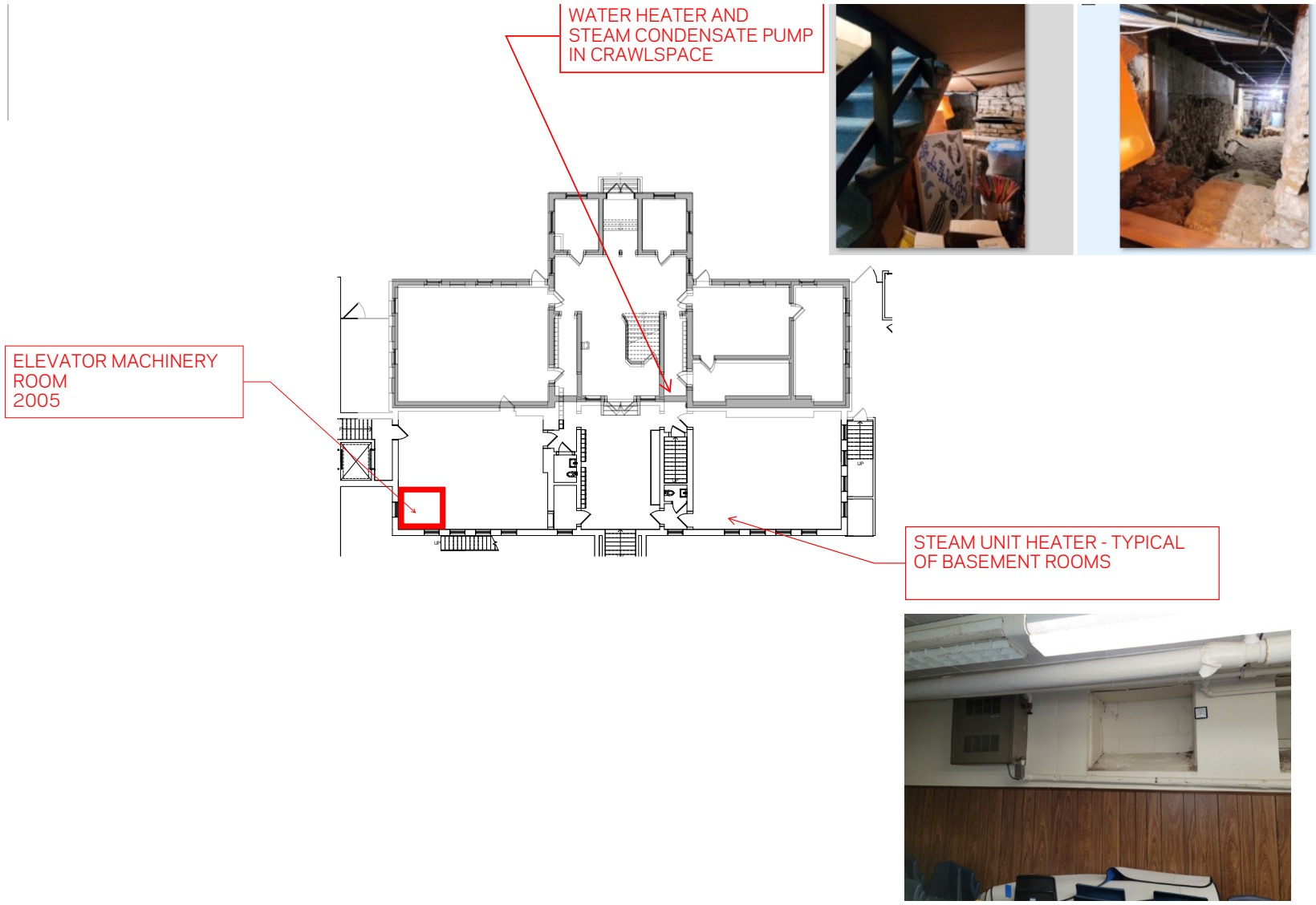
The boiler is approximately 25 years old, and does not have a back up in case of a boiler breakdown. This is not common practice; it is prudent to have redundant boilers in central heating plants. The boiler serves obsolete and broken down steam equipment. Steam is not used in modern heating systems due to steam system complexity and poor fuel efficiency inherent to steam boilers.

Older steam piping insulation often contains asbestos. An abatement specialist could help the district identify if asbestos is present and perform remediation before a retrofit is begun.

Cooling is lacking in many spaces, and existing cooling equipment is well into or past its service life.

- The Samsung mini-split air conditioners serving the 1960 and 1973 wings are a relatively efficient and convenient cooling system. As noted above, they do not provide ventilation. These units are approximately 10 years old, parts may become hard to obtain and more common failures should be expected as the units pass 15 years service life.
- The window mounted air conditioners in the 1848 building are difficult to service, noisy, lack ventilation, and provide poor room air distribution of cool air.
- The gym and music areas have no cooling provided.
- The cafeteria furnace DX cooling unit is adequate and easy to service. It does not provide ventilation as noted above.

Mechanical - Basement



Mechanical - First / Second Floor

1960 AND 1973 WINGS.

HOT WATER UNIT VENTILATORS.

MULTI FANCOIL MINI-SPLIT AIR CONDITIONERS ADDED AROUND 2013 WITH NEW EAST ENTRANCE.

1848 BUILDING

STEAM RADIATORS AND UNIT HEATERS

WINDOW MOUNTED AIR CONDITIONERS

GYM

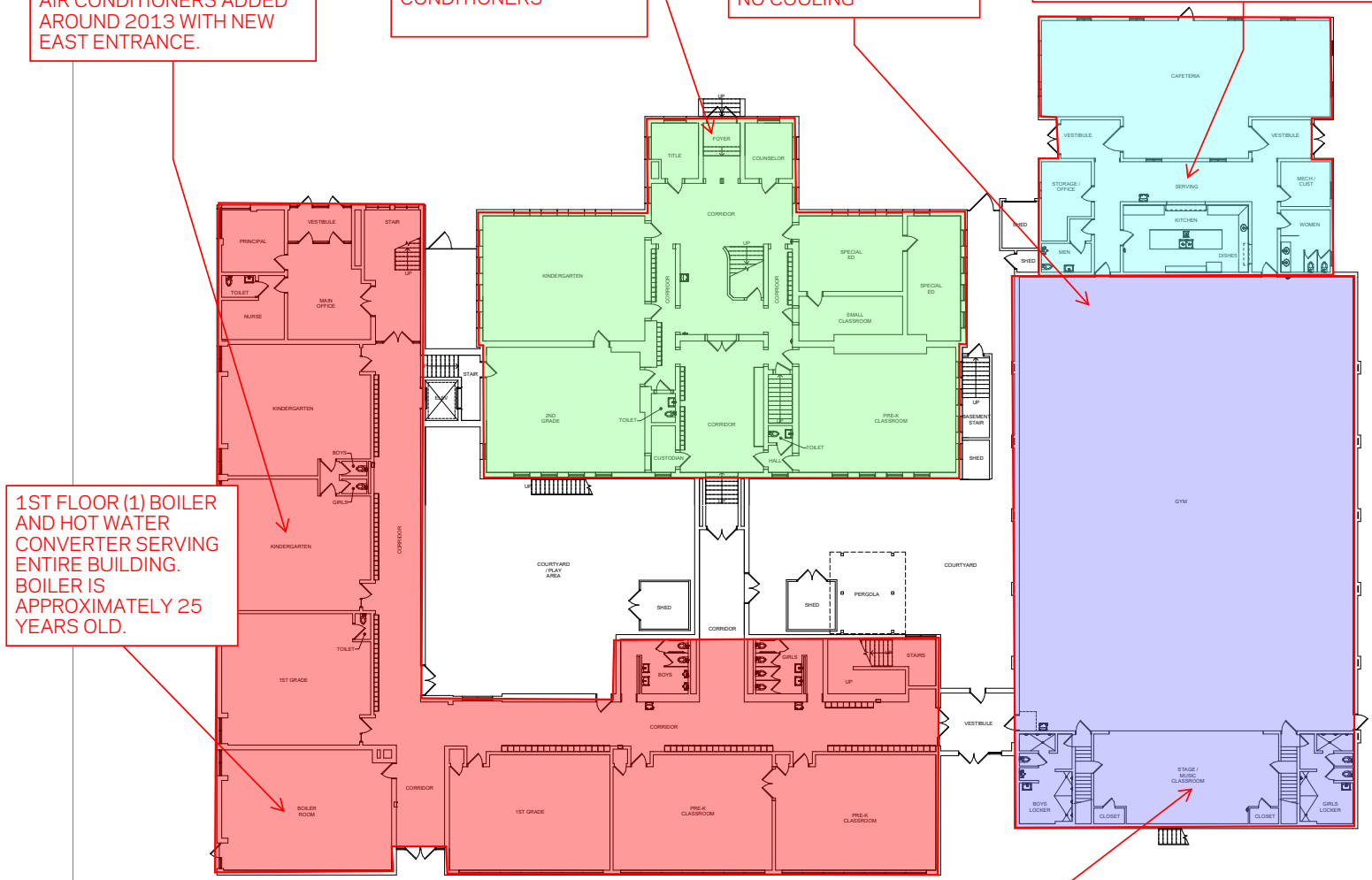
(2) STEAM UNIT HEATERS, (1) OUT OF SERVICE

NO COOLING

CAFETERIA

GAS FIRED FURNACE AND DX AIR CONDITIONING

STEAM UNIT HEATERS - NO LONGER IN USE



1ST FLOOR (1) BOILER AND HOT WATER CONVERTER SERVING ENTIRE BUILDING. BOILER IS APPROXIMATELY 25 YEARS OLD.

MUSIC AREA

STEAM UNIT HEATERS

NO COOLING

Electrical Code Compliance and Systems Condition

Electrical - Code Compliance and System Condition

Electrical

The existing utility power enters from pole mounted transformers at the northwest corner to the main level boiler room. The existing 208/120V, 3ø, 4-wire incoming electrical service terminates into an existing 800-amp (Square D) main distribution board 'MS' located in the boiler room. The main distribution board was installed during the 1973 Elementary School Addition. The main distribution board is in poor condition and replacement parts are not readily available. The peak monthly usage seen in the last 2 years was 22,400 kWh (demand of 106.8 kW) in October of 2021.

Most of the electrical distribution panelboards are older but are still in good condition. Some panels are mostly full and do not have physical space available for adding new breakers. Some older panel branch circuits do not appear to be properly grounded per current code requirements. There are two newer square D panels located in the basement of the 1848 building.

Lighting

The interior lighting appears to be mostly fluorescent lighting, with a few incandescent fixtures in the 1848 facility. The gym contains metal halide light fixtures. The exterior lighting appears to be a mixture of incandescent and high-pressure sodium, which should be replaced due to the technology being phased out.

The lighting controls consists mostly of on/off toggle switches.

The emergency lighting consists of wall mounted fixtures with integral batteries. In the corridors, the emergency battery packs appeared to be installed too far from one another and the code required lighting levels within these corridors are most likely not reached. Refer to Code Compliance section for additional information.

Telecommunications

The network cabling appears to be in adequate condition with a couple network cabinets throughout the building and one cabinet located in the basement. This cabinet appears to be abandoned and not in use.

The facility does have an access control system but appears to be an older system. The facility does have some security cameras located through out the buildings, but the current coaxial (low-resolution) system is maxed out and coverage appears to be at a minimum. There are several locations where low-voltage cabling is ran exposed and could be snagged, grabbed, or become a tripping hazard for students.

The building paging system is a Valcom system. It appears to be in working condition.

It appears there is no centralized synchronized clock system. The AV system appears to be of satisfactory for the school system. Some cables/cords could be cleaned up to minimize tripping hazards.

Fire Alarm

The Fire Alarm system is a Simplex 4004 zoned system. There are several areas lacking detection and notifications. Refer to the code compliance section for additional information. Full detection is required per code.

Electrical main distribution board located in the boiler room, installed in 1973.

Mid-20th century fluorescent lighting in one of the 1848 classrooms.

Electrical - Code Compliance and System Condition

Electrical Code Compliance

Any receptacle within six feet of any sink shall be GFCI protected. All outlets located within a kitchen space shall be GFCI protected.

Any two-prong ungrounded receptacle must be GFCI protected. If neither grounded nor GFCI protected, then the device is a violation of code.

Tamper resistant receptacles shall be utilized per NEC 406.12.

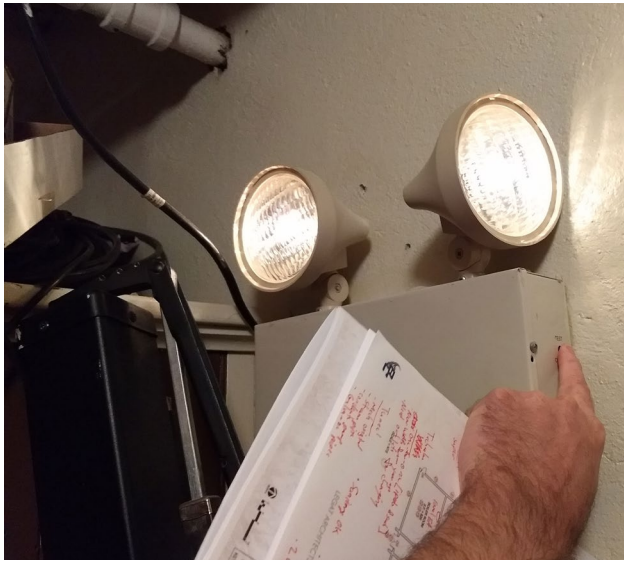
The boiler emergency shut-off switch needs to be properly labeled or replaced.

Emergency egress lighting and exit signs are lacking in several locations, including the basement, and should be updated to meet code. Refer to the Main Level Electrical plans for additional information.

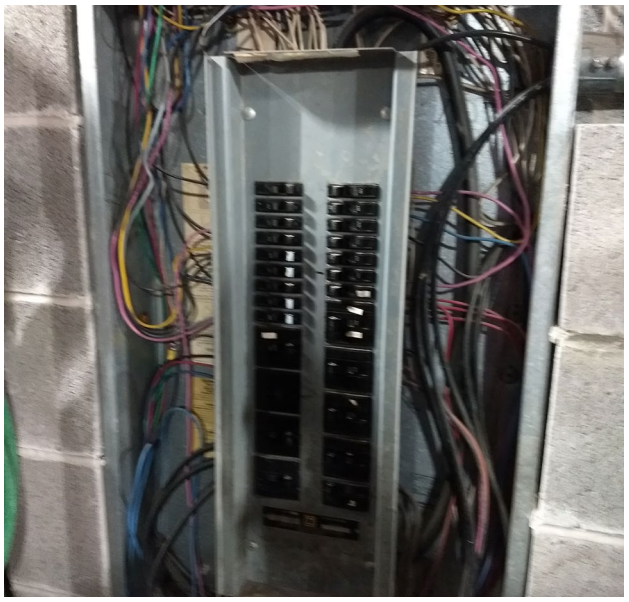
The fire alarm needs to be updated with voice evacuation system. Verify Annunciator panel located in vestibule nearest to attached entrance. Building requires full detection without sprinklers and classrooms require full detection regardless of fully sprinklered.

Some areas need updated detection/notification devices to meet current codes and standards.

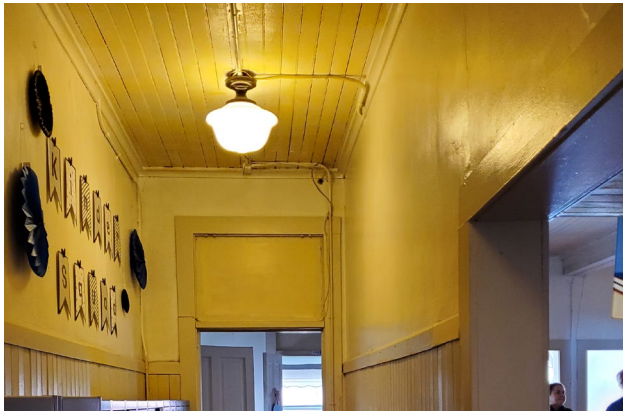
Verify fire alarm pull stations meet ADA height requirements.



Existing emergency lighting system



Electrical distribution panelboard.

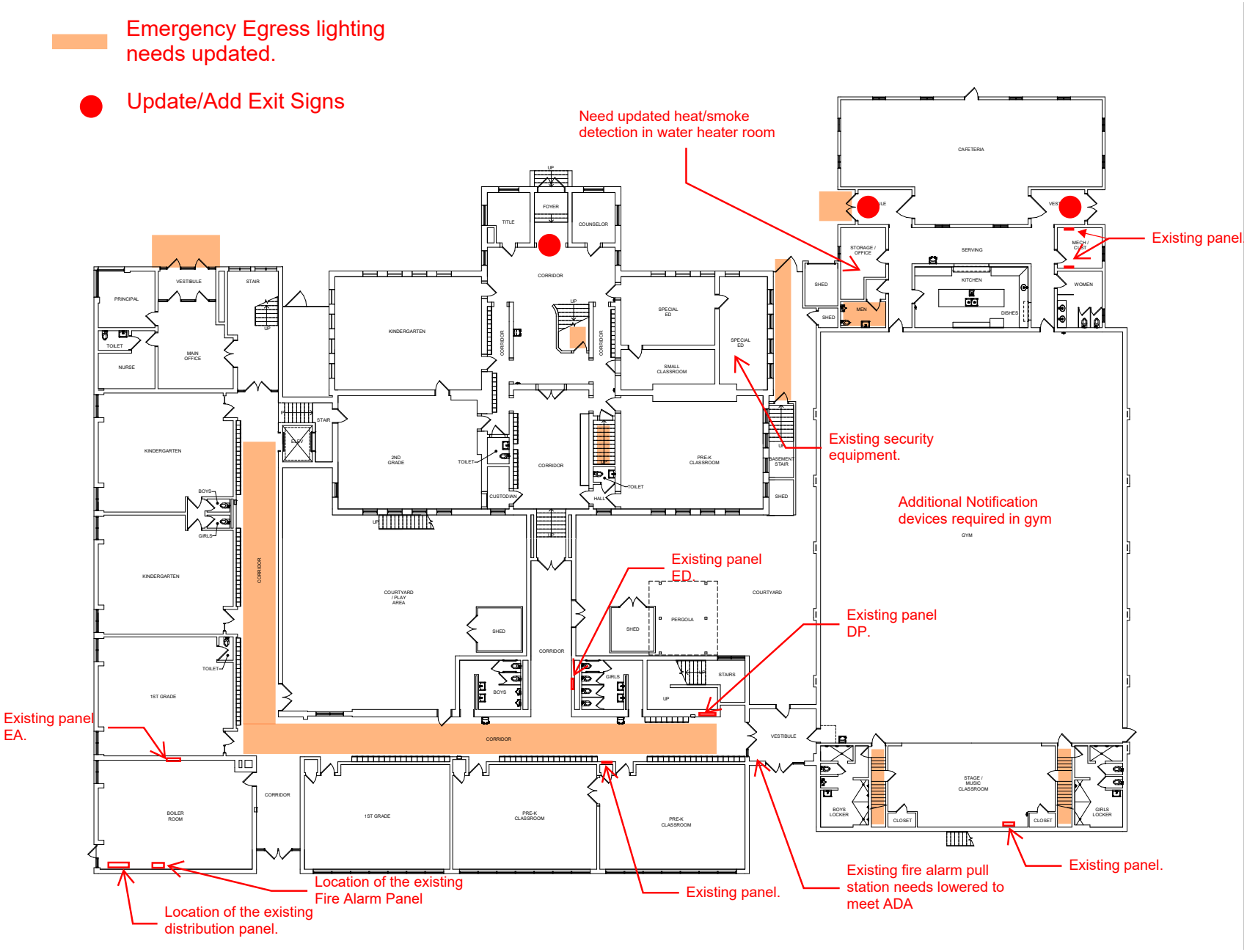


Incandescent lighting in an 1848 corridor.

Laptop charging station.

Non-GFCI outlet next to a lavatory.

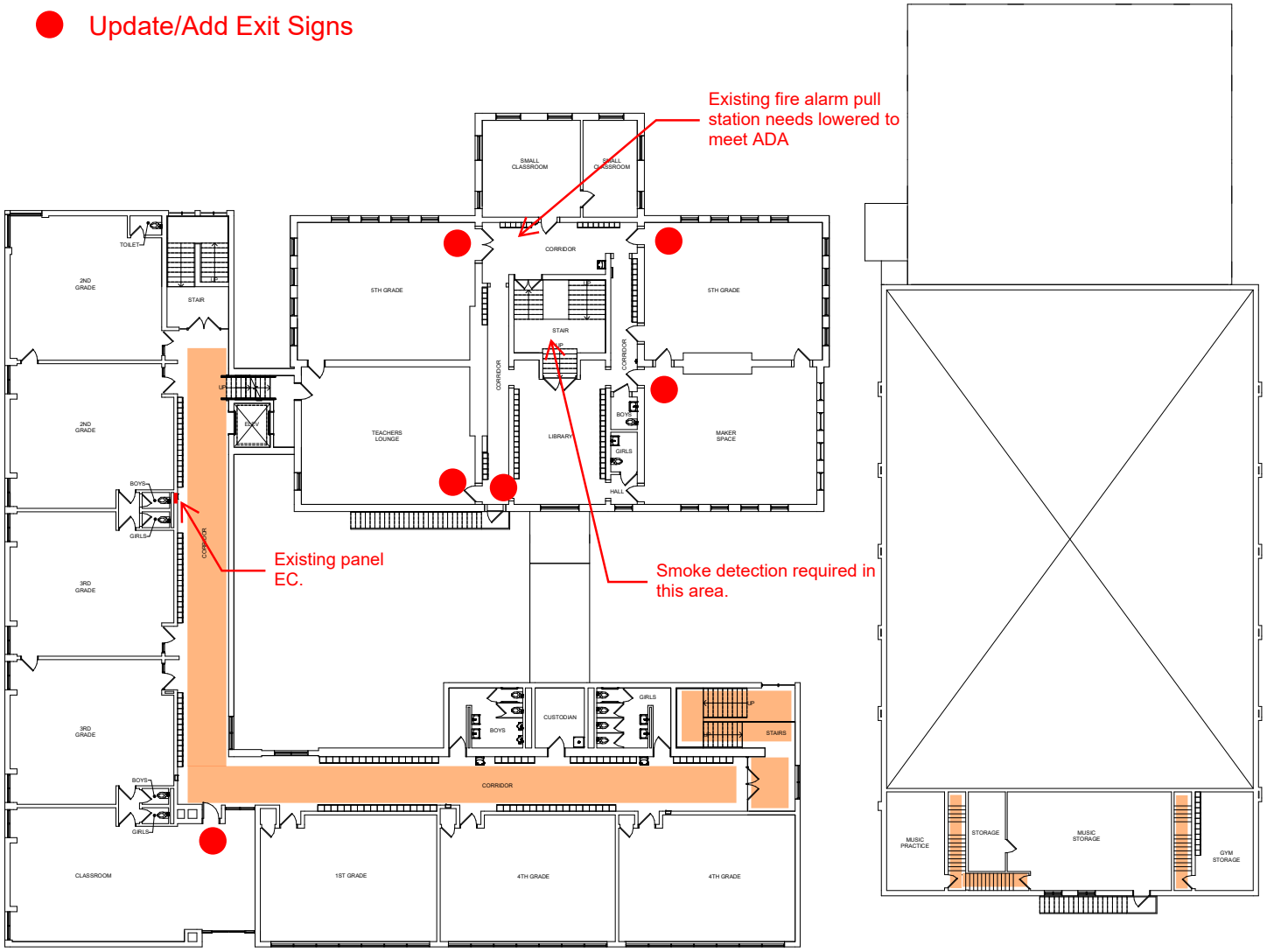
Electrical - First Floor Plan



Electrical - Second Floor Plan

Emergency Egress lighting needs updated.

Update/Add Exit Signs



COST SUMMARY | 3

Cost Summary

A summary of estimated costs to update the existing elementary school is provided on the adjacent page. This estimate consists of the baseline cost to meet the minimum building code requirements, update spaces for ADA accessibility, and correct existing architectural, mechanical, and electrical deficiencies throughout the original 1848 building and later additions. This cost estimate does not include the cost to improve existing spaces beyond essential repair or replacement, and it does not include any additional programmatic space beyond what is required for code compliance. For example, this cost exercise for a typical classroom includes the cost to replace mechanical systems, ceilings, lighting, and windows in order to update systems to reduce energy consumption. It also provides the cost to repair damage and meet code and ADA requirements. However, it does not include the cost of complete replacement of flooring, repainting walls, providing new technology, or modifying spaces to meet current and future academic needs.

The numbers provided are estimates based on limited on-site observations. These numbers can vary based on hidden conditions such as deficiencies discovered in a wall or roof assembly once demolition has begun.

These estimates are based upon current 2021 costs and do not include future escalation of unit prices or labor.

Cost Summary

SITEWORK		
Replace cracked asphalt pavement at entrances, playground	$	29,201

BUILDING EXTERIOR		
Replace windows	$	302,175
Replace doors / hardware	$	52,000
Cafeteria envelope modifications	$	71,087
Gym envelope modifications	$	218,050
Replace roof (shingles)	$	92,250
Replace roof (EPDM)	$	127,310
Add exterior ramps	$	75,840
Replace stairs	$	33,437
1848 entrance rework for accessibility	$	27,000
Envelope damage repair	$	105,609
Add code compliant egress stair tower	$	108,162
	$	**1,212,920**
ADD 5% EXTERIOR CONTINGENCY	**$**	**60,646**
EXTERIOR SUBTOTAL	**$**	**1,273,566**

BUILDING INTERIOR		
Replace ceilings	$	148,977
Replace damaged flooring	$	20,153
Repaint damaged walls	$	3,035
Replace casework for ADA	$	44,638
Replace doors / rework ADA clearances	$	298,110
Replace windows	$	3,500
Fire-rating requirements	$	57,763
Add new single-use restrooms	$	152,000
Modify existing restrooms	$	313,400
Replace stairs	$	110,000
Add / modify ramps	$	9,888
Cafeteria ADA modifications	$	4,500
	$	**1,165,964**
ADD 10% INTERIOR CONTINGENCY	**$**	**116,596**
INTERIOR SUBTOTAL	**$**	**1,282,561**

MECHANICAL		
Heating (New Hot Water Boiler Plant)	$	400,000
Cooling	$	1,590,000
Ventilation	$	940,000
HVAC Controls	$	147,000
Plumbing	$	98,000
Fire Suppression	$	230,000
	$	**3,405,000**

ELECTRICAL		
New Distribution Panel	$	20,000
Branch Panel 1:1 Replacement	$	15,000
Lighting & Controls	$	518,400
Emergency Egress Systems	$	13,600
Cameras	$	36,000
Access Control	$	34,000
Paging System	$	8,000
Clocks	$	6,000
Fire Alarm	$	172,800
Miscellaneous Code Items	$	30,000
Miscellaneous IT / AV Work	$	2,000
	$	**855,800**
SUBTOTAL	**$**	**6,846,128**
ADD 8% FOR GENERAL CONDITIONS	**$**	**547,690**
ADD 10% FOR CONTRACTOR MARKUP	**$**	**684,613**
ADD 15% FOR PROJECT CONTINGENCY	**$**	**1,026,919**
TOTAL PROJECT COSTS	**$**	**9,105,350**

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