

New Hartford Public Schools Utilization Study- Facility Conditions Assessment

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Prepared for:
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FACILITY CONDITIONS ASSESSMENT

The Facility Conditions Assessment of the district's three schools represents the critical first step in the broader district-wide Utilization Study. Before evaluating how these buildings are used, it is essential to understand their physical condition, system performance, and long-term viability. A comprehensive assessment establishes the factual foundation upon which all future planning decisions must be based.

Through a detailed evaluation of the building envelope, major systems, code compliance, accessibility, health and life-safety requirements, and overall maintenance needs, the district gains an objective understanding of the assets it currently owns. This baseline allows future utilization scenarios to be examined not only in terms of enrollment and programmatic needs, but also within the context of infrastructure capacity, capital investment requirements, and lifecycle considerations. Simply stated, understanding building condition must precede determining building use.

The assessment consisted of comprehensive visual inspections of each facility to document existing conditions and identify deficiencies. Mechanical, electrical, plumbing, and fire protection systems; technology infrastructure; environmental considerations; and both ongoing and projected maintenance needs were evaluated to develop a complete picture of each building's current performance.

A team of architects and engineers conducted extensive on-site evaluations in coordination with the District's head custodian at each school. The facilities were surveyed both inside and out, including exterior envelopes, interior spaces, and all major building systems. The findings presented in this report are based on these detailed field investigations, supplemented by a review of available construction drawings and reports.

The findings are documented through written narratives and supporting spreadsheets. The narratives describe observed conditions and highlight items requiring attention. The spreadsheets organize each issue by category—site, exterior, interior, plumbing, fire protection, mechanical, and electrical. Each item includes a reference tag, description, applicable code citation (when relevant), and a priority ranking on a scale of 1 to 4, with 1 representing the most urgent needs. Recommended corrective actions—whether repair, replacement, code compliance, or maintenance—are provided along with associated cost estimates. Additional remarks clarify assumptions, cost derivations, or alternative approaches where appropriate.

1	Urgent priority - These items should be corrected as soon as possible and most likely encompass code, health and life safety issues.									
2	High priority - These items should be corrected within a reasonable amount of time after the highest priorities referenced above. These may be associated with high priority maintenance issues or accessibility issues for the physically challenged. Maintenance items have a remaining useful life from 1-3 years.									
3	Moderate priority – These items may be associated with aesthetic or general maintenance issues. Remaining useful life of 3-5 years.									
4	Low priority – These items include maintenance and aesthetic issues that are not in current need of replacement, but should continue to be monitored on a regular basis. These items typically have a remaining useful life of 5-10 years or greater.									
TAG NO.	ASSESSMENT		SYSTEM / CODE REF.	RANKING			CORRECTIVE ACTION		ITIMIZED ESTIMATED COST	REMARKS
				4	3	2	1	n/a		
SITE CONDITIONS										

This assessment equips the design team with a comprehensive technical understanding of the district's facilities while providing the town and district with a clear and objective evaluation of existing conditions, priorities, and potential financial implications. Most importantly, it establishes the factual foundation necessary to support informed decision-making and signals the beginning of a deliberate, strategic planning process for the future of the district's schools.

Acknowledgements

Silver Petrucelli & Associates would like to thank the Town of New Hartford for the opportunity to serve the town with the preparation of this study. We would also like to thank the school Administrators, custodians and staff along with the Task Force for their enthusiasm, helpfulness, and input.

Report Overview and Purpose

This report is the result of a study by the Town of New Hartford to determine and assess the current conditions of the three district buildings: Bakerville School, New Hartford Elementary and Antolini School. The report analyzes the current facility regarding code compliance, accessibility (ADA), and on-going and future maintenance needs. The issues addressed in this report include the assessment of the current conditions of the building. The conditions include a broad range of building, accessibility, and fire code conformance, including accessibility and the Americans with Disabilities Act guidelines for barrier-free buildings (Title II ADA), health and life safety issues, mechanical, electrical, and plumbing system conditions, technology and on-going and long-term maintenance issues. These concerns are addressed and are included in this report. The conditions are assigned a priority ranking and specific conceptual cost.

This Facility Conditions Assessment is the first tool to aid in the creation of a Master Plan for these buildings and overall district. The code compliance effort has been undertaken to determine the relative compliance of the facility and their architectural, mechanical, plumbing, fire protection or electrical systems with the current building and life safety codes. The State of Connecticut's Building, Fire, and Health Codes as well as Federal OSHA and Americans with Disabilities Act (ADA) requirements are incorporated into the review of the facility. The Connecticut Fire Safety Code is the only retroactive and "immediately" enforceable code. The balance of the code conditions noted are "prescriptive" and apply to future projects with local and state authorities having jurisdiction. Should any of the code conformance or renovation work disturb existing hazardous materials or systems, the required abatement work would need to be performed.

Process

SP+A gathered the information contained in this report through comprehensive walkthroughs of each building, supplemented by detailed discussions with facility-related staff. A multidisciplinary team—including architects and plumbing, fire protection, mechanical, and electrical engineers—conducted extensive on-site evaluations and investigations of the facilities and their systems. New Hartford Elementary and Bakerville were reviewed on 1/16/2026 and Antolini School was reviewed on 1/21/2026. Existing construction drawings and building floor plans were also reviewed to verify field observations and better understand original design and subsequent modifications.

The collected data was analyzed and organized into clear, structured report sections. Findings are presented through building condition narratives and detailed matrices identifying specific code

issues, repair needs, maintenance deficiencies, and system concerns. Each item includes recommended corrective actions, a priority ranking, and associated cost estimates to support informed planning and decision-making.

Codes

The following is a list of the current building codes which are applicable for the State of Connecticut, and these codes were used as the basis for the code review for this study. Please note that not all of these codes have been thoroughly reviewed for this study, but major codes with significant cost and life safety implications were reviewed.

State and Federal Codes

Current Building Codes

State of Connecticut

Effective October 1, 2022

2021 International Building Code

2017 ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities

2021 International Existing Building Code

2021 International Plumbing Code

2021 International Mechanical Code

2021 International Energy Conservation Code

2020 NFPA 70, National Electrical Code, of the National Fire Protection Association Inc.

2021 International Residential Code of the International Code Council, Inc.

2010 Americans with Disabilities Act (ADA)

- Title I Employment
- Title II Government Facilities
- Title III Public Accommodations

As the codes are updated, they will affect the pertinence of the information contained in this report, and the facilities should be reviewed for the applicable changes in the codes, revising the report accordingly. Most importantly, the codes that are in effect at the time building permits are obtained by a Contractor are the ultimate determinant codes, so changes in the codes and their adoption dates should be closely monitored and planned for.

The building was surveyed to determine compliance with current fire safety, building and mechanical, plumbing and electrical violations range from inaccessible (not ADA compliant) plumbing fixtures to inadequate combustion air provisions. The violations observed are noted within the document. This report is preliminary in nature and not a Construction Document but represents a reasonable accounting of most significant code challenges at these buildings. However, the definitive determination of code compliance lies in a set of construction documents ready for permitting with the local authorities, primarily the Building Official, Fire Marshal, 504/ADA Coordinator, and Regional Health Director.

American Disability Act (ADA)

Both public and private facilities have obligations under the Americans with Disabilities Act, but the expectations differ somewhat.

Public entities, such as schools and government facilities, are regulated under Title II of the ADA and must ensure that their programs and services are accessible to everyone, even if the building itself predates current accessibility standards. That often means addressing barriers more proactively to ensure equitable access and reduce legal risk.

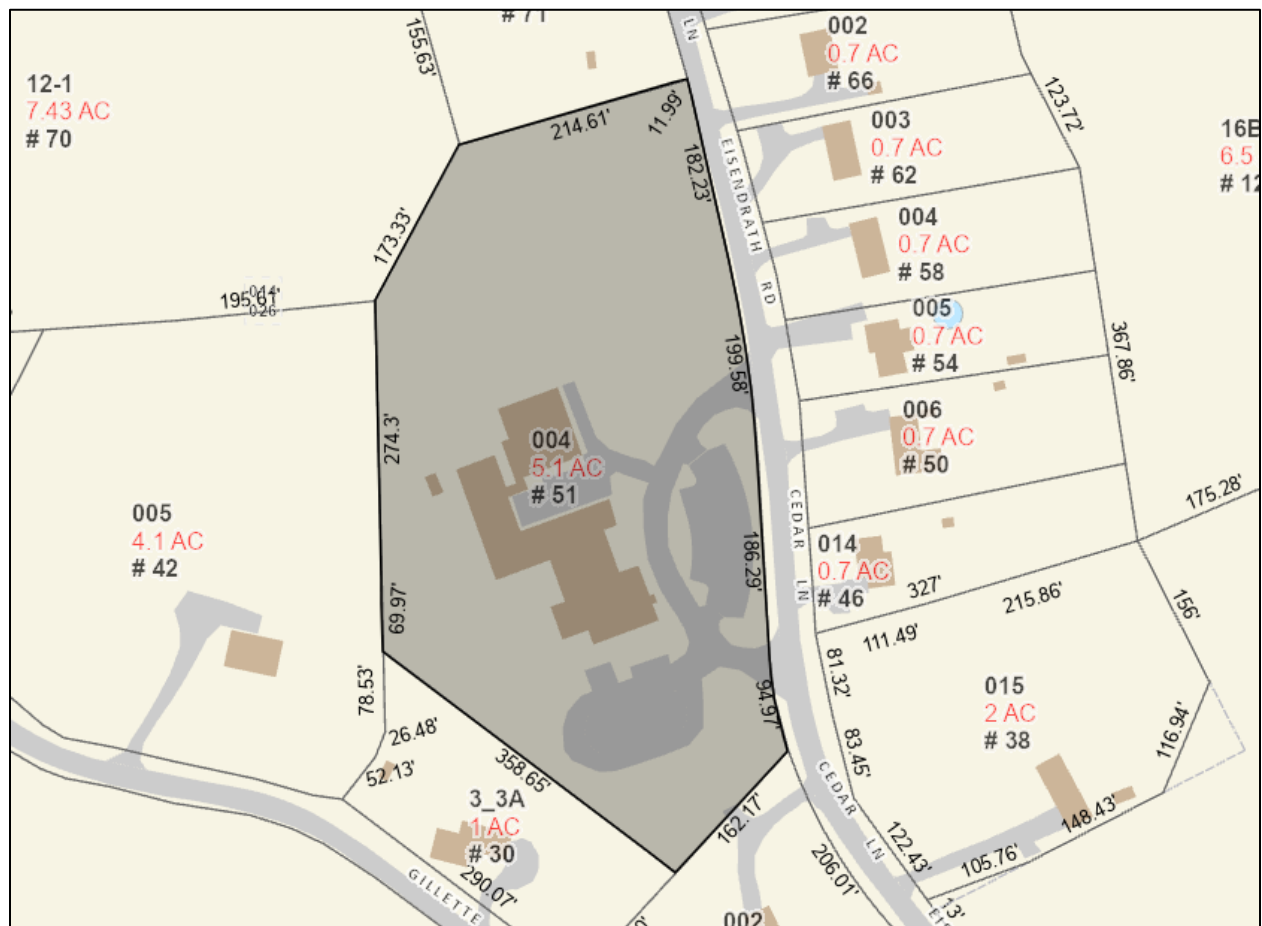
Private facilities that serve the public fall under Title III of the ADA. They must meet accessibility standards for new construction and renovations as required by the building code and are required to remove barriers when it is readily achievable to do so. Because of this “readily achievable” standard, private facilities are not always required to upgrade everything immediately, especially in older buildings. However, when renovations occur, accessibility improvements are typically triggered for the areas being modified and sometimes for related elements such as entrances, restrooms, or paths of travel.

Beyond the regulatory requirements, addressing accessibility is fundamentally about equity and inclusion. In practice, regardless of the minimum legal requirement, addressing accessibility is considered the best practice because it ensures all members of the community can fully participate and access the services provided.

This assessment is conducted as an evaluation as a school but if the building was repurposed as another building type many of the same items would still be required and addressed under a renovation.

Bakerville School, located at 5 Cedar Lane, was originally built in 1941. The building has been renovated and expanded over the years including 1949 and 1954. A modular four classroom addition was added in 2002. The building currently serves Kindergarten through Grade 2 with a population of 95 students and 18 staff. The building totals 18,428 square feet.

The 5.1-acre site was not comprehensively evaluated as part of this assessment; however, several site-related observations were noted during the walkthrough. There are a few items that should be addressed.



The ramp off the modular building does not have the required 4-inch curb or wheel guard to prevent wheelchair casters or crutch tips from slipping off the edge. A compliant curb or rail should be welded to both sides of the ramp and painted to match the existing finish.

The stairs from the stage or teachers work room lack a compliant handrail on one side and do not include proper extensions. A code-compliant handrail with required returns and extensions should be installed, welded, and painted to match existing finishes.

The boiler room stairs lack required guardrails and handrails. Compliant guardrails and handrails should be installed and painted to match.



Architecture

Exterior

The exterior building assessment is a visual surveillance of the physical materials and architectural components. It entails the overall condition of the exterior facades including their material and construction along with the windows, doors and roofs. Given the building's age, its exterior is in fair condition with improvements needed to maintain long-term integrity and improvements to the energy efficiency of the building.

Facades and Elevations



The structure consists of conventional light wood framing with wood stud walls and floor framing. Roof framing is dimensional lumber rafters with ridge boards forming pitched gable systems.

The exterior is clad primarily in yellow horizontal vinyl siding. While generally in fair condition, numerous areas exhibit holes, wear, and deterioration. The siding is installed close to grade in several locations, which may accelerate moisture-related deterioration due to splash-back. Trim components show denting and paint failure.



At portions of the modular structure lacking a permanent foundation, wire mesh has been installed to deter pests. The mesh is attached to deteriorated wood skirt boards that are decaying and require replacement. The mesh should be removed and properly reinstalled after skirt board replacement.

The wall assembly makeup is unknown. Based on the age and apparent wall thickness, insulation

levels are likely minimal. The 1954 addition drawings indicate 2x4 wood studs with no specific insulation detailed. Energy performance of the envelope is presumed to be low. Insulation upgrades should be considered during any major renovation involving wall removal. It also should be noted that these exterior walls are supposed to have a fire rating of 1-hour and originally contained asbestos shingles to help achieve this rating. It is unknown if these shingles remained under the vinyl siding.



In several locations, the foundation projects beyond the plane of the wall — a non-typical condition that may allow water to pond at the base of the wall. While active infiltration was not observed, discharging downspouts directly onto these projections presents a concern.

Standard vinyl siding has an expected service life of 20–30 years. The siding appears approximately 25± years old and shows deterioration throughout therefore replacement should be considered in the near future. A siding replacement would also provide an opportunity to add continuous insulation and improved flashing to direct water away from the foundation.

Windows



When evaluating the energy efficiency of a building, it is estimated that 25–40% of building heat loss occurs through windows. Based on archival references, the windows, siding, and roofing may have been replaced around 2002 during the modular addition; however, documentation is incomplete.

The windows are vinyl-clad wood, double-hung insulated double glazed systems. Each classroom also includes a casement window used as a secondary means of rescue which is required due to the absence of a sprinkler system at this school. These egress windows are not labeled, which while not mandated is recommended for clarity and safety compliance.

The windows have security film and sealant applied. Modular classroom windows are smaller vinyl double-hung units without wood cladding.

While the glazing systems appear serviceable, significant paint failure and deterioration are present at wood sills, trim, and exterior panels. Interior sill deterioration suggests moisture intrusion at horizontal surfaces.

These window systems typically have a 20–30-year lifespan. Given the observed deterioration, they may not reach full-service life without repair. If major renovation is planned, full window replacement should be considered. Insulated double or triple-glazed systems would improve energy performance.

Aluminum window systems are typically preferred in school environments for durability; however, vinyl-clad wood provides higher-end aesthetics.



Doors

Exterior doors are hollow metal in hollow metal frames. Most are in good condition.

Some doors exhibit exterior damage that may be repairable. Metal pan frame surrounds are dented, deformed, and experiencing finish failure. These panning details can trap moisture, conceal deterioration, and accelerate corrosion of the hollow metal frame if not properly detailed.

Wood trim at doors shows paint failure and deterioration, particularly where wood meets grade. Some hollow metal frames exhibit minor rusting at the base and require repair.



Roofs

The building contains multiple roof types. Pitched gable roofs with architectural asphalt shingles (original and additions) and low-slope roof sections with rubber membrane at the central portion of the school and the connector and modular.



State records indicate roof replacement occurred around 2002. Due to weather and access limitations, roofs were not physically assessed. From ground observation, they appear generally serviceable. However, interior ceiling staining indicates possible active or historical leaks. Given their age, roof replacement should be anticipated in the near term.

Wood fascia and soffits are in poor condition, with cracking and peeling paint. Repairs and repainting are recommended.



Gutters and downspouts are inconsistent throughout the perimeter. Some areas lack drainage entirely. Downspout terminations vary. Some terminate at splash blocks or underground piping. Many direct discharge at pavement and some over foundation projections as previously noted. The latter condition is particularly concerning. Improved perimeter drainage, including gravel edge strips and potential French drain systems, should be considered during roof replacement.

The chimney requires masonry repair. Vegetation growth and staining within the boiler room indicate leakage. Chimney repair should coincide with roof replacement.



Modular Structure

Modular or portable classrooms are widely used by school districts as flexible, cost-effective solutions for accommodating enrollment fluctuations, temporary space needs, or construction transitions. While originally intended as short-term assets, many remain in service well beyond their planned lifespan.

The typical planned service life of modular classrooms is approximately 10 to 15 years. However, with routine maintenance, these structures often remain in use for 15 to 25 years. In some cases, service life may extend to 30 years, though this generally requires substantial repairs and system upgrades.

The four-classroom modular building, installed in 2002, is supported by a system of pier foundations. Overall, the structure appears to be in fair condition given its age; however, several age-related deficiencies are evident. The exterior building envelope including siding, roofing, doors, and windows is approaching the end of its useful life. Interior finishes show typical wear consistent with prolonged use. Other drawbacks of this configuration are that there is no plumbing in these classrooms and the corridor is narrow and cramped.

While the modular classrooms remain serviceable, continued use will require targeted repairs, ongoing preventative maintenance, and planned modernization efforts to maintain a safe and functional educational environment. Notably, at over 20 years of age, modular classrooms that require multiple system upgrades are generally considered poor candidates for continued long-term investment.

Interior

The interior building assessment is a visual surveillance of the physical materials, architectural components, building layout and all code issues. Given the building's age, its interior is well maintained, however, floors and ceilings are approaching the end of their useful life needing some general improvements along with improvements to code and accessibility requirements.

Floors

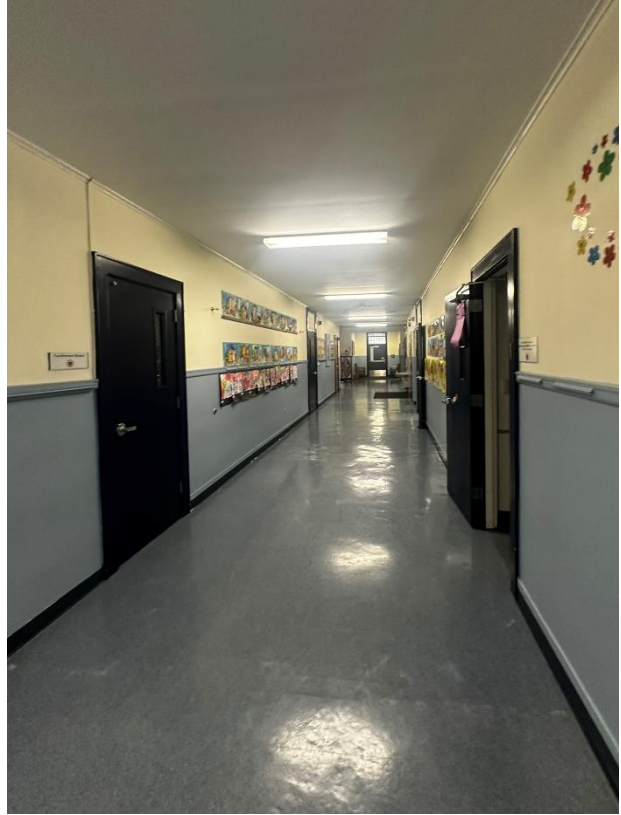
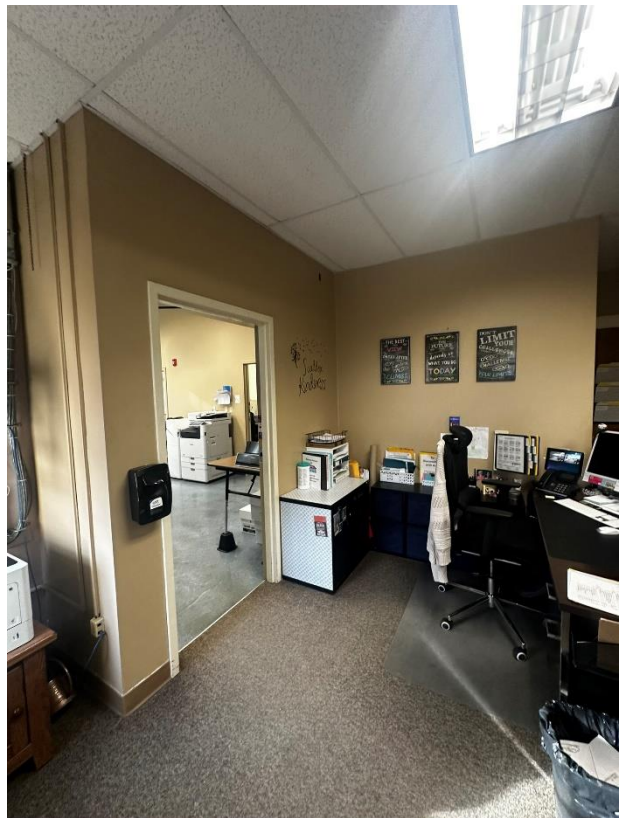
There are a multitude of flooring types throughout this building. Most of these floors are VCT (vinyl composite tile). No major issues such as cracking or chipping or curling were discovered. However, widespread wear, staining, and discoloration are present, particularly in the Multipurpose Room. Given the uneven wear and the visible cloudiness, these floors may need a full chemical strip and seal. However, if those cloudy patches are due to moisture coming up from the slab (likely no vapor barrier), new wax will simply peel off again. Additionally, VCT is not ideal for physical education use due to slip risk. Replacement with a more suitable athletic surface is recommended.



Other areas of VCT have an uneven appearance likely due to the slab itself. A new floor with a leveler would be recommended.

In bathrooms there is ceramic mosaic tile flooring. These are in fair condition with no major issues noted aside from slight wearing of grout.

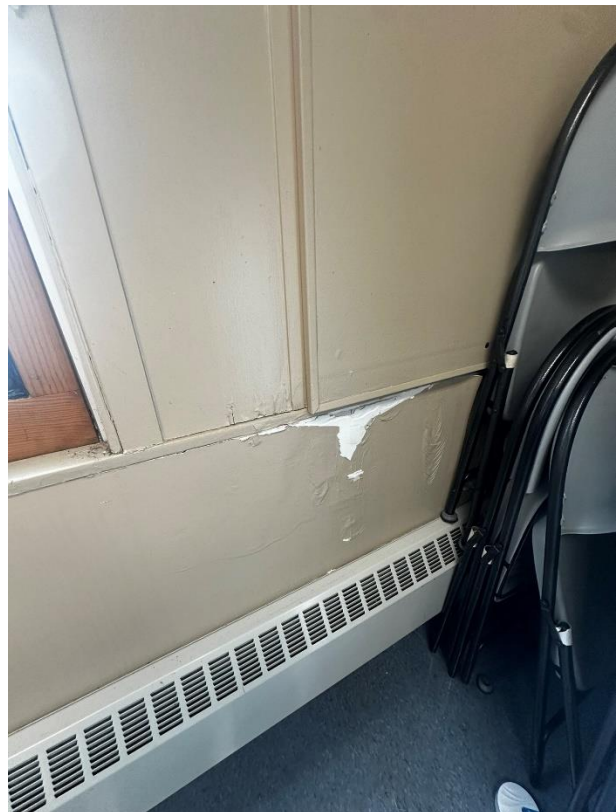
There is limited carpet throughout the school such as the office and the old stage/resource room. They are in fair condition. The glue under the carpet on the stage is assumed to contain hazardous materials according to the school's AHERA report.



Walls

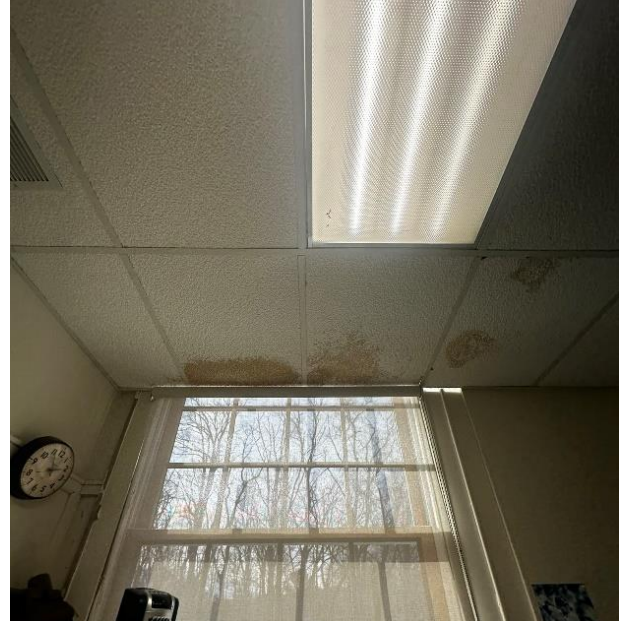
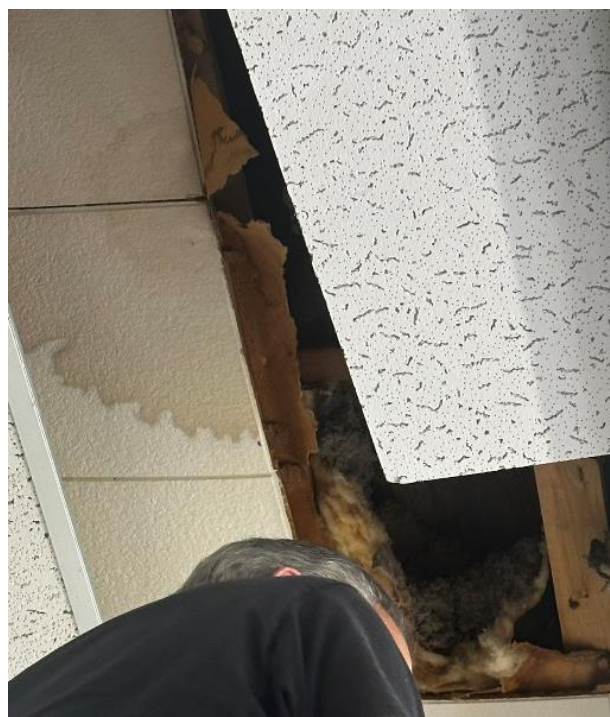
Interior walls consist of painted GWB, plaster, and asbestos-containing wall board (per 1954 drawings). Walls are painted and generally in good condition with minor localized damage.

The AHERA report notes possible asbestos in joint compound, plaster, caulk, and fabric. It should be noted that asbestos wall board is noted in the 1954 drawings and likely was also in the original and 1949 construction documents that were not available to review. These materials are currently managed and monitored for health and safety but would require significant abatement during major renovation.



Ceilings

Ceilings at this school 2x4 ACT (acoustical ceiling tiles), spline ceilings and gypsum wallboard assemblies. The 2x4 ACT staining was observed in several areas, possibly related to roof or piping leaks. Many areas have original spline ceilings secured to the structure above the ACT. Some are failing and falling above the ACT. Spline ceilings are undesirable due to limited above-ceiling access. Gypsum board ceilings likely support required 1-hour fire ratings for Type V-A construction. Some ceilings are noted in AHERA documentation as potentially containing asbestos. Replacement of the ACT and spline ceilings with 2x2 ACT systems is recommended especially during any significant fire protection, mechanical or electrical upgrades.



Doors

Interior doors throughout the building are wood or hollow metal within wood or hollow metal frames. Most doors have received hardware upgrades. Limited areas do not meet the required accessibility maneuvering clearances. These spaces should be adjusted to accommodate these accessibility clearances. Where they cannot be modified, a power assisted door operator should be installed.

Interior wire glass remains in some doors and sidelights. Wire glass is no longer considered impact-safe and should be replaced with tempered, laminated, or fire-rated safety glazing.

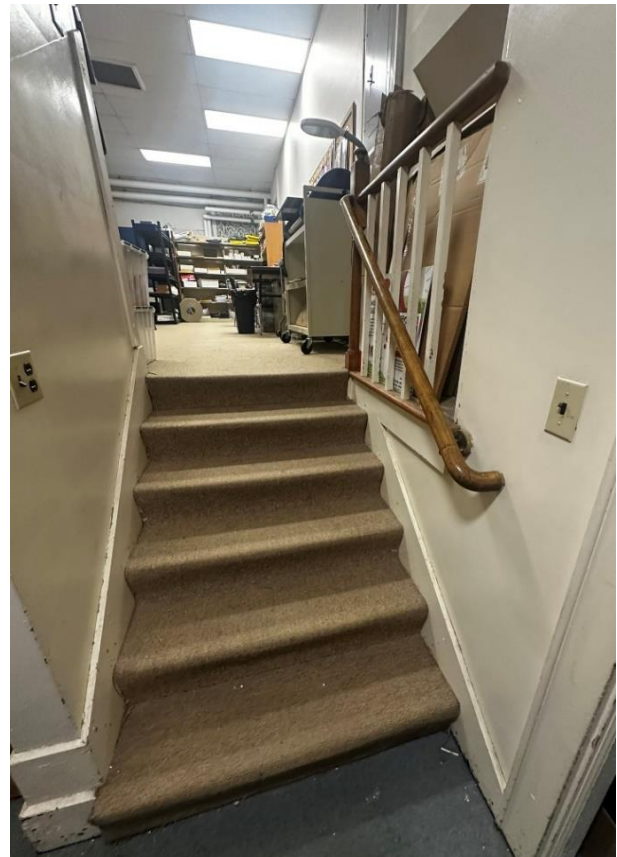


Stairs and Ramps

The only stairways at this building aside from boiler room and basement access are to the stage.

Stage stairs do not meet ADA or code requirements for handrail profile, height, or extensions. One side lacks a handrail entirely. The stage requires either a compliant vertical platform lift, or demolition and re-leveling of the space.

Attic access by the fixed ladder in custodial space does not meet OSHA or code requirements. The outward swinging door creates an additional hazard. A compliant ladder and hatch assembly should be installed.



Restrooms

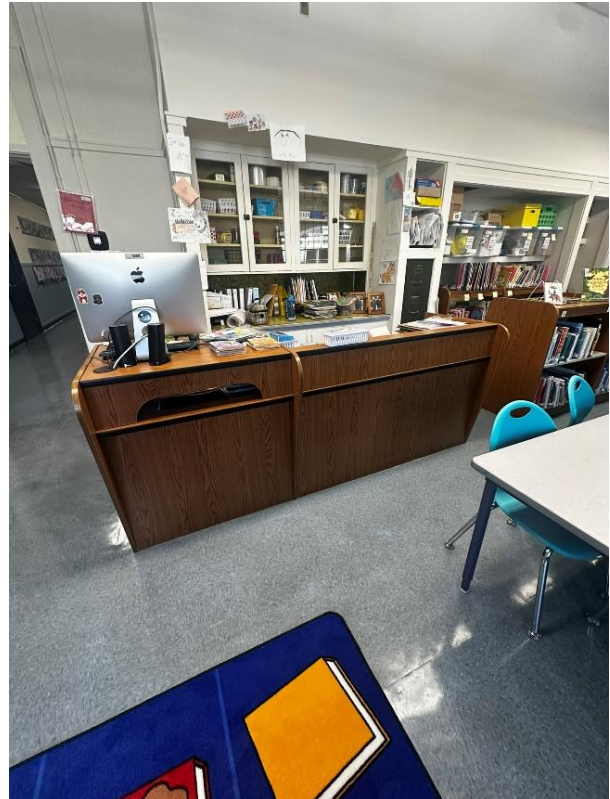
There are numerous restrooms throughout the facility. They are in good condition, and many have been renovated. Most of the single restrooms just need the 18" vertical grab bar added. Swing up grab bars are no longer required and could be removed. Also, many have furniture within the room that interferes with the maneuvering clearances. These should be removed.

All of the student "gang restrooms" have been upgraded to meet most of today's requirements. However, the access isle is only 3'-0" when 3'-6" is needed to meet the minimum requirements. Essentially the rooms are too narrow to comply. If these stalls cannot meet accessibility needs, directional signage should be provided to indicate where the closest ADA restroom is.



Casework

There is a variety of casework located throughout the facility. Most are wood and original to their specific construction. Due to their age none of them provide ADA accessibility. The casework height is too low to meet ADA. There are also no open knee spaces which are required at sinks and work areas. Much of the casework throughout the school should be replaced or at least modified in some areas to meet requirements.



Building Code and Accessibility

This assessment identifies numerous deficiencies relative to building codes and accessibility standards. These non-conformities encompass areas previously identified, such as restrooms, casework, stairs, and door clearances, in addition to a variety of other code violations detailed below. Additional items include older drinking fountains which don't meet the clearance requirements. These should be removed.

Life Safety, Fire Separation, and Allowable Area

Per prior code sheets (2004 and 2014) the building is designated as Type V-A (5A) construction. Type V-A construction, defined by the International Code Council International Building Code (IBC), is combustible construction in which the primary structural elements are required to have a 1-hour fire-resistance rating. This means the structural frame, bearing walls, floor assemblies, and roof construction must be protected—typically with gypsum board or other approved assemblies—so they can resist fire exposure for at least one hour. This is a difficult construction type to confirm but it is apparent in some of the notes on existing drawings sets.

The building is at its maximum size and would require a sprinkler system in order to expand. The installation of a full sprinkler system throughout the building would significantly increase the allowable area.

Architectural Recommendations

- Modify handrails and guardrails on exterior stairs and ramps
- Improve drainage details around perimeter of building
- Replace siding
- Add insulation to perimeter
- Replace windows & trim
- Replace roof/fascias soffits/gutters and downspouts
- Repair door frames and replace exterior trim
- Replace VCT flooring /add sports flooring to multipurpose room
- Replace ceilings
- Upgrade door hardware and trim where needed
- Provide lift to stage
- Provide new ladder and hatch to attic
- Provide restrooms signage and grab bars
- Upgrade casework for accessibility
- Install building wide room designated signage

Fire Protection

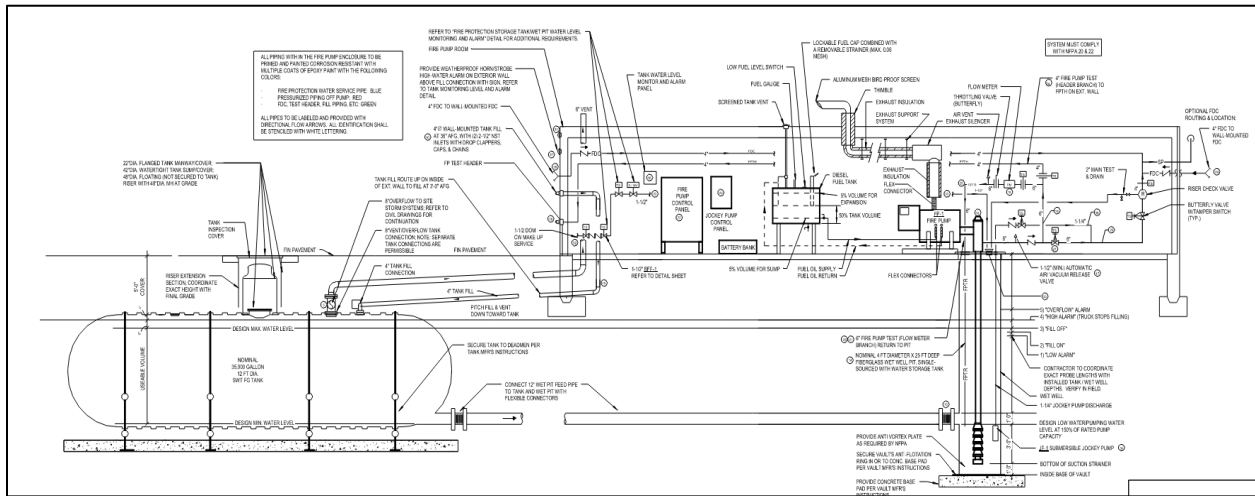
The facility is not provided with an automatic sprinkler system. There is a limited area sprinkler system with one upright sprinkler head located in the janitor's closet as was common practice under prior Codes. A backflow preventer, supervised control valve connected to a fire alarm panel was not observed.



An approximately 400 SF Stage has been repurposed to a Resource room. This raised room is comprised of combustible material and space underneath should be rendered unoccupiable – non storage and classified as combustible concealed space if it cannot be retrofitted with a limited area sprinkler system. Note that further investigation is required to determine compliance with the existing stage structure, NFPA 13, and the International Building Code regarding hydraulic calculations and existing system storage capacities.

It is recommended to provide a fully Automatic Fire Sprinkler System to protect the entire building.

Provide a 30,000-gallon underground fire protection water storage tank, 25' wet well with standalone 10'x20' pump house with diesel driven vertical turbine fire pump. System to include test header, fire department connection, supervised make up line, diesel storage tank, jockey pump, controllers, etc. Route fire pump discharge to the building where it will provide automatic sprinkler coverage for the entire building.



A wet pipe sprinkler system shall be provided in areas that are heated. A dry sprinkler system with Nitrogen generator will serve the attic and other areas exposed to freezing, or where distribution piping will be exposed to freezing. Combustible concealed spaces will also be provided with sprinkler protection; this includes attics, stages, and ceiling spaces of combustible construction. Recessed pendant sprinklers are proposed for areas with ceilings, upright sprinklers for areas without ceilings.

Design criteria:

Light Hazard

Lobbies, Offices, Corridors

Density - 0.10 gpm/s.f. over the most remote 1,500 s.f. area with 100 gpm added for hose streams. Sprinkler heads rated at 165° spaced at 196 s.f. per head (maximum) with protection of all combustible concealed spaces.

Ordinary Hazard Group 1

Mechanical and Electrical Equipment Rooms -

Density - 0.15 gpm/s.f. over the most remote 1,500 s.f. area with 250 gpm added for hose streams. Sprinkler heads rated at 165° spaced at 130 s.f. per head (maximum).

Ordinary Hazard Group 2

Storage Rooms

Density - 0.20 gpm/s.f. over the most remote 1,500 s.f. area with 250 gpm added for hose streams. Sprinkler heads rated at 165° spaced at 130 s.f. per head (maximum).

Diesel driven fire pump assembly including diesel tank, controller, test header, etc. Install in accordance with NFPA 20. The fire pump shall be sized in order to meet NFPA 13 and 14 hydraulic sprinkler requirements.

Recommendations

- Provide a fully automatic fire protection sprinkler system in accordance with NFPA 13, & 20.
- Provide Wet chemical hood suppression system, UL listed & NFPA 17A compliant.

Provide limited area sprinkler system under the stage.

Plumbing

Domestic Water

The facility is not provided with a municipal domestic water supply but instead well water via three on site wells. The system consists of a utility vault, horizontal buried 1500 – 2000-gallon water storage tank, three (3) 80-gallon hydropneumatic bladder tanks, a duplex domestic water booster pumping system with multiple tank level and pump controllers. This system is provided to increase water pressure to acceptable levels, so the building's plumbing fixtures operate correctly. System pressure reads 72 PSI and is in working order. The configuration is complex with multiple water meters and valving. Two of the three Well Pumps were in automatic operating mode during the time of the site visit.



Each hydro tank has a drawdown rating of the following:

- 30-50 PSI @ 35.1 GPM

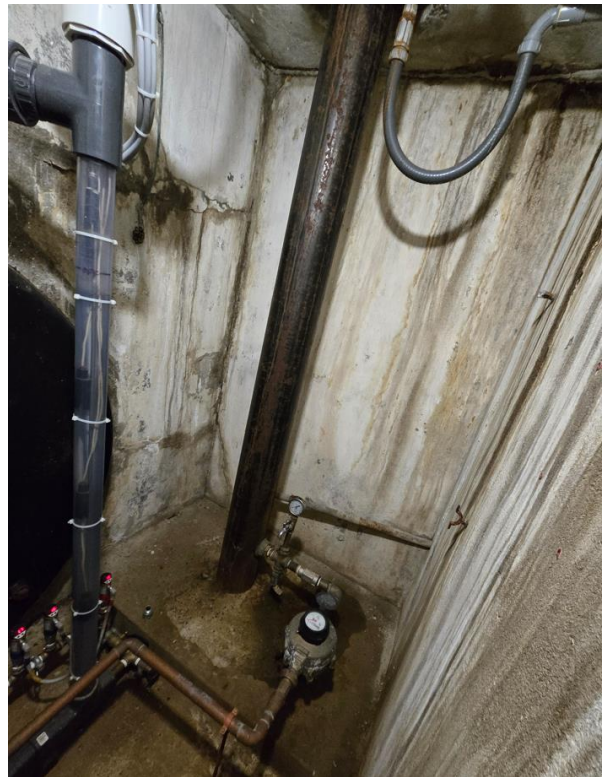
The tanks are manufactured by STA-RITE, Signature 2000 series, model SR119-35-01. The tanks are in good working order with regular service.

The duplex booster pump is manufactured by Baldor, each centrifugal pump is 2 HP with individual pump controllers, manufactured by Goulds Pumps, Aquavar series. The system is in good working order with regular service.

Further investigation by the local service provider is required to determine condition of Well Pump #3, as the control panel has this system switched to the “OFF” position.



The underground horizontal storage tank is partially buried with end section exposed for service and inspection within a utility vault on the basement level. The tank appears original to the building. It shows signs of age, but no serious rusting or exterior corrosion. A tank level monitoring system is provided with exterior horn strobe. Note that the tank is vented in multiple locations, 2 of which are at grade. These vents / fill ports have now been capped.



Distribution piping is copper with sweated soldered fittings. The lead (Pb) content of the existing domestic water pipe, fittings and solder is unknown, but lead-containing materials may have been used for domestic water systems during the time of construction (pre-1986). Distribution piping is not insulated, nor labeled with service and flow arrows.

A backflow preventer has been provided on the boiler water make up feed accordingly.

Water Quality: Mandatory Testing (New Law): Connecticut's HB-6761 (effective 2024) requires every local/regional school board to test drinking water locations (fountains, taps) for lead and report results to CT DPH, SDE, and DAS by July 1, 2024.

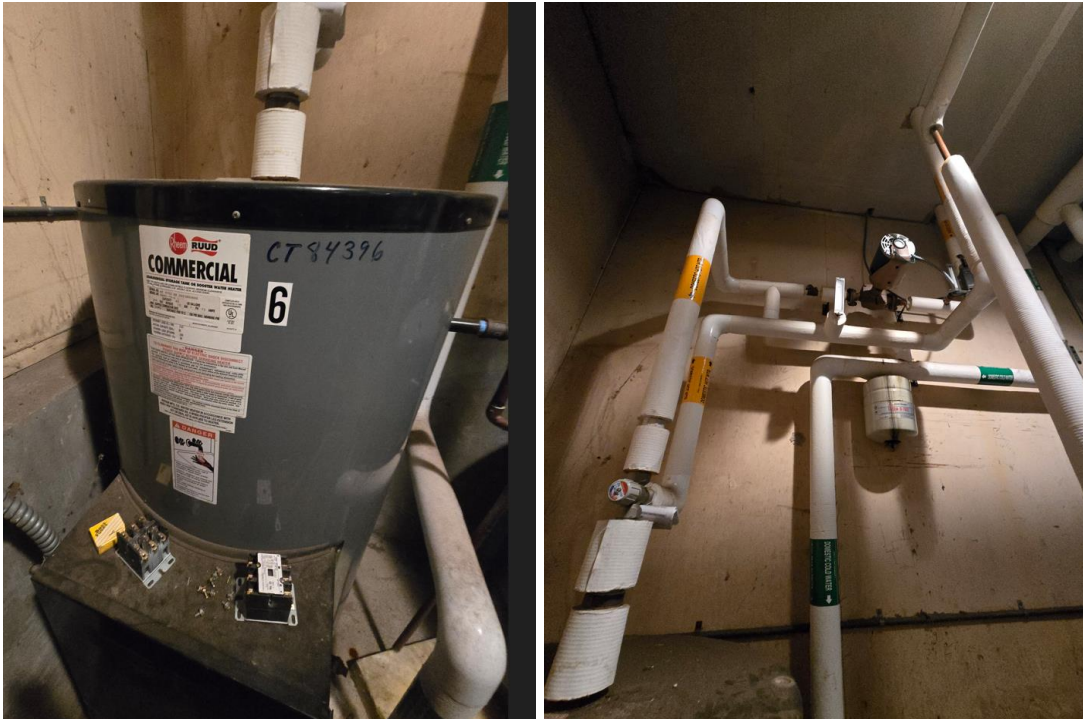
Connecticut also follows the State of Connecticut Department of Public Health for lead in drinking water. The rule established a maximum contaminant level goal of zero for lead in drinking water and an action level (AL) of 0.015 milligrams per liter (mg/L) for lead and 1.3 mg/L for copper based on 90th percentile level of tap water samples.

Mandatory flushing of the lines each day may be permitted to reduce levels of lead, but replacement of piping may be required. If removal of all piping original to the building is required, all new potable-water piping and components shall comply with NSF 14 and NSF 61 Annex G lead free requirements.

Water heater

The facility is provided with two Electric storage type water heaters. One serves the building's hot water fixtures, while the other is dedicated to the kitchen.

The building's main water heater is electric storage, manufactured by Rheem Ruub, model ES85-15-G, 208 V, 15KW, 73 amps, 85-gallon storage, and is provided with a thermostatic mixing valve, hot water recirculation pump and aquastats and thermal expansion tank accordingly. The installation date is unknown, but the unit appears to be in fair condition with serviceable life expectancy of 3-6 years.



The Kitchen is provided with a dedicated 119-gallon water heater which was installed on 7/25/06, manufactured by Vaughn 240 V, 119-gallon 4500W upper element, 4500W lower element. A thermostatic mixing valve nor thermal expansion tank were provided. The unit is 20 years old and has a short life expectancy. Limited insulation has been provided but does not meet IECC / IPC requirements for continuous pipe coverage.



It is recommended to replace the existing electric water heaters in kind as they are both nearing or past their serviceable life expectancy.

For all systems, store domestic hot water at 140°F to reduce the growth of legionella. To eliminate potential scald hazards, provide a properly sized thermostatic mixing valve to deliver the required temperature per the following criteria:

- Master Mixer, all water heaters require external temperature controls via ASSE 1017 Thermostatic mixing valve to reduce hot water from 140°F to 120°F.
- Hand washing lavatories (bathroom groups) require Tempered water via ASSE 1070 Thermostatic mixing valve to provide 105°F – 110°F water.
- Emergency Fixtures (eye wash & showers) require Tepid water via ASSE 1071 Thermostatic mixing valve to provide 70°F - 90°F water.
- Provide a dedicated 140°F hot water line to the kitchen fixtures utensil washing equipment, sinks, dishwashers, etc. as required per local Health Department requirements. Provide point of use thermostatic mixing valve per above for fixtures not requiring elevated hot water temperatures or for hand washing sinks.

All public hand-washing lavatories shall meet the IECC requirements for Efficient Heated Water Supply Piping by incorporating a hot water recirculation loop routed within two feet of each fixture and/or by providing electric heat trace on all hot water piping serving the lavatories. Self-actuating



Further review of the septic system's capacity will have to be evaluated by a qualified third party to determine compliance. It is recommended to maintain the leaching field yearly via professional inspections with tank pump outs every 3-5 years.

It is recommended to maintain water trap seals on floor drains to prevent sewer gas from escaping (that do not normally see use, i.e. mechanical room, ancillary drains, etc.) by installing a retrofit trap barrier device.

It is recommended to snake all floor drain and below slab sanitary and waste piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations for future connections. Cut in new cleanouts with required fittings where required by code to facilitate cleaning.

Kitchen

The school is provided with a light commercial kitchen, classification is currently undetermined, with fixtures consisting of a 3 bay sink and dishwasher with direct sanitary connection vented with an air admittance valve. A grease trap was not provided.



A hand sink with thermostatic mixing valve has been provided accordingly, the supply piping is loosely insulated with Armaflex elastomeric insulation.

A propane fired range / oven with dedicated above grade 120 gallon propane tank has been provided, though a kitchen hood has not been provided.



Based on information provided by the facility staff, the kitchen is for warming only, although to determine compliance with current codes, it is recommended to verify corresponding kitchen classification (I, II, III, or IV).

Though not likely to be required, a properly sized Automatic Grease Recovery Unit (AGRU) which automatically skims grease into a separate container in support of the kitchen sink's waste piping may be needed. This will ensure effluent discharge levels not to exceed 100 ppm (100 milligrams per liter).

Additionally based on the determined classification, verify if there are other requirements needed to comply with the CT Public Health Code (i.e. hand-washing requirements, pot & utensil sanitization requirements, emergency gas range / oven shut off interface with exhaust hood requirements, indirect waste requirements, etc.).

Plumbing Fixtures

Plumbing fixtures are provided throughout the facility in standard and ADA configurations. Fixtures are commercial grade and are comprised of floor and wall hung water closets with flush valves, wall hung urinals, wall and counter mounted lavatories, classroom sinks, drinking fountain with bottle filler, dual and single type, mop sinks, etc. Some fixtures were installed in recent renovations while others appear original to the building's construction. Floor drains have been provided in the toilet rooms.



Specifically, the 1954 addition toilet fixtures are not original to the addition and have been upgraded to sensor flush valves with ADA toilet stalls. ASSE 1070 rated thermostatic mixing valves were not provided on hand washing lavatories. The Art classroom has been provided with a sink, but a solids interceptor is not provided. Two exterior freeze proof hose bibs have been provided as well.

Mop sinks with chemical dispensers have not been provided with a backflow preventer as required by code.



Remove and replace fixtures per the new architectural program. Provide standard and ADA low flow fixtures per International Plumbing Code and State standards. Accessible ADA fixtures will be provided and set in accordance with the applicable codes. Provide new hot water, cold water, sanitary and vent services to new fixtures as indicated in the new Architectural layout. Provide complete with trimmings and fittings, including faucets, carriers, supplies, stops, traps, tailpieces, waste plugs, casings, hangers, plates, brackets, anchors, supports, hardware and fastening devices.

New low flow fixtures shall be water closets at 1.6 gallon per flush (gpf), Urinals at .125 gpf, and hand-washing lavatories at 0.5 gallons per minute. Water closets, urinals and lavatories will be fabricated of vitreous china. Urinals will be wall-hung with floor-mounted carriers, and will utilize manual flush valves, water closets will remain floor mounted with flush valves. Lavatories will also be wall-hung with floor-mounted carriers and will utilize dual handle faucets.

Fuel Gas

The facility is provided with multiple propane tanks, one larger horizontal tank feeding the portable RTU heat, the other is a 120-gallon vertical tank feeding the range / oven. Both tanks are property of Hocon Gas of Torrington.

Second stage regulators have been provided for each system. Gas piping serving the RTU is flexible copper tubing with yellow rubber coating off the propane tank and is routed underground to the building's exterior wall, then transitions to threaded Sch. 40 black steel which is corroded. Grounding and bonding requirements should be confirmed with the tubing manufacturer for direct burial applications.



Interior piping serving the kitchen is exposed CCST (corrugated stainless-steel tubing).

Storm

Primarily leader and gutter from pitched roofs, some gutters are provided with freeze protection heat trace cable. No interior storm piping was evident.

Radon

Records indicate radon levels are below actionable levels, therefore no accommodations are required nor have been provided.

Recommendations

- Service and inspect the well system per qualified vender to ensure proper system operation.

- The water supply should be tested for lead content and remediated if required.
- Provide new and continuous pipe insulation (per IECC requirements) on existing and new pipe, insulated with 1" minimum thickness fibrous glass insulation and pre-formed fibrous glass fittings with fire retardant vapor barrier jacket.
- Replace the main electric water heater in kind as it is past its serviceable life expectancy.
- Replace the kitchen electric water heater in kind as it is past its serviceable life expectancy and relocate to an appropriate area with floor drain or provide drain pan with leak detector.
- Provide means of hot water temperature maintenance serving lavatories per IECC requirements.
- Provide ASSE 1017 rated master thermostatic mixing valves on all water heaters. Provide ASSE 1070 rated thermostatic mixing valves on all handwashing lavatories throughout.
- Service and inspect septic system(s) and pump out tank(s) accordingly.
- Snake all sanitary drains and below slab sanitary piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations for record. Repair damaged piping as necessary.
- Provide trap seal barrier on existing floor drains to prevent traps from drying out.
- Provide solids interceptor on Art room sink.
- Provide an automatic grease recovery unit if required.
- Review with local Health Department if the 3 bay sink is required to have indirect waste connections per code.
- Replace legacy Plumbing fixtures with new per Architectural program.
- Paint all exterior propane piping corrosion resistant per NFPA.
- Provide gas piping, fittings, hangers, regulators, etc. in support of proposed HVAC equipment, underground propane tank under Mechanical division.
- Provide condensate piping, fittings, insulation, hangers, etc. in support of proposed HVAC equipment
- Provide a backflow preventer on two mop sink's chemical detergent supply lines.
- Continue to test for radon per CT regulations to ensure levels remain below State thresholds.

Mechanical

Boiler Plant

There is one (1) propane fired cast iron hot water boiler that is in poor condition. There is visible rust and damage on the boiler sections themselves. The piping is also in poor condition along with the insulation that is both damaged and missing throughout the hot water system. The burner is also in poor condition and, based on the nameplate, the boiler is about 69% efficient. The boiler flue exhaust support is also in poor condition and has missing supports in the ceiling. The typical lifespan of a cast iron hot water boiler is about 35 years.



The combustion air damper does not have gaskets creating air leakage when it's closed which can intake moisture, insects and unconditioned air when not in operation. There is a wall opening below the damper that is currently covered with wood. The wood is clearly damaged and seems to be collecting moisture which could increase the moisture migration into the boiler room and allow more air leakage and possibly insects.



There are two (2) variable speed hot water pumps that have several areas of rust, pipe damage and visible water leaks at the flanges allowing for more rust and moisture accumulation. The



pumps are in poor condition, as are their supports and several sections of the hot water piping. The typical lifespan of a pad mounted hot water pump is about 25 years.





SP+A recommends a boiler system replacement including the boiler, pumps, piping and insulation. A propane fired condensing boiler is more efficient than traditional cast iron boilers because they recover some of the heat that would otherwise be lost in the flue gases. The increased system efficiency can provide energy savings as well as increase system reliability. SP+A recommends installing a second condensing boiler as well for redundancy in the event of a boiler being temporarily offline or maintained. With the addition of condensing boilers, SP+A recommends replacing terminal equipment (fin tube radiation, unit heaters, etc.) to make sure they are sized properly for the building's loads. The typical lifespans of these units are; finned-tube radiators (25 years), and unit heaters (20 years for hot water units).

SP+A recommends replacing the combustion air damper with the recommended condensing boiler and interlocking with its operation in accordance with mechanical code and safe boiler operation. The recommended combustion air damper is should have gaskets that seal when closed to prevent undesired air and moisture leakage.

SP+A recommends replacing all hot water piping in the entire building that is beyond its useful lifespan of about 30 years. This can decrease the likelihood of system leaks and inefficiencies. All leaks at pipe connections and fittings need to be repaired as well and having the fittings replaced if required. SP+A recommends insulating the entire hot water system with energy code complaint insulation.

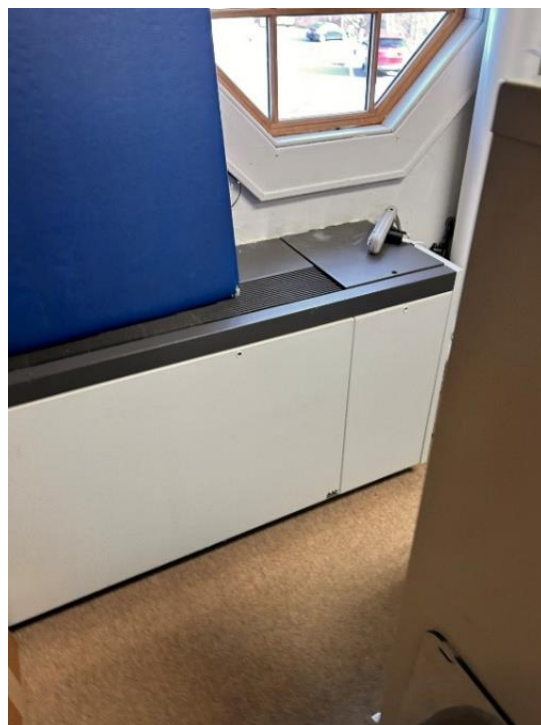
SP+A recommends replacing the hot water pumps including all their fittings, supports, and variable frequency drives (if they are beyond their useful lifespan of 20 years).

Cooling, Heating and Ventilation

The primary ventilation for the school is through operable windows with some exhaust fans. There are several rooftop exhaust fans that are in poor visual condition and likely beyond their useful lifespan of about 20 years. The reliance on exhaust fans for ventilation can also cause issues by introducing unconditioned air, as well as moisture, dust and insects into the building.



There are also a few unit ventilators in areas such as the Conference Room/Stage area. Unit ventilators are not generally recommended when considering the air quality and noise criteria of the space because they intake return air by pulling air across the floor including dust and debris. They also have the potential to make more noise than is allowable for a conference room or a classroom. The unit ventilator supply grille is also covered with storage materials which also decreases its effectiveness. The typical useful lifespan of a unit ventilator is about 20 years.





The portables are served by four (4) rooftop units. The units are in poor condition and show signs of rust and external damage. The units supply heat via propane fired furnaces. The units are also near the roof edge and there are no guard rails on the roof for unit service as per OSHA compliance.



SP+A recommends removing and capping all exhaust fans that serve the classrooms and replacing them with dedicated outdoor air systems (DOAS). The DOAS can be sized to serve only the code required amount of ventilation air to the classrooms and offices. The DOAS can be packaged to handle the heating and cooling of the ventilation air so it would be conditioned as opposed to having unconditioned air entering through the windows as is currently done. DOAS generally has smaller ductwork sizes as well since the only air distributed is the fraction of code required ventilation air. Potential areas for installation of the DOAS include: the attic (upon

adequate renovations), the external perimeter of the building, above the ceilings, the basement level, and the flat roof of the portable area or any future structure. As an immediate measure, SP+A recommends installing roof guard rails for the portable rooftop units.

SP+A recommends installing Smart IAQ technology in each classroom and office to decrease the amount of outdoor air required. Smart IAQ units are designed to thoroughly clean the existing room air of several particulates and airborne chemicals, which decreases the amount of outdoor air needed. This can potentially lead to the potential of a smaller boiler, smaller DOAS units and smaller fresh air ductwork.

SP+A recommends installing variable refrigerant flow (VRF) heat pumps to serve heating and cooling to all the classrooms and offices. Heat pumps add and remove heat from the spaces they serve depending on the need of the space. They can be ducted, ceiling mounted or floor mounted depending on the space available in the rooms. Location and electrical provisions will have to be investigated for the outdoor units.

SP+A recommends replacing the toilet exhaust fans and setting up controls for them to operate only when the toilet room is occupied to save energy, instead of continuous operation.

For the Offices, Gymnasium and Media Center, SP+A recommends installing packaged rooftop units in each area to serve ventilation air as well as heat and cool the space.

For the Gymnasium, SP+A recommends installing destratification fans on the ceiling as well which are used for mixing air and aiding in even coverage of heating and cooling within the space.

There is a propane fired stove in the kitchen that does not have an exhaust fan. Stoves without a form of air movement such as range hoods or exhaust fans risk smoking or poor air quality around the stove.



SP+A recommends installing a fire ready range hood in the kitchen which would contain a fan for air movement as well as an integrated fire suppression system for extra safety in the cooking

area. The unit can include fire detection for emergency situations as well as a propane disconnect in the event of a detected fire.

There are well pumps, a tank and equipment in the basement with open areas of water. Open water can evaporate in warm conditions and increase the overall humidity of a space. There is a residential-grade dehumidifier in the basement that is presumably there to control the humidity in the basement and decrease the likelihood microorganisms and materials damage.



SP+A recommends installing a commercial-grade dehumidifier with a floor drain connection to ensure the humidity is controlled in the basement. This configuration would be more efficient and reliable because equipment is sized adequately for the moisture present in the open water areas as well as the from the ground.

Controls

SP+A was not informed of a remote building management system (BMS) that controls and monitors the mechanical equipment. For future consideration, SP+A recommends installing a remote BMS to serve the school and monitor all equipment such as the recommended condensing boilers, pumps, DOAS, VRF equipment, exhaust fans, fin tube radiators, etc. The remote control and monitoring of the equipment can allow for more efficient system operation and faster equipment diagnostics for more responsive preventative maintenance. SP+A recommends installing a BMS with historic data logging and trend data analysis which can aid in future energy reduction studies.

Mechanical Recommendations

- Investigate the combustion damper in the boiler room and ensure it is interlocked with the firing of the boiler and install interlock controls if not currently installed
- Replace the heating hot water system including the boiler, pumps and insulation
- Install two (2) propane fired condensing hot water boilers
- Replace the hot water terminal equipment (radiators, unit heaters, etc.) to be sized and compatible for the building's loads
- Ensure any combustion damper used has adequate gaskets to seal it when closed
- Remove and cap all classroom exhaust fans that are relied on for ventilation
- Replace the portables' rooftop units with new propane fired rooftop units
- Install roof guard rails for the portables
- Install Dedicated Outdoor Air Systems (DOAS) to serve the classrooms code required ventilation air
- Install an Office Rooftop Unit
- Install a rooftop unit for the Gymnasium
- Install destratification fans in the Gymnasium
- Install Smart IAQ technology to clean the air and potentially reduce the amount of ventilation air required in the spaces
- Install Variable Refrigerant Flow (VRF) heat pumps to heat and cool the spaces
- Replace the toilet exhaust fans with new fans that are controlled to run based on if the toilet rooms occupancy
- Install a fire ready range hood in the kitchen to create kitchen air movement as well as the ability to suppress small fires and cut off the propane gas supply in the event of an emergency
- Install a remote BMS that can control and monitor all installed equipment (boilers, DOAS, pumps, radiators, etc.)

Electrical

General

This assessment reports existing electrical conditions and code violations observed during a walkthrough survey and evaluates equipment lifespan and potential remedial alternatives to improve existing electrical conditions and code compliance. The evaluation was based on visual observation, and therefore, electrical components, equipment, and wiring were not inspected or tested for performance.

Distribution

The building is served by an underground electrical service which originates from utility pole #1709 located on Cedar Lane to a pad mounted utility transformer with an exterior building mounted utility meter. From the secondary of the utility transformer the electrical service transforms down to 208Y/120V, 3 Phase, 4-Wire underground into the main disconnect switch rated at 600A, 208Y/120V, 3 Phase, 4-Wire located in the basement. The main switch feeds an adjacent 600A, 208Y/120V, 3 Phase, 4-Wire main distribution panel that feeds multiple panels and equipment located throughout the facility. The main distribution panel, manufactured by Eaton Cutler-Hammer, is in good condition. There is a 400A, 208Y/120V, 3 Phase, 4 Wire fused distribution panel, manufactured by Trumbull Electric, in poor condition and replacement parts may not be readily available. All other panels throughout the facility are newer panels, manufactured by General Electric and Eaton Cutler-Hammer, that replaced existing panels and appear to be in good condition. The electrical panels in the common area corridors were not locked and can be accessed by non-authorized personnel. The circuit breakers serving the fire alarm system, security system, and network system are lacking lock-on breaker devices.

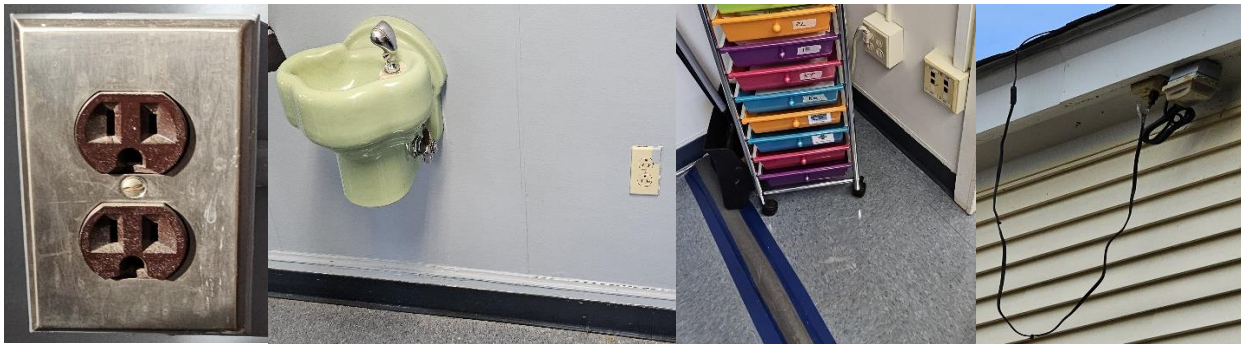


Generator

There does not appear to be a generator on this site.

Power

Receptacles throughout the facility consist of both recessed and surface mounted units. The condition of power receptacles throughout the facility varies from good to poor condition. Several occupied rooms appear to utilize window A/C units based on the 20A, 125V, 1-Phase receptacle mounted adjacent to windows. There are several outlets within 6' of a water source that are not GFCI type or not labeled GFCI protected. Disconnect switches for mechanical & plumbing equipment appear to be in fair to poor condition. Exposed wiring in junction/back boxes without cover plates was noticed in several classrooms. There is no emergency shut-off push button at kitchen egress doors for shut-off of gas to cooking equipment. There was no visible sign of any older wiring with cloth insulation. There are several locations around the exterior of the facility that have snow/ice melting for roof edges and downspouts that are plugged into outlets under the eaves with cords/cable hanging.



Lighting

Interior lighting throughout the classrooms, offices, and corridors consists of recessed, surface, and pendant mounted fixtures with LED lamps and either parabolic or acrylic lens style. Gym/Cafeteria has 4' surface mounted LED lamp fixtures with wraparound acrylic lens. Most fixtures throughout were originally fluorescent and have been retrofitted with LED lamps and drivers. Classroom lighting fixtures are controlled via a combination, ceiling occupancy sensors and single pole toggle switches for dual switching of inner & outer lamps. Corridor lighting controls are via 3-way toggle switching at each end of corridors. Utility rooms and basement have RLM type fixtures or surface mounted LED fixtures with manual single pole toggle switches for control. Building exterior perimeter light fixtures are a mix of decorative lantern fixtures with LED lamp and wall pack LED fixtures, controlled via timeclock and appear to be in good to fair condition.



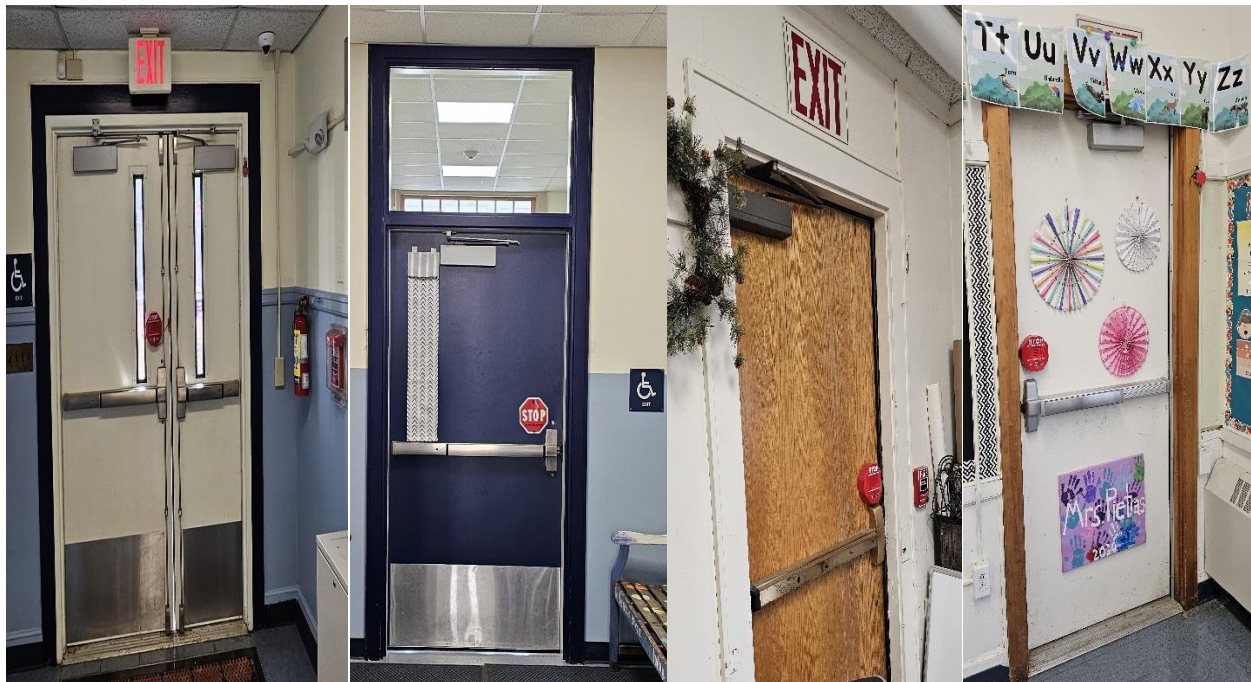
Emergency Lighting

The emergency lighting consists of mainly wall mounted twin-head battery units with remote heads on exterior wall at egress doors. These fixtures appear to be in good condition and appear to be adequate quantities to meet the egress lighting requirements. Electrical panel covers have labels indicating emergency lighting testing dates.



Exit Signs

The exit light fixtures are LED with thermoplastic housing throughout the facility. There were no exit light fixtures at main entrance doors and exterior emergency egress door from speech room. Most exit light fixtures appear to be in good condition.



Fire Alarm

The building addressable fire alarm system is manufactured by Notifier/Honeywell. The main control panel is located in the basement with an annunciator panel at the front entrance. The equipment is in good condition. There are pull stations at egress doors, as well as smoke detectors and notification devices throughout the facility. Fire separation doors with magnetic door hold open devices are wired into fire alarm system for release upon fire alarm activation. Most devices appear to be in good condition. Exterior emergency egress door from speech room does not have a pull station.



Telecommunications and Audio/Visual

There is a main network rack located in passage between gym/café and old stage storage area. This area is not enclosed and temperature controlled suitable for data networks. Network and wi-fi equipment appear to be regularly upgraded and no significant issues were reported. The building is served by a new cloud-based VOIP telephone system which was installed in 2024. The intrusion detection system manufactured by Gemini is in the main electrical room and serviced by Associated Security has been recently upgraded. Video surveillance cameras and access control are by Verkada. These are in good condition. The building has a lockdown system with panic buttons accessible to staff. The Program Time Controller panel located in main office, which is manufactured by Standard Faraday is active and appears to be in good condition. The public address system is reported to be fully operational but is at least 15 years old. Promethean interactive instruction boards are installed in all classrooms and are in good condition.



Recommendations

Distribution

The 400 amp distribution panel should be replaced due to the manufacturer “Trumbull Electric” no longer exist and replacement parts will be difficult to procure or not available. All other panels manufactured by General Electric and Eaton Cutler-Hammer are still supported by the manufacturer and replacement parts are available. All electrical panels in public areas should be locked. Lock-on devices should be installed on all circuit breakers serving security system panel and devices, all network communications equipment, and master intercom control panel to prevent being shut off accidentally or intentionally by non-authority. All panel circuit directories should be typed per current NEC, and all old handwritten directories should be removed. This process will help in problem solving of future electrical issues that may arise. All circuit breakers with no branch circuit wiring should be turned to off position and labeled “spare” on panel circuit directory. While further verification with a preliminary HVAC design will be required to confirm the existing service capacity sufficiency, it appears unlikely that the 600 amp service would be capable of serving a full building air conditioning project. The existing main panel would need to be replaced or supplemented, and this cost has been included in the project estimate.

Generator

Generator power is not code-mandated for the building but could provide several valuable purposes if added. These include protecting the water distribution from freezing and guarding against refrigerated food spoilage during a long outage. A generator could also provide for more orderly dismissal of students during power outage events. The cost of this item could vary significantly based on the loads requiring backup power. The attached cost allows for a generator to back up the entire building including air conditioning.

Power

Tamper-proof receptacles should be considered in classrooms, offices, and corridors as required by the current NEC. The use of extension cords to reach electrical loads from receptacles is a Code violation. Additional receptacles, with a dedicated new branch circuit, should be added to each room in locations as required. Disconnect switches for mechanical, plumbing, and kitchen equipment should be replaced with the replacement of equipment.

Lighting

While the LED retrofit condition provides reasonable energy efficiency, the housings are nearing the end of their useful life and additional efficiency could be achieved with the installation of all new LED fixtures. Full replacement of interior lighting should be considered, especially if an upcoming project is planned which would require removal of most existing ceilings. Such a lighting replacement would provide further improvement in lighting efficiency and allow for incorporation of enhanced lighting controls with dimming and daylight harvesting. The attached estimate includes a full replacement of the interior and exterior lighting.

Emergency Lighting

Suggest adding twin-head battery unit emergency light fixtures in basement where main electrical service and water service are located. Also, monthly testing and replacing of emergency light fixtures upon test failure. Emergency light fixtures should be numbered along with a log indicating tested and replacement/installation dates. If the interior and exterior lighting replacement noted above takes place, a superior emergency lighting solution could be included, including central inverter units to provide emergency backup power to some of the normal light fixtures as required for emergency egress coverage or battery pack units integral to these new normal light fixtures.

Exit Signs

ADA/accessible LED signage will need to be added to cover current code requirements at all exterior accessible egress doors if renovations are planned to be made to the facility. Add exit light fixture at main entrance doors and speech room exterior emergency egress door.

Fire Alarm

The existing Notifier by Honeywell fire alarm control panel should be capable of serving the building for the foreseeable future. Suggest adding pull stations at speech room exterior emergency egress door and at bottom of egress stairs in basement.

Telecommunications

Based on observation of the main network rack location, the room should be enclosed and climate controlled for best performance and to prevent premature equipment failure.

Electrical Code Violations

- Lack of EPO at kitchen egress doors for gas shut-off serving cooking equipment.
- Lack of lock-on device on circuit breaker feeding the fire alarm system equipment. Code requires that the breaker must have a lock employed to prevent accidental or intentionally by non-authority.



Lock-on Device



Lock-on Device Kit

BAKERVILLE SCHOOL FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING					ITIMIZED ESTIMATED COST	REMARKS
			4	3	2	1	n/a		
SITE CONDITIONS									
S01	The ramp railings do not have edge protection (low curb or barrier)	405.9.2 (ADA) 1012.9 (IBC)			2			\$ 9,500	✓
S02	There are no guardrails or handrails at the exterior basement stairs	505.10 (ADA) 1012.8 (IBC) A117.1 (ICC)			2			\$ 10,500	✓
S03	Exterior stairs from the faculty work room (old stage) are missing hand rails	505.10 (ADA) 1012.8 (IBC) A117.1 (ICC)			2			\$ 5,000	✓
S04	Most downspouts are not piped away from building and some areas have no downspouts - creating wet areas around building (lots of moss)	General		3				\$ 9,480	✓
SITE SUBTOTAL									\$ 34,480
EXTERIOR CONDITIONS									
A01	The siding is in need of repairs and at 25+/- years old, it could be replaced	General		3				\$ 243,000	Hazmat potential - There may be lead, asbestos or PCBs ✓
A02	The foundation detail protrudes past face of wall and may invite water into building	General		3				\$ 7,900	✓
A03	Exterior walls have poor energy properties	Energy	4					\$ 61,875	Allowance ✓
A04	Wood fascias soffits and roof trim are rotting, or paint is failing	General		3				\$ 15,800	Hazmat potential - There may be lead, asbestos or PCBs ✓
A05	The windows are nearing the end of their useful life	General		3				\$ 356,375	Hazmat potential - There may be lead, asbestos or PCBs ✓
A06	Roofs are nearing end of useful life	General			2			\$ 646,905	Hazmat potential - There may be lead, asbestos or PCBs ✓
A07	Gutters and downspouts are not consistently installed throughout the perimeter and many are nearing the end of their useful life	General			2			\$ 23,000	✓
A08	The chimney masonry is in need of repair and vegetation removal	General			2			\$ 5,400	
A09	Door trim is in disrepair or needs some replacement	General		3				\$ 4,500	
A10	Hollow metal frames are beginning to rust	General		3				\$ 1,800	
EXTERIOR SUBTOTAL									\$ 1,366,555

BAKERVILLE SCHOOL FACILITY CONDITIONS ASSESSMENT												
Tag No.	Assessment	System/ Code Ref.	Ranking				Corrective Action	Itemized Estimated Cost	Remarks			
Interior Conditions												
A11	VCT flooring is nearing the end of its useful life	General		3			Replace VCT with new LVT flooring and provide leveler to slab	\$ 314,760	Hazmat potential - There may be lead, asbestos or PCBs			
A12	VCT is not suitable for multipurpose room and is safety concern	General			2		Replace VCT with sports floor	\$ 29,200	Hazmat potential - There may be lead, asbestos or PCBs			
A13	There is some limited damage at door frames and walls	General		3			Repair and replace as needed	\$ 5,000	Allowance, Hazmat potential - There may be lead, asbestos or PCBs			
A14	Many ceilings have stains or older ceilings above falling and causing damage	General			2		Once roof is replaced, remove old ceilings and replace with new 2x2 ACT ceilings, some areas will need a fire rated layer of gypsum to maintain require fire ratings to corridors and to the attic	\$ 184,830	Hazmat potential - There may be lead, asbestos or PCBs		✓	
A15	Some door hardware is not accessible. Knob handles require grasping and twisting.	4.13.9 (ADA) 404.2.6 (ANSI 117.1)			2		Remove door locksets and install new accessible lever handle locksets where designated.	\$ 4,000			✓	
A16	Some doors lack push and/or pull maneuvering clearances and do not meet code.	413.6 (ADA) 1101.2 (IBC) ANSI 117.1			2		Modify the door openings/ enlarge alcove and change door swings. Provide new door with lever handsets and hardware	\$ 15,000			✓	
A17	Some door frames are damaged	General		3			Repair/replace	\$ 3,500	Allowance			
A18	Some windows have wire glass	General			2		Remove and provide fire rated glass window	\$ 8,000				
A19	Old stage handrail and guardrail are not complaint or do not exist	505 ADA			2		Remove and replace	\$ 1,750			✓	
A20	There is no access provided at the stage/staff work room	303.1 ADA			2		Provide a LULA (lift)	\$ 120,000	Also could remove and renovate room to slab		✓	
A21	Ladder access to the attic is not compliant	IMC 306.5/ OSHA 1926.1053			2		Replace with complaint system	\$ 2,500			✓	
A22	Ladder hatch is not complaint - it swings out and is a safety concern	IMC 306.5/ OSHA 1926.1053			2		Replace with a swing up door	\$ 1,500			✓	
A23	The required toilet grab bars are not installed	(B)1108.0 (ANSI A117.1) 603-606			2		Install code required grab bars	\$ 3,500			✓	
A24	Casework through the school is not compliant due to its height or configuration: insufficient knee space provided at sink	ADA 606 4.32 (ADA)			2		Provide accessible sinks and workstations per ADA Section 4.32. 27" high x 30" wide x 19" deep.	\$ 45,000	(Assumes 6 locations)		✓	
A25	Classroom signage is not compliant	ADA 703			2		To meet ADA standards, the signage must be between 48 and 60 inches from the ground, the size of the signage, font size, and braille must be included throughout. Provie new throughout the school	\$ 17,500			✓	
A26	Gymnasium has limited wall padding and has lots of furniture at the perimeter	Safety	4				Install Class-A rated protective wall padding throughout	\$ 17,760				

BAKERVILLE SCHOOL FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING			CORRECTIVE ACTION	ITIMIZED ESTIMATED COST	REMARKS	
A27	Heat trace required at all restroom sinks - See Plumbing Tag No. P09	C404.5.1	3			Remove portion of wall at plumbing fixtures to install equipment. Infill wall with like materials.	\$ 12,000	Allowance, Hazmat potential - There may be lead, asbestos or PCBs	
A28	Mechanical modifications may require soffits, chases or some work in the attic to accommodate new equipment and ductwork	General	2			Provide gypsum wallboard painted chases or soffits as required or cleanup attic to utilize for mechanical infrastructure	\$ 40,000	Allowance, See Mechanical Scope	✓
A30	Abatement will be needed for many suggested and necessary improvements	HBM	2			Abate and remove hazardous materials	\$ 1,293,810	* ALLOWANCE based on \$70 per SQ FT	
INTERIOR SUBTOTAL								\$ 2,119,610	
PLUMBING/FIRE PROTECTION									
P01	Service and inspect the well system per qualified vender to ensure proper system operation.	General	2			Service and inspect the well system per qualified vender to ensure proper system operation.	\$ 2,200		
P02	Possibility of lead in piping	CT HB-6761	3			The water supply should be tested for lead content and remediated as required.	\$ 3,800	Hazmat potential - there may be lead, asbestos or PCBs	
P03	Missing pipe insulation observed	IECC C404.5	3			Provide new and continuous pipe insulation with labels (per IECC requirements) on existing and new pipe	\$ 5,900		
P04	Main water heater system is past its serviceable life expectancy	General	2			Replace the 85 gallon main electric water heater assembly including hot water recirculation pump, thermal expansion tank, mixing valve, etc. in kind as it is past its serviceable life expectancy.	\$ 30,000	qty 1	
P05	Kitchen water heater is past its serviceable life expectancy and located in an inappropriate area	General	2			Replace the 119 gallon kitchen electric water heater, thermal expansion tank, etc. in kind as it is past its serviceable life expectancy and relocate to an appropriate area with floor drain or provide drain pan with leak detector.	\$ 32,500	qty 1	
P06	Master thermostatic mixing valve not provided for kitchen water heater	IPC 613.1			1	Provide ASSE 1017 rated master thermostatic mixing valves with temperature gauge on the kitchen water heater.	\$ 5,500		
P07	Scald prevention device not observed on lavatories	IPC 419.5			1	Provide ASSE 1070 rated thermostatic mixing valves on all handwashing lavatories	\$ 6,500	qty 13x	
P08	Bathrooms at the 1954 addition backup and overflow	General	2			Service and inspect septic system(s) and pump out tank(s) accordingly	\$ 2,500		
P09	Provide means of hot water temperature maintenance serving lavatories per IECC requirements	C404.5.1	3			Install electric heat trace with insulation on un-recirculated piping serving lavatories up to 2' of the fixture	\$ 13,400	Item required by current code, but likely not during time of original installation	
P10	Bathrooms at the 1954 addition backup and overflow	Health Code			1	Camera scope and snake clean all drains and below slab sanitary piping	\$ 5,500		
P11	Provide trap seal barrier on existing floor drains to prevent traps from drying out	IPC 1002.4.1 .4			2	Provide trap seal barrier on existing floor drains to prevent traps from drying out	\$ 1,200	approx. 6x	
P12	Art room sink could cause drain issues	IPC 1003.1			2	Provide solids interceptor on Art room sink to keep drain line clean and flowing properly	\$ 1,300		
P13	Unknown Health Department requirements for indirect waste	CT PHC			2	Review with local Health Department if the 3 bay sink is required to have indirect waste connections per code	\$ 7,500	TBD if this is required, cost is a place holder	
P14	The kitchen is classified as type IV requiring a grease trap	General			2	Provide a point of use automatic grease recovery unit on required sinks	\$ 5,500		

BAKERVILLE SCHOOL FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING			CORRECTIVE ACTION	ITIMIZED ESTIMATED COST	REMARKS	
P15	Some plumbing fixtures are dated / original to the building	N/A	4			Replace legacy Plumbing fixtures with new per Architectural program	\$ 55,500	approx. 13x	
P16	Exterior gas piping is rusting	NFPA 54 7.1.3			1	Paint all exterior propane piping corrosion resistant per NFPA.	\$ 1,200		
P17	Radon testing	General			1	Continue to test for radon per CT regulations to ensure levels remain below State thresholds	\$ 3,500		
P18	Proposed HVAC equipment will be gas fired	General			1	Provide gas piping, fittings, hangers, regulators, etc. in support of proposed HVAC equipment	\$ 50,000	Only required for major mechanical upgrade.	☑
P19	Proposed HVAC equipment will require condensate drainage	General			1	Provide condensate piping, fittings, insulation, hangers, etc. in support of proposed HVAC equipment	\$ 5,500	Only required for major mechanical upgrade.	☑
FP0 1	Building is not fully sprinklered	IBC			2	Provide a fully automatic fire protection sprinkler system in accordance with NFPA 13.	\$ 450,000	Hazmat potential - there may be lead, asbestos or PCBs	
FP0 1	A kitchen hood is not provided	IBC 904.13			2	Provide a UL listed & NFPA 17A compliant Wet chemical suppression system for the future hood	\$ 7,500		
FP0 1	Area under stage is combustible concealed space				2	Provide limited area sprinkler system under stage	\$ 14,750		
PLUMBING/FP SUBTOTAL								\$ 711,250	
MECHANICAL SYSTEMS									
M01	Demolition of Existing Priority 1 Equipment	General			1	Demo equipment such as boiler, pumps, piping, fans	\$ 57,000		☑
M02	Install two (2) propane fired condensing boilers	2021 IMC 309.1			1	Replace the existing poor condition cast iron boilers with two (2) propane fired condensing boilers	\$ 300,000	Second boiler is recommended for redundancy	☑
M03	Replace Hot Water Pumps	2021 IMC 309.1			2	Replace the existing poor condition pumps, pads and fittings with new hot water pumps	\$ 80,000		☑
M04	Replace End Use Heating Equipment and Piping	2021 IMC 309.1			2	With the replacement of the boilers, replace the end use equipment to be compatible with the new system (radiators, units heaters, etc.)	\$ 509,000		☑
M05	Install Combustion Damper with Gaskets on Blades	General			1	Install a new combustion damper with gaskets to reduce the amount of air and moisture leakage through it	\$ 3,000		☑
M06	Install Dedicated Outdoor Air Systems (DOAS)	2021 IMC 401.2			2	Install DOAS to serve ventilation air to classrooms and corridors with ductwork	\$ 120,000		☑
M07	Install Rooftop Unit for Cafeteria/Gym	2021 IMC 401.2			2	Install a packaged rooftop unit to serve the Cafeteria/Gym and be the primary source of heating, cooling and humidity control in the space	\$ 122,000		☑
M08	Install Rooftop Unit for Office Area	2021 IMC 401.2			2	Install a packaged rooftop unit to serve the Office and be the primary source of heating, cooling and humidity control in the space	\$ 97,000		☑
M09	Install Kitchen Makeup Air Unit	2021 IMC 508.1			2	Install a packaged makeup air unit in the kitchen to be paired with the vent hood	\$ 22,000		☑
M10	Replace the Portables' Rooftop Units	2021 IMC 403.1.1.2			2	Replace the propane fired rooftop units with new rooftop units	\$ 180,000		☑
M11	Install Smart IAQ Technology	General	4			Install Smart IAQ Technology to serve the classrooms and offices and clean the rooms' return air	\$ 66,000		☑

BAKERVILLE SCHOOL FACILITY CONDITIONS ASSESSMENT												
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING				CORRECTIVE ACTION	ITIMIZED ESTIMATED COST	REMARKS			
M12	Install Variable Refrigerant Heat Pumps	General			2		Install VRF heat pumps for the proposed areas to be served by the recommended DOAS to provide heating and cooling to the spaces and be paired with the proposed ventilation systems	\$ 332,000			✓	
M13	Replace the Toilet Exhaust Fans	2021 IMC 403.1.1.2			1		Replace the toilet exhaust fans that are beyond their useful lifespans	\$ 38,000			✓	
M14	Install a Fire Ready Range Hood in the Kitchen	2021 IMC 403.1.1.2			2		Install a Kitchen hood with integral fire suppression for additional protection and air quality control	\$ 26,000			✓	
M15	Install Destratification Fans in Gym/Cafeteria	General		3			Install Destratification Fans in the Gym/Cafeteria for more even air mixing	\$ 45,000			✓	
M16	Remove Fuel Oil Tank and Install Propane Tank(s)	2021 IMC 309.1			1		Remove existing fuel oil tank near Boiler and install a propane tank to serve proposed condensing boilers	\$ 700,000			✓	
M17	Install a Remote BMS	General	4				Install a remote BMS for monitoring and control of all proposed mechanical equipment	\$ 185,000			✓	
MECHANICAL SUBTOTAL									\$ 2,882,000			
ELECTRICAL SYSTEMS												
E01	Circuit index cards for electrical panels are not per code	NEC Article 408.4(A)	4				Trace all active circuits for electrical panels and updated circuit index cards with legible permanent clear identification of every circuit.	\$ 9,000				
E02	Source of supply for electrical panels is not indicated on panels per code	NEC Article 408.4(B)	4				Trace electrical feeders for all panels and install label, indicating each device or equipment where the power originates, permanently affixed to panel and not handwritten.	\$ 4,500				
E03	Lack of lock-on device on circuit breaker feeding the fire alarm system equipment	NEC & NFPA 72 Section 10.6.5.4			1		Install a fire alarm lock-on device kit on circuit breaker feeding fire alarm equipment.	\$ 500				
E04	Electrical panels in public areas are not locked				2		Lock all panels in public areas. Replace all locking mechanisms that are not functioning properly.	\$ 500	Recommended good practice to prevent unauthorized access.			
E05	Lack of circuit breaker lock, in the on position, feeding the security system, network communications, and master intercom equipment				2		Install a circuit breaker lock, in the on position, for security system, network communications, and master intercom equipment.	\$ 200	Recommended good practice to prevent intentionally or accidentally terminating power to these systems.			
E06	General power receptacles and cover plates are in fair and poor condition	NEC Article 406.9 & 210.8(B)(1-12)			2		Test all power receptacles for proper wiring and fix as required. Replace all broken receptacles and cover plates or have loose plug-in connections. New receptacles must be tamper-resistant in all public areas and GFCI protected within 6 feet of water source.	\$ 2,000	Tamper-resistant receptacles are required by current code for major building renovation.			
E07	Lack of general power receptacles in classrooms requiring the use of extension cords	NEC Article 406.9			2		Install tamper-resistant receptacles in various locations to eliminate the need for extension cords.	\$ 3,000	This will require a study to determine the quantities required in each room.			
E08	Non-GFCI type or protected kitchen power receptacles & equipment	NEC Article 406.9 & 210.8(B)(1-12)			2		Test all power receptacles for proper wiring and fix as required. Replace all non-GFCI type or protected, all broken receptacles and cover plates or have loose plug-in connections. New receptacles must be tamper-resistant and GFCI protected.	\$ 2,000				

BAKERVILLE SCHOOL FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING				CORRECTIVE ACTION	ITIMIZED ESTIMATED COST	REMARKS
E09	Replace Interior light fixtures & non-compliant energy code controls	Energy Code	3				Replace all interior light fixtures and controls with LED fixtures and controls with dimming, occupancy, and daylight harvesting to comply with current energy codes.	\$ 185,000	Required for major building renovation only per current codes.
E10	Non dark sky & energy code compliant exterior light fixtures	Dark Sky & Energy Code	3				Replace all exterior light fixture with Full cutoff 3000K LED fixtures to minimize light pollution, glare, and light trespass to comply with dark sky and current energy codes.	\$ 15,000	Required for major building renovation only per current codes.
E11	Lack of ADA accessible exit light fixtures at accessible egress doors	ADA	4				Replace or Add ADA accessible exit light fixtures with the international symbol of accessibility (ISA) for wheelchair access at accessible egress doors.	\$ 4,500	Required for major building renovation only per current codes.
E12	Additional equipment per mechanical report	General		2			New power for additional mechanical equipment.	\$ 22,000	
E13	Mechanical and Plumbing equipment being replaced due to age per report	General			1		Demo & New power for mechanical and plumbing equipment being replaced.	\$ 2,500	
E14	Plumbing piping heat trace being added per plumbing report	General	3				New power for additional plumbing piping heat trace.	\$ 2,000	
E15	Lack of fire alarm pull stations at 2 egress doors and new monitoring for new kitchen hood	NFPA/ Life Safety Code			1		Add fire alarm pull stations at 2 egress doors, monitor module for new kitchen hood, and update programming.	\$ 3,000	
E16	Existing electrical service is not sized for air conditioning project	General		2			Demo & New electrical service upgrade for air conditioning project	\$ 130,000	Only required for major mechanical upgrade. ☒
E17	No Existing Generator	General	3				New generator and transfer switch for service upgrade and air conditioning project	\$ 60,000	Generator power is not mandated.
ELECTRICAL SUBTOTAL									\$ 445,700
TOTAL ESTIMATED COSTS								\$ 7,559,595	
15% GENERAL CONDITIONS								\$ 1,133,939	
10% OWNER CONTINGENCY								\$ 755,960	
10% ESTIMATING CONTINGENCY								\$ 755,960	
CONSTRUCTION TOTAL								\$ 10,205,453	
25% SOFT COST								\$ 2,551,363	
PROJECT TOTAL*								\$ 12,756,817	
* Escalation should be considered to be added for each additional year. We are currently tracking escalation at 6% per year.									
* Hazardous material testing, inspections and abatement was included as an ALLOWANCE and needs to be addressed by an environmental engineer. We typically do not include this scope within these types of report without one. Considering the conditions at Bakerville, we felt it was important have some type of placeholder at each school as this will potentially increase both construction and soft costs.									

LEDGEND

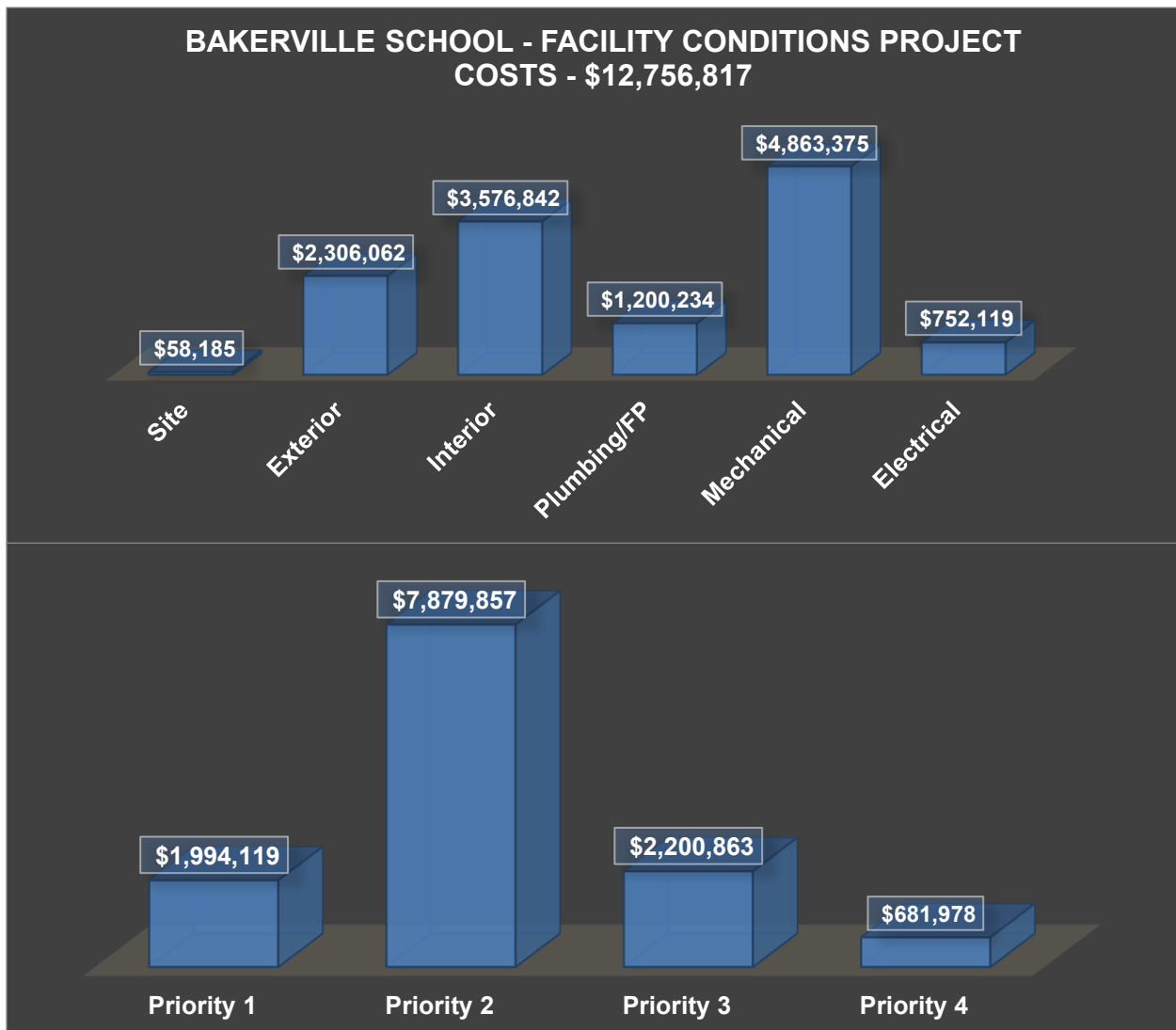
1	Urgent priority - These items should be corrected as soon as possible and most likely encompass code, health and life safety issues.
2	High priority - These items should be corrected within a reasonable amount of time after the highest priorities referenced above. These may be associated with high priority maintenance issues or accessibility issues for the physically challenged. Maintenance items have a remaining useful life from 1-3 years.
3	Moderate priority - These items may be associated with aesthetic or general maintenance issues. Remaining useful life of 3-5 years.
4	Low priority - These items include maintenance and aesthetic issues that are not in current need of replacement, but should continue to be monitored on a regular basis. These items typically have a remaining useful life of 5-10 years or greater.
☒	There may be potential state reimbursement based on the town's rate and school enrollment through the CT Department of Administrative Services Office of Grants Administration School Construction Projects for eligible projects.

Summary

The preceding pages include the spreadsheets itemizing conditions organized by category; site, exterior, interior, plumbing, fire protection, mechanical and electrical. These issues are ranked on a scale from 1 to 4 with 1 being the most urgent. Recommendations are provided to address these issues. Associated cost estimates are also prepared for the applicable items.

Bakerville School is a well-maintained building considering its age. The last major upgrades date back to 2002 when the modular building was added to the school, bringing many systems to the end of their useful life. The infrastructure systems are antiquated. These are reflected in the associated costs of the facility seen in the spreadsheets.

When evaluating the overall facility condition assessment estimate, the project totals just over \$12.7 million, can also be evaluated as \$690 per square foot. Note that this cost addresses only the line items listed within the spreadsheet, not extensive renovations, or reconfigurations to other spaces unless otherwise noted. This would further increase costs. In comparison the cost for new construction is around \$1000+/- per square foot.



NEW HARTFORD ELEMENTARY BUILDING ASSESSMENT

New Hartford School, located at 40 Wickett Street, was originally built in 1954. The building has been renovated and expanded over the years, most notably in 2004 when 3 classrooms were added. The building currently serves Pre-Kindergarten through Grade 2 with a population of 98 students and 20 staff. The buildings is 23,405 square feet.

Site

The 7.5-acre site was not comprehensively evaluated as part of this assessment; however, several site-related observations were noted during the walkthrough. There are a few items that should be addressed.



There is currently no direct accessible route from the designated accessible parking spaces to the main entrance. While an existing meandering walkway appears to achieve compliant slopes, it significantly increases travel distance and does not provide the most direct accessible connection. A direct accessible route should be provided from the accessible parking area to the primary entrance in accordance with current accessibility standards. Accessible parking signage should also be updated to meet current ADA requirements.



The courtyard does not have an accessible route. An accessible pathway should be provided.



Perimeter drainage conditions vary. Downspouts discharge inconsistently, with some piped underground and others discharging directly at grade, with or without splash blocks. The site would benefit from a coordinated perimeter drainage strategy, potentially including gravel drip edge strips, improved discharge control, and consideration of French drain systems. These improvements should be evaluated in conjunction with future roof replacement work.



Architecture

Exterior

Facades and Elevations



The original building is primarily constructed of brick masonry and is generally in fair condition considering its age. The structure utilizes a brick veneer system without an air cavity, a common construction method in the early 1950s prior to modern energy code requirements. As a result, the wall assembly provides limited thermal performance, and improving its energy efficiency is not easily accomplished without significant intervention.

The 2004 addition introduced a cavity wall system with rigid insulation, an improvement in thermal performance over the original construction. However, no visible weep holes were observed in the cavity wall system. Current standards require weep holes and through-wall flashing to facilitate moisture drainage. The absence of these components may allow moisture accumulation within the wall assembly, potentially leading to freeze-thaw damage, corrosion of embedded steel components, and deterioration of insulation performance. No active moisture distress was observed at the time of assessment; however, this condition presents a potential long-term durability concern.

The brick masonry overall has performed well. Limited areas of spalling and mortar joint deterioration were noted. Ongoing maintenance, including selective repointing and localized brick replacement, has occurred and should continue. Repointing of failing joints, replacement of spalled units, and façade cleaning are recommended to maintain long-term durability and reduce mildew growth. The ongoing maintenance will keep the brick in good shape.



Windows

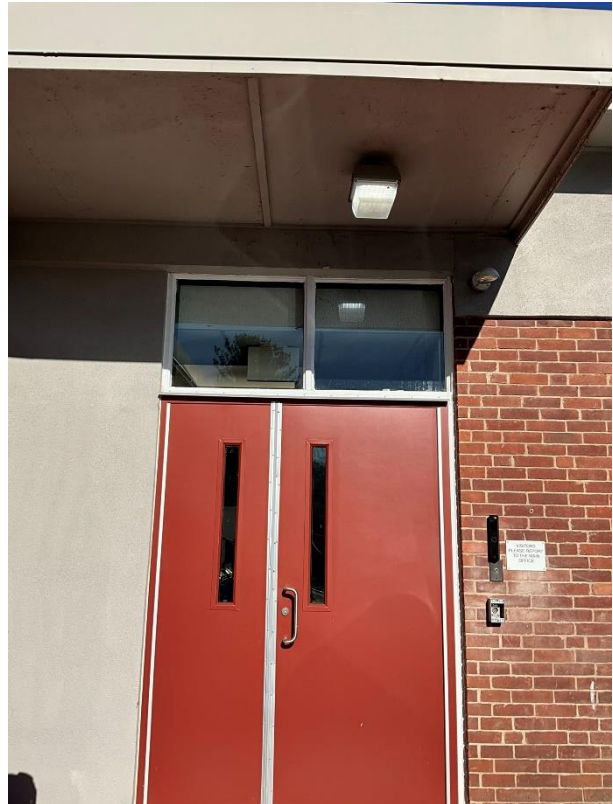
When evaluating the energy efficiency of a building, it is known that nearly 25–40% of all heat energy is lost through windows. The existing windows were replaced during the 2004 renovation and addition. Most units are double-hung systems with double glazing. The typical service life for this type of system is approximately 20–30 years.

While no major deficiencies were observed, the windows are approaching the latter portion of their expected lifespan. Exterior sealant deterioration was noted at select locations. Although localized recaulking could be performed, full window replacement should be considered in future capital planning efforts.



Doors

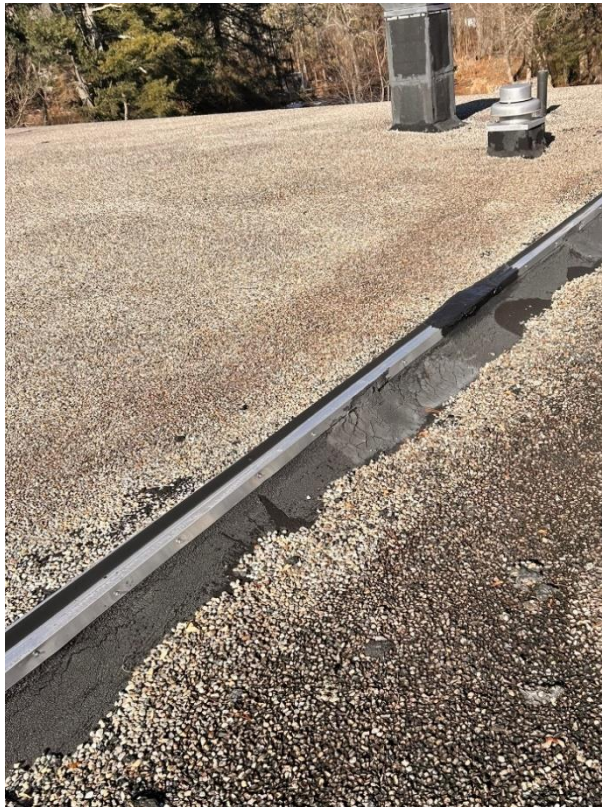
Exterior doors consist primarily of hollow metal doors and frames. Many were replaced during the 2004 renovation and 2014 security upgrades. Doors have been modified to meet accessibility and code requirements. The systems are generally in good condition. Continued maintenance, including monitoring for corrosion and repainting as needed, is recommended.



Roof

The existing roof system is a four-ply modified bituminous built-up roof (BUR) with gravel surfacing. The roof was not replaced in 2004 aside from the addition itself. The last date of replacement was likely around 1980. The roof has greatly exceeded its anticipated service life.

Gravel surfacing has diminished in areas, exposing the bituminous membrane to ultraviolet degradation. Moss growth was observed in multiple areas, indicating prolonged moisture retention. Replacement of the roof system is recommended.



Roof drainage is perimeter-based, utilizing collection boxes or gutters connected to downspouts that discharge either at grade or underground. Roof edge metal is generally in fair condition with some seams noted to be widening.

Wood soffits are in poor condition, with areas of deterioration and localized failure. One section is approaching structural failure. Replacement of soffits is recommended as part of roof work. Consideration should be given to more durable materials such as fiber cement, metal or composite in high-moisture zones.



Interior

Floors

Floor finishes consist primarily of VCT in classrooms and corridors, a traditional wood athletic floor in the gymnasium, terracotta tile in the kitchen and server, limited carpeted areas, and ceramic tile in restrooms.

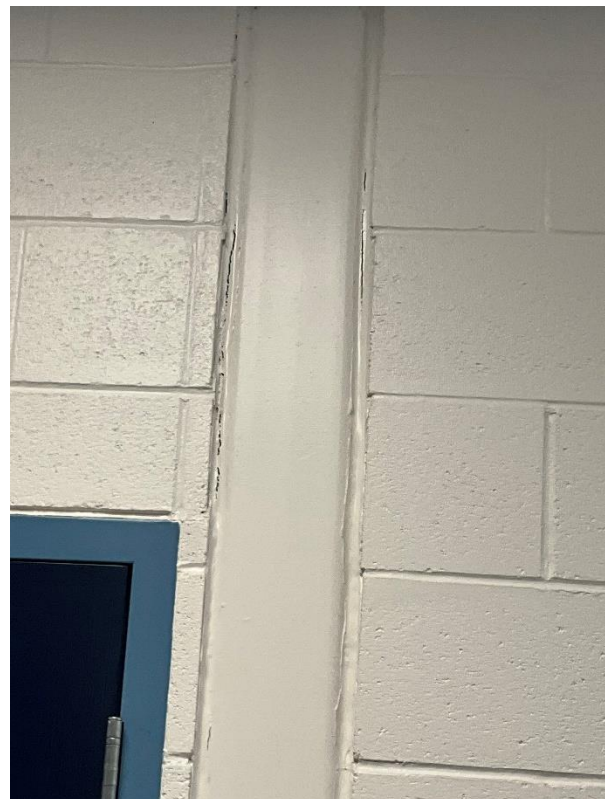
Overall, flooring is in fair to good condition. The VCT exhibits clouding and wear consistent with nearing the end of its useful life. Replacement should be considered in future renovations.

The gymnasium wood floor has been maintained; however, some widening seams and gaps were noted. A maintenance program including screening and recoating—or potentially sanding and refinishing, depending on wear depth—is recommended. Further evaluation, including moisture testing and verification of remaining wear layer thickness, is advised prior to determining final scope.



Walls

Interior wall construction varies and includes exposed and painted brick, painted CMU (concrete masonry unit), and gypsum wallboard partitions. Brick walls in corridors and the gymnasium are generally in good condition. Minor cracking was observed in the gymnasium masonry along with the basement foundation wall; while no structural displacement was evident, localized investigation and repair may be warranted. Painted CMU walls show minor joint deterioration at steel column interfaces and inside corners. Sealant replacement is recommended. Gypsum wallboard partitions are generally in good condition, with isolated damage likely associated with roof leaks. Following roof replacement, damaged areas should be repaired and repainted. Other walls such as painted gypsum wall board are in good condition. Some areas are damaged, likely due to the roof and once the roof is completed the walls should be repaired and painted.



Ceilings

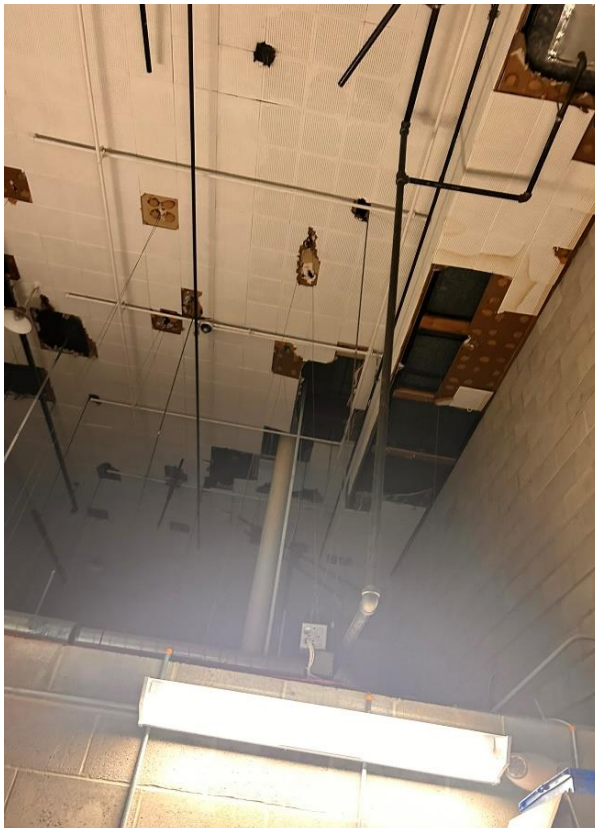
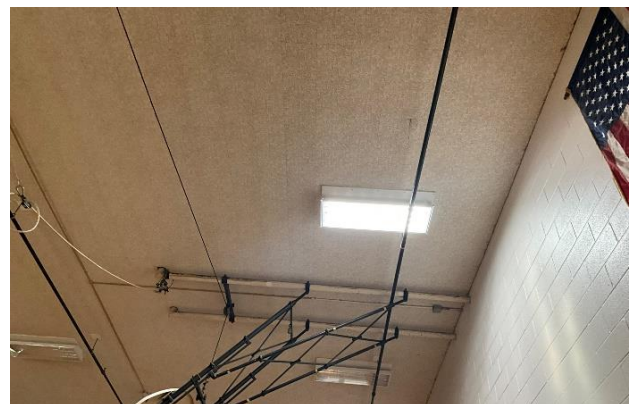


Ceilings throughout the school primarily consist of suspended acoustical ceiling tile (ACT) systems. While some areas are in good condition, numerous stained tiles were observed. This indicates active or past water infiltration most likely related to roof issues.

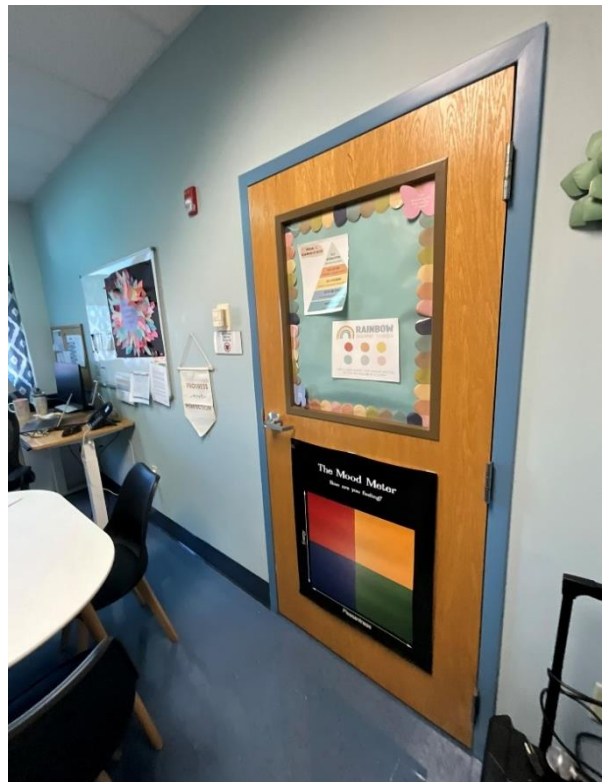
The gymnasium contains a spline ceiling system installed tight to structure. While no visible damage was noted in the gymnasium, roof replacement should include evaluation of concealed moisture conditions due to ongoing roof issues. The adjacent loft space ceiling is clearly losing tiles.

It also should be noted that older ceilings are installed to the structure above the ACT, similar to Bakerville. If roof leaks are causing these to get wet, they will begin to fall too.

Upon roof replacement, all ceilings should be reassessed, and water-damaged tiles replaced.



Doors



The interior doors consist of hollow metal and wood doors in metal or wood frames. Many doors have glazing panels that have been covered. Lever hardware has largely replaced knobs; however, limited knob hardware remains in custodial areas. These should be replaced with lever hardware to meet accessibility requirements. Doors are generally in good condition and should continue to be maintained.

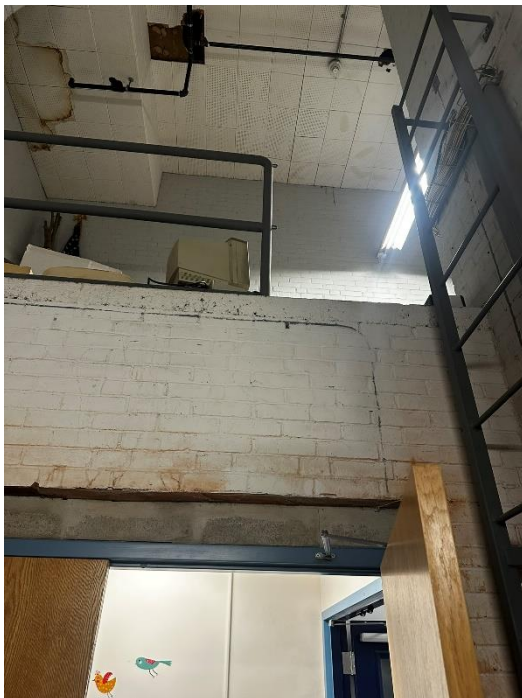
Stairs and Ramps



Stairs serving the basement mechanical and crawl space areas are industrial metal grate assemblies exhibiting corrosion. Cleaning, priming, and repainting are recommended. Handrails should be modified to provide continuous graspable surfaces in accordance with code.

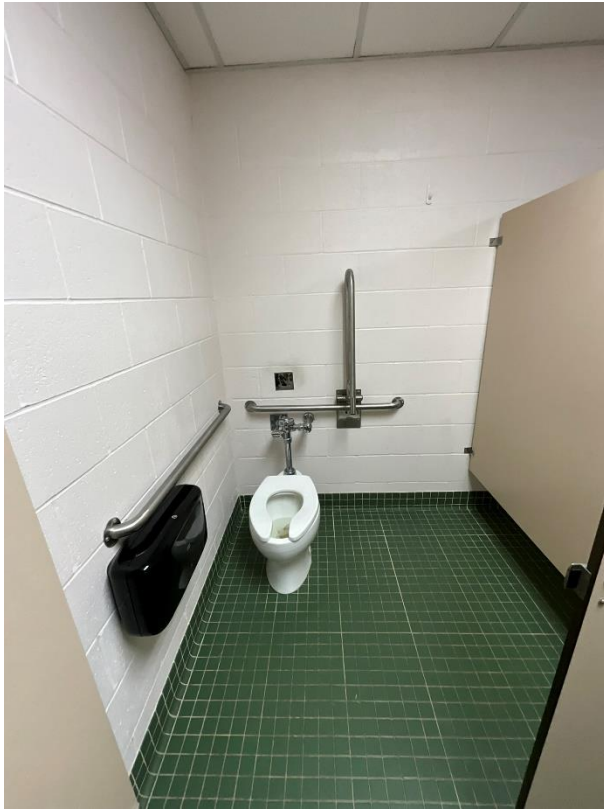
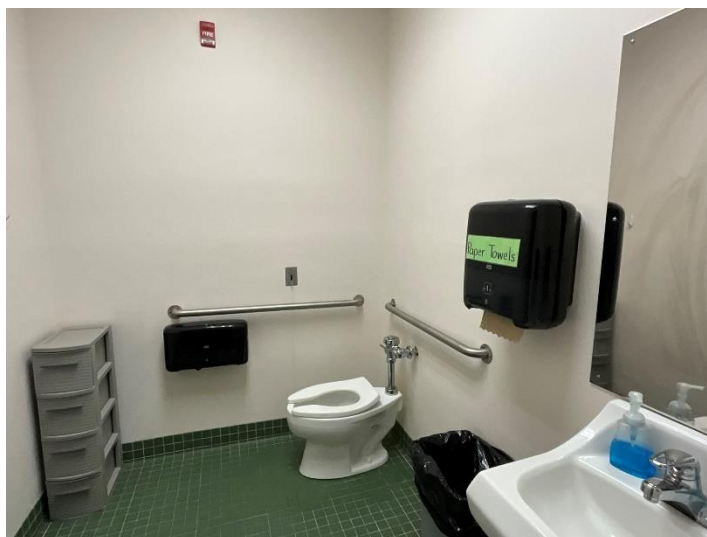
The exterior bulkhead enclosure is wood-framed and exhibits rot at areas near grade. Replacement with more durable materials such as fiber cement, masonry, composite, or metal is recommended.

The existing ladder serving the loft area is noncompliant. It lacks a compliant landing platform and appropriate transition handholds. The guardrail configuration does not meet current standards. This condition presents a safety concern and should be reconfigured to meet applicable building code and OSHA requirements.



Restrooms

There are a few restrooms throughout the facility. There is only one set of “gang” student restrooms. These were added in the 2004 project. The restrooms are in fair condition with limited issues noted. Accessible toilet compartments do not include required vertical grab bars in accordance with current ADA requirements. The swing up grab bar could be removed as it is no longer required.



Casework

Casework throughout the facility is primarily plastic laminate installed during the 2004 renovations. Cabinetry height is approximately 31 inches, which provides seated access; however, ADA standards permit a maximum counter height of 34 inches and require specific knee and toe clearances.

Some sinks provide knee space; others do not. In most instances, mounting heights and clearances do not meet current accessibility standards. These deficiencies would need to be addressed as part of a major renovation project.



Classroom storage alcoves occupy significant corners of each classroom and, in some configurations, appear to reduce instructional area efficiency. In some of the configurations the student zone appears undersized in this layout. Future renovation projects may consider reconfiguration to optimize classroom layout.



Building Code and Accessibility

While accessibility upgrades were incorporated during the 2004 renovation, the facility does not fully comply with current ADA accessibility standards. Identified deficiencies include restroom grab bar configurations, casework clearances, signage, and the exterior accessible route from parking. Signage throughout the building does not meet current ADA requirements for tactile lettering, braille, mounting height, and font standards. Replacement with compliant manufactured signage is recommended.

Egress from the courtyard technically meets the building code, however many local AHJs require additional requirements. Best practice is to provide a protected direct way out to the exterior. This would require a new corridor connecting the courtyard to the exterior. If major renovation is included this should be incorporated.



Architectural Recommendations

- Install ADA ramp at main entrance
- Provide ADA path through courtyard
- Improve courtyard egress
- Repair fascia and soffits
- Remove and replace roof
- Repair masonry chimney/masonry repointing
- Replace windows
- Replace ceilings
- Courtyard egress
- Replace floors
- Address knobs
- Modify handrails and guardrails along with ladder install ADA grab bars
- Modify casework to meet ADA
- Provide new signage
- Remove furniture from gymnasium/ add wall pads to provide safer gym time

Fire Protection

The facility is provided with a fully automatic sprinkler system with coverage throughout.

A dedicated 4" fire protection water service is installed in the crawlspace with a 4" supervised butterfly control valve. In accordance with Connecticut Cross contamination regulations, the system is equipped with a 4" double check valve assembly (DCVA) backflow preventer assembly before being routed to a 4" wet riser check valve (RCV) assembly with pressure gauge reading 130 PSI. The system is divided into two separate protection zones, one for the basement / crawlspace, the other for the main level.



The system inspection tags are dated ranging from 2024 – 2026 citing no issues. All system components are present, including main drain, fire department connection piping with check valve, etc. supervised tamper switches on valve and flow switches are provided accordingly.



A free-standing fire department connection (FDC) and alarm bell have been provided on the exterior accordingly, though required signage is not present.



Exposed upright and pendent sprinkler heads are provided in areas without ceilings. Semi-recessed sprinkler heads are provided in areas with ceilings. The currently installed sprinkler heads are UL Listed for wet sprinkler systems.

Branch piping consists of schedule 40 black steel with threaded mechanical joints and fittings, while larger mains consist of grooved mechanical joints, some weldolet fittings are utilized.

Valves, piping, and components are in good working order with little corrosion.

The kitchen hood is not provided with a fire suppression system. It is recommended to provide a pre-engineered kitchen hood fire suppression system per NFPA. The system shall be in accordance with NFPA 17A, 70, 72 & 96 and be UL listed. The system shall be a pre-engineered, wet chemical, fixed nozzle agent distribution network. It shall include automatic detection and actuation and remote manual actuation as well as automatic gas / electrical shut-off.



Recommendations

- Provide Wet chemical hood suppression system, UL listed & NFPA 17A compliant.
- Maintain & test all systems per NFPA 25 and equipment manufacturer's requirements
- Paint / touch up corroded piping.
- Provide proper signage for the FDC.

Plumbing

Domestic Water

The facility is provided with a 2" domestic water service consisting of the water meter, pressure reducing valve and canister water filter. The incoming pressure reads 120 PSI and is reduced to approximately 90 PSI via a pressure reducing valve. A cross-connection device has not been installed, but likely is not required based on the building low degree of hazard.

The service is slightly undersized for the quantity of flush valve fixtures in regard to recommended velocities during peak demand, but given diversity and adequate available water pressure no further accommodations are required.



A backflow preventer has been provided on the boiler water make up feed accordingly.

Distribution piping is copper with sweated soldered fittings. The lead (Pb) content of the existing domestic water pipe, fittings and solder is unknown, but lead-containing materials may have been used for domestic water systems during the time of construction (pre-1986).

Water Quality: Mandatory Testing (New Law): Connecticut's HB-6761 (effective 2024) requires every local/regional school board to test drinking water locations (fountains, taps) for lead and report results to CT DPH, SDE, and DAS by July 1, 2024.

Connecticut also follows the State of Connecticut Department of Public Health for lead in drinking water. The rule established a maximum contaminant level goal of zero for lead in drinking water and an action level (AL) of 0.015 milligrams per liter (mg/L) for lead and 1.3 mg/L for copper based on 90th percentile level of tap water samples.

Mandatory flushing of the lines each day may be permitted to reduce levels of lead, but replacement of piping may be required. If removal of all piping original to the building is required all new potable-water piping and components shall comply with NSF 14 and NSF 61 Annex G lead free requirements.

Water heater

The facility generates domestic hot water via redundant (qty two) mid-efficient, 40 gallon propane fired storage water heaters manufactured by State Water Heater, Proline Model GS6-40-BCS 401 (performance rated at 36 MBH with 37 gal/hr recovery @ 100° rise) each. These were recently installed (01/30/2025) with a serviceable life expectancy of 10 years. The hot water distribution system is equipped with two hot water recirculation piping loops with two circulator pumps. Aquastats are provided on each recirculation system for individual pump control. Two Thermostatic Mixing Valves are provided set to 140F & 110F, with a common thermal expansion tank. A dedicated 140F hot water loop is provided to the kitchen; the 3 bay sink receives 140F hot water while the kitchen's hand-washing sink gets reduced supply temperature via remote thermostatic mixing valve. The second hot water supply loop set to 110F serves the rest of the building.

The water heaters are atmospherically vented (Category I), deriving all combustion air from the mechanical room via outside air intake louvers. Flue gases are then vented to the exterior via the masonry chimney.



For all systems it is recommended to store domestic hot water at 140°F to reduce the growth of legionella. To eliminate potential scald hazards, provide a properly sized thermostatic mixing valve to deliver the required temperature per the following criteria:

- Master Mixer, all water heaters require external temperature controls via ASSE 1017 Thermostatic mixing valve to reduce hot water from 140°F to 120°F.
- Hand washing lavatories (bathroom groups) require Tempered water via ASSE 1070 Thermostatic mixing valve to provide 105°F – 110°F water.

- Emergency Fixtures (eye wash & showers) require Tepid water via ASSE 1071 Thermostatic mixing valve to provide 70°F - 90°F water.

All public hand-washing lavatories shall meet the IECC requirements for Efficient Heated Water Supply Piping by either incorporating a hot water recirculation loop routed within two feet of each fixture and/or by providing electric heat trace on all hot water piping serving the lavatories. Self-actuating thermostatic balancing valves shall be incorporated to control flow rates to each circuit when the recirculation method is utilized.

Sanitary

The building is provided with a sanitary and vent system piped throughout the facility in support of all plumbing fixture drainage. Per available plans, the building sewer is drained via gravity to the municipal sewer system, with all vent terminations to atmosphere.

No hub cast iron sanitary piping with mechanical couplings have been provided for the 2004 addition, while the original building is hub and spigot cast iron drainage piping. A pedestal sump pump is located in the lower mechanical room serving floor drains. A submersible sump pump serves the Fire Protection's main drain within the crawlspace.

There are no additional apparent code deficiencies although it is recommended to maintain water trap seals on floor drains to prevent sewer gas from escaping (that do not normally see use, i.e. mechanical room, ancillary drains, etc.) by installing a retrofit trap barrier device.

It is recommended to snake all floor drain and below slab sanitary and waste piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations for future connections. Cut in new cleanouts with required fittings where required by code to facilitate cleaning.

Kitchen

The school is provided with a light commercial kitchen, classification is currently undetermined, with fixtures consisting of a 3-bay sink, dishwasher and ware washer with direct sanitary connections. A grease trap was not provided. Electric heated cabinet warming trays were also provided.



A propane fired range / oven has been provided with a kitchen exhaust hood (type unknown), though a Dry Chemical Fire suppression system has not been provided.

Based on information provided by the facility staff, the kitchen is for warming only, although to determine compliance with current codes, it is recommended to verify corresponding kitchen classification (I, II, III, or IV).

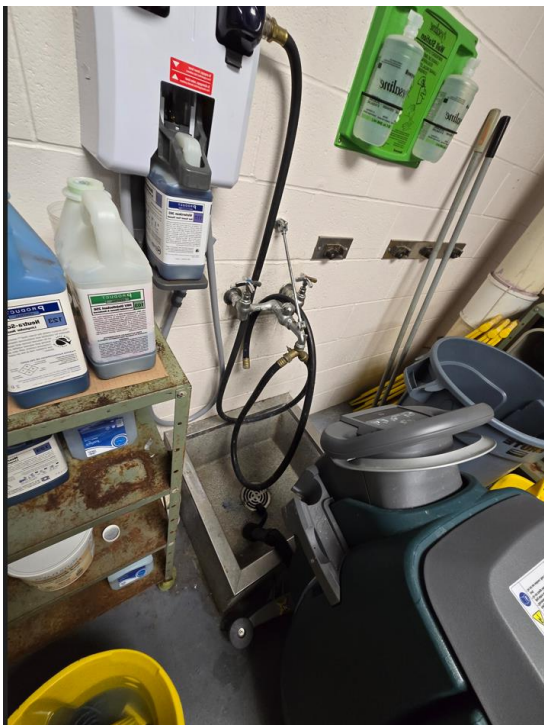
Though likely not required, a properly sized Automatic Grease Recovery Unit (AGRU) which automatically skims grease into a separate container in support of the kitchen sink's waste piping may be needed. This will ensure effluent discharge levels not to exceed 100 ppm (100 milligrams per liter).

Additionally based on determined classification, verify if there are other requirements needed to comply with the CT Public Health Code (i.e. hand-washing requirements, pot & utensil sanitization requirements, emergency gas range / oven shut off interface with exhaust hood requirements, indirect waste requirements, etc.).

Plumbing Fixtures

Plumbing fixtures are provided throughout the facility in standard and ADA configurations. Fixtures are commercial grade and are comprised of floor mounted water closets with manual flush valves, wall hung urinals, wall mounted lavatories, classroom sinks, drinking fountain with bottle filler, dual and single type, mop sinks, etc. Some fixtures were installed in recent renovations while others appear original to the building's construction. Classrooms have sinks and the art room is provided with a point of use plaster trap.

Multiple mop sinks with chemical dispensers have not been provided with a backflow preventer as required by code.



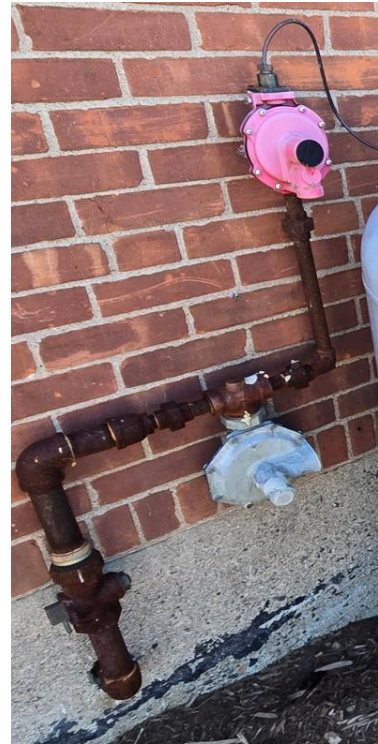
Remove and replace fixtures per the new architectural program. Provide standard and ADA low flow fixtures per International Plumbing Code and State standards. Accessible ADA fixtures will be provided and set in accordance with the applicable codes. Provide new hot water, cold water, sanitary and vent services to new fixtures as indicated in the new Architectural layout. Provide complete with trimmings and fittings, including faucets, carriers, supplies, stops, traps, tailpieces, waste plugs, casings, hangers, plates, brackets, anchors, supports, hardware and fastening devices.

New low flow fixtures shall be water closets at 1.6 gallon per flush (gpf), Urinals at .125 gpf, and hand-washing lavatories at 0.5 gallons per minute. Water closets, urinals and lavatories will be fabricated of vitreous china. Urinals will be wall-hung with floor-mounted carriers, and will utilize manual flush valves. Water closets will remain floor mounted with flush valves. Lavatories will also be wall-hung with floor-mounted carriers and will utilize dual handle faucets.

Fuel Gas

The facility is provided with three (3) 120-gallon vertical propane storage tanks feeding the domestic water heaters and kitchen's range / oven, the tanks are property of Hocon Gas of Torrington, CT.

Exterior piping is unpainted threaded Sch. 40 black steel and is heavily corroded. Interior piping is the same material, just not corroded.



The second stage regulator with additional service regulator has been provided and installed adjacent to the tanks.

Storm

The flat roof has no roof drains nor internal storm piping with the exception of the addition. The original building roof is flat but is pitched to scuppers and leaders which spill to grade with splash blocks.



Radon

Provisions for active radon mitigation have been provided in the basement and crawlspace of the school via multiple 4'x4'x8" deep vented pits. Four (4) 6" PVC radon exhaust vent pipes are routed from each below slab pit to multiple exterior Radon roof exhaust fans. The discharge of the radon fans terminate above the roof line. Radon fan manometers were not observed but radon pressure differential pressure transducers were installed.



Recommendations

- The water supply should be tested for lead content and remediated as required.
- Provide new and continuous pipe insulation (per IECC requirements) on existing and new pipe, insulated with 1" minimum thickness fibrous glass insulation and pre-formed fibrous glass fittings with fire retardant vapor barrier jacket.
- Provide ASSE 1070 rated thermostatic mixing valves on all handwashing lavatories throughout.
- Provide means of hot water temperature maintenance serving lavatories per IECC requirements.
- Snake all sanitary drains and below slab sanitary piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations for record. Repair damaged piping as necessary.
- Provide trap seal barrier on existing floor drains to prevent traps from drying out.
- Provide an automatic grease recovery unit if required.
- Review with local Health Department if the 3 bay sink is required to have indirect waste connections per code.

- Replace legacy Plumbing fixtures with new per Architectural program.
- Provide gas piping, fittings, hangers, regulators, etc. in support of proposed HVAC equipment, underground propane tank under the Mechanical division.
- Provide condensate piping, fittings, insulation, hangers, etc. in support of proposed HVAC equipment
- Provide a backflow preventer on two mop sink's chemical detergent supply lines.
- Paint all exterior propane piping corrosion resistant per NFPA.
- Continue to test for radon per CT regulations.

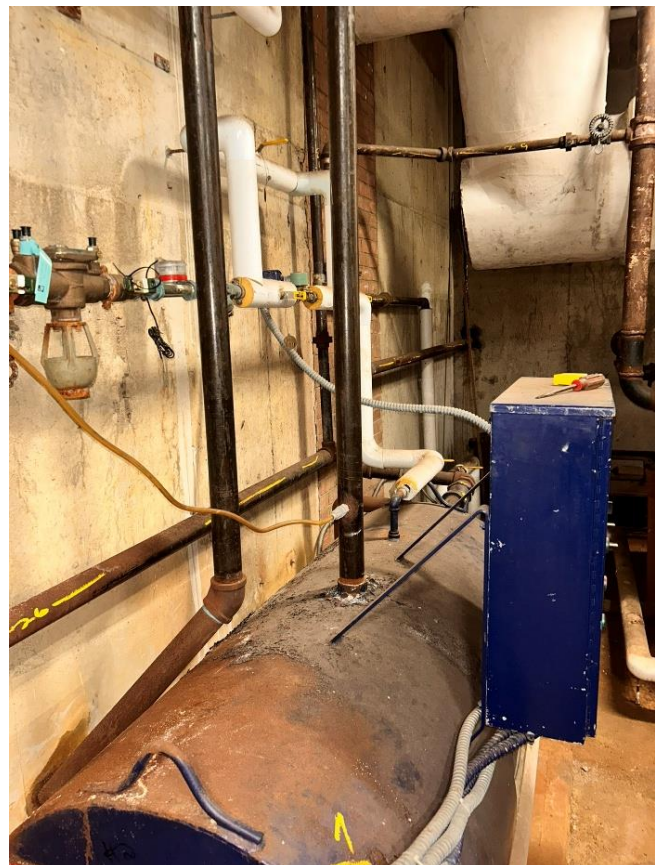
Mechanical

Boiler Plant

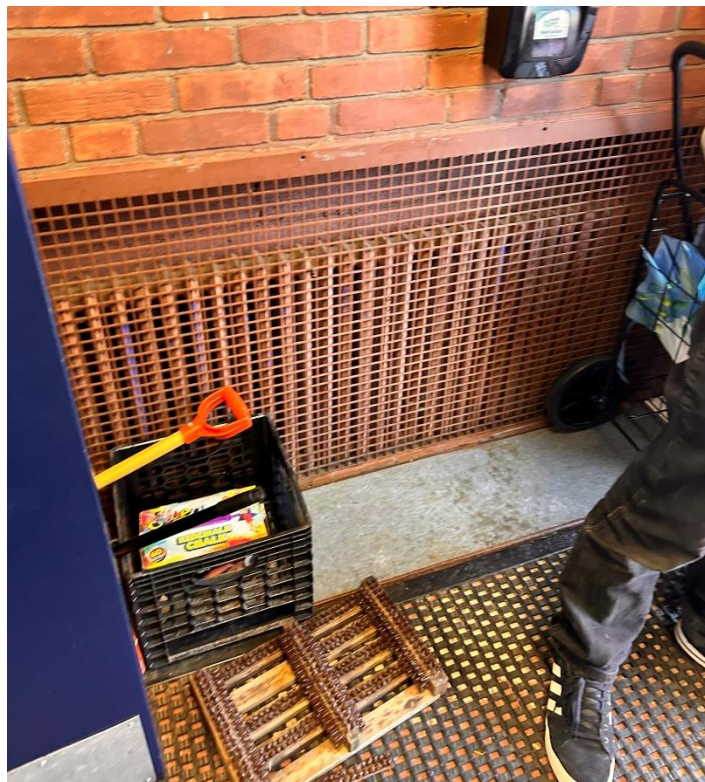
There are two (2) fuel oil fired steam boilers that are in the basement and serve low-pressure steam throughout the school. The Burnham boiler is in good visual condition though the burner is in poor condition and being supported by a masonry block. The older boiler is in fair condition with obvious areas of rust and aging. The burner is also in poor condition. Much of the piping in the boiler room is in poor condition and uninsulated. The condensate recovery system is also in poor condition including the recovery tank and pumps. There are clear areas of rust, dust and lack of insulation. The system is likely inefficient due to the lack of insulation and damage to piping. There are also many areas of clear pipe damage from steam, condensate and chemicals.







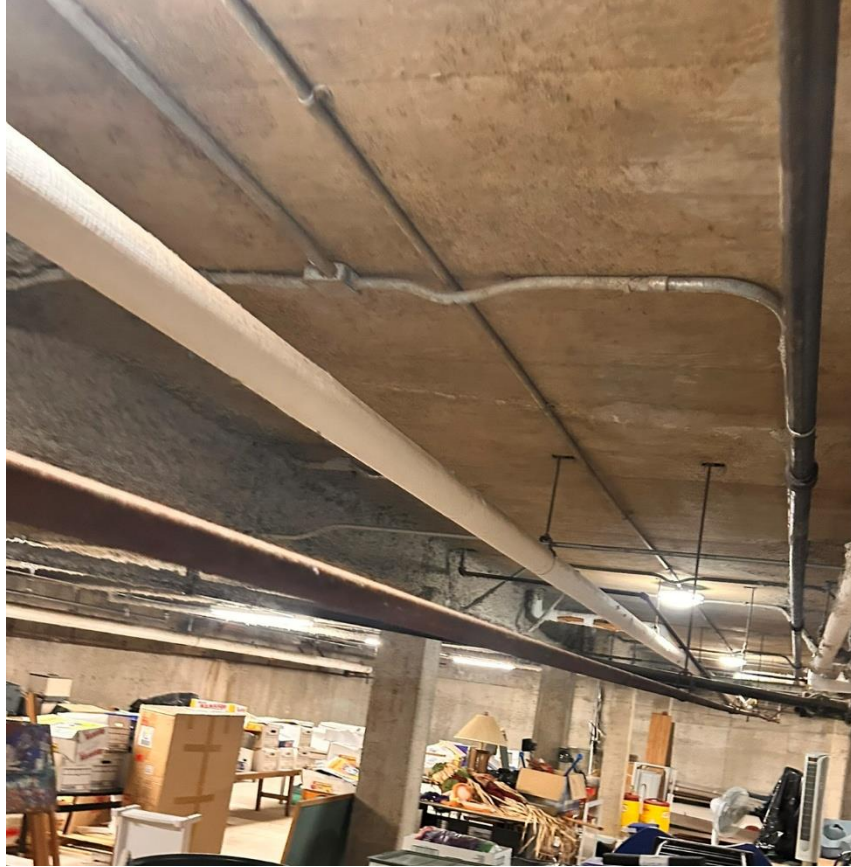
Steam systems can have several potential issues including steam and condensate leaks, steam trap failure, pipe corrosion, and significant heat losses which all affect the performance and efficiency of the system. SP+A observed several areas where steam traps were whistling likely due to failure and steam leaking by them. The terminal equipment, such as the radiators and finned-tube, are also in poor condition.





There are several sections of condensate piping in the basement that are uninsulated or have poor and damaged insulation and are losing a significant amount of heat, reducing the steam system efficiency.



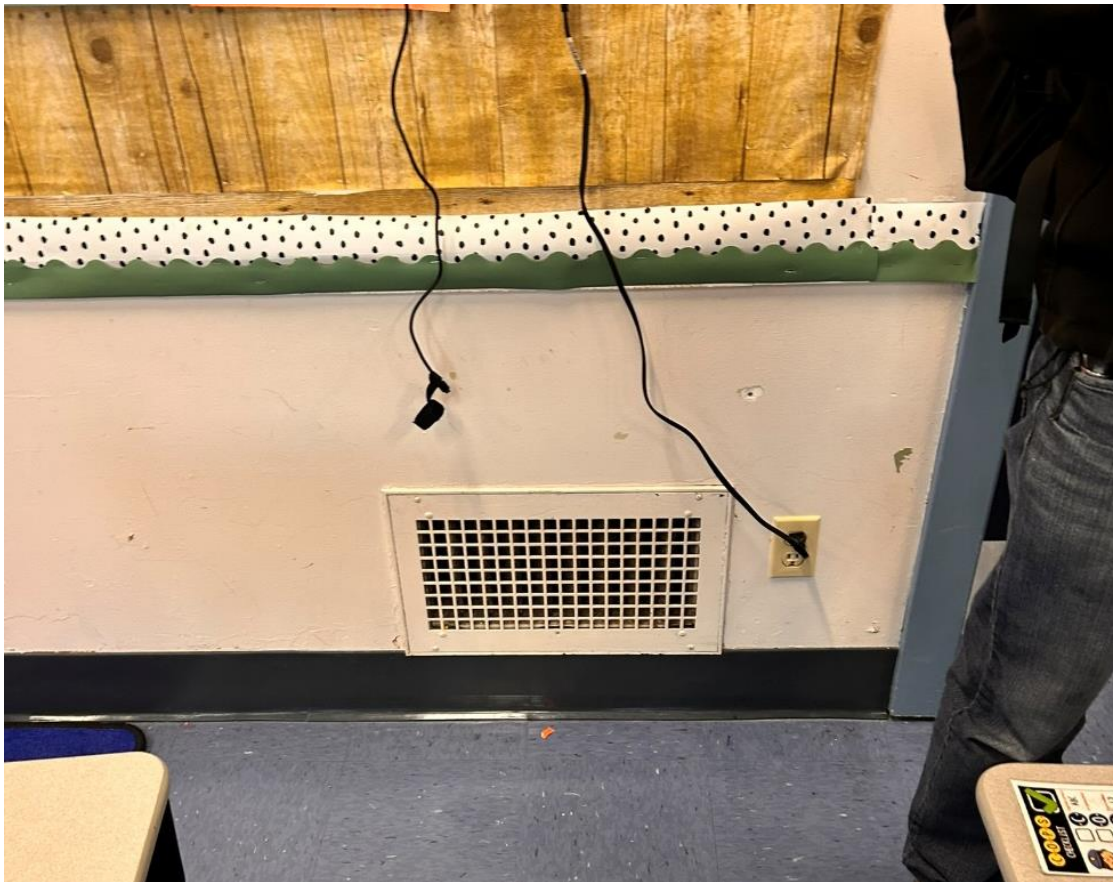


SP+A recommends replacing the boilers with propane-fired condensing hot water boilers which would include replacing the boilers, terminal equipment and piping. It would also include provisions for increased propane consumption. Propane fired, condensing boilers are more efficient than the cast iron sectional type because they recover heat from the flue gases.

This work will include the demolition of the condensate recovery system including the piping, pumps and recovery tank, and insulating the proposed hot water system with energy code compliant insulation including insulation jackets for the fittings.

Ventilation and Air Conditioning

The primary source of ventilation in the school is a series of rooftop exhaust fans that are connected to ceiling and low wall grilles.

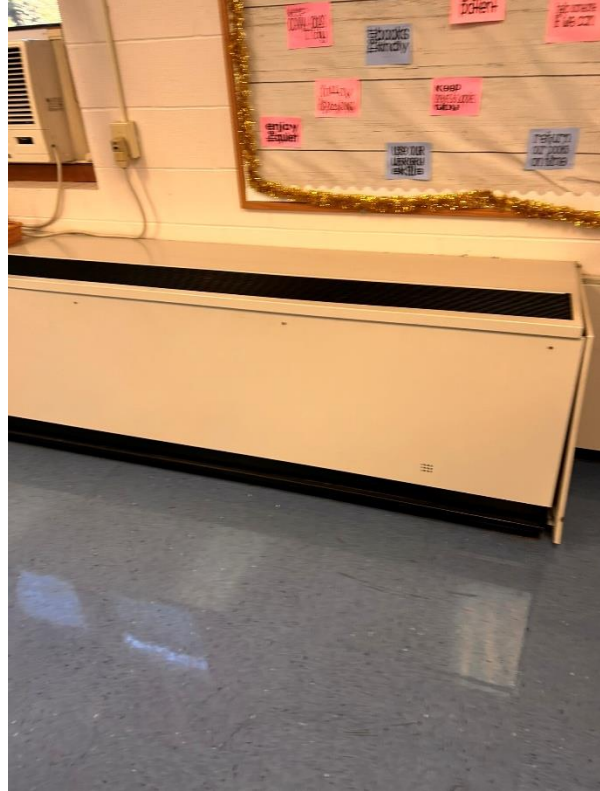




The exhaust fans are all mounted on the roof and in fair condition. SP+A was informed that approximately 33% of the exhaust fans were not operational at the time of the site visit. There is some visible damage on some of the fans as well as rust. SP+A was informed of a planned roof replacement as well.



There are also unit ventilators in rooms such as the media center and the nurse's office that are in fair condition. There are also several window unit air conditioners used throughout the building. Unit ventilators are not generally recommended in terms of ideal ventilation units because they typically return air through the bottoms which draws dust and debris from the floor across the room, require frequent lifetime maintenance and they rarely meet the noise criteria requirements



of the State code. On the exterior, SP+A observed some unit ventilator outdoor grilles are covered with wood which both blocks their outdoor air intake capacities when they are running while allowing air leaks when they are not. This may have been used either for an abandoned unit ventilator or an existing unit ventilator with broken damper controls.



SP+A recommends removing and capping all exhaust fans and unit ventilators that serve the classrooms and offices and replacing them with dedicated outdoor air systems (DOAS) and packaged rooftop units. The DOAS can be sized to only serve the classrooms and offices the code required amount of ventilation air. The DOAS can be packaged to handle the heating and cooling of the ventilation air so it would be conditioned as opposed to the unconditioned air currently entering through the windows. DOAS generally have smaller ductwork sizes as well since the only air delivered is the fraction that constitutes code required ventilation. Potential areas for installation of the DOAS include: the perimeter of the building, the crawlspace area and the roof. The packaged rooftop units can serve the offices, Gymnasium and Media Center, to control air flow, temperature and humidity in those spaces.

SP+A recommends installing Smart IAQ technology in each classroom and office to decrease the amount of outdoor air required. Smart IAQ units are designed to thoroughly clean the existing room air of several particulates and airborne chemicals, which decreases the amount of outdoor air needed since the room air would be cleaner from this treatment. This can potentially lead to the potential of a smaller boiler plant, smaller DOAS and smaller ductwork.

SP+A recommends installing variable refrigerant flow (VRF) heat pumps to serve heating and cooling to all the classrooms and offices. Heat pumps add and remove heat from the spaces they serve depending on the need of the space. They can be ducted, ceiling mounted or floor mounted depending on the space available in the rooms. Location and electrical provisions will have to be made for the outdoor units.

For the Offices, Gymnasium and Media Center, SP+A recommends installing packaged rooftop units in each area to serve ventilation air as well as heat and cool the space.

For the Gymnasium, SP+A recommends installing destratification fans on the ceiling as well which are used for mixing air and aiding in even coverage of heating and cooling within the space.

SP+A recommends replacing the toilet exhausts and setting up controls for them to turn on only when the toilet room is occupied to save energy instead of continuous operation.

Controls

SP+A was not informed of a remote building management system (BMS) that controls and monitors the mechanical equipment. For future consideration, SP+A recommends installing a BMS to efficiently serve the school and monitor all equipment such as the recommended condensing boilers, pumps, DOAS, VRF equipment, exhaust fans, fin tube radiators, etc. The remote control and monitoring of the equipment can allow for faster equipment diagnostics and more frequent preventative maintenance. SP+A recommends installing a BMS with historic data logging and trend data analysis which can aid in future energy reduction studies.

The Kitchen has a commercial-grade grease vent hood that is in fair condition and exhausts air to the exterior of the building. There is no evident fire suppression system integral to the vent hood which would be used to contain cooking related fires and increasing kitchen safety.

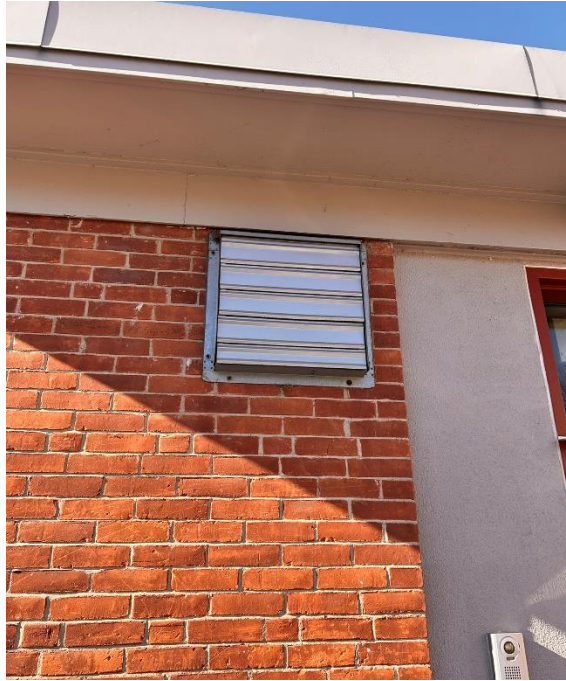


SP+A recommends replacing the kitchen hood with a new hood with integrated fire suppression system for extra safety in the cooking area. The unit can include fire detection for emergency situations as well as a propane disconnect in the event of a detected fire.

Recommendations

- Install two (2) propane fired condensing hot water boilers
- Replace the hot water terminal equipment (radiators, unit heaters, etc.) to be sized and compatible with the proposed condensing boiler system
- Remove and cap all classroom exhaust fans that are relied on for ventilation
- Install Dedicated Outdoor Air Systems (DOAS) to serve the classrooms with only the code required ventilation air
- Install an RTU for the Office area
- Install a makeup air unit for the Kitchen
- Install a rooftop unit for the Gymnasium
- Install destratification fans in the Gymnasium
- Install Smart IAQ technology in each classroom to clean the air and potentially reduce the amount of ventilation air required in the spaces
- Install Variable Refrigerant Flow (VRF) heat pumps to heat and cool the spaces

- Replace the toilet exhaust fans with new fans that are controlled to run based on occupancy



- Install a fire ready range hood in the kitchen to create kitchen air movement as well as the ability to suppress small fires and cut off the propane gas supply in the event of an emergency
- Install a remote BMS that can control and monitor all installed equipment (boilers, DOAS, pumps, radiators, etc.) and operate it at peak efficiency

Electrical

General

This assessment reports existing electrical conditions and code violations observed during a walkthrough survey and evaluates equipment lifespan and potential remedial alternatives to improve existing electrical conditions and code compliance. The evaluation was based on visual observation, and therefore, electrical components, equipment, and wiring were not inspected or tested for performance.

Distribution

The building is served by an underground 400A, 208Y/120V, 3 Phase, 4-Wire electrical service which originates from pole-mounted utility transformers on Eversource pole #1048 located on Black Bridge Road. From the secondary of the utility transformers the electrical service transforms down to 208Y/120V, 3 Phase, 4-Wire underground into the main disconnect switch rated at 400A, 208Y/120V, 3 Phase, 4-Wire with the utility meter located in the basement. The main switch feeds an adjacent 400A, 208Y/120V, 3 Phase, 4-Wire main distribution panel that feeds multiple panels and equipment located throughout the facility. The main distribution panel and some panels, manufactured by Federal Electric Products, are in poor condition and replacement parts may not be readily available. There are also several newer panels, manufactured by General Electric, that replaced existing panels and appear to be in good condition. The electrical panels in the common area corridors were not locked and can be accessed by non-authorized personnel. The circuit breakers serving the fire alarm system, security system, and network system are lacking lock-on breaker devices.



Generator

There does not appear to be a generator on this site.

Power

Receptacles throughout the facility consist of both recessed and surface mounted units. The condition of the power receptacles throughout the facility varies from good to poor condition. Most occupied rooms appear to utilize window A/C units based on the 20A, 125V, 1-Phase receptacle mounted adjacent to windows. There are several outlets within 6' of a water source that are not GFCI type or not labeled GFCI protected. Disconnect switches for mechanical & plumbing equipment appear to be in fair to poor condition. There is exposed wiring in junction/back boxes without cover plates in several classrooms. There does not appear to be any "call for aid" for single stall toilet rooms or emergency shut-off push button at kitchen egress doors for shut-off of gas to cooking equipment. There was no visible sign of any older wiring with cloth insulation.



Lighting

The interior lighting throughout the classrooms, offices, and corridors consists of mostly 2'x4' recessed fixtures with LED lamps in either parabolic or acrylic lens style. The Gym/Cafeteria has 4' surface mounted high-bay LED lamp fixtures with wire guard protection. Most fixtures throughout the facility were originally fluorescent and have been retrofit with LED lamps and drivers. The classroom lighting fixtures are controlled via a combination of ceiling occupancy sensors and single pole toggle switches for dual switching of inner & outer lamps. The corridor lighting controls are via a combination of ceiling occupancy sensors and 3-way toggle switches at each end of corridors. The utility rooms, basement, and crawl spaces have industrial fixtures with LED lamps and manual single pole toggle switches. The building exterior perimeter light fixtures are a mix of full cutoff wall mounted LED fixtures, wall pack LED fixtures, surface mounted fixtures with LED Lamps, controlled via timeclock. These appear to be in fair to poor condition. There is a photocontrol sensor on the exterior wall that we were told was not in use and abandoned.



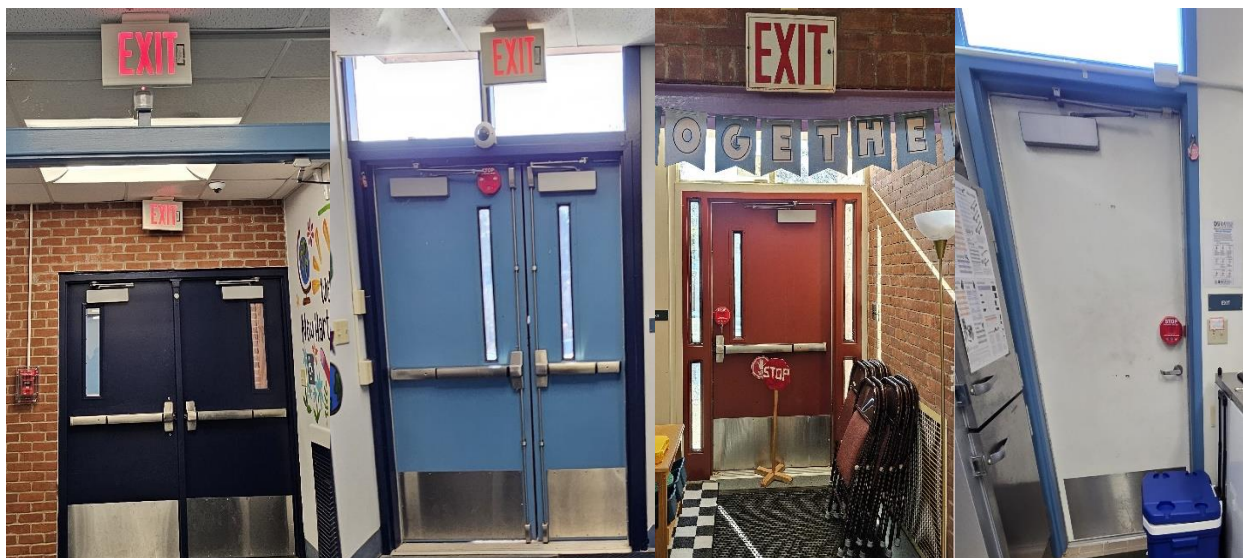
Emergency Lighting

The emergency lighting consists of mainly wall and ceiling mounted twin head battery units with a remote head on exterior wall at egress doors. These fixtures appear to be in good condition and appear to be adequate quantities to meet the egress lighting requirements but should be verified for proper coverage. There does not appear to be adequate emergency lighting per code next to or above on exterior of egress doors along paths of egress to grade.



Exit Signs

The exit light fixtures are LED with thermoplastic housing throughout the facility. There appears to be no exit light fixture at some egress doors. Most exit light fixtures appear to be in good condition.



Fire Alarm

The building addressable fire alarm system is manufactured by Edwards System Technologies and is in good condition. There are pull stations at egress doors, smoke detectors throughout the corridors and unoccupied rooms, as well as notification devices throughout the facility. Fire separation doors with mag door hold open devices are wired into fire alarm system for release upon fire alarm activation. Most devices appear to be in good condition. Several egress doors did not have pull stations.



Telecommunications and Audio/Visual

There is a main network rack located on an open mezzanine above gym/café storage. This area is not enclosed and temperature controlled suitable for data networks. Network and wi-fi equipment appear to be regularly upgraded and no significant issues were reported. The building is served by a new cloud-based VOIP telephone system which was installed in 2024. The intrusion detection system manufactured by Gemini and serviced by Associated Security has been upgraded, but many old sensor devices have been abandoned. Video surveillance cameras and access control are by Verkada. These are in good condition. The building has a lockdown system with panic buttons accessible to staff. The Master Clock Control Bell Ringer panel manufactured by Lathem is active and in poor condition. The public address system is reported to be fully operational but is at least 15 years old. Promethean interactive instruction boards are installed in all classrooms and are in good condition.



Recommendations

Distribution

The 400 amp main service disconnect switch, 400 amp main distribution panel, and (3) panels should be replaced due to the manufacturer “Federal Electric Products” no longer exist and replacement parts will be difficult to procure or not available. All other panels manufactured by General Electric are still supported by the manufacturer and replacement parts are available. All electrical panels in public areas should be locked. Lock-on devices should be installed on all circuit breakers serving security system panel and devices, all network communications equipment, and master clock control bell ringer panel to prevent being shut off accidentally or intentionally by non-authority. All branch circuits in panels should be traced to verify load descriptions and update typed panel circuit directory. This process will help in problem solving of future electrical issues that may arise. All circuit breakers with no branch circuit wiring should be turned to off position and labeled “spare” on panel circuit directory. While further verification with a preliminary HVAC design will be required to confirm the existing service capacity sufficiency, it appears unlikely that the 400 amp service would be capable of serving a full building air conditioning project. The existing main panel would need to be replaced or supplemented, and this cost has been included in the project estimate.

Generator

Generator power is not code-mandated for the building but could provide several valuable purposes if added. These include protecting the water distribution from freezing and guarding against refrigerated food spoilage during a long outage. A generator could also provide for more orderly dismissal of students during power outage events. The cost of this item could vary significantly based on the loads requiring backup power. The attached cost allows for a generator to back up the entire building.

Power

Tamper-proof receptacles should be considered in classrooms, offices, and corridors as required by the current NEC. The use of extension cords to reach electrical loads from receptacles is a Code violation. Additional receptacles, with a dedicated new branch circuit, should be added to

each room in locations as required. Disconnect switches for mechanical, plumbing, and kitchen equipment should be replaced with the replacement of equipment.

Lighting

While the LED retrofit condition provides reasonable energy efficiency, the housings are nearing the end of their useful life and additional efficiency could be achieved with the installation of all new LED fixtures. Full replacement of the interior lighting should be considered, especially if an upcoming project is planned which would require removal of most existing ceilings. Such a lighting replacement would provide further improvement in lighting efficiency and allow for incorporation of enhanced lighting controls with dimming and daylight harvesting. The attached estimate includes a full replacement of the interior lighting and exterior lighting.

Emergency Lighting

A detailed review of the existing emergency lighting coverage should be done. As noted, there appear to be areas with no coverage or insufficient coverage, and these should be addressed as soon as possible. The installation of multiple twin-head battery units would be the most cost-effective solution, and this has been included in the attached estimate. Also, monthly testing and replacing of emergency light fixtures upon test failure. Emergency light fixtures should be numbered along with a log indicating tested and replacement/installation dates. If the interior lighting replacement noted above takes place, a superior emergency lighting solution could be included as work of that project, including central inverter units provide emergency backup power to some of the normal light fixtures as required for emergency egress coverage or battery pack units integral to these new normal light fixtures. Suggest adding a few exit and emergency light fixtures in large crawl space areas where sprinkler main and servicing of mechanical equipment are located.

Exit Signs

LED exit light fixtures will need to be added to cover code requirements where exit light fixtures are currently missing at egress door exits. ADA/accessible LED signage will need to be added to cover current code requirements at all exterior accessible egress doors if renovations are planned to be made to the facility.

Fire Alarm

The existing Fire-Lite fire alarm control panel should be capable of serving the building for the foreseeable future, but the EST2 panel has been discontinued by the manufacturer. It is recommended that the panel be replaced within the next 10 years. Suggest adding pull stations at bottom of egress stairs in basement and a few notification devices in large crawl space areas where sprinkler main and servicing of mechanical equipment are located and serviced.

Telecommunications

Based on observation of the main network rack location, the room should be enclosed and climate controlled for best performance and to prevent premature equipment failure.

Electrical Code Violations

- Lack of EPO at kitchen egress doors for gas shut-off serving cooking equipment.

- Lack of lock-on device on circuit breaker feeding the fire alarm system equipment. Code requires that the breaker must have a lock employed to prevent accidental or intentionally by non-authority.



Lock-on Device



Lock-on Device Kit

NEW HARTFORD ELEMENTARY FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING					ITIMIZED ESIMATED COST	REMARKS
			4	3	2	1	n/a		
SITE CONDITIONS									
S01	There is no direct ramp to the main entrance	413.6 (ADA) 1101.2 (IBC) ANSI 117.1			2			\$ 16,000	✓
S02	There is no accessible path in the courtyard	413.6 (ADA) 1101.2 (IBC) ANSI 117.1			2			\$ 3,960	✓
S03	Most downspouts are not piped away from building and some areas have no downspouts - creating wet areas around building (lots of moss)	General		3				\$ 12,360	✓
SITE SUBTOTAL									\$ 32,320
EXTERIOR CONDITIONS									
A01	Wood fascias soffits and roof trim are rotting, or paint is failing	General				1		\$ 16,480	Hazmat potential - There may be lead, asbestos or PCBs ✓
A02	Roofs have exceeded useful life	General			2			\$ 1,064,745	Hazmat potential - There may be lead, asbestos or PCBs ✓
A03	Gutters and soffits are in fair condition	General			2			\$ 25,400	✓
A04	Brick is spalling or mortar is in need of repointing	General		3				\$ 50,000	Allowance
A05	The chimney masonry is in need of repair	General			2			\$ 7,200	
A06	School windows are approaching useful life	General		3				\$ 327,250	Hazmat potential - There may be lead, asbestos or PCBs ✓
A07	Siding at the crawl space bulkhead (hatch) is deteriorating	General		3				\$ 2,400	
EXTERIOR SUBTOTAL									\$ 1,493,475
INTERIOR CONDITIONS									
A08	Egress from the courtyard does not provide a protected direct way out to the exterior. Although not directly dictated by code, it is best practice and often required by AHJs when enclosed courtyards are occupied by students	Safety	4					\$ 715,000	✓
A09	Exterior walls have poor energy properties	General	4					\$ 103,000	✓
A10	VCT flooring is nearing the end of its useful life	General		3				\$ 378,760	Hazmat potential - There may be lead, asbestos or PCBs
A11	Masonry walls at gymnasium have some minor cracking	General		3				\$ 16,000	

NEW HARTFORD ELEMENTARY FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING			CORRECTIVE ACTION	ITIMIZED ESIMATED COST	REMARKS	
A12	Some caulk joints at steel columns are failing	General	3			Remove and replace	\$ 1,440		
A13	Some walls have failing paint	General	3			Paint (after roof repair)	\$ 9,000		
A14	Many ceilings have stains or older ceilings above falling and causing damage	General		2		Once roof is replaced, remove old ceilings and replace with new 2x2 ACT ceilings	\$ 234,050	Hazmat potential - There may be lead, asbestos or PCBs	
A15	Some doors lack push and/or pull maneuvering clearances and do not meet code.	413.6 (ADA) 1101.2 (IBC) ANSI 117.1		2		Modify the door openings/ enlarge alcove and change door swings. Provide new door with lever handsets and hardware	\$ 20,000		✓
A16	Some door hardware is not accessible. Knob handles require grasping and twisting.	4.13.9 (ADA) 404.2.6 (ANSI 117.1)		2		Remove door locksets and install new accessible lever handle locksets where designated.	\$ 4,000		✓
A17	There is no guards rails or handrails at the basement stairs	505.10 (ADA) 1012.8 (IBC) A117.1 (ICC)		2		Provide compliant handrails and guard rails	\$ 2,400		✓
A18	The guardrail is not compliant at the loft space	505.10 (ADA) 1012.8 (IBC) A117.1 (ICC)		2		Weld on additional rails	\$ 2,100		✓
A19	Ladder access to the loft is not compliant	IMC 306.5/ OSHA 1926.10 53		2		Replace with complaint system	\$ 2,500		✓
A20	The required toilet grab bars are not installed	(B)1108.0 (ANSI A117.1) 603-606		2		Install code required grab bars	\$ 3,500		✓
A21	Casework through the school is not compliant due to its height or configuration: insufficient knee space provided at sink	ADA 606 4.32 (ADA)		2		Provide accessible sinks and workstations per ADA Section 4.32. 27" high x 30" wide x 19" deep.	\$ 45,000	(Assumes 6 locations)	✓
A22	Classroom signage is not compliant	ADA 703		2		To meet ADA standards, the signage must be between 48 and 60 inches from the ground, the size of the signage, font size, and braille must be included throughout. Provie new throughout the school	\$ 21,000		✓
A23	Gymnasium has limited wall padding and has lots of furniture at the perimeter	Safety	4			Install protective wall padding throughout and remove furniture	\$ 19,600		
A24	Heat trace required at all restroom sinks - See Plumbing Tag No. P09	General	3			Remove portion of wall at plumbing fixtures to install equipment. Infill wall with like materials.	\$ 12,000	Allowance, Hazmat potential - There may be lead, asbestos or PCBs	
A25	New mechanical roof top equipment will require structural supports or modifications	General		2		Provide engineered steel reinforcing, curbs or Dunnage require to support RTUs	\$ 72,000	Allowance, See tag No. M09 & M10	✓
A26	Abatement will be needed for many suggested and necessary improvements	HBM		2		Abate and remove hazardous materials	\$ 468,100	* ALLOWANCE based on \$20 per SQ FT	
INTERIOR SUBTOTAL								\$ 2,129,450	

NEW HARTFORD ELEMENTARY FACILITY CONDITIONS ASSESSMENT												
Tag No.	Assessment	System/ Code Ref.	Ranking				Corrective Action	Itemized Estimated Cost	Remarks			
Plumbing/Fire Protection												
P01	Possibility of lead in piping	CT HB-6761		3			The water supply should be tested for lead content and remediated as required.	\$ 3,800	Hazmat potential - there may be lead, asbestos or PCBs			
P02	Missing pipe insulation observed	IECC C404.5		3			Provide new and continuous pipe insulation (per IECC requirements) on existing and new pipe	\$ 4,500				
P03	Scald prevention device not observed on lavatories	IPC 419.5			2		Provide ASSE 1070 rated thermostatic mixing valves on all handwashing lavatories	\$ 7,500				
P04	Provide means of hot water temperature maintenance serving lavatories per IECC requirements	C404.5.1		3			Install electric heat trace with insulation on un-recirculated piping serving lavatories up to 2' of the fixture	\$ 16,500	Item required by current code, but likely not during time of original installation			
P05	Camera scope and snake clean all drains and below slab sanitary piping	N/A			2		Camera scope and snake clean all drains and below slab sanitary piping	\$ 5,500				
P06	Provide trap seal barrier on existing floor drains to prevent traps from drying out	IPC 1002.4.1.4			2		Provide trap seal barrier on existing floor drains to prevent traps from drying out	\$ 400				
P07	Unknown Health Department requirements for indirect waste	CT PHC			2		Review with local Health Department if the 3 bay sink is required to have indirect waste connections per code	\$ 7,500	TBD if this is required, cost is a place holder			
P08	The kitchen is classified as type IV requiring a grease trap	General			2		Provide a point of use automatic grease recovery unit on required sinks	\$ 5,500				
P09	Some plumbing fixtures are dated / original to the building	N/A	4				Replace legacy Plumbing fixtures with new per Architectural program	\$ 30,000	Hazmat potential - there may be lead, asbestos or PCBs			
P10	Domestic water cross contamination potential on detergent feed	IPC 608.1				1	Provide a backflow preventer on the mop sink's chemical detergent supply line	\$ 1,650				
P11	Exterior gas piping is rusting	NFPA 54 7.1.3				1	Paint all exterior propane piping corrosion resistant per NFPA.	\$ 350				
P12	Proposed HVAC equipment will be gas fired	General				1	Provide gas piping, fittings, hangers, regulators, etc. in support of proposed HVAC equipment	\$ 60,000	Only required for major mechanical upgrade.		☒	
P13	Proposed HVAC equipment will require condensate drainage	General				1	Provide condensate piping, fittings, insulation, hangers, etc. in support of proposed HVAC equipment	\$ 6,500	Only required for major mechanical upgrade.		☒	
P14	Radon testing	General			2		Continue to test for radon per CT regulations to ensure levels remain below State thresholds	\$ 3,500				
FP01	Continue to maintain & test all systems per NFPA 25 and equipment manufacturer's requirements	NFPA 25			2		Continue to maintain & test all systems per NFPA 25 and equipment manufacturer's requirements	\$ -				
FP02	Provide Wet chemical kitchen hood suppression system, UL listed & NFPA 17A compliant	IBC 904.13			2		Provide Wet chemical kitchen hood suppression system, UL listed & NFPA 17A compliant	\$ 7,500				
FP03	Some piping is corroded in the basement	NFPA 13 16.4.2			2		Paint / touch up corroded piping	\$ 1,300				
FP04	Missing FDC signage	NFPA 13 16.12.5.8			2		Provide proper signage for the FDC.	\$ 500				
Plumbing/FP Subtotal									\$ 162,500			

NEW HARTFORD ELEMENTARY FACILITY CONDITIONS ASSESSMENT												
Tag No.	Assessment	System/ Code Ref.	Ranking					Corrective Action	Itemized Estimated Cost	Remarks		
MECHANICAL SYSTEMS												
M01	Demo Priority 1 Equipment	General				1		Demo equipment such as boiler, pumps, piping, fans	\$ 57,000			✓
M02	Install two (2) propane fired condensing boilers	2021 IMC 309.1				1		Replace the existing poor condition cast iron boilers with two (2) propane fired condensing boilers	\$ 300,000			✓
M03	Install Hot Water Pumps	2021 IMC 309.1			2			Replace the existing poor condition pumps, pads and fittings with new hot water pumps	\$ 80,000			✓
M04	Replace End Use Heating Equipment and Piping	2021 IMC 309.1			2			Replace end use heating equipment to be paired with the proposed hot water system	\$ 462,000			✓
M05	Install Central BMS	General		3				Install a BMS with equipment monitoring and control capabilities	\$ 201,000			✓
M06	Install Smart IAQ Technology	General	4					Install Smart IAQ Technology to serve the classrooms and offices and clean the rooms' return air	\$ 78,000			✓
M07	Replace Toilet Exhaust Fans	2021 IMC 403.1.1.2				1		Replace the toilet exhaust fans that are beyond their useful lifespans	\$ 45,000			✓
M08	Install DOAS for classrooms	2021 IMC 401.2			2			Install Dedicated Outdoor Air Systems to serve ventilation air to the classrooms including units and ductwork	\$ 350,000			✓
M09	Install Gymnasium/Cafeteria Rooftop Unit	2021 IMC 401.2			2			Install a rooftop unit to be dedicated to the Gym/Cafeteria area to serve heating and cooling. Including ductwork	\$ 260,000			✓
M10	Install Office Rooftop Unit	2021 IMC 401.2			2			Install a multizone Office rooftop unit to serve the offices and provide heating and cooling. Including ductwork	\$ 171,000			✓
M11	Install a Fire Ready Range Hood in the Kitchen	2021 IMC 403.1.1.2			2			Install a Kitchen hood with integral fire suppression for additional protection and air quality control	\$ 26,000			✓
M12	Install Kitchen Makeup Air Unit	2021 IMC 508.1			2			Install a Makeup Air Unit in the Kitchen to provide conditioned ventilation air	\$ 22,000			✓
M13	Install Variable Refrigerant Heat Pumps	General			2			Install VRF heat pumps for the proposed areas to be served by the recommended DOAS to provide heating and cooling to the spaces and be paired with the proposed ventilation systems	\$ 710,000			✓
M14	Remove Fuel Oil Tank and Install Propane Tank(s)	2021 IMC 309.1				1		Remove existing fuel oil tank near Boiler and install a propane tank to serve proposed condensing boilers	\$ 700,000			✓
M15	Install Destratification Fans in Gym/Cafeteria	General		3				Install Destratification Fans in the Gym/Cafeteria for more even air mixing	\$ 45,000			✓
MECHANICAL SUBTOTAL											\$ 3,507,000	
ELECTRICAL SYSTEMS												
E01	Replace electrical main switch & main distribution panel manufactured by Federal Pacific in poor condition	General			2			Remove and replace 400A, 208V, 3 phase main service switch, feeder to remain. Remove and replace 400A, 120/208V, 3 phase main distribution panel and feeder. Terminate existing branch circuits to new circuit breakers in panel as required.	\$ 40,000			
E02	Replace (3) electrical panels manufactured by Federal Pacific in poor condition	General			2			Remove and replace (3) 120/208V, 3 phase panels and feeders. Terminate existing branch circuits to new circuit breakers in panels as required.	\$ 40,000			
E03	Circuit index cards for electrical panels are not per code	NEC Article 408.4(A)	4					Trace all active circuits for electrical panels and updated circuit index cards with legible permanent clear identification of every circuit.	\$ 7,000			

NEW HARTFORD ELEMENTARY FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING			CORRECTIVE ACTION	ITIMIZED ESTIMATED COST	REMARKS	
E04	Source of supply for electrical panels is not indicated on panels per code	NEC Article 408.4(B)	4			Trace electrical feeders for all panels and install label, indicating each device or equipment where the power originates, permanently affixed to panel and not handwritten.	\$ 3,500		
E05	Lack of lock-on device on circuit breaker feeding the fire alarm system equipment	NEC & NFPA 72 Section 10.6.5.4			1	Install a fire alarm lock-on device kit on circuit breaker feeding fire alarm equipment.	\$ 500		
E06	Electrical panels in public areas are not locked	General			2	Lock all panels in public areas. Replace all locking mechanisms that are not functioning properly.	\$ 300	Recommended good practice to prevent unauthorized access.	
E07	Lack of circuit breaker lock, in the on position, feeding the security system, network communications, and master intercom equipment	General			2	Install a circuit breaker lock, in the on position, for security system, network communications, and master intercom equipment.	\$ 200	Recommended good practice to prevent intentionally or accidentally terminating power to these systems.	
E08	General power receptacles and cover plates are in fair and poor condition	NEC Article 406.9 & 210.8(B) (1-12)			2	Test all power receptacles for proper wiring and fix as required. Replace all broken receptacles and cover plates or have loose plug-in connections. New receptacles must be tamper-resistant in all public areas and GFCI protected within 6 feet of water source.	\$ 2,500	Tamper-resistant receptacles are required by current code for major building renovation.	
E09	Lack of general power receptacles in classrooms requiring the use of extension cords	NEC Article 406.9			2	Install tamper-resistant receptacles in various locations to eliminate the need for extension cords.	\$ 5,500	This will require a study to determine the quantities required in each room.	
E10	Non-GFCI type or protected kitchen power receptacles & equipment	NEC Article 406.9 & 210.8(B) (1-12)			2	Test all power receptacles for proper wiring and fix as required. Replace all non-GFCI type or protected, all broken receptacles and cover plates or have loose plug-in connections. New receptacles must be tamper-resistant and GFCI protected.	\$ 2,000		
E11	Replace Interior light fixtures & non-compliant energy code controls	Energy Code		3		Replace all interior light fixtures and controls with LED fixtures and controls with dimming, occupancy, and daylight harvesting to comply with current energy codes.	\$ 235,000	Required for major building renovation only per current codes.	
E12	Non dark sky & energy code compliant exterior light fixtures	Dark Sky & Energy Code		3		Replace all exterior light fixture with Full cutoff 3000K LED fixtures to minimize light pollution, glare, and light trespass to comply with dark sky and current energy codes.	\$ 8,500	Required for major building renovation only per current codes.	
E13	Lack of ADA accessible exit light fixtures at accessible egress doors	ADA	4			Replace or Add ADA accessible exit light fixtures with the international symbol of accessibility (ISA) for wheelchair access at accessible egress doors.	\$ 1,000	Required for major building renovation only per current codes.	
E14	Additional equipment per mechanical report	General			2	New power for additional mechanical equipment.	\$ 30,000		☑
E15	Mechanical and Plumbing equipment being replaced due to age per report	General			1	Demo & New power for mechanical and plumbing equipment being replaced.	\$ 2,500		
E16	Plumbing piping heat trace being added per plumbing report	General		3		New power for additional plumbing piping heat trace.	\$ 2,000		

NEW HARTFORD ELEMENTARY FACILITY CONDITIONS ASSESSMENT											
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING				CORRECTIVE ACTION	ITIMIZED ESIMATED COST	REMARKS		
E17	Lack of fire alarm pull station at basement egress and notification devices at equipment requiring service in crawl spaces. Lack of hood in kitchen.	NFPA/ Life Safety Code				1	Add fire alarm devices and update programming.	\$ 4,000			
E18	Fire alarm panel discontinued by manufacturer	NFPA/ Life Safety Code		3			Replace fire alarm panel within next 10 years.	\$ 20,000			
E19	Existing electrical service is not sized for air conditioning project	General			2		Demo & new electrical service upgrade for air conditioning project	\$ 160,000	Only required for major mechanical upgrade.		☒
E20	No Existing generator	General		3			New generator and transfer switch for service upgrade and air conditioning project	\$ 80,000	Generator power is not mandated		
ELECTRICAL SUBTOTAL									\$ 644,500		
TOTAL ESTIMATED COSTS								\$ 7,969,245			
15% GENERAL CONDITIONS								\$ 1,195,387			
10% OWNER CONTINGENCY								\$ 796,925			
10% ESTIMATING CONTINGENCY								\$ 796,925			
CONSTRUCTION TOTAL								\$ 10,758,481			
25% SOFT COST								\$ 2,689,620			
PROJECT TOTAL*								\$ 13,448,101			
* Escalation should be considered to be added for each additional year. We are currently tracking escalation at 6% per year.											
* Hazardous material testing, inspections and abatement was included as an ALLOWANCE and needs to be addressed by an environmental engineer. We typically do not include this scope within these types of report without one. Considering the conditions at Bakerville, we felt it was important have some type of placeholder at each school as this will potentially increase both construction and soft costs.											

LEDGEND

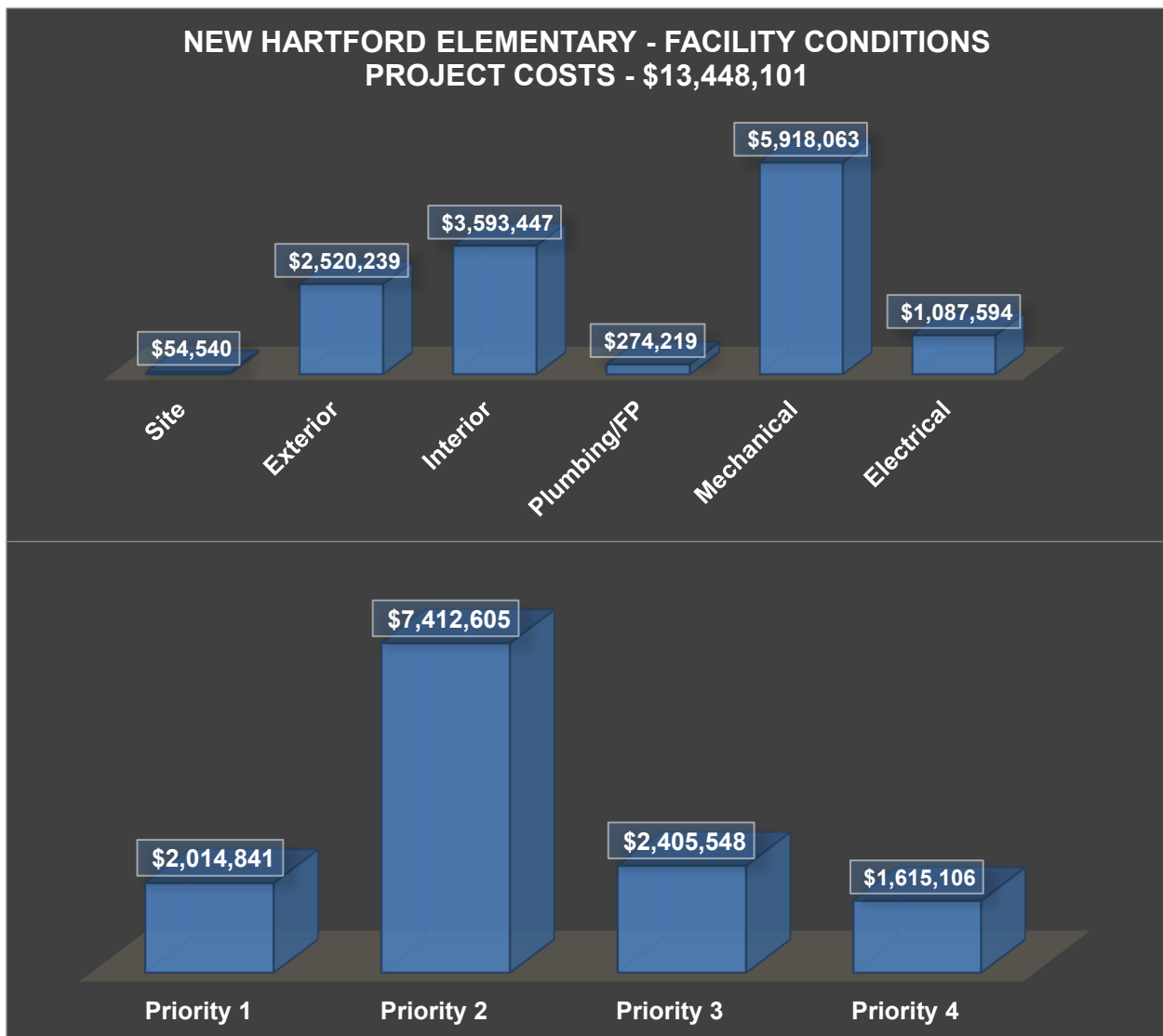
1	Urgent priority - These items should be corrected as soon as possible and most likely encompass code, health and life safety issues.
2	High priority - These items should be corrected within a reasonable amount of time after the highest priorities referenced above. These may be associated with high priority maintenance issues or accessibility issues for the physically challenged. Maintenance items have a remaining useful life from 1-3 years.
3	Moderate priority – These items may be associated with aesthetic or general maintenance issues. Remaining useful life of 3-5 years.
4	Low priority – These items include maintenance and aesthetic issues that are not in current need of replacement, but should continue to be monitored on a regular basis. These items typically have a remaining useful life of 5-10 years or greater.
☒	There may be potential state reimbursement based on the town's rate and school enrollment through the CT Department of Administrative Services Office of Grants Administration School Construction Projects for eligible projects.

Summary

The preceding pages include the spreadsheets itemizing conditions organized by category; site, exterior, interior, plumbing, fire protection, mechanical and electrical. These issues are ranked on a scale from 1 to 4 with 1 being the most urgent. Recommendations are provided to address these issues. Associated cost estimates are also prepared for the applicable items.

New Hartford Elementary is a well-maintained building. The last major upgrades date back to 2004 when the rear of the building was added, bringing many systems to the end of their useful life. The infrastructure systems are antiquated, and the roof is in much need of replacement. These are reflected in the associated costs of the facility seen in the spreadsheets.

When evaluating the overall facility condition assessment estimate, the project totals just over \$13.4 million, can also be evaluated as \$575 per square foot. Note that this cost addresses only the line items listed within the spreadsheet, not extensive renovations, or reconfigurations to other spaces unless otherwise noted. This would further increase costs. In comparison the cost for new construction is around \$1000+/- per square foot.

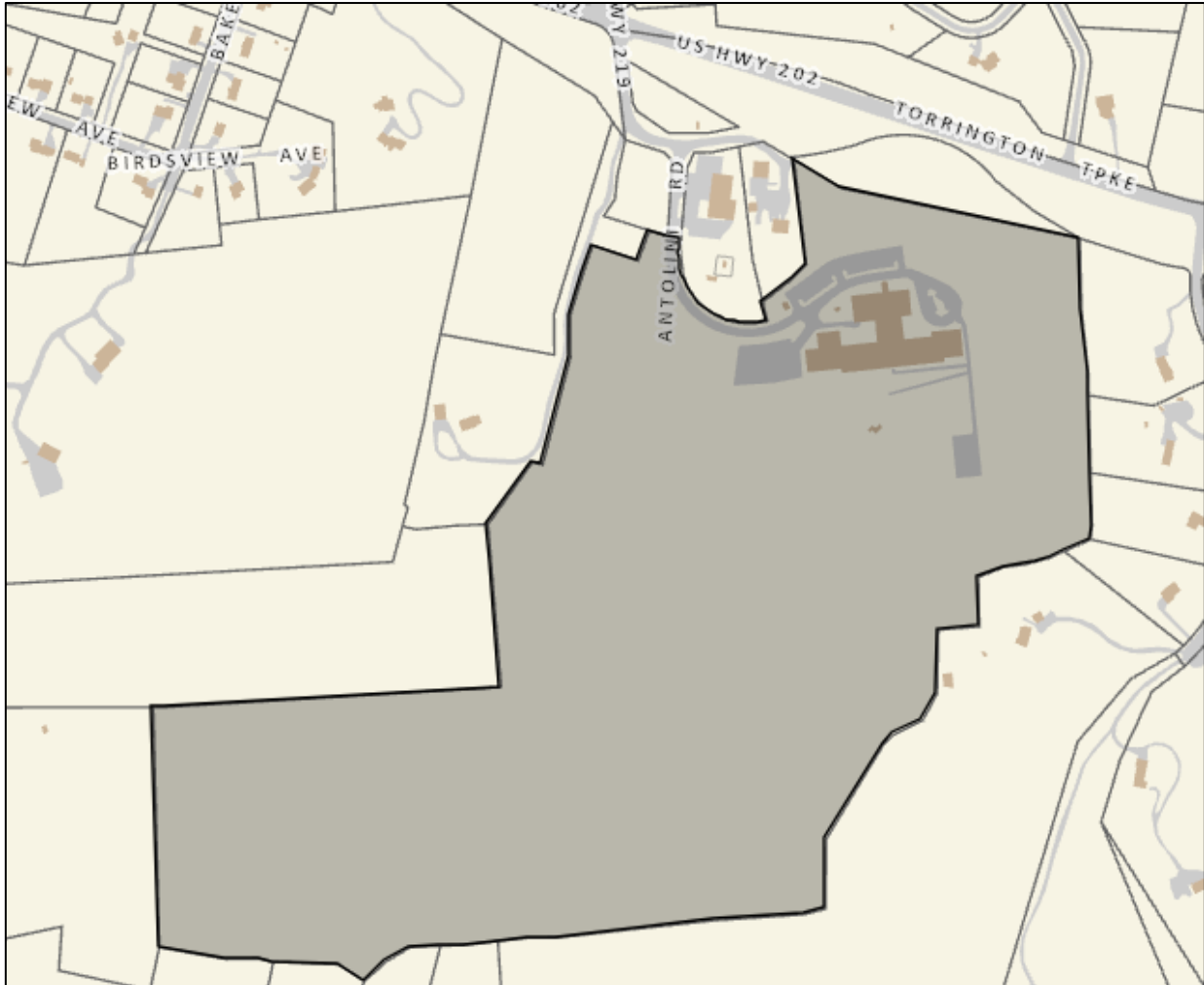


ANTOLINI SCHOOL BUILDING ASSESSMENT

Antolini School, located at 30 Antolini Road, was originally built in 1968. The building received additions in 1990 and 1992. The building currently serves 249 students, from grades 3 to grade 6 and roughly 46 staff members. The building is 58,177 square feet.

Site

The existing 174-acre site was not comprehensively evaluated as part of this assessment. However, exterior elements directly associated with building egress were reviewed.



An accessible exit should be provided at the gymnasium/auditorium. Currently, the main entrance is elevated at a large stair, and while a ramp descends to an auditorium egress door, it does not connect to a compliant accessible path of travel. On the opposite side of the gymnasium, a steep sidewalk is present and does not provide an accessible route. A direct, code-compliant accessible path of egress should be provided in this area.



Architecture

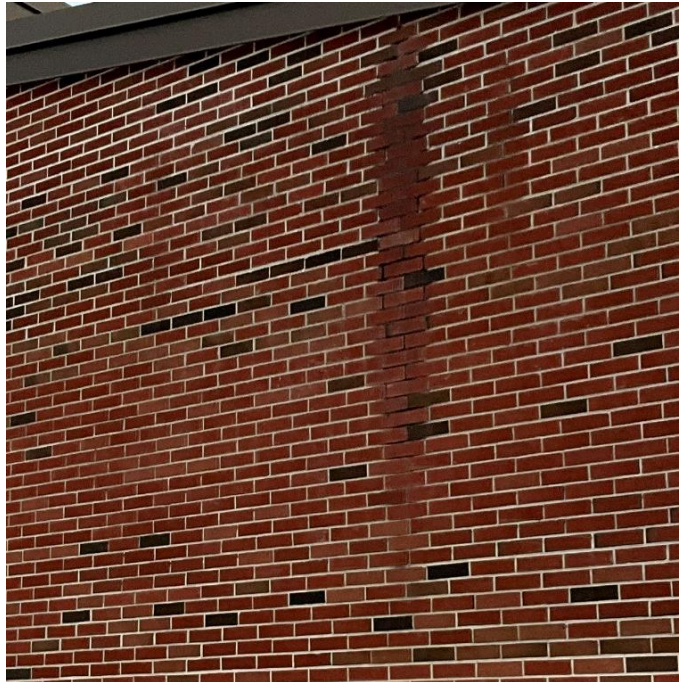
Exterior

Facades and Elevations

The building is constructed primarily of brick masonry with concrete masonry unit (CMU) backup walls. Overall, the exterior walls are in good condition considering the age of the structure.

The original 1960s construction utilizes a brick veneer system without an air cavity, which was typical of pre-energy crisis construction. As a result, the wall assembly has limited thermal performance. Improving the energy efficiency of this wall type would require significant intervention.

Further improvements to energy performance could be achieved by furring the interior face of exterior walls and introducing additional insulation, thereby reducing heating and cooling loads.



There was minor efflorescence noted in a few areas of the façade. It's very common in brick veneer and no major issues were associated with it. It should continue to be monitored and cleaned.

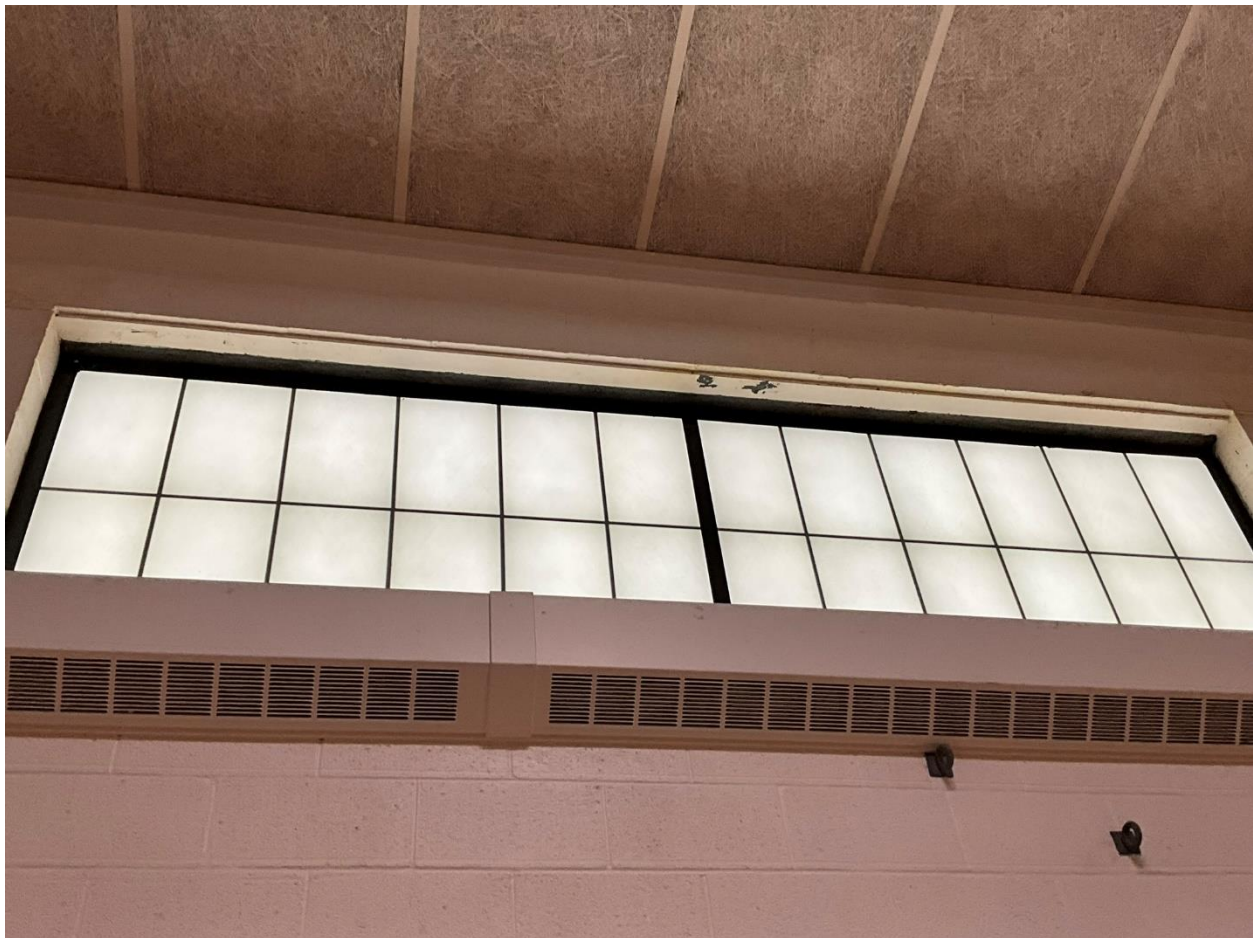
There are limited areas of spalling or repointing needed. This is common as maintenance and restoration is needed to maintain the longevity of the brick. However, the vertical degradation does appear to be from water dripping down the face of the building. It is likely that the flashing, fascia or drip edge in these locations are not properly installed.

The control joints and expansion joints throughout the façade are cracking and should be removed and replaced. The facades have held up well and ongoing maintenance will keep the brick in good shape.



Windows

Windows account for approximately 25–40% of building heat loss. The school is primarily equipped with insulated, double-glazed aluminum double-hung windows. Translucent fiberglass systems are present in the gymnasium and appear to be in good condition. Windows were replaced in 2016 and appear to be in good condition.



Doors

The school is equipped primarily with hollow metal doors and frames. Many doors were replaced during the 2014 security upgrade and are in good condition.

Minor maintenance issues were observed, including deteriorating lintels that require scraping, priming, and painting (notably at the garage door). Some older doors would benefit from re-caulking. Overall, the doors are in good condition and require only routine maintenance to extend their service life.



Roofs



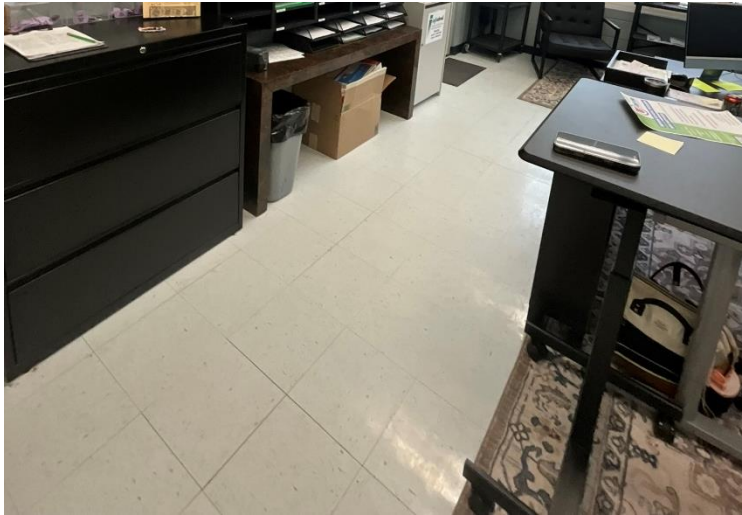
The roofing systems consist primarily of rubber membrane assemblies over sloped roof systems, typically installed over Tectum or metal roof decks. These roofs and associated soffits were replaced in 2016.

Membrane roof systems generally have a service life of 20–30 years. Based on installation date, the roofs likely have 10–20 years of remaining life, depending on warranty conditions and maintenance practices.

Minor issues were noted, including separation at select seams near soffits. Ongoing maintenance and localized sealant repairs are recommended.

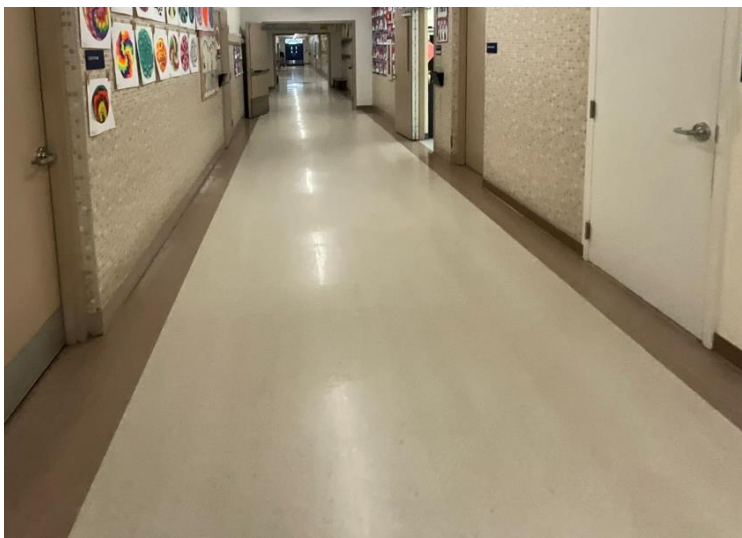
Interior

Floors



A variety of flooring types are present throughout the facility. Vinyl composition tile (VCT) in most classrooms and corridors. A recently installed sports flooring is in the gymnasium. Ceramic tile flooring in all restrooms. Most flooring is in good condition.

The gymnasium storage and office areas contain original ceramic tile flooring dating to the former locker room configuration. These floors are deteriorating and should be considered for renovation. VCT flooring is in fair condition overall, with localized areas requiring replacement (including the Oak Park rooms). Carpet in the library, offices, and auditorium dates to the 1990s. While currently in fair condition, these areas should be incorporated into a future replacement plan.



Walls

Interior walls consist primarily of CMU backup walls, visible in most classrooms. In the original building, corridor walls feature mosaic tile finishes. The 1990s additions utilize ground-face CMU in corridors. Gypsum wallboard construction is present in renovated areas.

Restrooms are finished with ceramic tiles or painted CMU. Overall, walls are in good condition, with only minor paint deterioration, joint wear, and grout maintenance required.



Ceilings

The ceilings throughout the building are predominantly 2x4 acoustic ceiling tile (ACT) systems. Limited deficiencies were observed.

Evidence of water infiltration was noted near a roof expansion joint, indicating that the joint may require replacement. In the media center, the painted gypsum ceiling exhibits cracking at joint lines and should be repaired and repainted.

If a major mechanical renovation requiring extensive above-ceiling access is undertaken, replacement with a 2x2 ACT system would be recommended.

Other areas feature exposed structural deck systems. The wood fiber cement deck is exposed in the gymnasium and auditorium, which is typical for schools of this era. No deficiencies were observed in these areas.



Doors

Interior doors are primarily hollow metal in hollow metal frames and are in good condition. Hardware includes lever sets and panic devices where required.

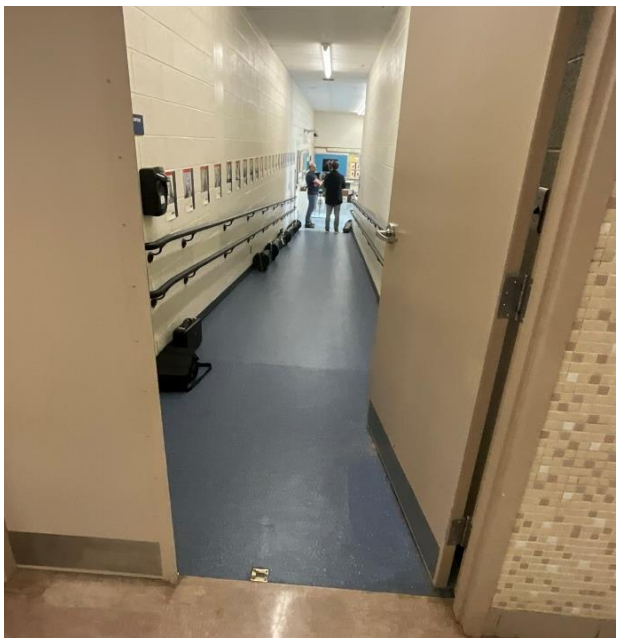
Limited areas of older wired glass were observed and should be replaced to meet current safety standards.



Stairs and Ramps

There are limited stair assemblies within the building. The stairs flanking both sides of the auditorium stage do not meet current code requirements, particularly with respect to handrail assemblies. These should be modified for compliance.

A ramp provides access between the instrumental room and the auditorium lower level. A stage lift has been installed and appears to be in serviceable condition.



Restrooms

Multiple restroom facilities are provided throughout the building. Student gang restrooms are generally in good condition. Several ADA stalls were observed to contain stored furniture, which should be removed. Some stalls require additional or modified grab bars to achieve compliance. A few lavatories lack protective pipe guards, which should be installed.

Single-user restrooms have been renovated to meet ADA requirements; however, some grab bars and sink pipe guards are improperly configured and should be modified.



Casework

Most casework consists of plastic laminate cabinetry. The 1990s additions fully incorporate plastic laminate systems. Older classrooms retain some original wood components; however, sink bases and associated cabinetry appear to have been replaced with plastic laminate during prior renovations. Some plastic laminate was delaminating and may need replacement in the future.

Cabinet and sink heights in many classrooms are below current ADA requirements. At minimum, one accessible sink with compliant knee clearance per program area should be provided throughout the school.



Building Code and Accessibility

This assessment identifies numerous deficiencies relative to building codes and accessibility standards. These non-conformities encompass areas previously identified, such as This assessment identifies multiple deficiencies relative to current building codes and accessibility standards. These include but are not limited to non-compliant accessible egress routes, restroom accessibility deficiencies, stage stair non-compliance and inaccessible casework configurations. There is a lack of pipe guards at the hand-washing sink within the cafeteria. The signage throughout the school does not meet ADA requirements and should be replaced. Additionally, no wall pads are located in the gymnasium, likely due to the fold out tables. Wall pads are highly recommended to improve safety and use during gym class and sporting events.



Architectural Recommendations

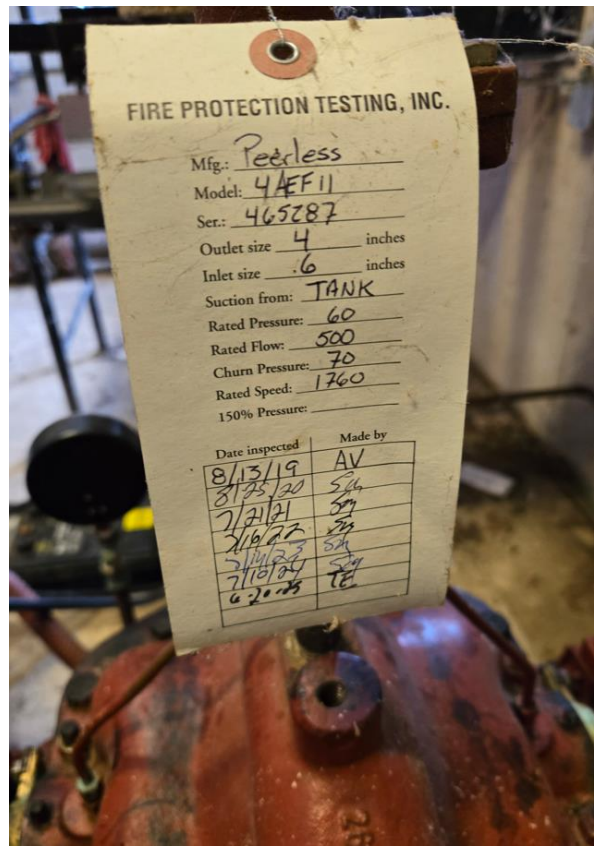
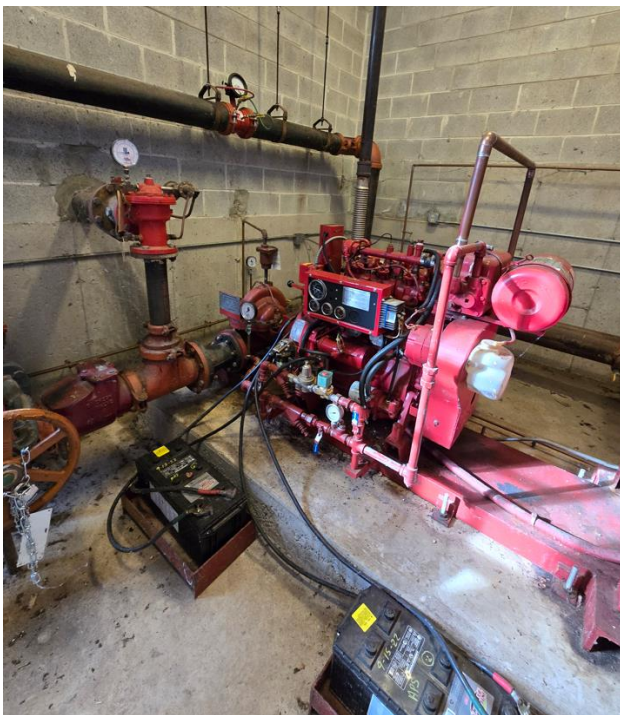
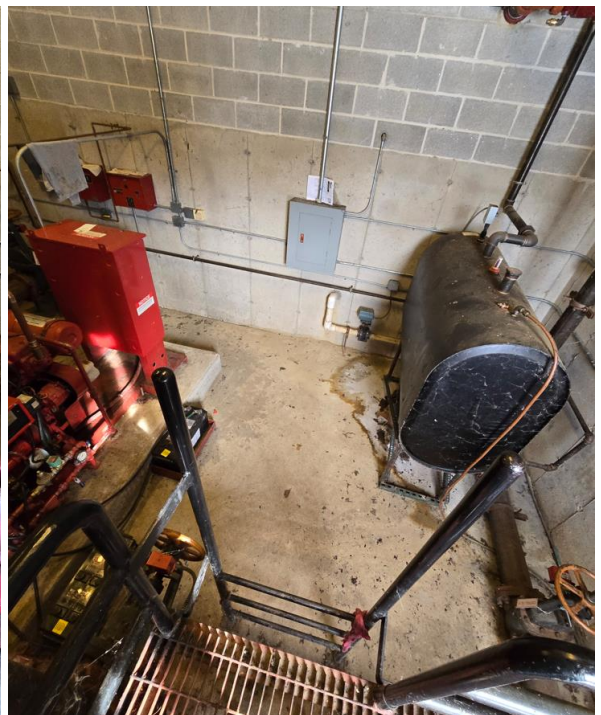
- Install ADA ramp at Gym/Auditorium entrance
- Repair exterior brick, control and expansion joints
- Repair fascia and soffits
- Repair rusty lintels
- Renovate old locker rooms
- Replace ceilings (mechanical)
- Replace wired glazing
- Rebuilt stage stairs
- Install vertical grab bars and pipe guards
- Modify casework to meet ADA
- Provide new signage
- Add wall pads where possible to provide safer gym time

Fire Protection

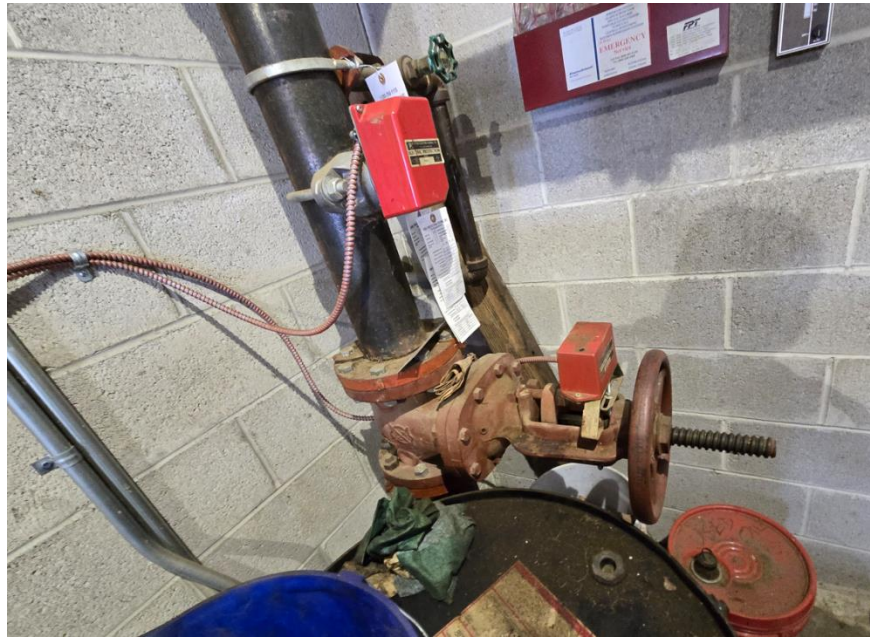
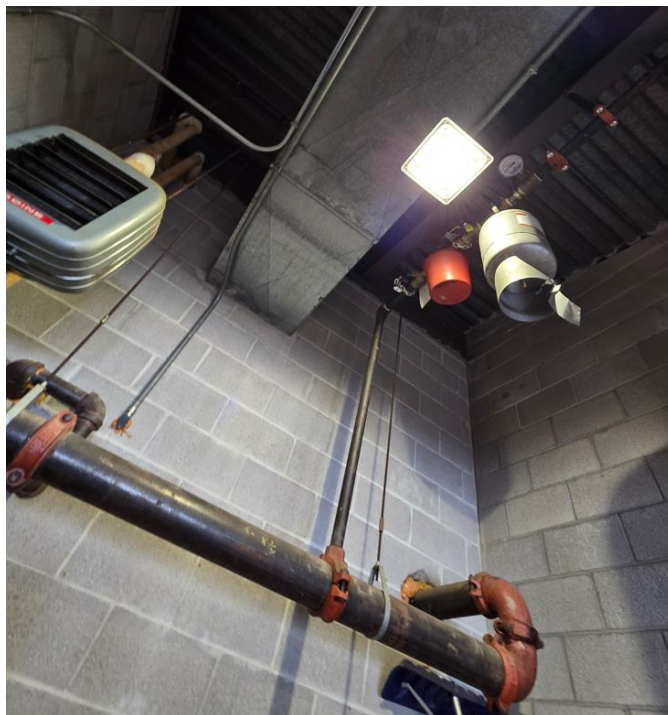
The facility is provided with a fully automatic fire sprinkler system with sprinkler coverage throughout the building. Semi recessed sprinkler heads are provided in areas with ceilings while upright heads are installed in areas without ceilings. The building's fire protection water service originates at a site remote from the building. The facility is not provided with a municipal water supply but instead a well system consisting of a 30,000 gallon underground atmospheric fire protection water storage tank and fire pump. A fire pump house is located detached from the building where a centrifugal horizontal split case fire pump with diesel engine and controller are housed. Inspection tag dated 6-20-25 indicates the system is rated for 60 PSI at 500 GPM, pump manufactured by Peerless, model 4AEF11, citing no issues. The diesel fire pump engine is manufactured by Clarke GM Diesel, inc. Model MD-3 1224, 40 HP @1760 RPM, dated 8/90 making the unit 36 years old. Additional equipment includes a domestic make up water feed to top off the storage tank, level monitoring, diesel fuel tank, muffler, and numerous controllers, valves are primarily OS&Y with tamper switches. The space is heated and ventilated accordingly.







From the pump house a 4" pressurized supply line is routed on site where it enters the building in the outdoor equipment garage, a traditional riser check valve assembly has not been provided though a supervised OS&Y valve is utilized. The storage garage is provided with a local anti-freeze system so the smaller branch piping serving the room does not freeze. Inspection tags indicated all systems pass, last dated 12/23/24. The 4" main then enters the building where main distribution piping feeds all the branches. Individual zones were not present.



The fire pump system, while dated, is operational but is reaching its fully serviceable life expectancy. Well maintained systems can last 20 to 30 years but will often require component repair or replacement parts. Additionally, environmental conditions should be mitigated to avoid corrosion and humidity. All system components and equipment have tags by FIRE PROTECTION TESTING, INC. These systems should continue to be tested and inspected per the qualified vendor in accordance with NFPA standards before being fully replaced. Specifically, the fire pump shall be tested monthly in accordance with NFPA 25. Quarterly testing of mechanical flow devices, valves, and valve components, low air pressure alarms, and quick opening devices should be performed as well in accordance with NFPA 25.

Some piping, valves, hardware and components show signs of early corrosion as a result of the pump house's environment. It is recommended to clean, sand, prime and paint all components so they are corrosion resistant per NFPA. Replace rusted hangers and supports with hot dipped galvanized components with zinc plated or stainless-steel hardware and threaded rods. The pump house should be cleaned out of leaves, dirt and debris and any penetrations should be sealed to ensure the building is insect and rodent proof. Exterior test heater and FDC are rusted and should be replaced, proper signage should be installed to identify Fire Department connections, fill lines, drains, and test headers per NFPA 13. Water storage tank fill line should have proper identification; the PVC goose neck vent should be painted in accordance with the manufacture's requirements for exterior applications.

Kitchen hood

The kitchen exhaust hood is provided with a chemical hood suppression system, manufactured by Ansul. The chemical tank panel and piping are dated but appear maintained and complete though inspection tags were not observed.

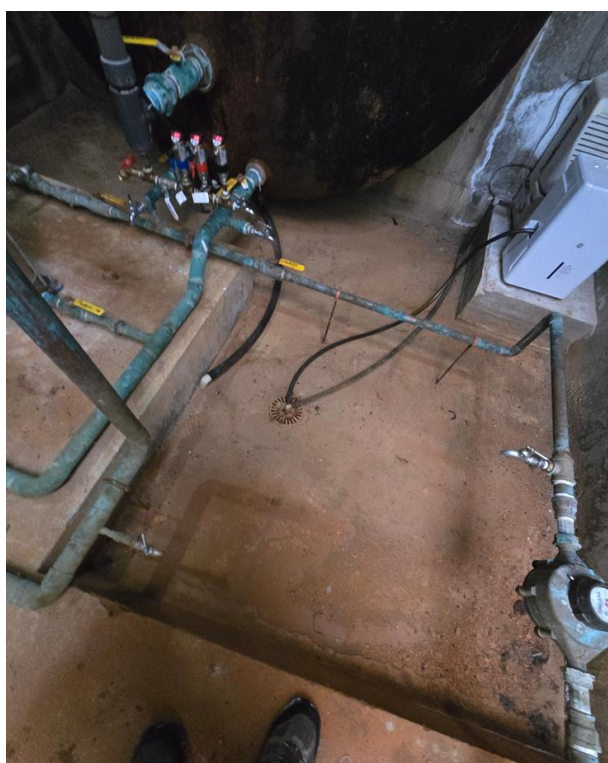
Recommendations

- Continue to maintain & test all systems per NFPA 25 and equipment manufacturer's requirements.
- Replace the Fire Pump and Diesel Engine within the next 5 years.
- Paint / touch up corroded piping.

Plumbing

Domestic Water

The facility is not provided with a municipal domestic water supply but instead has a well system. Two (2) on site wells feed a 10,000 gallon underground atmospheric domestic water storage tank which also connects to a vented underground utility vault. Within the vault are all the system components for the facilities duplex pressure booster pumping system. This system is provided to store and increase water pressure to acceptable levels, so the building's plumbing fixtures operate correctly. A hydropneumatic bladder tank is also incorporated into the system before the 4" cold water main exits the vault to supply the building. The hydropneumatic tank is manufactured by Pentair, WellMate, model WM-35WB, 120-gallon capacity, rated for 30-50 PSI @ 37 GPM. The tank is in good working order with regular inspection / servicing.



Domestic controls consist of tank level monitoring, well pump, booster pump monitoring, and various alarms. The duplex booster pump is manufactured by Baldor. Each centrifugal pump is 3 HP with individual pump controllers. The two well pump controllers dated 6/6/19 are manufactured by Goulds Pumps, Aquavar SOLO2 series. The system is in good working order with regular service.



Piping consists of sweated copper joints which have developed a patina, ball valves are installed and exposed metal is rusting. Pipe insulation has not been provided. A residential dehumidifier has been provided and discharges to a floor drain. Humidity is a concern as it affects the electrical controllers and level sensors.

Facility staff indicates that the domestic water system is inspected every two weeks by a third-party contractor. “Avon Plumbing & Heating Water System Division” appears to be the local contractor who performs service and preventative maintenance.

An additional 2” make up water feeds the Fire Protection system. A backflow preventer has been provided accordingly to eliminate cross contamination between the Potable and Fire Protection water supplies.



A 4" CW from the utility vault enters the building within the boiler room where a second hydropneumatic tank is located. A pressure monitoring switch has been installed to ensure pressure remains within an acceptable range. This hydropneumatic tank is the same make / model as the unit in the utility vault.



A backflow preventer has been provided on the boiler water make up feed accordingly.

Water Quality: Mandatory Testing (New Law): Connecticut's HB-6761 (effective 2024) requires every local/regional school board to test drinking water locations (fountains, taps) for lead and report results to CT DPH, SDE, and DAS by July 1, 2024.

Connecticut also follows the State of Connecticut Department of Public Health for lead in drinking water. The rule established a maximum contaminant level goal of zero for lead in drinking water and an action level (AL) of 0.015 milligrams per liter (mg/L) for lead and 1.3 mg/L for copper based on 90th percentile level of tap water samples.

Mandatory flushing of the lines each day may be permitted to reduce levels of lead, but

replacement of piping may be required. If removal of all piping original to the building is required, all new potable-water piping and components shall comply with NSF 14 and NSF 61 Annex G lead free requirements.

Water heaters

The facility generates domestic hot water via multiple water heaters which serve specific areas of the building. These can be broken down into the following:

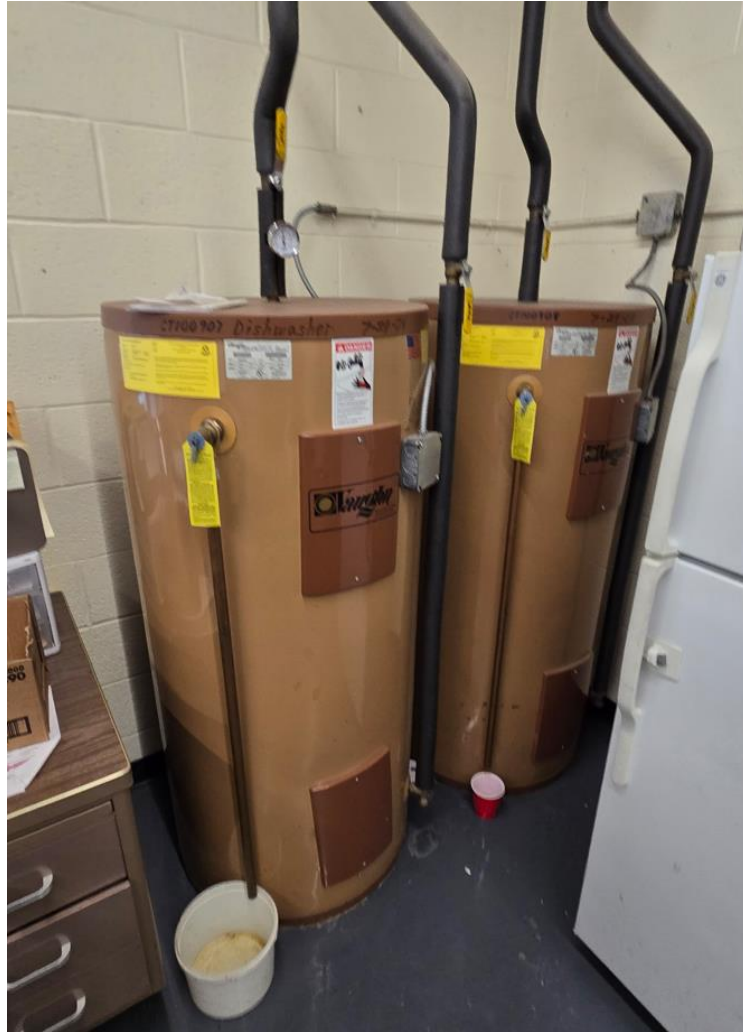
- A. 1x 50-gallon electric water heater, manufactured by State, serves the core building, was recently installed on 10/11/24, and is provided with a hot water recirculation pump per code; but is not provided with a thermostatic mixing valve or thermal expansion tank as required by code. Temperature gauge read 115 deg F. The heater is in good condition with serviceable life expectancy of 10 years.



- B. 1x 30-gallon electric water heater serving the nurse area with emergency eye/face wash has been provided. The unit has recently been installed per staff; it is provided with a thermostatic mixing valve and thermal expansion tank, but a hot water recirculation pump has not been provided. System provides dedicated tempered water for the eye / face wash. The heater is in good condition with serviceable life expectancy of 10 years.



- B. 2x 80-gallon electric water heaters, manufactured by Vaughn, have been provided for kitchen dish washer, the heaters were installed on 7/24/08, a thermostatic mixing valve or thermal expansion tank have not been provided. Temperature gauge read 140 deg F. The heaters are past their serviceable life expectancy and should be replaced.



- C. For the 1990 addition 2 electric water heaters have been installed serving both wings, thermostatic mixing valves, thermal expansion tanks and hot water recirculation systems have not been provided.
- a. East wing is provided with a 30-gallon heater, installed circa 1990's, manufactured by AO Smith. The heater is past its serviceable life expectancy and should be replaced.



- b. West wing is provided with a 40-gallon heater, installed 2/13/06, manufactured by Lochinvar. The heater is past its serviceable life expectancy and should be replaced.



All the water heaters (except the unit serving the nurse area) pressure relief valves are piped to the floor where cups or buckets are placed under them, this indicates that the system is over pressurizing and relieving excess pressure. Thermal expansion tanks are required to eliminate nuisance discharges and or hazardous situations.

For all systems it is recommended to store domestic hot water at 140°F to reduce the growth of legionella. To eliminate potential scald hazards, provide a properly sized thermostatic mixing valve to deliver the required temperature per the following criteria:

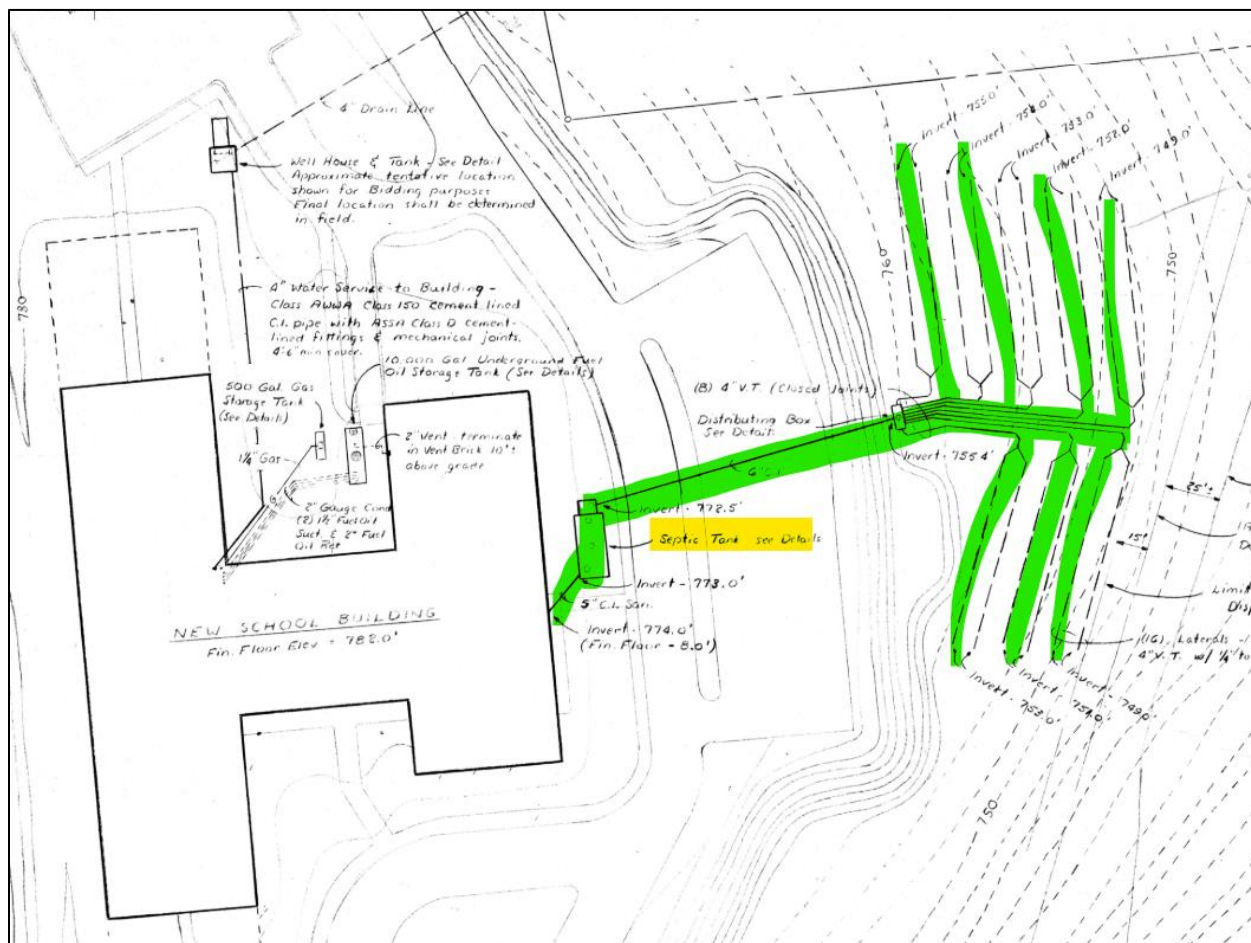
- Master Mixer, all water heaters require external temperature controls via ASSE 1017 Thermostatic mixing valve to reduce hot water from 140°F to 120°F.
- Hand washing lavatories (bathroom groups) require Tempered water via ASSE 1070 Thermostatic mixing valve to provide 105°F – 110°F water.

Replace and relocate the kitchen water heaters so they are in their own separate space away from food preparation activities. Provide a floor drain and pan accordingly.

All public hand-washing lavatories shall meet the IECC requirements for Efficient Heated Water Supply Piping by incorporating a hot water recirculation loop routed within two feet of each fixture and or by providing electric heat trace on all hot water piping serving the lavatories. Self-actuating thermostatic balancing valves shall be incorporated to control flow rates to each circuit when recirculation method is utilized.

Sanitary

The building is provided with a sanitary and vent system piped throughout the facility in support of all plumbing fixture drainage. Per available plans the building sewer is drained via gravity to a **septic system and leaching field**, with all vent terminations to atmosphere.



Further review of the septic system's capacity will have to be evaluated by a qualified third party to determine compliance. It is recommended to maintain the leaching field yearly via professional inspections with tank pump outs every 3-5 years.

There are no additional apparent code deficiencies although it is recommended to maintain water trap seals on floor drains to prevent sewer gas from escaping (that do not normally see use, i.e. mechanical room, ancillary drains, etc.) by installing a retrofit trap barrier device.

It is recommended to snake all floor drain and below slab sanitary and waste piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations for future connections. Cut in new cleanouts with required fittings where required by code to facilitate cleaning.

Kitchen

The commercial kitchen is provided with a 2 and 3 bay sink, pre-rise station, ware washer with booster water heater, oven, range, kitchen hood, handwashing sink, and steam tables. A passive floor mounted grease trap is provided for a 2-bay sink, this drains with a direct connection to sanitary.



Floor drains are provided, but floor sinks typically utilized for indirect connections have not been provided. The hand-washing sink has not been provided with a thermostatic mixing valve to eliminate scalding hazards. The ovens and range are propane fired with storage tank located directly outside.



The current grease interceptor is a non-automatic passive type and appears to have been installed at the time of the original construction.



Based on information provided by the facility staff the kitchen is classified as Class IV and prepares food for this facility as well as Bakerville and New Hartford Schools.

Note that the currently installed style grease trap is not compliant with the State of Connecticut's FOG (Fat, oil, & Grease) Permit for Wastewater Discharge for class III & IV commercial kitchen fixtures.

As required, replace the existing grease trap with a properly sized Automatic Grease Recovery Unit (AGRU) which automatically skims grease into a separate container in support of the kitchen sink's waste piping. This will ensure effluent discharge levels not to exceed 100 ppm (100 milligrams per liter).

Additionally based on determined classification verify if there are other requirements needed to comply with the CT Public Health Code (i.e. hand-washing requirements, pot & utensil sanitization requirements, emergency gas range / oven shut off interface with exhaust hood requirements, indirect waste requirements, etc.).

115°F degree hot water is currently provided to the kitchen, provide a thermostatic mixing valve on fixtures not requiring elevated hot water temperatures to avoid potential scalding.

Plumbing Fixtures

Plumbing fixtures are provided throughout the facility in standard and ADA configurations. Fixtures are commercial grade and are comprised of floor and wall hung water closets with flush valves, wall hung urinals, wall and counter mounted lavatories, classroom sinks, drinking fountain with bottle filler, dual and single type, mop sinks, etc. Some fixtures were installed in recent renovations while others appear original to the building's construction. Classrooms have sinks and the art room has a sink and solids interceptor.

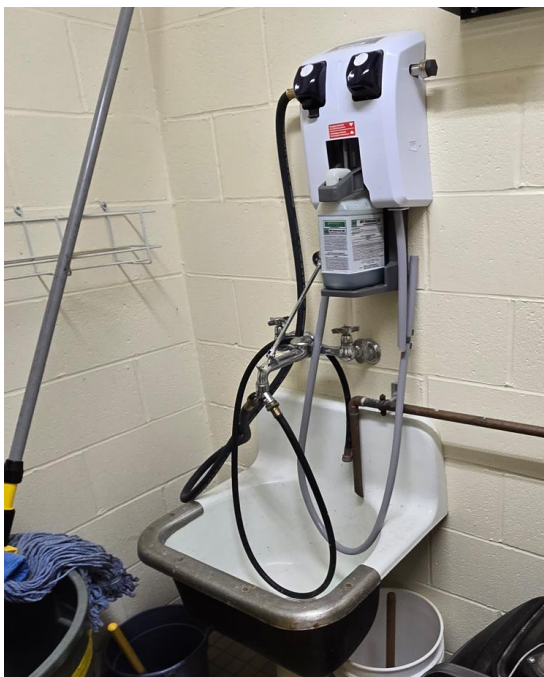
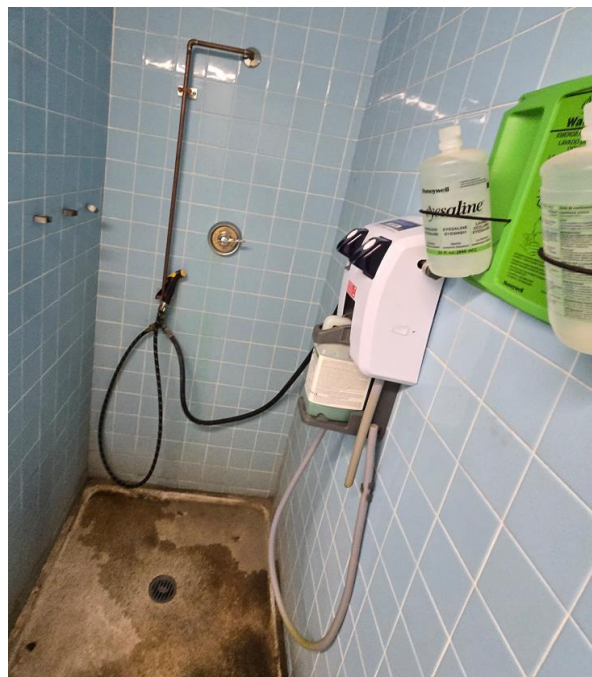


Remove and replace fixtures per the new architectural program. Provide standard and ADA low flow fixtures per International Plumbing Code and State standards. Accessible ADA fixtures will be provided and set in accordance with the applicable codes. Provide new hot water, cold water, sanitary and vent services to new fixtures as indicated in the new Architectural layout. Provide complete with trimmings and fittings, including faucets, carriers, supplies, stops, traps, tailpieces,

waste plugs, casings, hangers, plates, brackets, anchors, supports, hardware and fastening devices.

New low flow fixtures shall be water closets at 1.6 gallon per flush (gpf), Urinals at .125 gpf, and hand-washing lavatories at 0.5 gallons per minute. Water closets, urinals and lavatories will be fabricated of vitreous china. Urinals will be wall-hung with floor-mounted carriers, and will utilize manual flush valves, water closets will remain floor mounted with flush valves. Lavatories will also be wall-hung with floor-mounted carriers and will utilize dual handle faucets.

Mop sink with chem dispenser has not been provided with a backflow preventer.



Fuel Gas

The facility is provided with one (1) 120-gallon vertical propane storage tank feeding the kitchen oven / range, the tank is the property of Hocon Gas of Torrington

A second stage regulator has been provided. Exterior gas piping consists of flexible copper tubing with yellow rubber coating off the propane tank and is routed underground to the building's exterior wall, then transitions to threaded Sch. 40 black steel. Grounding and bonding requirements should be confirmed with the tubing manufacturer for direct burial applications.



Exterior piping is unpainted threaded Sch. 40 black steel and is heavily corroded. Interior piping is the same material, just not corroded.

Storm

The building has a pitched roof with gutters and leaders spilling to grade. No interior storm piping was evident.

Radon

Records indicate radon levels are below actionable levels, therefore no accommodations are required nor have been provided.

Recommendations

- The water supply system should be tested for lead content and remediated if required.
- Provide new and continuous pipe insulation (per IECC requirements) on existing and new pipe, insulated with 1" minimum thickness fibrous glass insulation and pre-formed fibrous glass fittings with fire retardant vapor barrier jacket.
- Replace the kitchen electric water heaters in kind as they are both past their serviceable life expectancy and relocate to an appropriate area with floor drain or provide drain pan with leak detector.
- Replace the east and west wing electric water heaters in kind as they are both past their serviceable life expectancy. Provide drain pan with leak detector.
- Provide thermal expansion tanks on each water heater.
- Provide means of hot water temperature maintenance serving lavatories per IECC requirements.
- Provide ASSE 1017 rated master thermostatic mixing valves on all water heaters except unit serving the Nurse area eyewash.
- Provide ASSE 1070 rated thermostatic mixing valves on all handwashing lavatories throughout.
- Service and inspect septic system(s) and pump out tank(s) accordingly.
- Snake all sanitary drains and below slab sanitary piping clean to ensure the system is not obstructed and that it is free of debris to allow proper drainage. Perform camera scope test on building's main drain to document condition of the piping and verify routing and invert elevations for record. Repair damaged piping as necessary.
- Provide trap seal barrier on existing floor drains to prevent traps from drying out.
- Provide an automatic grease recovery unit as required in the Kitchen.
- Review with local Health Department if the 3 bay sink is required to have indirect waste connections per code.
- Replace legacy Plumbing fixtures with new per Architectural program.
- Paint all exterior propane piping corrosion resistant per NFPA.
- Provide gas piping, fittings, hangers, regulators, etc. in support of proposed HVAC equipment, underground propane tank by Mechanical division.
- Provide condensate piping, fittings, insulation, hangers, etc. in support of proposed HVAC equipment
- Provide a backflow preventer on the mop sink's chemical detergent supply line.
- Continue to test for radon per CT regulations to ensure levels remain below State thresholds.

Mechanical

General

A condition assessment of the mechanical systems was performed at the Antolini Elementary School in New Hartford, Connecticut. The building is served by a central hot water heating plant with oil-fired boilers and a distributed network of terminal heating equipment. Cooling is provided intermittently, with only select areas of the building served by dedicated cooling systems, including rooftop units (RTUs) and variable refrigerant flow (VRF) heat pumps. Ventilation is provided through a combination of unit ventilators with exhaust fans, air handling units (AHUs), and RTUs, with configurations varying by space and season. The building's mechanical controls are predominantly pneumatic and decentralized with no central building management system in place. Overall, the mechanical systems are of varying age and condition, with several components far past their useful lifespans, some exhibiting signs of deterioration, and others having been upgraded or replaced in recent years. A number of deficiencies were observed during the assessment, and mechanical recommendations to address these deficiencies are included in the sections that follow.

Cooling

Cooling throughout the school is intermittent, with only select areas of the building served by dedicated cooling systems. The auditorium receives cooling from an AAON rooftop unit installed in 2017, and the cafeteria/gymnasium is similarly served by a separate 2017 AAON rooftop unit.

A handful of classrooms are cooled by variable refrigerant flow (VRF) heat pumps installed between 2015 and 2017. The library also receives cooling from a VRF heat pump installed in 2017. The remaining spaces throughout the school do not have mechanical cooling.



Heating

The school's central heating plant consists of two low-pressure, cast-iron hot water boilers that were installed in 2000. Each boiler has a rated output of approximately 2,200 MBH and is fueled by oil, with dedicated oil pumps serving the fuel supply system. Upon inspection, the flues associated with both boilers were observed to be in a deteriorated condition, exhibiting visible signs of rust and corrosion. Hot water is distributed throughout the building by two base-mounted hot water circulation pumps that were installed in 2017, each of which is equipped with a variable frequency drive to modulate flow based on system demand.



Perimeter heating is provided by means of fin-tube radiation or similar terminal units located along corridors and at building entrances to offset heat loss at the building envelope. These are as old as their respective buildings.



Hot water coils are incorporated into all air handling units and unit ventilators throughout the school, serving as the primary means of heating for occupied spaces. In the select areas of the building where VRF heat pumps have been installed, those systems provide supplemental heating capacity to complement the central hot water system.

Ventilation

In classrooms equipped with unit ventilators, outdoor air is introduced through sidewall louvers that feed directly into the unit ventilators, while exhaust is handled by ceiling-mounted exhaust fans that discharge through the wall. Upon inspection, these classroom exhaust fans were observed to be inoperable. In classrooms served by ceiling-mounted air handling units, ventilation air is delivered through supply diffusers and returned through ceiling-mounted return grilles, with the air handling units located in the adjacent corridors.

The auditorium is ventilated by two air handling units installed in 2016, located in closets to the side of the stage, which provide ventilation during the heating season. During the cooling season, ventilation is provided by the rooftop unit installed in 2017. These are separable systems that operate independently depending on the season.



Similarly, the gymnasium and cafeteria receive ventilation from an air handling unit located in the attic during the heating season, with the rooftop unit installed in 2017 providing ventilation during

the cooling season. These are also separable systems that are manually switched depending on the mode of operation.



The kitchen is ventilated by an make up air (MAU) unit located in the attic, which was observed to be manufactured in 1968 and in very poor condition. The air is discharged through rooftop exhaust fans installed in 2015. Other rooftop exhaust fans are responsible for the bathrooms spread around the school.



Controls

The building's mechanical controls are decentralized, with no central building management system (BMS) in place to provide unified monitoring or control of the HVAC systems. The primary control infrastructure is pneumatic, serving the boiler room equipment and air handling units throughout the school. Pneumatic substations are distributed across the building to facilitate local control of these systems. The VRF heat pumps that serve select areas of the building operate on independent DDC controls separate from the pneumatic infrastructure.

Recommendations

Primary Recommendations:

- Provide dedicated outdoor air system (DOAS) units to serve the classrooms, removing the existing unit ventilators, non-functional exhaust fans, and ceiling-mounted air handling units. The DOAS units would be rooftop-mounted, with an estimated five (5) units recommended to maintain smaller zones due to concerns regarding ductwork routing within the crowded ceiling spaces. These units would also serve the adjacent corridors.
- Replace existing hot water radiators throughout the building.
- Remove the existing pneumatic control infrastructure and replace with DDC controls. Centralize all building mechanical systems under a new building management system (BMS).
- Provide variable refrigerant flow (VRF) heat pumps with heat recovery to classrooms that are not currently served by VRF systems.
- Replace the existing air handling unit in the attic serving the cafeteria.

Secondary Recommendations:

- Replace the existing VRF heat pumps that are approaching the end of their expected service life.
- Provide new propane-fired condensing boilers with associated pumps and variable frequency drives to replace the existing oil-fired heating plant.
- Provide destratification fans in the gymnasium to improve air circulation and thermal comfort.
- Consolidate the separable air handling unit and rooftop unit systems currently serving the gymnasium and cafeteria into a single new rooftop unit with hot water heating and direct expansion cooling capabilities.
- Replace the existing rooftop exhaust fans that are approaching the end of their expected service life.

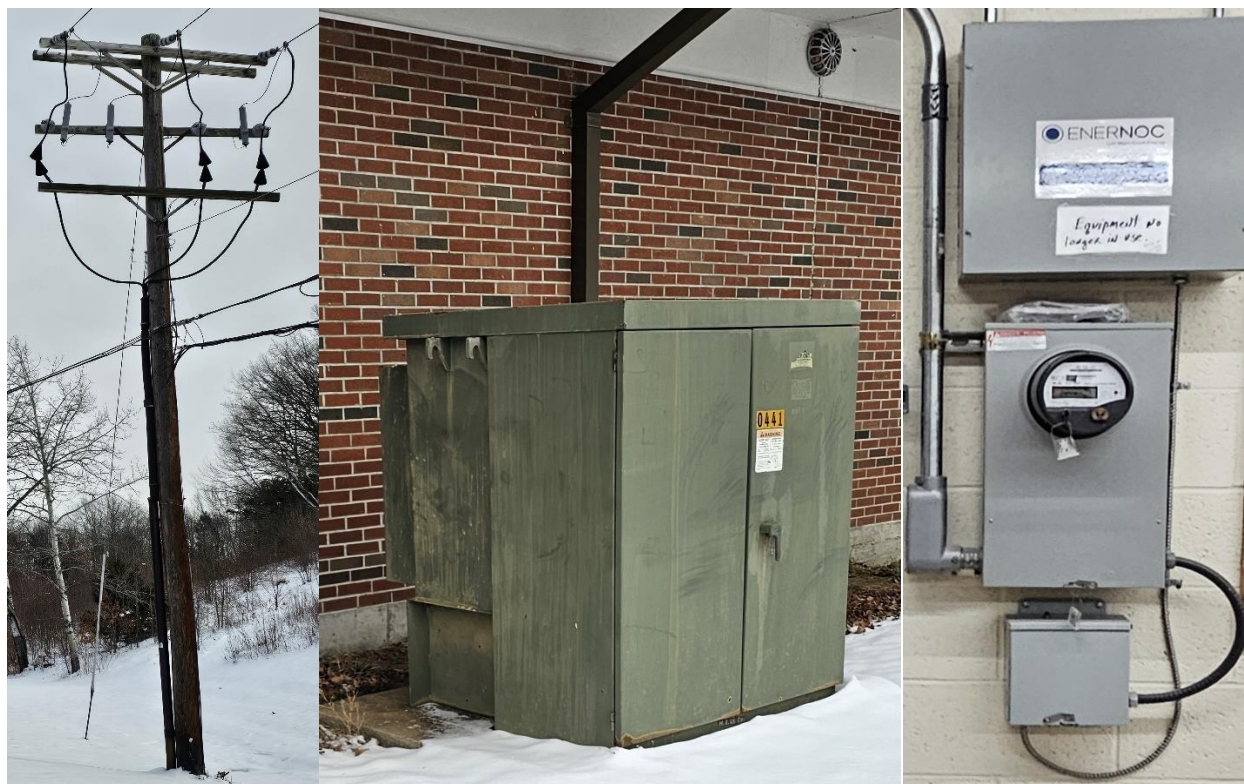
Electrical

General

This assessment reports existing electrical conditions and code violations observed during a walkthrough survey and evaluates equipment lifespan and potential remedial alternatives to improve existing electrical conditions and code compliance. The evaluation was based on visual observation, and therefore, electrical components, equipment, and wiring were not inspected or tested for performance.

Distribution

The school is served by an underground electrical service which originates from a utility pole located at rear of school to a pad mounted utility transformer. From the secondary of utility transformer, the electrical service transforms down to 208Y/120V, 3 Phase, 4-Wire underground into the main disconnect switch rated at 800A, 208Y/120V, 3 Phase, 4-Wire located in the main electrical room with an adjacent wall mounted utility meter. The main switch feeds an adjacent 800A, 208Y/120V, 3 Phase, 4-Wire main distribution panel that then feeds multiple panels and equipment located throughout the facility. The main distribution panel, manufactured by General Electric, is in fair condition. Boiler room panel and recessed panels throughout the facility in corridors and kitchen manufactured by General Electric are NLAB models and are in fair condition. All other panels that are newer throughout the facility manufactured by General Electric are A-Series models and appear to be in good condition. The electrical panels in the common area corridors were not locked and can be accessed by non-authorized personnel. The circuit breakers serving the fire alarm system, security system, and network system lack lock-on breaker devices.



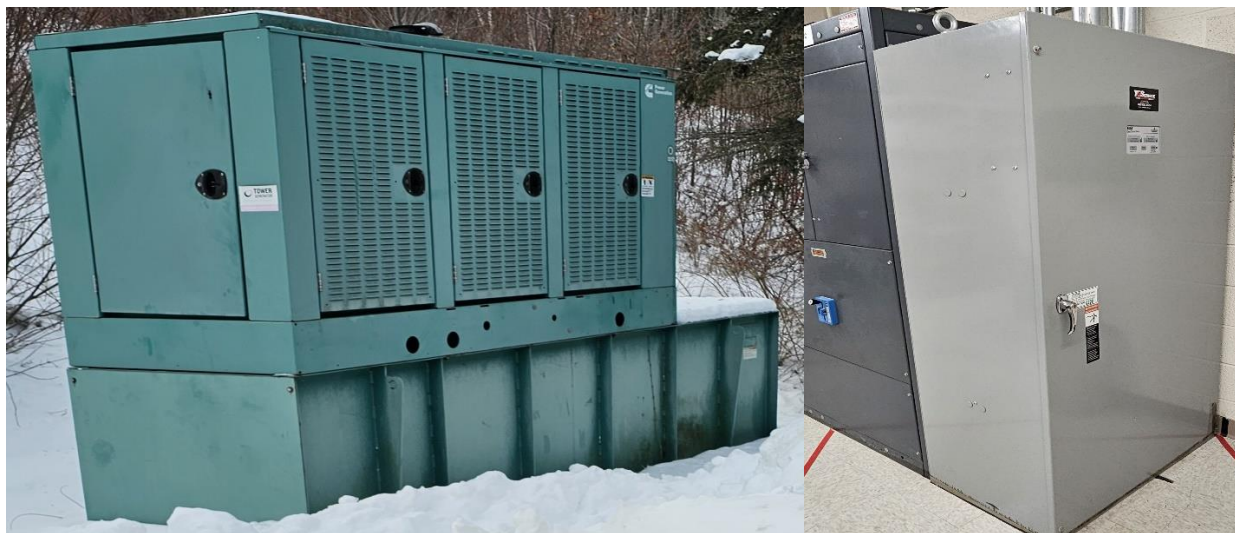


The fire pump building has a separate electrical service and is served by an underground 208Y/120V, 3 Phase, 4-Wire electrical service which originates from pole-mounted utility transformers on Eversource pole #2475 located across the street from fire pump house. From the secondary of utility transformers, the electrical service transforms down to 208Y/120V, 3 Phase, 4-Wire and goes overhead to another utility pole adjacent to fire pump house then underground to an exterior wall mounted utility meter and into the building to 100A main circuit breaker in a 208Y/120V, 3 Phase, 4-Wire panel manufactured by General Electric A-Series model and appears to be in good condition.



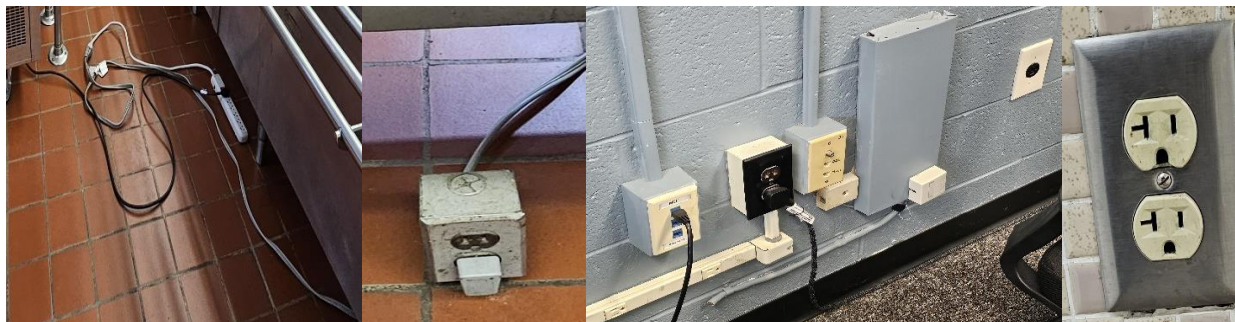
Generator

The school has an exterior pad mount Cummins generator located at the back of the school that backs up the entire school in the event of a power outage. The system is diesel fired and includes an above-ground 500-gallon fuel tank below the generator. The generator is exercised weekly and maintained by Tower Generator. The age of the generator was not available but has been there longer than the present head of maintenance, over 12 years.



Power

Receptacles throughout the facility consist of both recessed and surface mounted units. The condition of power receptacles throughout the facility varies from good to poor condition. There are several outlets within 6' of a water source that are not GFCI type and not labeled GFCI protected. The use of some extension cords was noted due to a lack of receptacle coverage. Disconnect switches for mechanical & plumbing equipment appear to be in fair to poor condition. Exposed wiring in junction/back boxes without cover plates was noticed in several classrooms. There was no visible sign of any older wiring with cloth insulation.





Lighting

Interior lighting throughout the classrooms, offices, and corridors consists of recessed, surface, and pendant mounted fixtures in library with LED lamps with either parabolic or acrylic lens style. Gym/Cafeteria has 4' surface mounted LED lamp fixtures with acrylic lens. Most fixtures throughout the facility were originally fluorescent and have been retrofit with LED lamps and drivers. Classroom lighting fixtures are controlled via a combination of ceiling occupancy sensors and single pole toggle switches for dual switching of inner & outer lamps. Corridor lighting controls are via 3-way toggle switching at each end of corridors. Mechanical rooms have RLM type fixtures or surface mounted LED fixtures with manual single pole toggle switches for control. Building exterior perimeter light fixtures are a mix of wall pack LED fixtures with a few flood lights, controlled via timeclock and appear to be in good to fair condition.



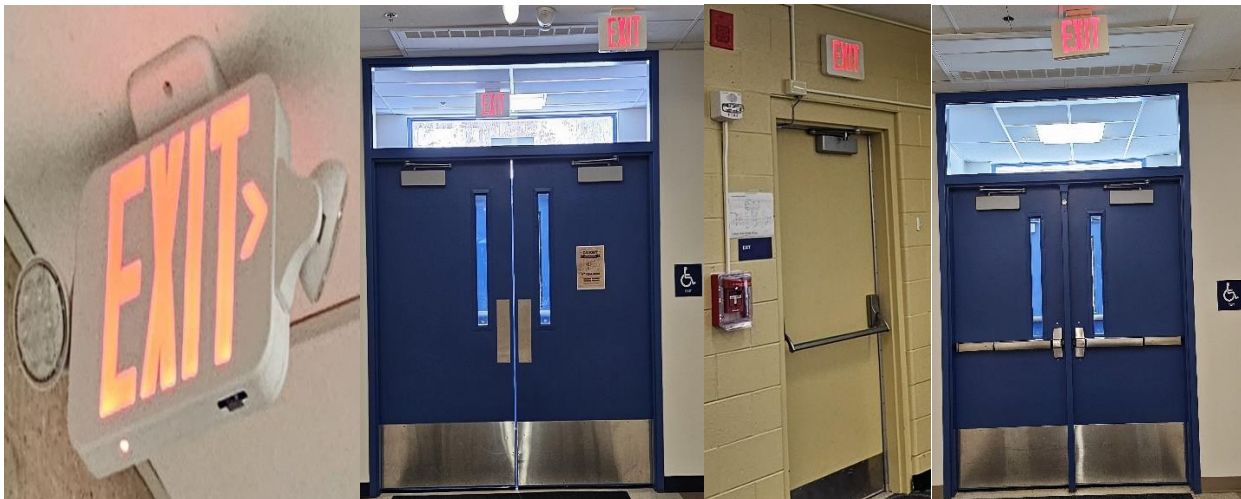
Emergency Lighting

The emergency lighting consists of mainly ceiling and wall mounted twin-head battery units with remote heads on the exterior wall at egress doors. These fixtures appear to be in good condition and appear to be adequate quantities to meet the egress lighting requirements.



Exit Signs

The exit light fixtures are LED with thermoplastic housing throughout the facility. Most exit light fixtures appear to be in good condition.



Fire Alarm

The building addressable fire alarm system is manufactured by Simplex. The main panel is located in the main electrical room with an annunciator panel at the front entrance and a voice control panel located in the gym/café. All equipment appears to be in good condition. There are pull stations at egress doors, as well as notification devices throughout the facility and smoke or heat detectors in non-occupied rooms. Fire separation doors with magnetic door hold open devices are wired into fire alarm system for release upon fire alarm activation. Most devices appear to be in good condition.



Telecommunications and Audio/Visual

There is a main network rack located in an enclosed and temperature-controlled room suitable for data networks. Network and wi-fi equipment appear to be regularly upgraded and no significant issues were reported. The building is served by a new cloud-based VOIP telephone system which was installed in 2024. The intrusion detection system manufactured by Gemini is in the main electrical room and serviced by Associated Security has been recently upgraded. Video surveillance cameras and access control are by Verkada. These are in good condition. The building has a lockdown system with panic buttons accessible to staff. The Program Time Controller panel located in main office, which is manufactured by Standard Faraday is active and appears to be in good condition. The public address system is reported to be fully operational but is at least 15 years old. Promethean interactive instruction boards are installed in all classrooms and are in good condition.



Recommendations

Distribution

All panels are still supported by the manufacturer, and replacement parts are available. All electrical panels in public areas should be locked. Lock-on devices should be installed on all circuit breakers serving security system panel and devices, all network communications equipment, and master intercom control panel to prevent being shut off accidentally or intentionally by non-authority. All panel circuit directories should be typed per current NEC, and all old handwritten directories should be removed. This process will help in problem solving of future electrical issues that may arise. All circuit breakers with no branch circuit wiring should be turned to off position and labeled "spare" on panel circuit directory. While further verification with a preliminary HVAC design is required to confirm the existing service capacity sufficiency, it appears unlikely that the 800 amp service would be capable of serving a full building air conditioning project. The existing main service disconnect switch and main distribution panel would need to be replaced or supplemented, and this cost has been included in the project estimate. Several additional sub-panels would also be required for the full HVAC improvement project.

Generator

Generator appears to be well maintained but would need to be replaced along with the transfer switch for a full-building air-conditioning project if the entire building is desired to be backed up by the generator. This is not mandatory and a solution powering only selected loads could be evaluated.

Power

Tamper-proof receptacles should be considered in classrooms, offices, and corridors as required by the current NEC when they are being replaced. The use of extension cords to reach electrical loads from receptacles is a Code violation. Additional receptacles, with a dedicated branch circuit, should be added to each room in locations as required to eliminate the need for extension cords. All broken receptacles and cover plates should be replaced. All Kitchen area receptacles and all general receptacles within 6' of a water source must be GFCI type or labeled, GFCI Protected, if protected from load side of a GFCI type receptacle or GFCI type circuit breaker. Disconnect switches for mechanical, plumbing, and kitchen equipment in fair condition should be replaced with the replacement of equipment and disconnect switches in poor condition should be replaced as soon as possible. If a full renovation is planned, general tamper-proof receptacles must be placed throughout the facility. Occupancy controlled receptacles are required per Energy Codes (ASHRAE 90.1 / IECC) to automatically shut off power to devices when not in use if a full building renovation is performed.

Lighting

While the LED retrofit condition provides reasonable energy efficiency, the housings are nearing the end of their useful life and additional efficiency could be achieved with the installation of all new LED fixtures. Full replacement of interior lighting should be considered, especially if an upcoming project is planned which would require removal of most existing ceilings. Such a lighting replacement would provide further improvement in lighting efficiency and allow for incorporation of enhanced lighting controls with dimming and daylight harvesting. The attached estimate includes a full replacement of the interior and exterior lighting and associated controls.

Emergency Lighting

Suggest monthly testing and replacing of emergency light fixtures upon test failure. Emergency light fixtures should be numbered along with a log indicating tested and replacement/installation dates. If the interior and exterior lighting replacement noted above takes place, a superior emergency lighting solution could be included, including central inverter units to provide emergency backup power to some of the normal light fixtures as required for emergency egress coverage or battery pack units integral to these new normal light fixtures.

Exit Signs

ADA/accessible LED signage will need to be added to cover current code requirements at all exterior accessible egress doors if renovations are planned to be made to the facility.

Fire Alarm

The existing Simplex fire alarm control panel should be capable of serving the building for the foreseeable future.

Telecommunications

No suggestions based on observation that the main network rack is in an enclosed and climate-controlled room for best performance and prevention of premature equipment failure. Possibly a temperature sensor with an alarm for notification if temperature goes above recommendation by network manufacturer.

Electrical Code Violations

- Lack of lock-on device on circuit breaker feeding the fire alarm system equipment. Code requires that the breaker must have a lock employed to prevent accidental or intentionally by non-authority.



Lock-on Device



Lock-on Device Kit

ANTOLINI SCHOOL FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING					ITIMIZED ESIMATED COST	REMARKS
			4	3	2	1	n/a		
SITE CONDITIONS									
S01	There is no direct ramp at the auditorium and gym area	413.6 (ADA) 1101.2 (IBC) ANSI 117.1			2			\$ 22,000	✓
SITE SUBTOTAL									\$ 22,000
EXTERIOR CONDITIONS									
A01	Brick is spalling or mortar is in need of repointing	General		3				\$ 30,000	Allowance
A02	Control joints are cracking and failing	General		3				\$ 4,000	
A03	Expansion joints are failing (water infiltration noted in one area inside)	General			2			\$ 10,000	
A04	Some lintels are rusting	General		3				\$ 1,000	
A05	Some soffits have seams that are spreading	General		3				\$ 1,200	
A06	Roof is in good condition at about 10 years old	Maint.	4					\$ 25,000	
EXTERIOR SUBTOTAL									\$ 71,200
INTERIOR CONDITIONS									
A07	Antiquated locker rooms are in disrepair and used as storage and office space - tile failing at walls and floors	General	4					\$ 487,500	✓
A08	Minor wear to ground-face CMU in corridors	Maint.	4					\$ 3,000	
A09	Minor wear to ceramic tile joints	Maint.	4					\$ 4,000	Allowance
A10	Ceilings are in fair condition with some limited issues exceeding useful life - with mechanical scope all ceilings should be replaced	General	4					\$ 476,750	✓
A11	Repair gypsum ceiling at Media	General	4					\$ 3,500	
A12	Wired glazing is in some door and windows - no longer be used in doors, sidelites or any other hazardous location.	IBC 2406			2			\$ 6,000	✓
A13	Stair configurations at stage sides are not compliant - handrails not compliant and riser height exceeds maximum	1011.5 (IBC) 505.10 (ADA)			2			\$ 6,500	✓
A14	The required toilet grab bars are not installed	(B)1108.0 (ANSI A117.1) 603-606			2			\$ 3,500	✓
A15	Pipe guards are not installed in all restrooms or kitchen	606.5 ADA			2			\$ 7,500	✓
A16	Casework through the school is not compliant due to its height or configuration: insufficient knee space provided at sink	ADA 606 4.32 (ADA)			2			\$ 105,000	(Assumes 14 locations) ✓
A17	Classroom signage is not compliant	ADA 703			2			\$ 38,500	✓

ANTOLINI SCHOOL FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING				CORRECTIVE ACTION	ITIMIZED ESIMATED COST	REMARKS
A18	The gymnasium doesn't have any wall pads likely due to the fold out tables that line the perimeter	Safety	4				Install wall pads where possible.	\$ 41,600	☒
A19	Heat trace required at all restroom sinks - See Plumbing Tag No. P08	C404.5.1			2		Remove portion of wall at plumbing fixtures to install equipment. Infill wall with like materials.	\$ 24,000	Allowance, Hazmat potential - There may be lead, asbestos or PCBs
A20	New mechanical roof top equipment will require structural supports or modifications	General			2		Provide engineered steel reinforcing, curbs or dunnage require to support RTUs	\$ 72,000	Allowance, See tag No. M10
A21	Abatement will be needed for many suggested and necessary improvements	HBM			2		Abate and remove hazardous materials	\$ 290,885	ALLOWANCE based on \$5 per SQ FT
INTERIOR SUBTOTAL									\$ 1,570,235
PLUMBING/FIRE PROTECTION									
P01	Possibility of lead in piping	CT HB-6761		3			The water supply should be tested for lead content and remediated as required.	\$ 3,800	Hazmat potential - there may be lead, asbestos or PCBs
P02	Pipes have corrosion and missing pipe insulation in mechanical / water service room	IECC C404.5		3			Provide new and continuous pipe insulation on existing pipe to prevent corrosion	\$ 13,000	
P03	Kitchen water heaters are past their serviceable life expectancy and are located in an inappropriate area	General			2		Replace the 80 gallon kitchen electric water heaters in kind as they are both past their serviceable life expectancy and relocate to an appropriate area with floor drain or provide drain pan with leak detector	\$ 45,000	qty 2x \$22.5K each
P04	East and West wing water heaters are past their serviceable life expectancy	General			2		Replace the east and west wing 30 gallon electric water heaters in kind as they are both past their serviceable life expectancy, provide drain pan with leak detector.	\$ 26,000	qty 2x \$13K each
P05	Master thermostatic mixing valve not provided for water heaters	IPC 613.1			2		Provide ASSE 1017 rated master thermostatic mixing valves with temperature gauge on all water heaters except unit serving the Nurse area eyewash	\$ 22,500	qty 3x \$7.5K ea.
P06	Scald prevention device not observed on lavatories	IPC 419.5			2		Provide ASSE 1070 rated thermostatic mixing valves on all handwashing lavatories	\$ 10,500	qty 21x
P07	Water heater pressure relief valves discharging to buckets	IPC				1	Provide thermal expansion tanks on each water heater to manage pressure fluctuations	\$ 6,700	qty 4x
P08	Provide means of hot water temperature maintenance serving lavatories per IECC requirements	C404.5.1		3			Install electric heat trace with insulation on un-recirculated piping serving lavatories up to 2' of the fixture	\$ 26,000	Item required by current code, but likely not during time of original installation
P09	Service and inspect septic system(s) and pump out tank(s) accordingly.	General	4				Service and inspect septic system(s) and pump out tank(s) accordingly.	\$ 2,500	
P10	Camera scope and snake clean all drains and below slab sanitary piping	General		3			Camera scope and snake clean all drains and below slab sanitary piping	\$ 5,500	
P11	Provide trap seal barrier on existing floor drains to prevent traps from drying out	IPC 1002.4.1.4			2		Provide trap seal barrier on existing floor drains to prevent traps from drying out	\$ 1,200	
P12	School cooks meals for Bakerville & New Hartford, determine if grease waste is produced	CT PHC			2		Provide a point of use automatic grease recovery unit on required sinks	\$ 15,000	TBD if this is required, cost is a place holder
P13	The kitchen is classified as type IV requiring a grease trap	CT PHC			2		Provide a point of use automatic grease recovery unit on required sinks	\$ 10,000	
P14	Some plumbing fixtures are dated / original to the building	General	4				Replace legacy Plumbing fixtures with new per Architectural program	\$ 12,000	

ANTOLINI SCHOOL FACILITY CONDITIONS ASSESSMENT									
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING			CORRECTIVE ACTION	ITIMIZED ESIMATED COST	REMARKS	
P15	Domestic water cross contamination potential on detergent feed	IPC 608.1			1	Provide a backflow preventers on chemical detergent supply line to prevent hazardous cross contamination	\$ 3,300	qty 2x	
P16	Exterior gas piping is rusting	NFPA 54, 7.1.3			1	Paint all exterior propane piping corrosion resistant per NFPA.	\$ 250		
P17	Radon testing	General			2	Continue to test for radon per CT regulations to ensure levels remain below State thresholds	\$ 3,500		
P18	Proposed HVAC equipment will be gas fired	General			1	Provide, gas piping, fittings, hangers, regulators, etc. in support of proposed HVAC equipment	\$ 60,000		✓
P19	Proposed HVAC equipment will require condensate drainage	General			2	Provide condensate piping, fittings, insulation, hangers, etc. in support of proposed HVAC equipment	\$ 5,500		✓
FP01	Continue to maintain & test all systems per NFPA 25 and equipment manufacturer's requirements	NFPA 25			2	Continue to maintain & test all systems per NFPA 25 and equipment manufacturer's requirements	\$ -	no additional cost	
FP02	Some piping is corroded in the Pump House	NFPA 13 16.4.2			1	Paint / touch up corroded piping	\$ 5,500		
FP03	Replace the Fire Pump and Diesel Engine and components with in the next 5 years	General			2	Replace the Fire Pump and Diesel Engine and components with in the next 5 years.	\$ 75,000		
FP04	Proposed HVAC upgrades include new ductwork, structure, and equipment	General			2	Adjust existing sprinkler system to facilitate installation of new HVAC ductwork, structure, and equipment	\$ 38,500		✓
PLUMBING/FP SUBTOTAL								\$ 391,250	
MECHANICAL SYSTEMS									
M01	Install a Remote BMS	General			3	Remove pneumatic controls around the building and replace with electric controls centralizing into a BMS.	\$ 590,000		✓
M02	Install new Variable Refrigerant Heat Pumps	General			2	Provide VRF Heat Pumps to classrooms that only have a unit ventilator with hot water (HW) coil.	\$ 914,000		✓
M03	Replace Variable Refrigerant Heat Pumps nearing end of life	General			3	Replace VRF Heat Pumps currently installed on site. They were installed in 2015-2017 and are approaching their average 15-year lifespan.	\$ 280,000		✓
M04	Install Dedicated Outside Air Units (DOAS)	2021 IMC 401.2			2	Replace unit ventilators and ceiling mounted air handling units (AHUs) with roof-mounted dedicated outside air units (DOASs) to provide code applicant, tempered outside into spaces.	\$ 699,000		✓
M05	Replace Kitchen Make-up Air Unit (MAU)	2021 IMC 401.2			2	Replace 1968 make-up air unit (MAU) that serves the kitchen with a new MAU. Furnish with HW coil for heating and DX coil for cooling. Provide Class IV Hood within kitchen.	\$ 74,000		✓
M06	Replace Terminal Heating Radiators	2021 IMC 309.1			2	Replace existing hot water radiators and piping throughout the building as they are past their expected lifespans and are in poor quality.	\$ 515,000		✓
M07	Destratification Fans	General			3	Provide destratification fans into the gymnasium/cafeteria to improve air circulation and thermal comfort in high-ceiling space.	\$ 27,000		✓
M08	Consolidate mechanical system within Gymnasium/Cafeteria	2021 IMC 401.2	4			Consolidate AHU used in the heating system and the RTU unit used in cooling season, into one RTU with HW heating and DX cooling capabilities.	\$ 157,000		✓
M09	Consolidate mechanical system within auditorium	2021 IMC 401.2	4			Consolidate AHU used in the heating system and the RTU unit used in cooling season, into one RTU with HW heating and DX cooling capabilities.	\$ 128,000		✓
M10	Install Rooftop Unit for Library	2021 IMC 401.2			2	Provide a RTU with HW coil and DX coil to serve the library.	\$ 128,000		✓

ANTOLINI SCHOOL FACILITY CONDITIONS ASSESSMENT											
Tag No.	Assessment	System/ Code Ref.	Ranking			Corrective Action	Itemized Estimated Cost	Remarks			
M11	Remove and replace existing fuel tank	2021 IMC 309.1			1	Remove (2) existing oil tank and install (2) new propane tank underground	\$ 700,000			✓	
M12	Install two (2) hot water pumps and VFDs	2021 IMC 309.1			2	Provide base-mounted HW pumps with new VFDs	\$ 88,000			✓	
M13	Install two (2) propane fired condensing boilers, replace hot and HW piping and insulation within central heating plant	2021 IMC 309.1			1	Provide new propane-fired condensing boilers, HW piping, and accessories within the boiler room	\$ 201,000			✓	
M14	Install Commercial Kitchen Hood for class IV kitchen and corresponding exhaust fan	2024 IMC 506/507			2	Install Commercial Kitchen Hoods for class IV kitchen and remove and replace corresponding exhaust fans	\$ 62,000			✓	
M15	High Priority Mechanical Demolition	General			1	Remove Boilers, Pumps, VFDs, and HW Piping within central heating plant. Remove bathroom exhaust fans and corresponding ductwork and controls.	\$ 28,000			✓	
M16	Medium Priority Mechanical Demolition	General			2	Remove outdoor heat pump units, fan coil units, and associated piping.	\$ 4,000			✓	
M17	Low Priority Mechanical Demolition	General	4			Remove Rooftop units, associated ductwork, and controls.	\$ 3,000			✓	
MECHANICAL SUBTOTAL								\$ 4,598,000			
ELECTRICAL SYSTEMS											
E01	Circuit index cards for electrical panels are not per code	NEC Article 408.4(A)	4			Trace all active circuits for electrical panels and updated circuit index cards with legible permanent clear identification of every circuit.	\$ 13,000				
E02	Source of supply for electrical panels is not indicated on panels per code	NEC Article 408.4(B)	4			Trace electrical feeders for all panels and install label, indicating each device or equipment where the power originates, permanently affixed to panel and not handwritten.	\$ 6,500				
E03	Lack of lock-on device on circuit breaker feeding the fire alarm system equipment	NEC & NFPA 72 Section 10.6.5.4			1	Install a fire alarm lock-on device kit on circuit breaker feeding fire alarm equipment.	\$ 500				
E04	Electrical panels in public areas are not locked				2	Lock all panels in public areas. Replace all locking mechanisms that are not functioning properly.	\$ 400		Recommended good practice to prevent unauthorized access.		
E05	Lack of circuit breaker lock, in the on position, feeding the security system, network communications, and master intercom equipment				2	Install a circuit breaker lock, in the on position, for security system, network communications, and master intercom equipment.	\$ 300		Recommended good practice to prevent intentionally or accidentally terminating power to these systems.		
E06	General power receptacles and cover plates are in fair and poor condition	NEC Article 406.9 & 210.8(B) (1-12)			2	Test all power receptacles for proper wiring and fix as required. Replace all broken receptacles and cover plates or have loose plug-in connections. New receptacles must be tamper-resistant in all public areas and GFCI protected within 6 feet of water source.	\$ 5,000		Tamper-resistant receptacles are required by current code for major building renovation.		
E07	Lack of general power receptacles in classrooms requiring the use of extension cords	NEC Article 406.9			2	Install tamper-resistant receptacles in various locations to eliminate the need for extension cords.	\$ 12,500		This will require a study to determine the quantities required in each room.		
E08	Non-GFCI type or protected kitchen power receptacles & equipment	NEC Article 406.9 & 210.8(B) (1-12)			2	Test all power receptacles for proper wiring and fix as required. Replace all non-GFCI type or protected, all broken receptacles and cover plates or have loose plug-in connections. New receptacles must be tamper-resistant and GFCI protected.	\$ 5,000				

ANTOLINI SCHOOL FACILITY CONDITIONS ASSESSMENT										
TAG NO.	ASSESSMENT	SYSTEM/ CODE REF.	RANKING				CORRECTIVE ACTION	ITIMIZED ESIMATED COST	REMARKS	
E09	Replace Interior light fixtures & non-compliant energy code controls	Energy Code		3			Replace all interior light fixtures and controls with LED fixtures and controls with dimming, occupancy, and daylight harvesting to comply with current energy codes.	\$ 580,000	Required for major building renovation only per current codes.	
E10	Non dark sky & energy code compliant exterior light fixtures	Dark Sky & Energy Code		3			Replace all exterior light fixture with Full cutoff 3000K LED fixtures to minimize light pollution, glare, and light trespass to comply with dark sky and current energy codes.	\$ 9,000	Required for major building renovation only per current codes.	
E11	Lack of ADA accessible exit light fixtures at accessible egress doors	ADA	4				Replace or Add ADA accessible exit light fixtures with the international symbol of accessibility (ISA) for wheelchair access at accessible egress doors.	\$ 2,000	Required for major building renovation only per current codes.	
E12	Mechanical equipment being replaced due to age per mechanical report	General				1	Demo & New power for mechanical equipment being replaced.	\$ 10,000		
E13	Additional equipment per mechanical report	General			2		New power for additional mechanical equipment.	\$ 30,000		
E14	Plumbing equipment being replaced due to age per plumbing report	General				1	Demo & New power for plumbing equipment being replaced.	\$ 2,500		
E15	Plumbing piping heat trace being added per plumbing report	General		3			New power for additional plumbing piping heat trace.	\$ 2,000		
E16	Existing electrical service is not sized for air conditioning project	General			2		Demo & new electrical service upgrade for air conditioning project	\$ 180,000		☒
E17	Existing generator and transfer switch is not sized for air conditioning project	General		3			Demo existing & new generator and transfer switch for air conditioning project	\$ 90,000	Powering of entire building is optional.	☒
ELECTRICAL SUBTOTAL									\$ 948,700	
TOTAL ESTIMATED COSTS								\$ 7,601,385		
15% GENERAL CONDITIONS								\$ 1,140,208		
10% OWNER CONTINGENCY								\$ 760,139		
10% ESTIMATING CONTINGENCY								\$ 760,139		
CONSTRUCTION TOTAL								\$ 10,261,870		
25% SOFT COST								\$ 2,565,467		
PROJECT TOTAL*								\$ 12,827,337		
* Escalation should be considered to be added for each additional year. We are currently tracking escalation at 6% per year.										
* Hazardous material testing, inspections and abatement was included as an ALLOWANCE and needs to be addressed by an environmental engineer. We typically do not include this scope within these types of report without one. Considering the conditions at Bakerville, we felt it was important have some type of placeholder at each school as this will potentially increase both construction and soft costs.										

LEDGEND

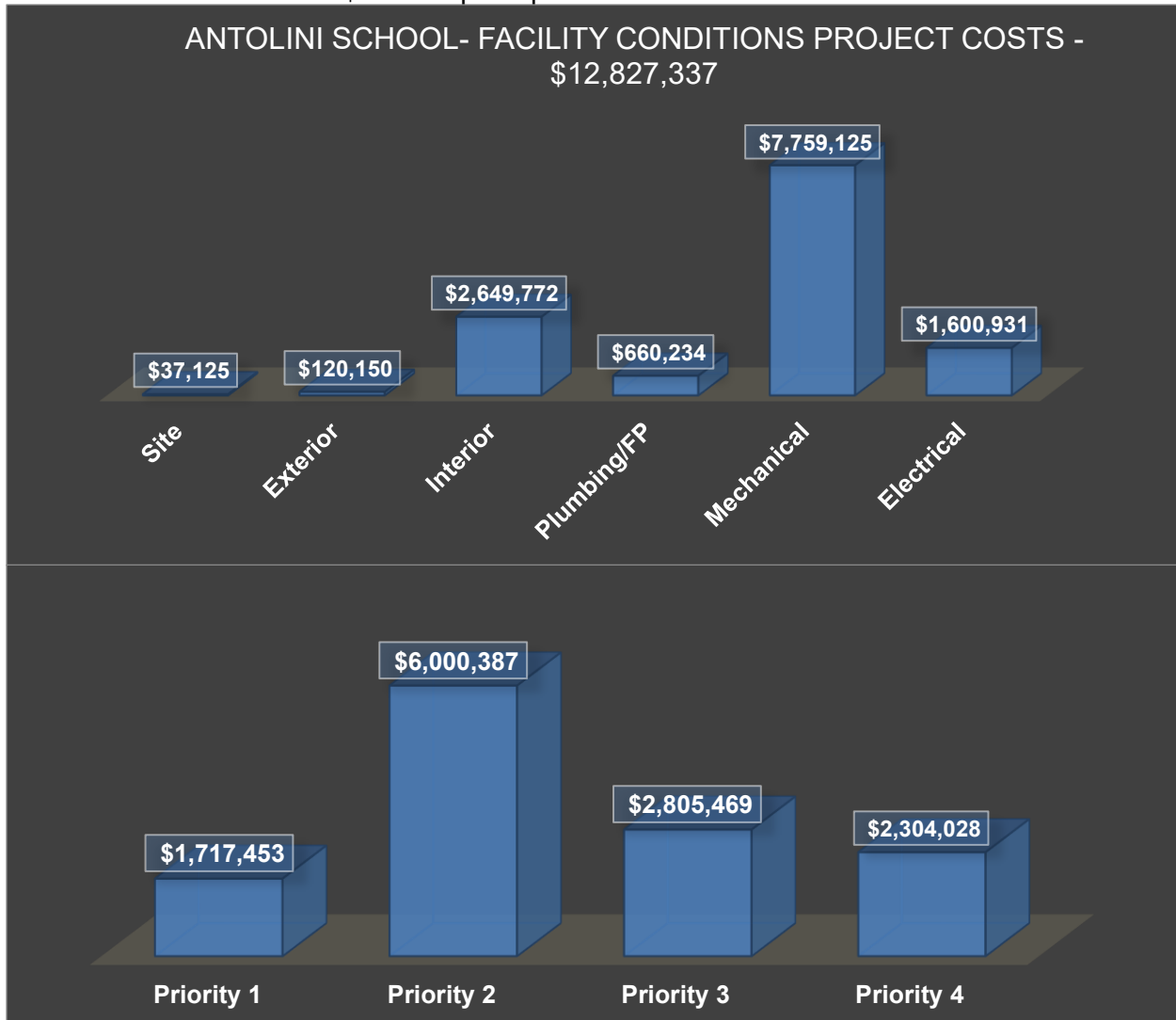
1	Urgent priority - These items should be corrected as soon as possible and most likely encompass code, health and life safety issues.
2	High priority - These items should be corrected within a reasonable amount of time after the highest priorities referenced above. These may be associated with high priority maintenance issues or accessibility issues for the physically challenged. Maintenance items have a remaining useful life from 1-3 years.
3	Moderate priority – These items may be associated with aesthetic or general maintenance issues. Remaining useful life of 3-5 years.
4	Low priority – These items include maintenance and aesthetic issues that are not in current need of replacement, but should continue to be monitored on a regular basis. These items typically have a remaining useful life of 5-10 years or greater.
☒	There may be potential state reimbursement based on the town's rate and school enrollment through the CT Department of Administrative Services Office of Grants Administration School Construction Projects for eligible projects.

Summary

The preceding pages include the spreadsheets itemizing conditions organized by category; site, exterior, interior, plumbing, fire protection, mechanical and electrical. These issues are ranked on a scale from 1 to 4 with 1 being the most urgent. Recommendations are provided to address these issues. Associated cost estimates are also prepared for the applicable items.

Antolini School is a well-maintained building. The last major upgrades date back to 1990 & 1992 when the ends of the building were added, bringing many systems to the end of their useful life. The infrastructure systems are antiquated, and there are some general maintenance and accessibility improvements needed. These are reflected in the associated costs of the facility seen in the spreadsheets.

When evaluating the overall facility condition assessment estimate, the project totals just over \$12.8 million, can also be evaluated as \$220 per square foot. Note that this cost addresses only the line items listed within the spreadsheet, not extensive renovations, or reconfigurations to other spaces unless otherwise noted. This would further increase costs. In comparison the cost for new construction is around \$1000+/- per square foot.



FACILITY CONDITIONS SUMMARY

This report contains a comprehensive and objective assessment of the current condition of the district's three school facilities. Overall, the buildings continue to serve their intended purpose and are well-maintained; however, with most aging public facilities, several building systems are approaching or have reached the end of their useful life. The assessment identified deferred maintenance items, aging plumbing, mechanical and electrical infrastructure, building envelope deficiencies, and select accessibility and life safety improvements that should be addressed. While many conditions are typical for facilities of this age, proactive intervention will be necessary to prevent escalation of repair costs and potential disruption to educational operations.

The projected costs outlined in this report do not yet reflect potential reimbursement opportunities through the Connecticut Department of Administrative Services Office of Grants Administration for School Construction. Eligible non-priority projects may include roof and window replacements, HVAC upgrades, and code or accessibility improvements. Larger-scale renovations qualify as priority projects and may be submitted annually, subject to district enrollment projections. Based on current figures, New Hartford's 2026 reimbursement rate is 45.71%, though this may adjust depending on school enrollment projections. As the district-wide study advances, reimbursement opportunities will be evaluated and incorporated into financial planning scenarios.

School	Site	Architectural	Plumbing / FP	Mechanical	Electrical	Total
Bakerville School	\$ 58,185	\$ 5,882,903	\$ 1,318,359	\$ 3,682,125	\$ 752,119	\$ 11,693,692
New Hartford Elementary	\$ 54,540	\$ 5,699,287	\$ 437,063	\$ 4,736,813	\$ 1,087,594	\$ 12,015,295
Antolini School	\$ 37,125	\$ 2,769,922	\$ 828,984	\$ 7,759,125	\$ 1,600,931	\$ 12,996,087
TOTAL COST	\$ 149,850	\$ 14,352,112	\$ 2,584,406	\$ 16,178,063	\$ 3,440,644	\$ 36,705,074

Facility Conditions Priorities							
School	Priority 1	Priority 2	Priority 3	Priority 4	Total	sq ft	cost per SQ FT
Bakerville School	\$ 1,183,275	\$ 7,627,576	\$ 2,200,863	\$ 681,978	\$ 11,693,692	18,483	\$ 633
New Hartford Elementary	\$ 1,318,748	\$ 6,675,893	\$ 2,405,548	\$ 1,615,106	\$ 12,015,295	23,405	\$ 513
Antolini School	\$ 1,970,578	\$ 5,916,012	\$ 2,805,469	\$ 2,304,028	\$ 12,996,087	58,177	\$ 223
TOTAL COST	\$ 4,472,601	\$ 20,219,482	\$ 7,411,880	\$ 4,601,112	\$ 36,705,074	100,065	\$ 367

The Facility Condition Index (FCI) is a nationally recognized asset management metric used to evaluate the overall physical condition of a building in a clear and objective manner. It is calculated by dividing the total cost of identified deficiencies and needed repairs by the building's estimated current replacement value, resulting in a percentage that represents the relative condition of the facility. This ratio allows buildings of different sizes and ages to be compared equitably using the same standard. Lower percentages indicate facilities in better condition with manageable capital needs, while higher percentages reflect increasing levels of deferred maintenance and reinvestment requirements. Industry benchmarks generally consider facilities below 10% to be in good condition, 10–30% to require planned reinvestment, 30–60% to require significant capital improvements, and above 60% to warrant consideration of major renovation or replacement. By translating complex building data into a single, understandable metric, FCI provides a transparent and defensible framework for prioritizing capital investment and guiding long-term facilities planning decisions.

The Facility Condition Index (FCI) analysis provides the district with more than a snapshot of current building conditions—it establishes a clear roadmap for the future. With Bakerville School at 63%, New Hartford Elementary School at 51%, and Antolini School at 22%, the data highlights both urgent needs and strategic opportunities. Bakerville’s score indicates that reinvestment may no longer be the most fiscally responsible long-term solution, prompting serious consideration of replacement. New Hartford requires substantial capital improvements to ensure continued functionality and reliability, while Antolini, although in comparatively stronger condition, will benefit from proactive investment to prevent further deterioration.

A clear understanding of each building’s condition is foundational to developing a comprehensive district master plan. Aligning identified needs with available funding opportunities will be critical as financial strategies are developed and options are evaluated. Facilities follow predictable life cycles—they do not improve on their own, nor do they fail all at once. Acting now allows the district to manage timelines, control costs, and make strategic decisions rather than respond to emergencies. Proactive investment shifts the focus from reactive repair to long-term stewardship.

This Facility Conditions Assessment is more than a report; it is a decision-making tool. It establishes priorities, outlines financial considerations, and provides a roadmap for informed, deliberate action. Most importantly, it marks the beginning of a strategic, phased approach to ensuring the district’s schools remain safe, reliable, and aligned with community expectations for decades to come.

