Beaver Dam
UNIFIED SCHOOL DISTRICT
Guiding Students. Empowering Futures.

2018 Facility Assessment Plan

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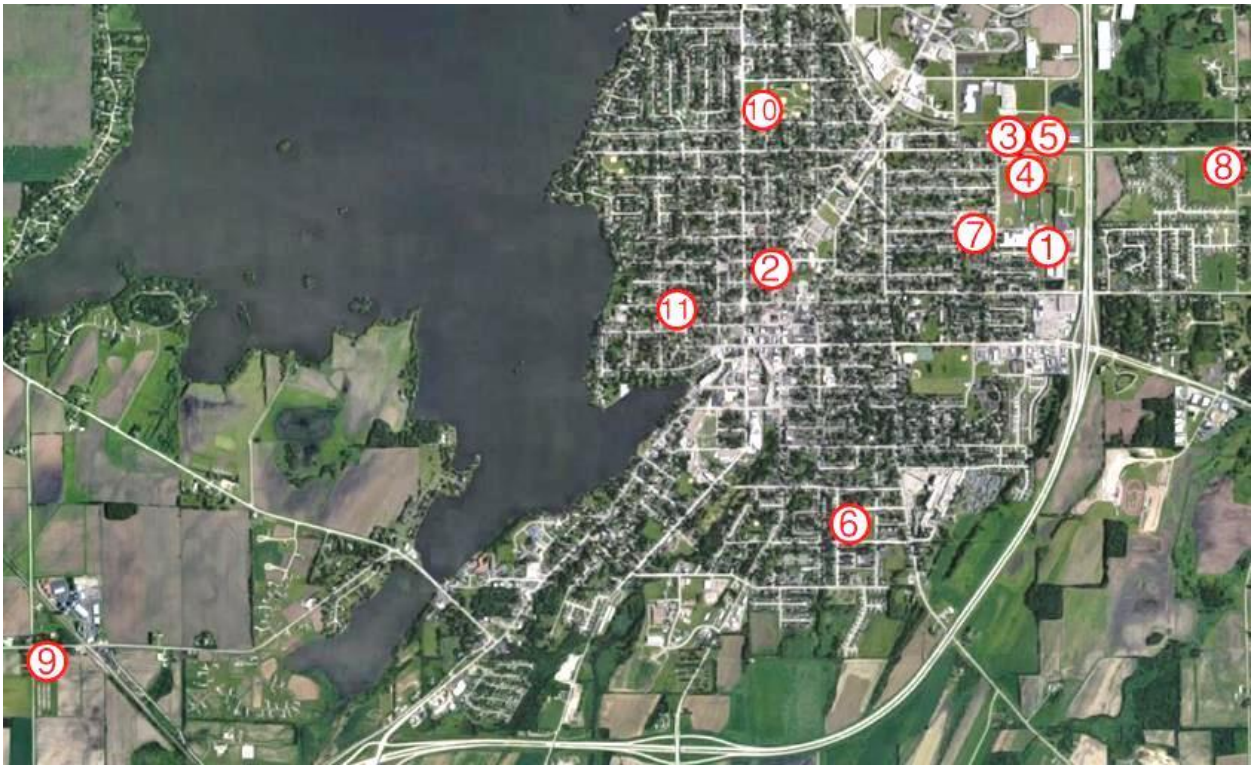
School District Location Map



Aerial View of Beaver Dam

Legend

1. Beaver Dam High School
2. Beaver Dam Middle School
3. Don Smith Learning Academy
4. Educational Services Center
5. Maintenance Building
6. Jefferson Elementary School
7. Lincoln Elementary School
8. Prairie View Elementary School
9. South Beaver Dam Elementary School
10. Washington Elementary School
11. Wilson Elementary School

General District Information

The Beaver Dam Unified School District includes the Beaver Dam High School, Beaver Dam Middle School, Don Smith Learning Academy and six neighborhood elementary schools: Jefferson, Lincoln, Prairie View, South Beaver Dam, Washington, and Wilson. It also includes the central district offices located at the Educational Service Center. The educational service of the Beaver Dam Unified School District is organized and maintained as unified grades Pre-K – 12 program of instruction that serves approximately 3,500 students.

The Beaver Dam Unified School District's educational community encompasses 111.5 square miles in Dodge County, including the entire City of Beaver Dam and portions of the surrounding Townships of Beaver Dam, Burnett, Calamus, Fox Lake, Lowell, Oak Grove, Trenton, and Westford. The Beaver Dam Community and its environment provide the majority of the immediate region's cultural, recreational, medical, business and retail services, and employment opportunities.[i]

District Statistics[ii]

Mill Rate (2017)	**$9.00**
Enrollment (2017-2018)	**4,484 students**
Revenues (2017-2018)	**$38.10M**
Expenditures (2017-2018)	**$38.07M**

Beaver Dam Middle School

Beaver Dam Middle School

GENERAL INFORMATION

Original Construction	1921
Addition 01	1990
Addition 02	1998
Approx. Size (Sq. Ft.)	144,099

ROOF

Roofing System

The roofing system was observed and reported as a ballasted TPO roofing system with expired warranty. Additionally, there are reports of leaking in various areas – most notably the auditorium. The reports were validated upon observing staining on the ceiling tile in various areas in the building as well as an area of roofing over an entry which had standing water and algae growth - due to the improper roof

drainage. There were also reports of abandoned roof drains that were leaking due to improper capping/sealing. Leaking roof Flashing, caulking, coping, etc. should be inspected/tested for failure. Recommendation for replacing entire roofing system on building due to the expired warranty, age of the roofing assembly, and reports and observations of water infiltration. The leaking abandoned roof conductors should be completely removed and penetration sealed. Wall coping was observed to be in good condition but should be analyzed for failing sealant/caulk joints.

Existing Ballasted TPO Roof

Standing Water/Algae Growth at Roof

INTERIOR OF BUILDING

**NOTE: Interior renovation in was observed in progress at the administration area on the first floor level as well as a few classrooms on the third floor level. There were also reports of ongoing maintenance projects in progress throughout the building over the summer break. References to various deficiencies may have been addressed/corrected since this analysis was conducted.

Acoustical Ceiling Tile

The acoustical ceiling tiles in various areas were observed to be stained. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Overall, much of the acoustical ceiling tiles/grid was observed to be sagging, broken, or deteriorating. Recommendation to completely replace the ceiling tile/grid system in these areas.

Ceiling Tile Staining at Stair S3

Ceiling Tile Staining at Library

Ceiling Tile Staining at Storage Room

Ceiling Tile Degradation/Staining at Classroom 324

Vinyl Tile/Terrazzo Flooring

Due to the age of the building, the vinyl flooring tiles and adhesive should be tested for asbestos. The tile may remain in place if the flooring system is in good condition without any noticeable defects or delamination and can be sealed in place via waxing, etc. If tiles are damaged or delaminating, recommendation for testing and abatement if asbestos is present. Terrazzo flooring was also observed in various areas that seems to be the original flooring material but covered with new flooring materials in many areas. Overall, the terrazzo which was visible/exposed seemed to be in relative good condition. There were areas where cracking/chipping was noticeable and should be infilled/replaced to avoid a tripping hazard.

Damaged Vinyl Tile at Room Entry

Vinyl Tile Deterioration at Penetration in Music Room

Cracked Terrazzo at Corridor

Cracked Terrazzo at Room Entry

Carpet/Base/Transitions

Several carpeted areas throughout the building were observed to be moderately to heavily stained/soiled. There are areas at the first level and third levels where newer carpet was installed. Recommend to replace the stained/soiled carpet throughout the building. Wall base and flooring transitions in various areas were also observed to be damaged and in need of replacement. Recommend to replace wall base/transitions at these areas.

Heavy Staining at Corridor Carpet

Damaged Transition

Casework

Casework throughout the building was observed to be a variety of older and newer installations. The casework on the second and third floors included the more updated casework. Recommend to replace damaged casework throughout building as necessary. The chemistry/science lab counters are a mixture of plastic laminate (PLam) counters/desks and epoxy resin counters/desks. The epoxy resin counters were in good condition but the many of the PLam counters were chipping/damaged most likely due to the caustic chemicals typically used in these environments. The base cabinets were observed to be in relatively good condition aside from some small scuffs/scratches. Recommendation to replace damaged PLam counter tops with epoxy resin counter tops at chemistry/science rooms and replace damaged base cabinets as necessary.

Damaged Plam Counter at Room 206

Damaged Base Cabinets at Room 306

Toilet Rooms

Toilet rooms were observed to meet the Americans With Disabilities Act (ADA) requirements, except for a few toilet rooms on the lower level. The upper level toilet rooms were ADA compliant - except for mirror heights - which are required to be 40" maximum off of the finished floor to the reflective surface. There are a few deficiencies in some of the lower level toilet rooms. These deficiencies include lack of horizontal and vertical grab bars, non-compliant toilet tissue dispenser location, missing privacy locks on toilet partition doors, and missing escutcheon around plumbing penetrations. Exposed plumbing pipes are required to be wrapped to protect from contact with skin. Recommend to correct the deficient items at toilet rooms required to include ADA accessibility.

Mirror Not at ADA Compliant Height

Missing Privacy Lock

Missing Vertical Grab Bar

Missing Escutcheon around Plumbing Pipes

Stairs/Elevators

Stair treads and risers throughout the building showed signs of wear – delamination, peeling, cracking, etc. The railings at many of the stairs did not include the code required rail extensions at the top and bottom landings. The elevators were observed to be in good condition. Recommend to repair/replace damaged stair treads/risers and extend/replace existing railings that are non-compliant.

Delaminating Stair Tread

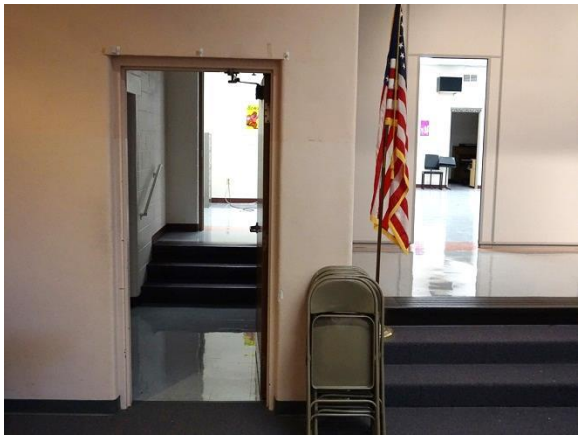
Missing Handrail Extensions at Stair S3

Auditorium

The auditorium was observed to be in relative good condition except for ceiling/carpet staining due to roof leaks as well as some maintenance issues. There were areas where the plaster coating over the masonry was missing/deteriorated and chipping/peeling paint was observed. Many of the metal diffuser covers, terminations, access panels, etc. were showing signs of rust most-likely due to the water leakage issue/presence of moisture in the space. Various fixed seats were missing hardware and had damaged desk tops. There was also no visible ADA access to the stage area. Recommend to replace desk tops and replace missing hardware as necessary. Also, replace ceilings and carpets where water infiltration occurred to minimize risk of mold/mildew growth. Metal access/diffuser terminations should be refinished as well. ADA access should be considered at the stage area.

Missing Plaster at Base of Wall

Missing Hardware at Auditorium Seats

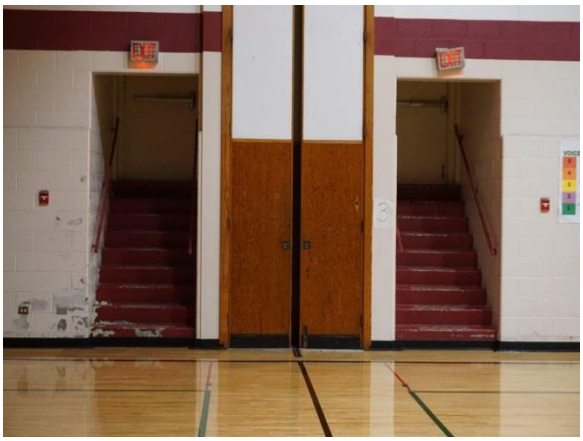


No ADA Access to Stage Area

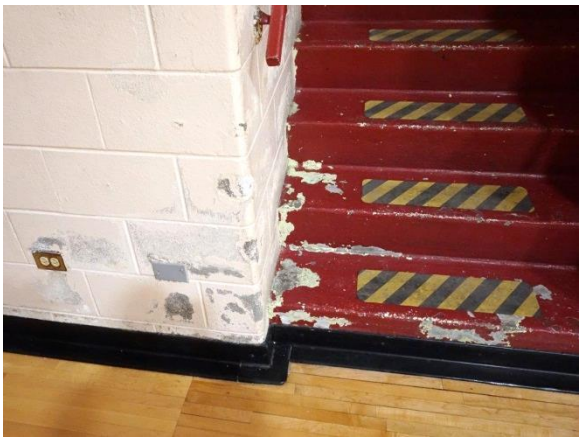
Ceiling/Bulkhead Staining From Leaking Roof

Cafeteria/Auxiliary Gym

The cafeteria/auxiliary gym area was observed to include various maintenance-related issues such as chipping paint, rusted door frames, leaking roof conductors, etc. ADA accessibility is a concern in this area since the exit discharge includes stairs to access grade at the exterior of the building. Also, there was no installed panic hardware on the egress doors. The gym flooring looked to be in good condition. There are carpeted areas at the exits which were heavily stained/soiled and should be replaced. Many of the wood doors and hardware in this area showed signs of wear (scratches, chipping, etc.) and should be refinished or replaced.



Exits Include stairs to reach grade at the Exterior



Chipping Paint at Stairs/Wall

Roof Leak at Roof Drain/Conductor

Missing Panic Hardware at Exit Doors

Kitchen

Various maintenance-related issues were observed in the kitchen area including damaged walls, rusted floor access cover, staining on a few ceiling tiles, and chipping paint. Recommend to repair damaged wall areas, replace damaged/stained ceiling tiles, and repaint throughout the area.

Damaged Wall and Base

Rusted Floor Access Cover

Music Room

The Music Room located on the lowered level includes visibly older construction and finishes. The observation included an area where a whiteboard/chalk board was removed exposing a different paint color – recommend to repaint the discolored area. Fabric covers some of the walls in the space – assumed to be used as an acoustical treatment. The fabric is deteriorating in several areas and should be removed. Recommend contemporary acoustical treatment in this area. Masonry cracking was observed in one of the corners of the room. The masonry wall in this area should be analyzed for structural deficiency and remediated if necessary. At an area above the ceiling, there appears to be a plumbing penetration cut into the masonry wall. This penetration should be patched and/or tuck-pointed to ensure integrity of the masonry wall.

Damaged Fabric Wall Covering/Base

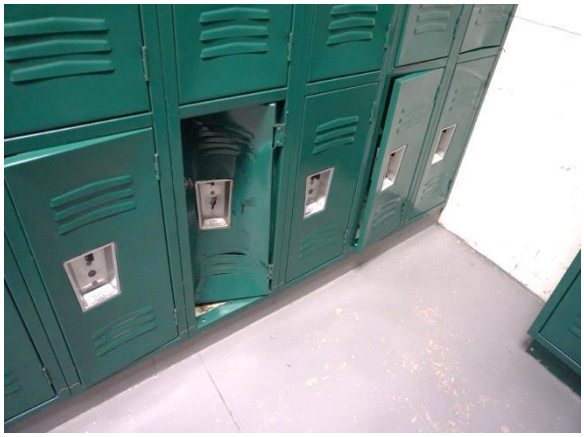
Exposed Whiteboard Attachment Area

Structural Cracking at Masonry Wall Corner

Missing Ceiling Tile Exposing Plumbing Penetration into Masonry Wall

Main Gymnasium/Locker Rooms

The main gym was observed to be in good condition. There were no visible signs of paint chipping/peeling, flooring degradation, etc. There was an area at the roof conductor where staining could be seen due to water leaking at that area. The locker rooms did not include many ADA provisions such as vertical grab bars at toilet rooms, accessible benches, accessible showers, required turning radius allowance, etc. Also, many lockers were heavily damaged. Showers in the toilet rooms that were reported to be abandoned should be removed and plumbing capped. Recommend to retrofit locker rooms to comply with current ADA provisions and replace damaged lockers.



Damaged Locker

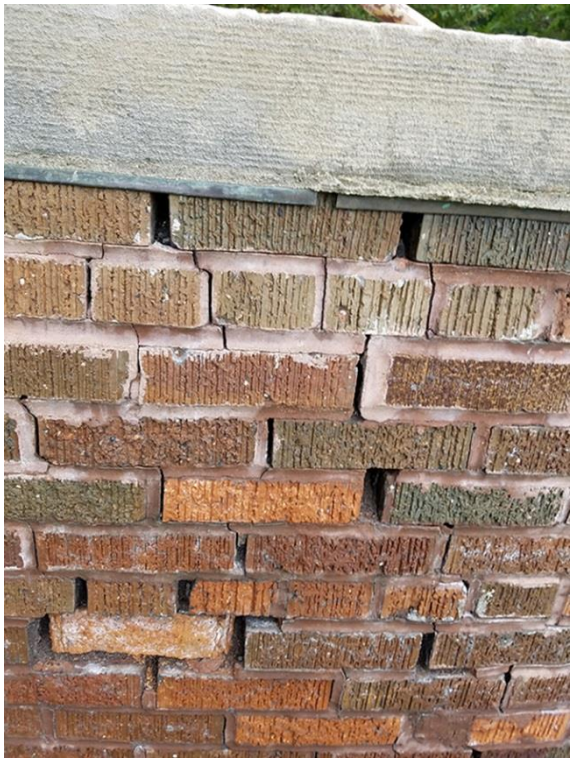
Damaged Lockers and Non-ADA Compliant Bench

BUILDING ENCLOSURE / PERIMETER

Exterior Stairs/Adjacent Wall

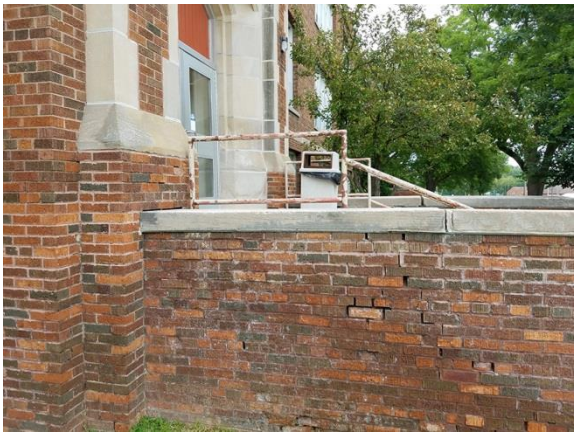
The entry stairs at every location were observed to be in very poor condition. Many of the railings were rusted and the connections were visibly deteriorated. Cracking along stair treads and risers was also observed with the steel reinforcement in the concrete stair assemblies exposed and rusted. The stair walls were also in very poor condition - missing mortar joints, loose bricks, signs of previous repair attempts, failing concrete caps, etc. Recommend to completely replace all deteriorated exterior stairs/adjacent walls. Railings should be replaced where connections are visibly deteriorated.

Exposed/Rusted Steel at Stair Risers

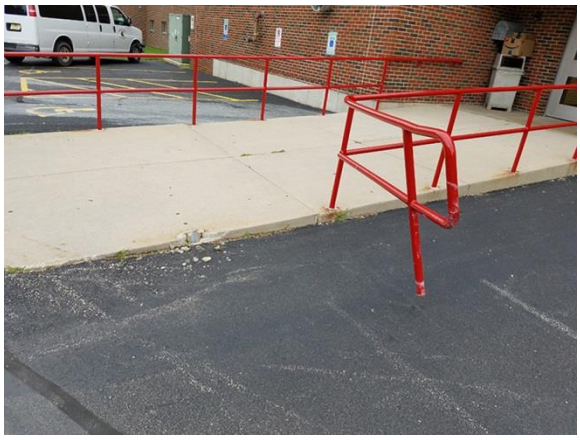


Cracked, Deteriorated Bricks, Missing Mortar

Deteriorated Exterior Stairs and Railings



Heavily Deteriorated Masonry Stair Wall and Cap



Damaged Exterior Railing

Rusting Railing Connections and Exposed/Rusting Steel

Building Enclosure/Envelope

The masonry throughout the exterior was observed to be in very good condition considering the age of the building. There were a few areas where the brick faces were spalling off due to moisture intrusion/diffusion. Also, many of the steel lintels were showing signs of rust. The building portion with older construction, there were no visible weeps or flashing at the base of the masonry wall. Recommend to install weeps/flashing as required at the base of the walls at older construction areas. Rusted lintels should be refinished, re-flashed, or re-caulked based on the condition of the lintel.

Rusted Lintel, Deteriorated Caulk/Flashing

Rusted Lintel, Deteriorated Caulk/Flashing

Brick Spalling at Corner

Lack of Weeps/Flashing at Base of Old Construction vs. New

Glazing/Windows

Single pane window assemblies were observed at many of the classrooms in the original building portion which is a significant energy loss issue. Recommend to replace all non-insulated single pane window assemblies with insulated window assemblies.

Single Pane Glazing at Original Building Classrooms

Insulated Glazing at Addition Classrooms

MECHANICAL SYSTEMS

Primary Cooling Systems

The primary cooling for the middle school is provided by 5 Trane rooftop units, along with Trane unit ventilators in various classrooms. Four (4) of the rooftop units were installed in 1997 and have a typical life of 15 years. These units are beginning to experience compressor failures.

The main electrical room is served with a Mitsubishi ductless split system to provide cooling for the main switch board. This ductless split unit has a 20 year life and is in acceptable condition.

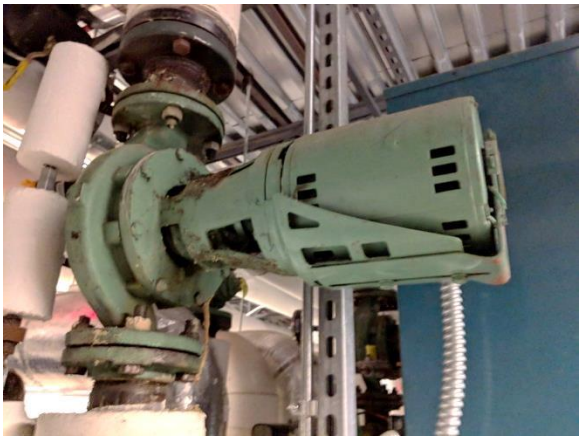
The mechanical room has an automated ventilation system that consists of a supply fan and isolation dampers to control the amount of outside air being pulled in. The typical life of an inline centrifugal fan is 25 years and the dampers are 15 years; both of which are in good condition.

Trane Rooftop Unit

Cooling fins on RTAC 1

Primary Heating Systems

The primary heating system for this building is supplied by 2 Thermal Solutions boilers, which were installed in 2001 and 2006. The typical useful life span for steel flex tube boilers is around 25 years which leaves 8 and 13 years respectively for each boiler. For the accompanying Taco circulators pumps serving the boilers, their effective life span is 10 years meaning the pumps are already beyond their useful life and should be considered for replacement in the near future. The system pumps are comprised of two base mounted Taco pumps that have a considerable amount of corrosion built up on them. These base mounted pumps have a useful life of 20 and are nearing the end of their life as well.



Inline Taco Boiler Pump

Base Mounted Taco Pump

Primary Ventilation Systems

The primary ventilation systems are the unit ventilators in classrooms and the air handling unit serving the gymnasium.

Various classrooms are served by Trane unit ventilators to provide a basic level of ventilation and heating. The units have been modified so a ducted system provides the fresh air into the units. These units along with the ducted system are in poor condition and should be replaced soon. We recommend that when these units are being replaced that they be replaced with units that have direct expansion (DX) cooling coils and remote air cooled compressor condensing units to also provide cooling for the classrooms.

For budgetary purposes new unit ventilators can be installed with DX cooling coils but installing the refrigeration compressors and components later.

There are three gas fired make-up air units located on the roof which should be considered for replacement soon. Each of these make up air units were installed in 1997 and have a useful life of 15 years. The units that where running at the time of survey were vibrating excessively, noisy and are in poor general condition. We recommend that each unit be replaced with a unit that has a direct expansion cooling coil and air cooled condensing unit.

For the Gymnasium Ares we also recommend replacing this unit with a variable air volume unit that is controlled by a carbon dioxide detector to adjust the outside air intake and supply airflow based on occupancy which would save considerable energy.

Engineered Air Make-up Air Unit


Engineered Air Make-up Air Unit

Control Systems

The controls in this building there are comprised of three types within the building. The majority of them are Direct Digital Controls (DDC) as installed by Reliable Controls, however, in certain older rooms are operating using Johnson Controls and Honeywell control systems. These rooms include the auditorium, library, and custodial rooms. There is a newer two-stage Quincy air compressor that serves the pneumatic controls that was recently installed and is in good working condition. From an energy management and operational improvement standpoint it is recommended that the entire pneumatic system be upgraded to DDC over the next 3 to 5 years.

Reliable Controls Main Panel

Quincy Air Compressor

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a 4" water service with a compound 4" water meter. The water distribution piping after the meter is constructed of copper distribution piping and appears to be in good condition. Piping has been renovated within the building. Water piping is typically insulated throughout the building. Observation of chase spaces indicates missing insulation throughout.

Pipe Chase with Renovated Piping

Missing/Damaged Insulation at Roof Conductor

The domestic hot water is heated with 2- 100 gallon sealed combustion high efficacy water heaters located in the new mechanical room. The water heaters are in good condition and are fairly new.

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains.
The sanitary drainage systems drains by gravity for most of the building – lift station have been installed in the newer mechanical room, lower level. Building sanitarily above ground systems, PVC piping has been used in areas of renovation and repair. The piping appears to be in good operating condition.

Storm Drainage

Roof drains are combined where possible and drain by gravity to the storm drainage system.
Piping is typically original to the building and constructed of extra heavy cast iron, hub and spigot with PVC in addition and renovated areas. Piping appears to be in good condition for the age of the building. The mechanical addition has a lower level storm and clear water lift station. The roof material has been

renovated throughout the building. We recommend all roof drain inlets be inspected and checked for debris and cleaned or cleared where necessary.

Plumbing Fixtures

The toilet rooms consist of wall mounted water closets with manual flush valves, wall hung lavatories with manual faucet and wall mounted urinals with manual flush valves. The fixtures are in good condition and ADA compliant. Fixtures have been renovated and remodeled within the majority of the building and building additions . Shower rooms appear to be abandon and used as locker areas. Plumbing fixtures not intended to be used should be removed and capped.

Abandoned Showers

Abandoned Showers

Fire Protection System

This building currently does not have a wet fire protection system installed.

Recommendations:

- Seal all gaps, breaks or missing pipe insulation.
- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.
- Inspect potable water systems cross connection control for proper code compliance.

ELECTRICAL SYSTEMS

Normal Power Distribution System

This building has (2) Electrical services. The original service has been updated in recent years to a 208/120 volt 3 phase 4 wire 3000 amp Main Switch Board (MSB) . The MSB has a demand meter that appears not to be calibrated, so maximum demand from this meter is not available. This MSB serves a 500 KVA transformer to boost the voltage to 480/277 volt 3 phase 4 wire to serve a 600 amp main circuit breaker Distribution Panel for 480 volt loads such as roof top units. This electrical gear is manufactured by Cutler Hammer/Westinghouse. There appears to be (12) 200 amp spaces on the 208/120 volt MSB, and (6) 100 amp spaces on the 480/277 volt Distribution Panel. The second service is a 480/277 volt 3 phase 4 wire 1200 amp MSB with a Surge Protection Device located in the Boiler room manufactured by Eaton. This Main Switch Board serves new panels in the boiler room, and a 300 KVA transformer for a 208Y/120 volt 3 phase 4 wire 1200 amp main circuit breaker Distribution Board. It appears this service was installed in 2012. There appears to be (6) 200 amp spaces on the 480/277 volt Main Switch Board and (4) 200 amp spaces on the 208/120 volt Distribution panel. Service 1 peak demand recorded is approximately 286 kW / 800 amps, Service 2 peak demand recorded is approximately 136 kW / 160 amps. The Peak demand is the Maximum load on a service at a specific time. Most of the panels throughout the building appear to have replaced the original panel with Square D panels approximately 20 years ago. The panels appear to be in acceptable to poor condition. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. With the exception of panels provided with the two service upgrades, it is recommended to replace the distribution panels throughout the building and the conductors serving the panels with new.

Emergency Power Distribution and Lighting System

There is no emergency power in this building. There is battery and non-battery type LED exits lights along with Emergency Battery Units throughout the corridors for Life Safety Egress lighting but do not meet current Egress code requirements. Other areas such as stair ways, some mechanical rooms and Locker room don't have any Emergency Battery Units. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery units be added throughout the building as required by the Egress Code. Non battery Exit lights should be replaced with LED Exit lights with battery backup. There is one exterior Life Safety Egress light at the Boiler room exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Many fixtures such as the corridors and class room areas are fluorescent recessed troffer type with acrylic lenses or surface mounted wraparound type fluorescent fixtures. The class rooms have multi-level switching and

occupancy sensors. The Media room utilizes parabolic recessed troffers but has no occupancy sensors. In some cases such as some stair ways incandescent fixtures are being utilizes. The Main office is under construction, and has recessed indirect fluorescent troffers in the open office and parabolic recessed troffers in the side offices, all spaces have occupancy sensors. The auditorium lighting consists of fluorescent parabolic troffers over the seating area and incandescent spot lights at the stage area. The two gymnasiums have fluorescent high bay lighting. One gymnasium appears to be using the existing manual switches and the other is switched with circuit breakers. Most of the light fixtures are in good condition with the exception of class rooms with surface wraparound fluorescent fixtures, which are in poor condition and provide a harsh lighting environment. The wraparound fixtures should be replaced with high efficiency LED light fixtures. Most spaces have Occupancy sensors to control lighting automatically with additional multilevel switching for the space. It is recommended that all spaces have occupancy sensors to automatically shut off the lighting. For the recessed fluorescent troffers in good condition, it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost.

The exterior lighting consists of HID fixtures and incandescent fixtures with the exception for the boiler room door that utilizes a LED fixture. The Lights appear to be controlled by time clock. It is recommended that the exterior lights be replaced with High efficiency LED lights to save on energy cost.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The Simplex Fire Alarm 4020 System is located in the corridor outside the main office area. Notification devices appear to be code compliant. There are Manual Pull stations but not at all exit doors. There are Smoke Detectors throughout the building. The elevator appears to have the required smoke detectors for elevator recall. Elevator shutdown is not provided because the building is not sprinkled therefore elevator shutdown via the Fire Alarm System is not required.

Public Address System

The building has a radio system with a base unit in the main office and some hand held units for Administration personal for communication back to the main office. There is a Sound System in the main office building wide announcements. The existing Dukane Call Button system is present most class rooms and gymnasiums, but this system is not operational. One of the gymnasiums and the auditorium both have standalone sound systems.

Door Access/Security

The Paxton Door Access system appears to have been updated recently. The system consists of a main controller with video capabilities, an intercom with a video camera and key pad, and card readers at

exterior doors and to the main office. The Paxton system is a campus wide system. CCTV cameras are located at the front entrance and throughout the building and monitored at the front desk and Main Server located in the Educational Services Center. The existing Bell system has failed and is being replaced with a Simplex Bell System.

Clock/Bell System

It does not appear there are hard wired clocks in the building. It appears wireless battery clocks and non-wireless battery clocks are being used. Wireless clocks are automatically synchronized to the Atomic Clock system. Due to construction it was not apparent who the manufacturer of The Bell system is.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Don Smith Learning Academy

Don Smith Learning Academy Entry

GENERAL INFORMATION

Original Renovation	1998
Approx. Size (Sq. Ft.)	13,475

ROOF

Roofing System

The roofing system was observed and reported as an EPDM Membrane roofing system with expired warranty. Additionally, there are reports of leaking in various areas. The reports were validated upon observing staining on the ceiling tile in various areas in the building due to the improper roof drainage. Flashing, caulking, coping, etc. should be inspected/tested for failure. Recommendation for replacing entire roofing system on building due to the expired warranty, age of the roofing assembly, and reports and observations of water infiltration.

INTERIOR OF BUILDING

Acoustical Ceiling Tile

The acoustical ceiling tiles in many areas were observed to be stained. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Overall, many of the acoustical ceiling tiles/grid was observed to be sagging, broken, or deteriorating. Recommendation would be to completely replace the ceiling tile/grid system in these areas. In addition, tiles were observed to possibly contain asbestos due to the style/age of the tile. These tiles should be tested and abated if asbestos is confirmed present.

Ceiling Tile Stained at Corridor

Possible Asbestos-Containing Ceiling Tiles

Carpet/Base/Transitions/Vinyl Tile

The carpeted areas as well as the wall base were observed to be in relative good condition except for some small staining at various areas. The vinyl tile throughout showed few signs of wear but was also in good condition. Tile in one of the storage rooms looked much older and could possibly contain asbestos. If these tiles become damaged or delaminate, recommendation for testing and abatement if asbestos is present.

Casework

Casework throughout the building was observed to be in average to poor condition. The counters consisted of plastic laminate (PLam) and a few were chipping/delaminating in areas. At the reception area, there is no required ADA transaction height counter. Recommend to replace damaged casework throughout building as necessary and add the ADA transaction counter at the reception area.

Damaged PLam Counter/Base

No ADA Transaction Counter at Reception

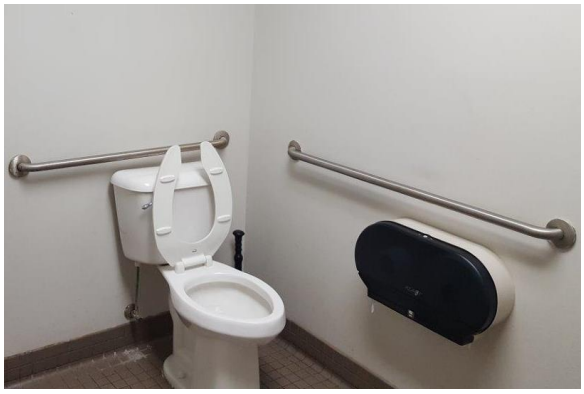
Toilet Rooms

Toilet rooms were observed to generally meet ADA requirements. Vertical grab bars were observed missing from toilet rooms. A few of the vanity counters in toilet rooms were supported by 2x wood framing bolted to the wall. While this does not violate code requirements, aesthetically, this is not desired. The counter/sink heights are not ADA compliant. Recommendation to replace counters and install base cabinets as necessary. Vertical grab bars should be installed at all ADA toilet room locations. Exposed plumbing at sink locations require pipe wrap to avoid contact with skin.

Missing Vertical Grab Bar at Faculty Restroom

Missing Vertical Grab Bar at Women Restroom

Missing Vertical Grab Bar at Men Restroom



Missing Vertical Grab Bar at Women Restroom 109

Wood 2x Framing Bolted to Partition at Women Restroom 109

Wood Shim Support for Sink Counter at Men Restroom 110

Missing Vertical Grab Bar at Both Men & Women Restroom Shower

Missing Vertical Bar at Men Restroom 110

Missing Stall Lock at Women Restroom 109

Classrooms

Classrooms were observed to be in relative good condition aside from minor maintenance-level items such as damaged drywall, worn casework, minor staining on carpeted areas, etc.

Damaged Gypsum Wall at Classroom

Worn/Scratched Casework

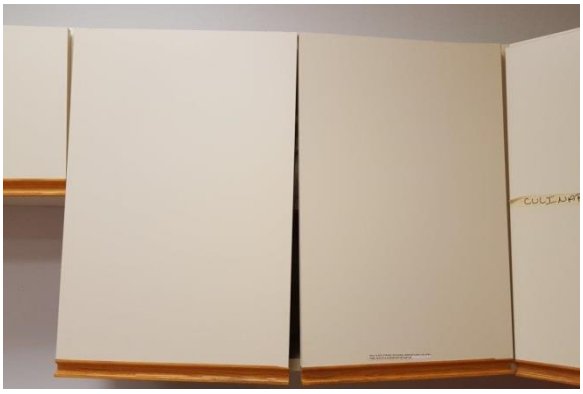
Kitchen/Cafeteria

Kitchen millwork was observed to be in relative poor condition. Many components do not meet ADA requirements. The deficiencies include absence of required knee space at sinks, non-compliant sink/counter/ work surface heights, non-compliant paper towel/soap dispenser heights, and lack of accessible refrigerator/oven/range designed to meet ADA reach range requirements. The PLam counters were chipping, doors were sagging on cabinets, and 2x wood stud constructions was used to support counters.

Sinks Don't Meet ADA Requirements

2x Wood Support to Island Countertop

Damaged Countertop Edges



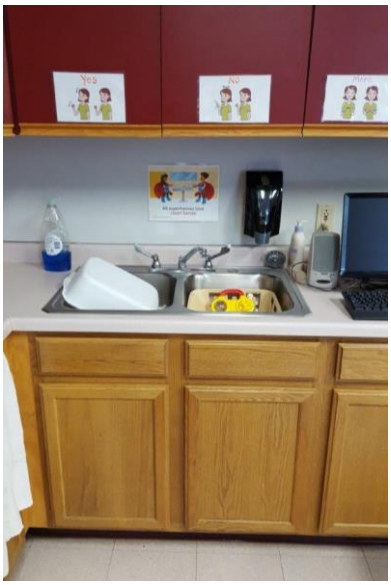
Broken Cabinet Hinges

Sink Doesn't Meet ADA Requirements

Sink Doesn't Meet ADA Requirements

Daycare

The sinks and counter heights at the daycare area do not meet ADA requirements. Also, there were no grab bars installed at the child toilet room. Recommend to replace existing casework/sinks as necessary and install ADA compliant casework and fixtures as well as child-height grab bars in the child's toilet room.



Sink Doesn't Meet ADA Requirements

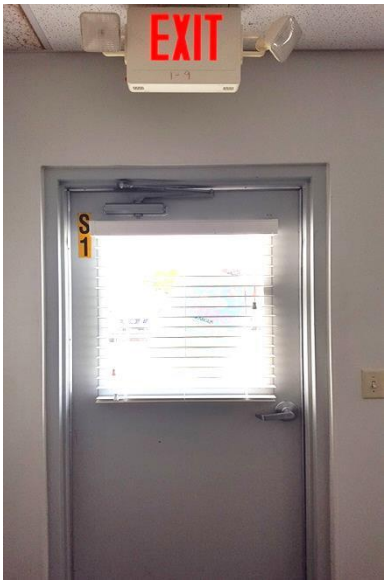
Sink Doesn't Meet ADA Requirements

Missing Grab Bars at Child Restroom

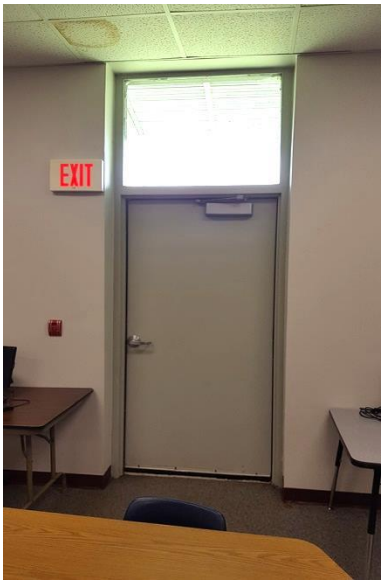
Miscellaneous Rooms & Issues

Various miscellaneous issues were observed in a few areas. A door was observed to be installed upside-down. Recommend to correct the door orientation for aesthetic consistency and ADA reach height requirements in regards to the lever handle. There was no required panic hardware installed on a few exterior exit doors. Recommend to install required panic hardware on all exit doors. Some abandoned ducts and exposed piping were observed in a few of the rooms which should be removed if abandoned or painted to match adjacent finishes. The interior of an exit door was rusting – recommend replacing all doors showing signs of rust/deterioration.

Door Installed Upside Down at Storage Room



No Panic Hardware at Exit Door



No Panic Hardware at Exit Door

Exposed Pipes and Abandoned Duct at Storage Room

Exposed Insulation at Storage Room

Rust Forming at Base of Exterior Door

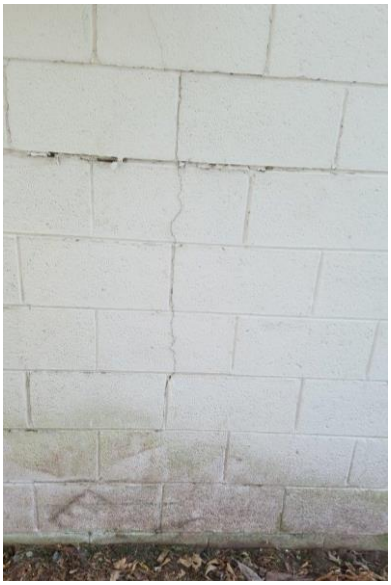
BUILDING ENCLOSURE / PERIMETER

Building Enclosure/Envelope

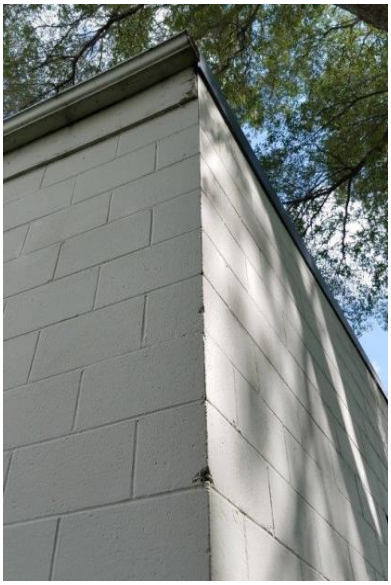
Based on reports, the entire complex was once an industrial building which was renovated/converted into (2) separate programmed areas – the Don Smith Learning Academy and the Maintenance Building. Due to the age of the building, several issues on the exterior were observed (see maintenance building section for additional information). The original exterior wall construction consists of non-insulated single-wythe concrete masonry unit (CMU) exterior walls. Interior wall furring and insulation was added to the exterior walls at the Don Smith Learning Academy space. At several areas, major cracking was observed in the exterior CMU wall system. Also observed were drainage issues around the building as the grade elevation around the perimeter is allowing water to build up at the exterior foundation which can lead to structural failure due to hydrostatic pressure buildup and freeze/thaw heaving in the winter months. Additional factors causing cracking are lack of control joints in the CMU wall. Recommend to

regrade the perimeter of the building, enhance the drainage components along the perimeter of the building, install proper control joints, and tuckpoint the failing/cracked areas in the exterior CMU wall. The exterior man door was heavily rusted and should be replaced. The overhead door appeared to be in good condition aside for some dents in the panels – no replacement recommended at this time.

Erosion of grade at Roof Conductor Outlet



Foundation & Masonry Cracks



Missing Control Joints

Rusted Exterior Door

Exterior Overhead Door

MECHANICAL SYSTEMS

Primary Cooling Systems

The primary cooling system for Don Smith Learning Academy is distributed through a new Carrier rooftop unit that is also equipped with natural gas heating. This system is in excellent condition and does not need replacement at this time.

Primary Heating Systems

There is a Goodman furnace with an accompanying cooling coil and condensing unit that should be replaced on the roof serving part of the building.

Goodman Furnace

Control Systems

This building utilizes Direct Digital Controls (DDC) by Reliable Controls for the new rooftop system. When replacing the Goodman furnace it is recommended that the controls to be integrated into existing Reliable Controls system.

Miscellaneous

In the Prep kitchen there were no ventilation exhaust hoods observed. This is a “gray” area of the current International Mechanical Code (IMC) and falls upon the local code inspector’s interpretation. This space includes residential dishwashers and oven / range with a small hood over the range – both should be acceptable.

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a 1" water service with a 1" water meter. The water distribution piping after the meter is constructed of copper and appears to be in good to fair condition. Piping appears to be original to the building. Building is attached to the Maintenance service building and supplies water service to the maintenance building. Building piping is installed above and below floor. Water piping is typically insulated throughout the building with gaps or damage to the insulation in various points on the system.

The water is heated with a 40 gallon, 45kw electric water heater, located in the service room in the mechanical room by the service sink. The water heater has some signs of leaks on the dielectric unions and appears to be original with the building.

Water Service to Building

Water Heater

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains throughout the building. The sanitary system is connected to the municipal sewage system. The sanitary drains by gravity to the sewage system – no sewage ejectors are present. Piping is typically original to the building and building additions. Sanitary system is constructed of cast iron with PVC piping in areas that have been renovated or added on. The system piping appears to be in good condition for the age of the building.

Storm Drainage

Roof for this section of the building is sheet flow with gutters to grade. No apparent conductor system with roof drains was found in this portion of the building.

Plumbing Fixtures

The public toilet rooms consist of tank type water closets, counter top mounted lavatories with manual and optical faucets, wall hung urinal with manual operated flush valve and dual height water cooler with ADA compliant outside the bath rms. The ADA bath rooms consist of tank type water closets with wall hung lavatories with manual faucets at ADA requirements. The training center has a 2 comp sink, dishwasher, wash machine setups, service sink in the service room and a child height bathroom setup located in the approximate center of the building. The fixtures appear in good condition with the exception the dishwasher has a "do not use" sign on it.

Fire Protection System

This building has a wet 6" fire protection service system entering the front of the building. The system services the maintenance service building in addition to the learning area.

Stand Pipe/Valve for Sprinkler System

Sprinkler Riser

Recommendations:

- Seal all gaps, breaks or missing pipe insulation.
- Domestic water Piping systems are insulated for condensation and energy loss issues.

- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.
- Inspect potable water systems cross connection control for proper code compliance.

ELECTRICAL SYSTEMS

Normal Power Distribution System

The Main Distribution Panel is Cutler Hammer 208/102 volt 3 phase 4 wire 1200 amp fused switch. There are (2) 30 amp spare switches and (2) 60 amp spare switches in the MDP. The MDP also serves the Maintenance Building with a 208/120 volt 3 phase 4 wire 100 amp switch. The Peak Demand is not available for services using less than 70 KW per month. This indicates that the original service has less than 200 amp load. The Peak demand is the Maximum load on a service at a specific time. Throughout the building and in the garage, panels and disconnect switches are a mixture of Cutler Hammer and Square D, all devices appear to be in good condition. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. There is no recommendation at this time.

Emergency Power Distribution and Lighting System

There is no emergency power in this building. There are battery type LED exit lights and Emergency Battery Units throughout the corridors for Life Safety Egress lighting that appears to meet current code requirements. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Many fixtures such as the class rooms, corridors and office areas are fluorescent recessed troffer type with acrylic lenses. The open class room area utilizes fluorescent pendant fixtures. The shop uses fluorescent strip lights. The detached garage utilizes High bay fluorescent fixtures. The class rooms and offices have multi-level switching and occupancy sensors; the open class room only has multi-level switching. The light fixtures are in good condition but it may be prudent to replace these fixtures with high efficiency LED light fixtures to save on energy cost. As another option it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost. The High Bay fixtures in the detached garage should be replaced with High Bay LED fixtures and occupancy sensors to save on energy cost.

The exterior lighting consists of HID fixtures. The fixtures appear to have integral photo cells so lights are on from Sunset to Sunrise. It is recommended that the exterior lights be replaced with High efficiency LED lights.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The fire alarm system is a Notifier SFP-1020 System. The main Fire Alarm Control Panel is located in the electrical room. Notification devices appear to be code compliant. Manual pull stations are provided but not at all exit doors.

Public Address System

There is no public address system.

Door Access/Security

There is no Door Access system. There is an intercom system by Aiphone with master stations at the front door and open class room areas that are tied to a remote station at the front door. There is a button at the front desk to allow access at the front door when locked. There is a CCTV camera at the front door, but the monitor inside the building has been removed. There is no offsite monitoring or recording of the CCTV system.

Clock/Bell System

The clocks are wireless battery clocks, and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. There is not a bell system.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Educational Services Center

Educational Services Center Entry

GENERAL INFORMATION

Original Construction	1967
Approx. Size (Sq. Ft.)	21,600

ROOF

Roofing System

Based on reports and observation the PVC Roofing Membrane covering the sloped roof/structure has outlasted its manufacturer's warranty and its useful life span. Caulk joints have deteriorated and the membrane is bubbled in various areas. Recommendation to completely replace with a durable roofing material.

Existing PVC Roof Membrane

Existing PVC Roof Membrane

INTERIOR OF BUILDING

Acoustical Ceiling Tile

The majority of the acoustical ceiling tile in the building appeared to be newer – except at a few toilet room areas where rusting and grid degredation was observed. Stained ceiling tiles were observed in a few areas. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Recommendation would be to completely replace the ceiling tile/grid system in these areas.

Ceiling Grid Rusting at Women's Restroom

Ceiling Tile Rusted & Damaged at Men's Restroom

Vinyl Flooring Tile

Due to the age of the building, the vinyl flooring tiles and adhesive should be tested for asbestos. The tile may remain in place if the flooring system is in good condition without any noticeable defects or delamination. If tiles are damaged or delaminating, recommendation for testing and abatement if asbestos is present.

Carpet/Tile/Base/Transitions

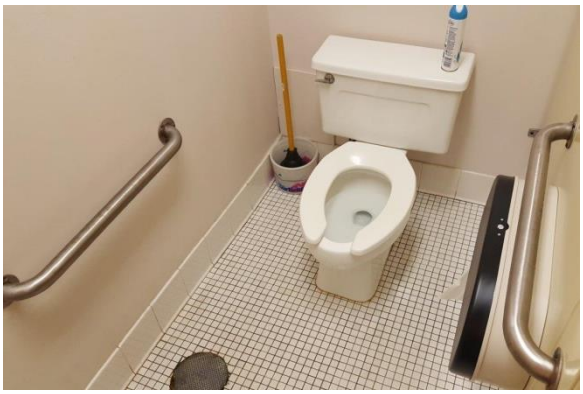
Carpet, base, and transitions appear to be in overall good condition throughout the building aside from some minor staining. Replacement of carpet is not recommended at this time. Ceramic tile in a few restrooms were missing base pieces and some minor cracking was observed. Recommend replacing all damaged ceramic tile in restroom areas.

Missing Tile Base at Girls Restroom

Carpet Transition at Corridor

Toilet Rooms

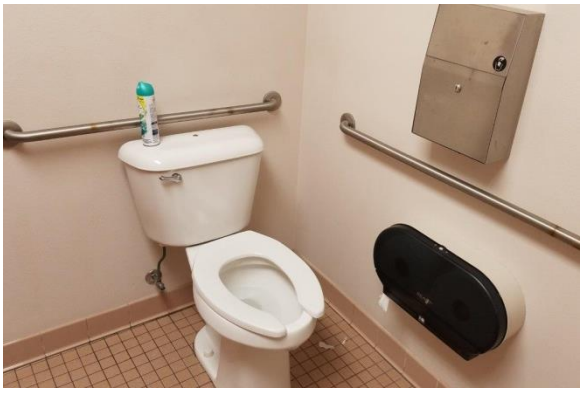
Toilet rooms were observed to generally meet ADA requirements. Vertical grab bars were observed missing from toilet rooms. Vertical grab bars should be installed at all ADA toilet room locations. A few toilet rooms were too narrow to accommodate the required ADA clearances. Mirror heights are required to be 40" maximum off of the finished floor to the reflective surface at accessible toilet rooms. Exposed plumbing pipes are required to be wrapped to protect from contact with skin. Recommend to correct the deficient items at toilet rooms required to include ADA accessibility provisions.



Missing Vertical Grab Bar and Clearance Issue at Women's Restroom

Missing Vertical Bar and Clearance Issue at Men's Restroom

Missing Vertical Grab Bar at Men's Restroom



Missing Vertical Grab Bar at Women's Restroom

Staff Break Room/Kitchen Casework

Kitchen millwork appears to be in good condition throughout the building; however, many components do not meet ADA requirements. The deficiencies include absence of required knee space at sinks, non-compliant sink/counter/ work surface heights, non-compliant paper towel/soap dispenser heights, and lack of accessible refrigerators designed to meet ADA reach range requirements.

Non-ADA Compliant Counters/Fixtures at IMC Office Area

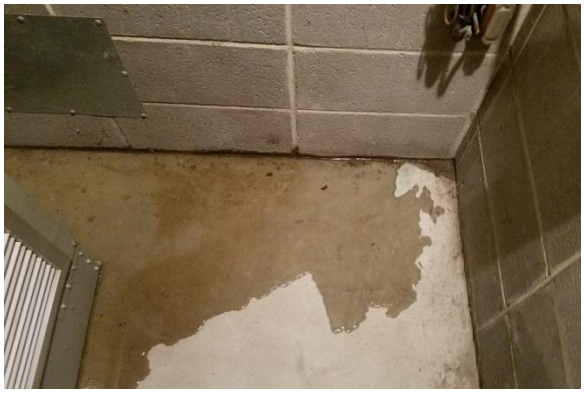
Non-ADA Compliant Counters/Fixtures at Conference Room

Non-ADA Compliant Counters/Fixtures at Staff Room

Non-ADA Compliant Counters/Fixtures at Break Room

Boiler/Mechanical Room

Water leakage was observed in the boiler room – possibly from adjacent mechanical equipment. Notification of asbestos on piping was observed as well. Asbestos should be abated/removed from all spaces/piping.



Water Leakage at Boiler Room

Asbestos Contamination Indicated at Boiler Room

Miscellaneous Spaces & Issues

Various minor maintenance-level issues were observed in a few areas. Broken outlet covers, scratched doors, and damaged gypsum board walls were observed. Some non-ADA compliant custom doors and hardware were also discovered. Recommend replacing damaged items and replacing the custom doors with ADA complaint doors and hardware.

Custom 2/3 of a Door

Replaced Door Knob

Portion of Door Sawed Off

Damaged Outlet Cover

BUILDING ENCLOSURE / PERIMETER

Building Envelope/Exterior

Many issues were observed at the exterior of the building/perimeter. Entry locations were observed as non-ADA compliant due to heaving/elevation changes at the exterior stoop locations. Cracking and heaving of the concrete walk leading into the main entry creates a trip hazard. Recommend removing and replacing the concrete stoop/walk to meet ADA requirements. Additional issues discovered were rusting at steel column bases and rusting at the base of exterior metal wall panels. The column bases should be refinished and protected to avoid damaging oxidization. Rusted wall panels should be

replaced and re-flashed at the base to avoid water infiltration as well as insect/rodent infestation. Some cracking was observed at the CMU building corner which is likely due to the lack of control joints at the corners of the building. Proper control joints should be installed to avoid further deterioration of the wall system. Mechanical and Electrical equipment was observed to be deteriorating and displaced from grade settlement issues. The equipment should be re-leveled and adjacent grade should be reworked to ensure proper drainage away from the building. Downspouts were damaged/missing and should be replaced to avoid water buildup at the perimeter of the building.

Cracks on Exterior Concrete Slab at Main Entrance

Cracks on Exterior Concrete Slab at Sidewalk

Non-ADA Compliant Entry, Rusted Column Base at S-2 Entrance – Pupil Services

Non-ADA Compliant Entry at District Instructional Media Center Entrance

Displaced Electrical & Mechanical Units

Displaced Mechanical Unit

Rusted & Dented Siding

Rust at Base of Siding Walls

Rusted Column Post

CMU Cracks & Peeling Paint

Rusted Column Post & Chipped Paint

Major Rust on Base of Electrical Unit

Displaced Electrical Equipment, Missing Downspout

Damaged & Dented Downspout & Extension

Unleveled & Cracked asphalt at Entry/Exit

MECHANICAL SYSTEMS

Primary Cooling Systems

There are multiple outdoor condensing units on the exterior of the building serving various furnaces and air handlers throughout the building. These units are in very poor condition and should be replaced. Cooling and heating is also being provided from a roof top unit installed on grade. This unit was installed in 1999 and has an effective life of 15 years. The unit was observed in poor condition and should be replaced along with the ductwork on the exterior of the building.

Carrier Air Cooled Condensing Unit

Goodman Air Cooled Condensing Unit

Primary Heating Systems

There is a Water Tube Boiler serving the facility. The unit is past its useful life and is recommended for replacement in the next 5 years.

There is a large air handler in the mechanical room that is also past its useful life. There are various furnaces in the building that should be replaced along with their associated condensing units. A new Renzor gas fired unit heater has been installed in a storage room and is in excellent condition - this unit has an average life of 13 years.

Control Systems

Some of the controls have been updated to Direct Digital Controls System (DDC) by Reliable Controls for the new rooftop units while the remainders are on an existing pneumatic control system. The air compressor for pneumatic air control system was replaced recently and is in good condition. From an energy management standpoint, we recommend changing the entire pneumatic system to a DDC system in 3 – 5 years.

Miscellaneous

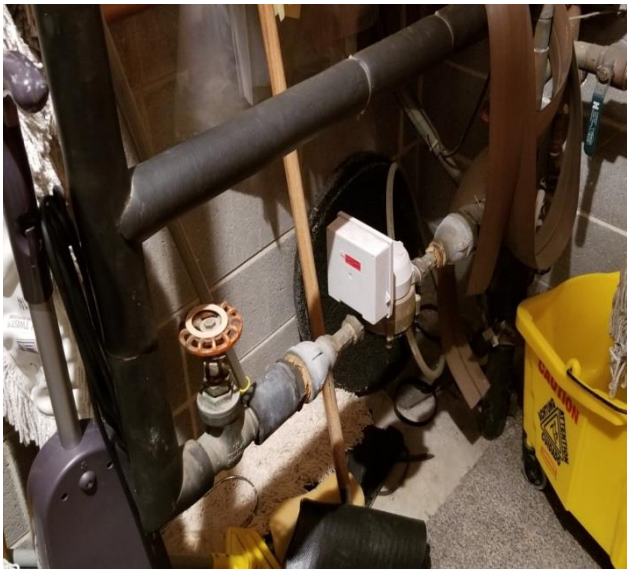
The Computer room is served by a Liebert Unit with a Mitsubishi system as full back up. The equipment is in good working condition and no replacement is required.

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by two water services, a 1-1/2" water service with a 1" water meter servicing the office, conference room's area and a water service located in the center of the building in a cabinet serving the IT bathrooms and sink area. The water distribution piping after the meter is constructed of copper and appears to be in good to fair condition. Piping is original to the building. Water piping is typically insulated throughout the building. Building has renovations to it and was two separate buildings in the past, combined in one.

The domestic hot water servicing one portion of the building is heated with a Rheem electric water heater located in the mechanical room. The water heater is original to the building. The water heater appears to be in operational condition. Recommend considering replacement due to age. It was undetermined if a location of a second hot water heater is serviced by the second water service. We assume there is a second water heater servicing the IT area bathrms and sink that maybe concealed in the ceiling or other location.



Water Service to Building

Water Heater

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains. The sanitary drainage systems drains by gravity to the municipal sewer – no sewage ejectors are present. We assume the sanitary sewer has two entry points into the building due to the buildings being separate in the past. The majority of the drain piping is below grade piping. Piping is typically original to the building and constructed of cast iron with PVC installed in remodeled or renovated areas. The piping appears to be in good to fair condition fair for the age of the building. Recommend replacing grading SWV material with renovation projects due to its age.

Storm Drainage

No storm drain system is installed on the interior of the building. The roof drains by gutters and downspouts to grade. Various storm inlets on the exterior of the building receiving installed to receive gutter downspouts appear to have been disconnected from the downspouts. System needs to be evaluated for drainage flow and reconnected if possible. Frost issues may need to be addressed.

Plumbing Fixtures

The main toilet rooms consist of tank type water closets, self-rimming lavatories with manual faucets, and urinals with optical FV installed at ADA compliance. Building has a breakroom sink installed with a dishwasher connection. Building has one ADA dual height drinking fountain outside the main ADA bathrooms. A bathroom with a wall hung lavatory with manual fct, floor set urinal with manual flush valve and tank type water closet. The fixtures are in operational condition and seem to be original with building or building additions and renovations. Fixtures are functional and some are current water efficiency type. If renovations are considered all fixtures need to be evaluated for efficiency type.

Fire Protection System

This building currently does not have a wet fire protection system installed.

Recommendations:

- Seal all gaps, breaks or missing pipe insulation.
- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.
- Inspect potable water systems cross connection control for proper code compliance.

ELECTRICAL SYSTEMS

Normal Power Distribution System

There are two services to this building. The original building appears to have been upgraded in 2015 with a new Main Distribution Panel (MDP) rated at 208/120 volt 3 phase 4 wire 600 amp Main Circuit Panel. This MDP serves mainly the existing panels throughout the building and the Server Room Generator panel via transfer switch. It appears there are (4) 200 amp spaces in the MDP. The Second service is located in the data center area is a Square D Load Center 120/240 volt 1 phase 3 wire with a

200 amp Main Circuit Breaker which appears to serve the Data Center office and storage areas. The peak demand or the original service recorded is approximately 70 kW / 200 amps. The peak demand or the addition service is not available for services using less than 70 KW per month. This indicates that the addition service load is unknown. The Peak demand is the Maximum load on a service at a specific time. Most of the panels throughout the building appear to be original to the building are a mixture of Cutler Hammer and Square D panels that appear to be in good condition. The Data center appears to have been added in 2012. The panels in the server room are Square D panels served from the Generator and Uninterruptable Power Supply. The generator panel in the Server room has Surge Protection Device. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. There are no recommendations at this time.

Emergency Power Distribution and Lighting System

There is no emergency power in for the building. There are battery type LED exit lights and Emergency Battery Units throughout the corridors for Life Safety Egress lighting that does not appears to meet current code requirements. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery units be added throughout the building as required by the Egress Code. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

The Server Room has an exterior Generac 87 KVA Gas Generator serving the generator panel in the server room. The server room also has an 30 KVA Uninterruptable Power Supply (UPS). These two units provide backup power for the Server Room. The Generator, Transfer Switch, UPS and panels appear to have been added in 2012.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Many fixtures such as the corridors, offices and conference areas are fluorescent recessed troffer type with acrylic lenses. Most offices have occupancy sensors, offices without occupancy sensors have Multi-level switching. The conference rooms only have multi-level switching. The receiving areas utilize fluorescent strip lights and manual controls. The light fixtures are in good condition but it may be prudent to replace these fixtures with high efficiency LED light fixtures to save on energy cost. As another option it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost.

The exterior lighting consists of HID fixtures. The fixtures appear to be controlled by a time clock. It is recommended that the exterior lights be replaced with High efficiency LED lights to save on energy cost.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The fire alarm system is an EST Quick Start System. The main Fire Alarm Control Panel is located in the corridor adjacent to the boiler room. Notification devices appear to be code compliant.

Public Address System

There is no public address system.

Door Access/Security

There is no Door Access system. There is a button at the front desk to allow access at the front door when locked. There is a CCTV camera throughout the IT area that is monitored at the Main Server located in the Educational Services Center.

Clock/Bell System

The clocks are wireless battery clocks, and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. There is not a bell system.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Jefferson Elementary School

Jefferson Elementary School Entry

GENERAL INFORMATION

Original Construction	1949
Addition 01	1998
Addition 02	2001
Approx. Size (Sq. Ft.)	58,923

ROOF

Roofing System

The existing roofing system consists of a built-up TPO roofing system. The manufacturer's warranty has been voided based on reports. The roof has been reported and observed to be leaking in various areas and the scrim is visible throughout the roofing system. Temporary roofing repairs have been conducted at problem areas. Roof drains were observed to be plugged/deteriorated and should be replaced. Recommend completely replacing roofing system with a durable membrane product. There were various types of wall coping observed which seemed to be in good condition but should be analyzed for failing sealant/caulk joints.

TPO Roofing with Scrim Showing

Deteriorated/Plugged Roof Drain

INTERIOR OF BUILDING

Acoustical Ceiling Tile

The acoustical ceiling tiles in various areas were observed to be stained. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Some of the classroom areas had newer acoustical ceiling installations. Overall, many of the acoustical ceiling tiles/grid was observed to be sagging, broken, missing, or deteriorating. Recommendation would be to completely replace the ceiling tile/grid system in these areas.

Ceiling Tile & Grid Stained & Missing Tiles at Corridor

Ceiling Tile Stained by Water Damage at Workroom 231

Vinyl/Ceramic Tile Flooring

Due to the age of the building, the vinyl flooring tiles and adhesive should be tested for asbestos. The tile may remain in place if the flooring system is in good condition without any noticeable defects or delamination. If tiles are damaged or delaminating, recommendation for testing and abatement if

asbestos is present. The majority of the corridors have ceramic tile flooring throughout these spaces which showed a few signs of cracking and deterioration in areas.

Broken Tile at Corridor Storage Door

Two Different Tile Styles at Staff Lounge 227

Missing Flooring & Baseboard at Corridor

Cracks on Ceramic Tile Flooring

Typical Corridor with Ceramic Tile

Damaged & Cracked Glazed CMU and Wall Base at Store Corridor

Carpet/Base/Transitions

There was a very limited amount of carpet observed – mainly in the administration area. This carpet appeared to be in good condition. Replacement is not recommended this time.

Casework

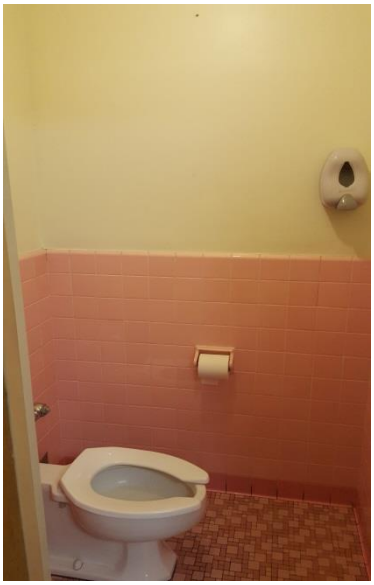
Casework throughout the building was observed to be a variety of older and newer installations. The casework in administration areas included the more updated casework while the classroom casework was observed to be much older – all non-ADA compliant. Recommend to replace damaged casework and update for ADA compliance throughout building as necessary.

Non-ADA Compliant Casework/Sink

Non-ADA Compliant Casework/Sink at Break Room

Toilet Rooms

The toilet rooms were observed to be original to the building in many areas. There were no ADA compliant toilet stalls found throughout the building. Many of the doors leading into the gang toilet areas were vastly undersized (24" wide) and often included a vestibule with non-ADA compliant clearances.



2 Shared Stalls Divided By Partition at Boy's Restroom

Door Width Doesn't Meet ADA Standards at Staff Lounge 227

2 Shared Stalls Divided By Partition at Girl's Restroom – Not ADA

Missing All ADA Grab Bars & Door Width Doesn't Meet ADA Standards at Boy's Restroom

Non-ADA Compliant Plumbing Fixtures

Missing All ADA Grab Bars & Door Width Doesn't Meet ADA Standards at Girl's Restroom

Classrooms

The classrooms are laid out in similar fashion throughout the building. The casework is older and shows signs of wearing – including scratches, chips, and discolored wood. The wood shelving along the exterior wall is integrated with the mechanical heating system –concealing much of the hydronic piping. Recommend replacing damaged casework as necessary.

Typical Classroom Layout - Casework

Typical Classroom Layout – Head Wall

Gymnasium/Stage

The stage area flanking the gymnasium was infilled with a partition wall and doors were constructed to provide entry facing the gym. There was no observed ADA access to this space. A mechanical mezzanine was installed at the stage area. Depending on the use in this area – ADA accessibility may not be required.

Mechanical Mezzanine Installed at Stage Area

Infilled Stage Opening Facing Gymnasium

Boiler Room/Locker Rooms

The basement contains the boiler room, which was abandoned for a new boiler room on the first level, and abandoned locker rooms - both have damaged and cracked walls, ceilings, and glass block windows. In the boiler room cracks were observed on masonry foundation walls and parts of the flooring. Recommend infilling/tuck-pointing major masonry structural issues and remove all abandoned plumbing fixtures and piping in these areas.

Cracks on CMU Wall at Removed Lockers at Locker Rooms

Abandoned Plumbing Fixtures at Locker Room

Ceiling/Wall Damage for created Mechanical Opening

Cracked Glass Block Windows at Basement Locker Rooms

Loose Masonry at Opening at Boiler Room

Large Crack at Column Floor Base at Boiler Room

Cracks on Ceiling at Boiler Room – Basement

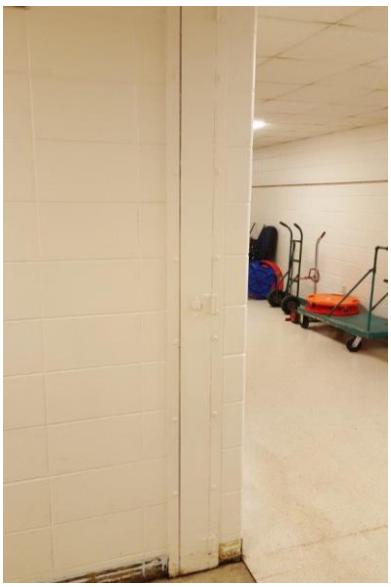
Cracks on Masonry Walls at Locker Room – Basement

Corridors

Several issues were identified at the corridors, such as broken and missing locks and base plates, scratched/dented doors, and doors that do not meet minimum width requirements. A corridor security gate was also observed to be abandoned and/or damaged.

Missing Door Plate & Damage

Missing Door Lock at Storage Door



Corridor Gate Abandoned/Damaged

Courtyard

The exterior walls surrounding the courtyard in the center of the building seemed to be in relative good condition. There were few signs of deterioration within the courtyard and the landscaping was maintained. Site drains were located and free of debris. Climbing vines should be removed from exterior wall as the plant can greatly accelerate masonry deterioration. Existing egress from the courtyard appeared to be non-code compliant and should be further analyzed and updated. Any overgrowth of foliage blocking exits should be removed.

Interior Courtyard Area

Interior Courtyard Area with Site Drain

Miscellaneous Rooms & Issues

Some miscellaneous issues observed include abandoned connecting doors, abandoned skylights in the toilet rooms, and a fabricated metal catch basin which seemed to serve as catchment for water infiltration from leaking roof. Recommend removing the skylight and sealing the penetration through the roof to avoid future roof leaks.

Abandoned Connecting Door at Staff Lounge 227

Abandoned Sky Light at Toilet Rooms

Fabricated Water Collector at Staff Lounge 227

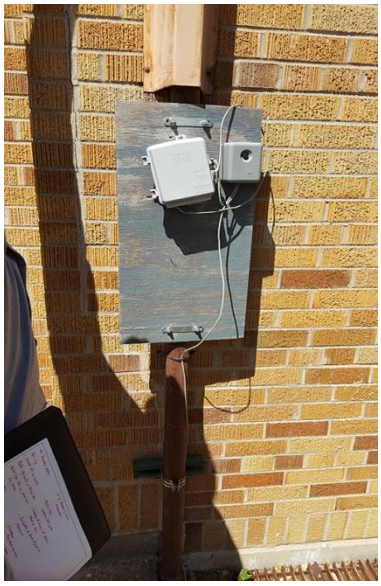
BUILDING ENCLOSURE / PERIMETER

Building Envelope

A few areas of the exterior masonry wall were cracking and spalling due to lack of control joints, moisture infiltration/diffusion, building settlement, and lack of weeps at base of wall to drain the wall cavity. Recommend installing proper control joints at masonry wall and weeps at the base to remove excess moisture and avoid further deterioration. An area where communication equipment/wires were mounted to the exterior wall appears to be abandoned and should be removed if disconnected. There are signs of previous masonry repair which should be analyzed for proper installation.

Cracking along Masonry Wall

Masonry Control Joint Cracks



Abandoned Communication Wires

Damaged & Patched Glass Block Windows; Masonry Repairs

Spalling Brick Above Roof Area

Glazing/Windows

Single pane window assemblies were observed at many of the classrooms in the original building portion which is a significant energy loss issue. Recommend to replace all non-insulated single pane window assemblies with insulated window assemblies.

Single Pane Glazing at Original Building Classrooms

Insulated Glazing at Addition Classrooms

MECHANICAL SYSTEMS

Primary Cooling Systems

There are four (4) rooftop units that provide cooling for the building, two of which were replaced in 2017 that are in excellent condition and should last 15 years. The other two rooftop units are in poor condition and should be considered for replacement within the next 3-5 years. There are two ductless split air conditioning systems serving classrooms and are in good condition.

Primary Heating Systems

Heating for this building comes from two Patterson Kelly condensing boilers that were replaced in 2007 and have an average life of 25 years. Through discussion with facilities personnel, it was reported that they are having to reset the boilers often. It is recommended that a mechanical/controls contractor be contacted in the heating season to diagnose the problem which will help preserve the boilers. The boiler pumps and base mounted pumps are in good condition – no replacement is recommended at this time.

Patterson Kelley Condensing Boiler


Boiler Pumps

Primary Ventilation Systems

The unit ventilators in classrooms serve as the primary ventilation system. The unit ventilators were last replaced in 2007 and are in good condition. If air conditioning is needed in class rooms, the units should be replaced with new units that have direct expansion (DX) cooling coils and a roof mounted air cooled compressor condensing unit. These unit ventilators could be replaced / upgraded a few units per year as budget allows.

The air handler serving the gym is located in a neighboring equipment room is in poor condition and should be replaced soon. Recommend replacing with a unit that has a direct expansion cooling coil and air cooled condensing unit on the roof. When replacing this unit, it is recommended to replace the unit with a variable air volume unit controlled by carbon dioxide detectors. The CO2 detectors will determine the occupant load through CO2 levels, and would then adjust the amount of outside air treated and brought into the facility in conjunction with varying the total supply airflow based on occupancy.

Control Systems

This building uses both an existing pneumatic control system and an added partial Direct Digital Control System (DDC) as installed by Reliable Controls. From an energy management and operational improvement standpoint it is recommended that the entire pneumatic system be upgraded to DDC over the next 3 to 5 years.

Miscellaneous

The computer classroom connected to the media center needs to be further analyzed for proper ventilation. There were no ventilation exhaust hoods observed in the kitchen which is a "gray" area in regards to the current International Mechanical Code (IMC) and falls upon the local code inspector's interpretation. According to the IMC 2015, Type II kitchen hoods must be installed above cooking or dishwashing appliances that produce heat and moisture and/or products of combustion." This kitchen may require a type II commercial hood over equipment that produces heat or moisture.

Commercial Oven

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a 4" water service entering the lower level mechanical room. Service is feed through a compound meter. The water distribution piping after the meter is constructed of galvanized and copper. Piping is original to the building except where renovations or additions have been piped. Water piping is typically insulated throughout the building on hot and cold water systems. Various areas have missing insulation and original asbestosis insulation is present on the system. Support issues around meter piping needs to be addressed. Signs of leaking on the water service lead joint needs to be addressed.

The majority of the water is heated with a Phoenix sealed combustion water heater located in the lower floor mechanical room. The water heater is a newer unit and has been upgraded from the original HWH. The heater is in good condition and appears in good working condition.

Water Heater

Plumbing at Chase

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains.
The ground floor sanitary systems drain by gravity to the municipal sewer with lift stations in the lower level. Piping is typically original to the building and constructed of cast iron hub and spigot and galvanized with cast iron fittings. Renovated areas have been piped with no-hub CI and PVC piping where allowed by code compliance. The newer piping appears to be in good condition for the age of the building. Building has abandon shower rooms at the lower level. Recommend disconnection of all shower rooms waste vent and water piping if intent is to abandon the current locker rooms.

Sanitary Piping

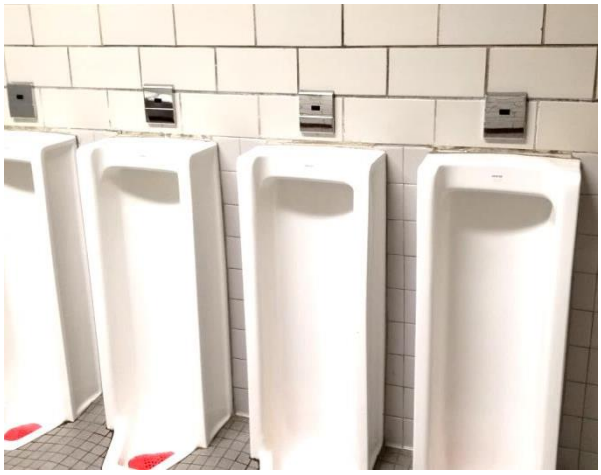
Sanitary Piping Connection

Storm Drainage

Roof drains mostly drain by gravity to the storm drainage system below ground. Piping is mostly vertical to below ground building storm sewer. Piping is typically original to the building and constructed of galvanized or cast iron hub and spigot. Addition or renovated areas have been upgraded with PVC or NHCI. Piping appears to issues in various locations throughout due to its age, drain blockages and fouling.

Plumbing Fixtures

The toilet rooms consist of flush valve water closets with manual flush valves, wall hung lavatories with manual faucets and floor set urinals with some renovations to optical flush valves. Some of the fixtures are original to the building with but still operational. Renovations have been made to some lavatories and classroom sink faucets though out the building.



Existing Urinals

Existing Sinks

Fire Protection System

This building currently does not have a wet fire protection system installed.

Recommendations:

- Seal all gaps, breaks or missing pipe insulation.
- Properly provide drain for Ice Maker used in cafeteria food serving area.
- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.

- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.
- Inspect potable water systems cross connection control for proper code compliance.
- Properly support meter configuration.

ELECTRICAL SYSTEMS

Normal Power Distribution System

This building has (2) Electrical services. The original service is a 120/240 volt 3 phase 4 wire Grounded B phase 400 amp fused disconnect. There appears to be no space for future power. The second service is a 208/120 volt 3 phase 4 wire 600 amp panel. This panel has (1) 100 amp 3 pole spare breaker, (2) 200 amp 3 pole spare breakers and it appears there is about (2) 200 amp spaces. The Peak Demand is not available for services using less than 70 KW per month. This indicates that the original service has less than 180 amp load and the addition service has less than a 200 amp load. The Peak demand is the Maximum load on a service at a specific time. Most of the panels throughout the building appear to have been upgraded to Square D panels. Some remaining panels that are original to the building are manufactured by Kinney. The Square D panels appear to be in good condition, the Kinney panels are in poor condition. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. It is recommended to replace the original Kinney panels and the conductors serving the panels with new. It may be prudent to replace the cables that serve the upgraded Square D panels also.

Emergency Power Distribution and Lighting System

There is an Emergency panel being served only from the normal service. The existing generator system is obsolete and has been removed from service, and remains on site. Equipment served from the emergency panel are mixed emergency loads and life safety loads such as the clock system, exit lights, stair and hall lighting and the Fire Alarm Panel. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery units be added throughout the building as required by the Egress Code. In addition the non-battery exit lights should be replaced with new LED exist lights with battery backup. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Many fixtures such as the class rooms, corridors and office areas are fluorescent recessed troffer type with acrylic lenses or surface mounted wraparound type fluorescent fixtures. The class rooms have multi-level switching and some rooms have occupancy sensors. In some cases such as storage rooms and mechanical spaces incandescent fixtures are being utilizes. The gymnasium has been upgraded to LED lighting using the existing manual switches. Most of the light fixtures are in acceptable condition but should be replaced with high efficiency LED light fixtures to save on energy cost. Some spaces have Occupancy sensors with additional multilevel switching for the space. It is recommended that all spaces have occupancy sensors to automatically shut off the lighting. As another option it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost.

The exterior lighting consists of HID wall mounted fixtures and incandescent fixtures under the canopy. Some fixtures appear to have integral photo cells so lights are on from Sunset to Sunrise. There are also time clocks in the building that appear to control exterior lights that are not photo cell controlled. It is recommended that the exterior lights be replaced with High efficiency LED lights to save on energy cost.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The EST System appears to have been recently added. The main Fire Alarm Control Panel is located near the main office. Notification devices appear to be mostly code compliant except for some areas such as the locker rooms and boiler room do not have notification devices. There were no smoke detectors in the corridors, and boiler room.

Public Address System

The building has a radio system with a base unit in the main office and some hand held units for Administration personal for communication back to the main office. There is a Bogan Sound System in the main office building wide announcements. An existing Rauland two way communication system is present with remote stations in older classrooms; this system is no longer being used.

Door Access/Security

The Paxton Door Access system appears to have been updated recently. The system consists of a main controller with video capabilities, an intercom with a video camera and key pad, and card readers at exterior doors and to the main office. The Paxton system is a campus wide system. CCTV cameras are

located at the front entrance and monitored at the front desk at the Main Server located in the Educational Services Center.

Clock/Bell System

Some of the existing hard wired clocks still remain in the building. It appears that when these clocks have failed they have been replaced with wireless battery clocks and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. The Bell and clock system is controlled by a Lathem Time Clock System.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Lincoln Elementary School

Lincoln Elementary School Entry

GENERAL INFORMATION

Original Construction	1959
Addition 01	1998
Approx. Size (Sq. Ft.)	45,608

ROOF

Roofing System

The roofing system was observed and reported as a ballasted and fully adhered TPO roofing system with expired warranty. The roof has been reported and observed to be leaking in various areas and the scrim is visible throughout the roofing system. Temporary roofing repairs have been conducted at problem areas. There is an anticipated 5-8 year life expectancy for the existing roofing system. Flashing, caulking, coping, etc. should be inspected/tested for failure. Recommendation for replacing entire roofing system on building due to the expired warranty, age of the roofing assembly, and reports and observations of water infiltration.

Existing Ballasted and Fully Adhered Membrane Roof

Roof Scrim Showing Through Membrane

INTERIOR OF BUILDING

Acoustical Ceiling Tile

The acoustical ceiling tiles in various areas were observed to be stained. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Overall, many of the acoustical ceiling tiles/grid was observed to be sagging, broken, or deteriorating. Recommendation would be to completely replace the ceiling tile/grid system in these areas.

Rusted/Degraded Ceiling Tile

Ceiling Tile Grid Sagging & Stained at Kindergarten Room 112

Ceiling Tile & Grid Degradation at Grade 2 - Room 100

Vinyl Tile Flooring

The vinyl tile throughout showed few signs of wear but was in relative good condition. Tile in the older portions of the building could possibly contain asbestos. Due to the age of the building, the vinyl flooring tiles and adhesive should be tested for asbestos. The tile may remain in place if the flooring system is in

good condition without any noticeable defects or delamination. If tiles are damaged or delaminating, recommendation for testing and abatement if asbestos is present.

Base Delamination and Damage

Chipping Vinyl Tile at Building Expansion Joint

Damaged Vinyl Tile at Classroom 206

Carpet/Base/Transitions

There was a very limited amount of carpet observed – mainly in the administration area and Learning Center (I.M.C.). Carpeted areas appeared to be in good condition aside from some minor staining and wear. Replacement is not recommended this time. Wall base and flooring transitions in various areas were also observed to be damaged and in need of replacement. Recommend to replace wall base and flooring transitions at these areas.

Missing Wall Base Transition

Damaged Floor Transition at Gym – Storage Room

Casework

Casework throughout the building was observed to be a variety of older and newer installations. The casework in administration areas and work rooms included the more updated casework while the classroom casework was observed to be much older. Recommend to replace damaged casework and update for ADA compliance throughout building as necessary.

Non-ADA Compliant and Damaged Casework/Sink at Classroom

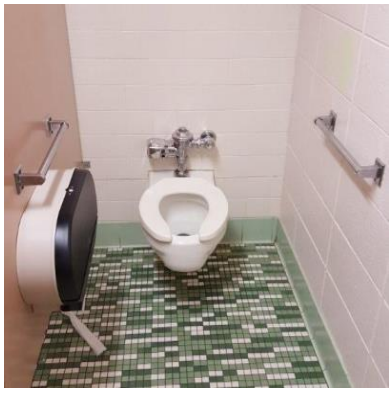
Damaged Wood Base Cabinet at Classroom

Non-ADA Compliant Casework at Break Room

Newer Casework at Work Room

Toilet Rooms

The toilet rooms were observed to be original to the building in many areas. There were no ADA compliant toilet stalls found throughout the building in the original potion. Many of the doors leading into the gang toilet areas were undersized and often included a vestibule with non-ADA compliant clearances. Many single-user toilet rooms with installed grab bars were undersized and do not meet ADA clearance requirements. The newer toilet rooms in the addition did meet the required ADA clearance requirements, but were missing the required vertical grab bar in the ADA toilet stall. Mirror heights are required to be 40" maximum off of the finished floor to the reflective surface at accessible toilet rooms. Additional maintenance-related issues were observed such as broken privacy locks, rusted toilet partitions, damaged mirrors, rusted door frames and door hardware, and chipping/peeling paint. Recommend to retrofit existing toilet rooms to meet ADA requirements and address maintenance issues throughout building.



Incorrect/Missing Grab Bar Locations at Girl's Restroom; Clearance Issues

Incorrect/Missing Grab Bar Locations; Clearance Issues at Boy's Restroom

Missing Grab Bars at Kindergarten Restrooms

No Vertical Grab Bar Installed at ADA Toilet Stall

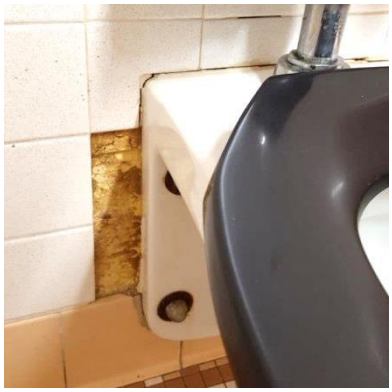
Non-ADA Compliant Sinks/Mirrors at Boy's Restroom

Broken Privacy Lock at Girl's Restroom

Missing Grab Bar at Girl's Restroom

Damaged Mirror

Rust on Toilet Partition



Missing Tiles Around Toilet Fixture

Rusted Door Frame

Non-ADA Compliant Toilet Vestibule Clearance at Girls Restroom

Non-ADA Compliant Toilet Vestibule Clearance at Boys Restroom

Door Doesn't Close Properly at Kindergarten 112 Bathroom

Broken Wall Tiles & Rusted Door Frame at Kindergarten 112

CMU Wall Cracks & Chipping Paint at Kindergarten 112 – Bathroom

Rusted Door Frame Base at Kindergarten 112 – Bathroom

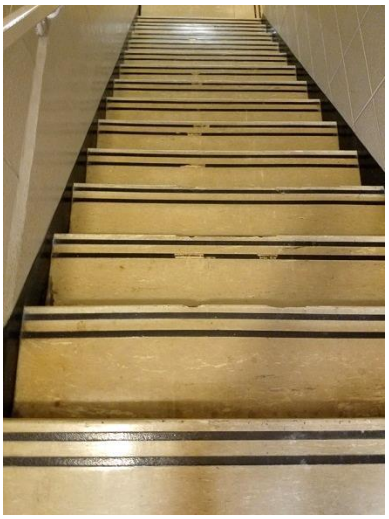
Rust on Door Plate at Boys & Girls Bathroom

Custom-made Switch Cover at Boy's Restroom

Stairs/Elevators

Stair treads and risers throughout the building showed minimal signs of wear – delamination, peeling, cracking, etc. The elevators were observed to be in good condition. Recommend to repair/replace damaged stair treads/risers as necessary.

Chipped Paint at Railing and Stair Tread

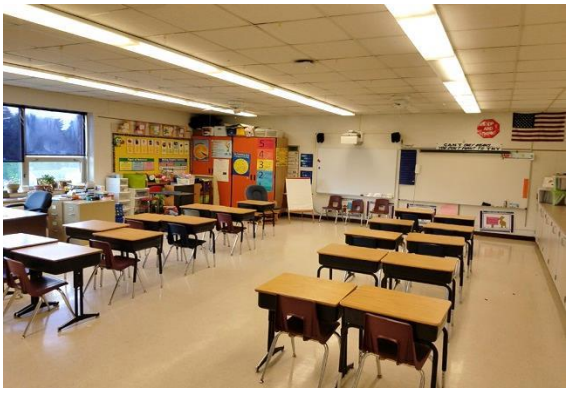


Worn and Damaged Stair Treads Leading to Basement

Existing Elevator

Classrooms

The classrooms are laid out in similar fashion throughout the building. The casework in the original building is older and shows signs of wearing – including scratches, chips, and discolored wood. The casework in the addition is newer and is in relative good condition. Recommend replacing damaged casework as necessary. Lighting is surface mounted and creates glare issues. At areas where the acoustical ceiling is replaced, recommend installing new lighting fixtures with indirect illumination features to reduce glare.



Typical Classroom Layout - Addition

Classroom Layout – Original Building

Learning Center (I.M.C.)/Multipurpose Room

The multipurpose room located in the addition is typically used as a lunch room and includes an attached kitchen. Overall, the space is in relative good condition aside for some minor maintenance-level issues. The Learning Center (I.M.C.) is also located in the addition and is in good condition as well aside for some minor maintenance-level issues. Renovation is not recommended at these areas.

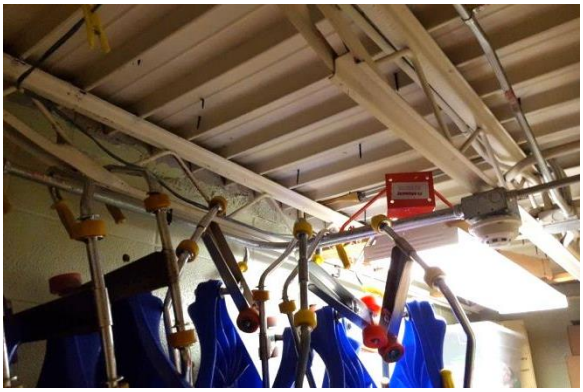
Multipurpose Room

Learning Center (I.M.C.)

Gymnasium

There was no observed ADA access to the stage adjacent to the gym. Depending on the use in this area – ADA accessibility may not be required. Equipment was observed hanging from electrical conduit/piping. The equipment should be removed from this location as the weight could damage the conduit/piping and cause electrical issues if the wires are energized inside the conduit and become damaged. Overall, the gymnasium space appeared to be in good condition. Recommend addressing maintenance issues in this space only.

No ADA Ramp Access to Stage Area



Gym Equipment Hanging From Electrical Conduit

Boiler Room/Locker Rooms

The basement contains the mechanical/boiler room and abandoned locker rooms which are used as auxiliary storage spaces. There was abandoned equipment in the boiler room that should be removed. The boiler room also contains a mechanical chase with notification of existing asbestos. Recommend abating all asbestos in the boiler room area. The showers and plumbing fixtures at the locker rooms appear to be abandoned. Recommend removal of all abandoned plumbing fixtures and piping in these areas.

Abandoned Showers in Locker Rooms

Abandoned Mechanical Equipment

Miscellaneous Rooms & Issues

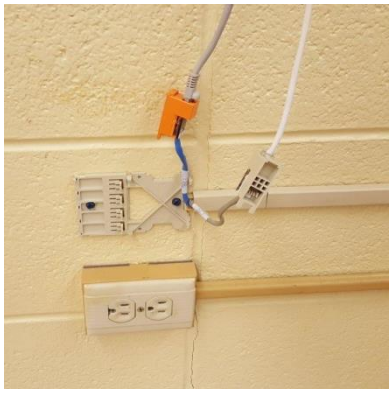
Several maintenance-level issues were observed throughout the building such a s damaged signage, rusting door frames, exposed communication wires, rusting exterior doors, and non-insulated plumbing piping. These issues should be addressed and corrected. There was a door observed without lever hardware which is non-ADA compliant – the lever hardware should be installed at this door.

Exposed Wiring & Missing Covers at Classrooms

Outlet Enclosed by Padding & Visible Corrosion at Classroom 116

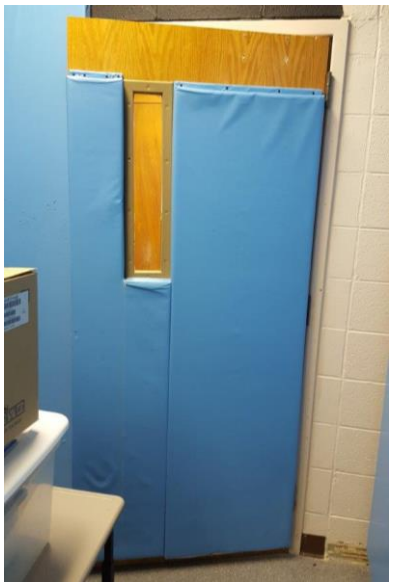
Electrical Components Concealed/ Enclosed at Classroom 116

Damaged Signage



Exposed Wiring at Kindergarten Room 112

Scratched Door Frame



No Door Handle at Padded Room

Rusting Exit Door at Multipurpose Room

Exposed Pipes at Storage Room 109

BUILDING ENCLOSURE / PERIMETER

Building Enclosure/Perimeter

Few areas of the exterior masonry wall were cracking and spalling due to lack of control joints, moisture infiltration/diffusion, building settlement, and lack of weeps at base of wall to drain the wall cavity. This was typically found at the original building portion. Recommend installing proper control joints at masonry wall and weeps at the base to remove excess moisture and avoid further deterioration. There were also cracks observed at some of the foundation corners which should be repaired.

ADA accessibility has been accommodated at the primary entrances; however, due to slab settlement many of the walks leading to entrances have cracked and heaved leaving non-ADA compliant elevation changes. All exterior slabs, stoops, and walks should be re-leveled to conform to ADA requirements and, if necessary replaced completely. At one entrance, spray foam insulation was exposed around the soffit connection which should be removed from the wall surface and reinstalled if deteriorated and the soffit resealed to the exterior wall. Column bases and electrical conduit show signs of rust and should be refinished and protected. The exterior louvers at the through-wall unit vents should be removed and replaced due to damage and reports of water infiltration from heavy rain events. New unit vent louvers should be designed to resist direct water infiltration from the exterior. Also, many of the steel lintels were showing signs of rust. Rusted lintels should be refinished, re-flashed, or re-caulked based on the condition of the lintel.

Rust at Exterior Column Base

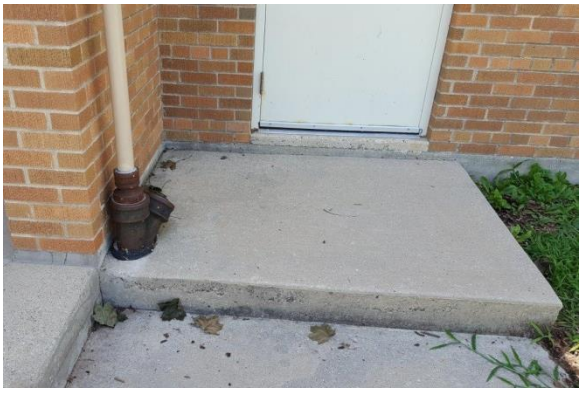
Foundation Crack at Corner

Rusting at Electrical Equipment

Exposed foam insulation at soffit

Concrete Cracks & Rusted Column Base

Heaving Concrete Stoop



Heaving Concrete Stoop

Heaving/Displaced Walk/Stoop at Exit

Damaged & Dented Louvers

Rust at Steel Lintel

Glazing/Windows

Single pane window assemblies were observed at many of the classrooms in the original building portion which is a significant energy loss issue. Recommend to replace all non-insulated single pane window assemblies with insulated window assemblies.

Single Pane Glazing at Original Building Classrooms

Insulated Glazing at Addition Classrooms

MECHANICAL SYSTEMS

Primary Cooling Systems

There were three (3) Trane rooftop units observed which have been reported to be replaced this summer and are in great condition.

Trane Roof Top Unit

Primary Heating Systems

The heating for this building is supplied by two Thermal Solutions gas-fired boilers that were replaced in 2014. These boilers are in good condition and have an average life of 25 years. The associated boiler circulator pumps are in good condition and have an expected life of 10 years. For the base mounted hot water pumps, these have an average life of 20 years are in good condition.

Primary Ventilation Systems

The primary ventilation systems are the unit ventilators in classrooms and the air handling unit serving the gymnasium. The unit ventilators where last replaced in 1997 and have an expected life of 15 years and should be replaced soon. The louvers on the outside wall are in bad condition and allow rain water to enter the units and drain down through the first floor ceilings.

We recommend that the louvers be replaced as soon as budget allows. When upgrading the actual units we recommend that the new units have direct expansion (DX) cooling coils and a 4 ton air cooled condensing unit to also provide cooling for the classrooms. If budget constraints do not allow purchase of the unit ventilators and air cooled condensing units, recommend purchasing unit ventilators with DX and installing the air cooled condensers later.

There was a room observed with padded wall no ventilation into the space. Per State Codes this room cannot be used for anything other than storage of materials.

The air handler serving the gym is located in a neighboring equipment room and is in poor condition and should be replaced soon. We recommend that this unit be replaced with a unit that has a direct expansion cooling coil and air cooled condensing unit on the roof. . When replacing this unit, it is recommended to replace the unit with a variable air volume unit controlled by carbon dioxide detectors. The CO2 detectors will determine the occupant load through CO2 levels, and would then adjust the amount of outside air treated and brought into the facility in conjunction with varying the total supply airflow based on occupancy.

Control Systems

This building uses both an existing pneumatic control system and an added partial Direct Digital Control System (DDC) as installed by Reliable Controls. The air compressor for the pneumatic systems was replaced in 2008 and is in excellent condition. From an energy management and operational improvement standpoint it is recommended that the entire pneumatic system be upgraded to DDC over the next 3 to 5 years.

Miscellaneous

There were no ventilation exhaust hoods observed in the kitchen which is a “gray” area in regards to the current International Mechanical Code (IMC) and falls upon the local code inspector’s interpretation. According to the IMC 2015, Type II kitchen hoods must be installed above cooking or dishwashing appliances that produce heat and moisture and/or products of combustion.” This kitchen may require a type II commercial hood over equipment that produces heat or moisture.

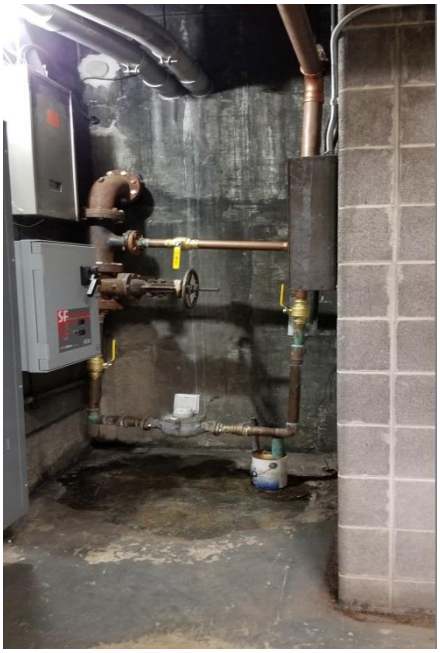
PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a 4” water service with a 2”water meter. The water distribution piping after the meter is constructed of copper and appears to be in good to fair condition. Water distribution size is 3” diameter; meter pipe size has been renovated. Meter pipe configuration is required to match distribution size for code compliance. Recommend water calculations be done to verify code compliance meter piping configuration size. Meter piping and configuration needs proper hangers to support piping for code compliance. Water piping is typically insulated throughout the building, insulation missing throughout building.

The water is heated with a gas fired tank type water heater located on the lower floor level mechanical room. The water heater appears to be original to the building construction. The water heater should be replaced in the near future.

Water Heater

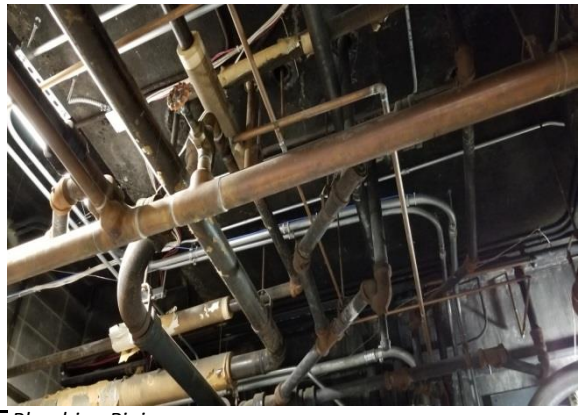


Water Service Piping

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains.
The sanitary drainage systems drain by gravity to below ground sewage system. Piping is typically original to the building and constructed of cast iron hub and spigot, galvanized with cast iron fittings. PVC piping has been used in areas of renovation and repair. The piping appears to be functioning for the age of the building. Areas where plumbing fixtures are abandon or are being used for other reasons than the initial intent (shower rooms used as storage), plumbing should be capped and or removed.

Plumbing Piping



Plumbing Piping

Storm Drainage

Roof drains are combined or vertically run where possible and drain by gravity to the storm drainage system. Piping is typically original to the building and constructed of cast iron hub and spigot,

galvanized with cast iron fittings. Addition areas are piped in schedule S40 PVC . Piping appears to be functioning for the age of the building. Roof drain heads require cleaning and damaged strainers should be replaced to prevent obstructions from getting into the storm drain system.

Plumbing Fixtures

The first floor toilet rooms consist of flush valve type wall hung water closets and wall hung lavatories with manual faucets. The fixtures are in good condition and ADA compliant. Building has toilet rooms with exterior access bathrooms that are abandon. Fixtures waste and water piping should be removed and capped.

Fire Protection System

This building currently does not have a wet fire protection system installed.

Recommendations:

- Seal all gaps, breaks or missing pipe insulation.
- Properly provide drain for Ice Maker used in cafeteria food serving area.
- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.
- Inspect potable water systems cross connection control for proper code compliance.
- Properly support meter reconfiguration.

ELECTRICAL SYSTEMS

Normal Power Distribution System

The Main Distribution Panel (MDP) is Square D 208/102 volt 3 phase 4 wire 800 amp Main Circuit Breaker panel with (2) 200 amp spaces for future circuits. There is a Surge Protection Device installed at the MDP. The Peak Demand is not available for services using less than 70 KW per month. This indicates that the original service has less than 200 amp load. The Peak demand is the Maximum load

on a service at a specific time. It appears that the MDP was added in the 1997 project that back fed the existing fused MDP, a new panel in the mechanical room, some pumps and the elevator. Most of the panels throughout the building appear to be original to the building as manufactured by Kinney and appear to be in acceptable condition. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. It is recommended to replace the original panels and the conductors serving the original panels with new.

Emergency Power Distribution and Lighting System

There is an Emergency panel being served only from the normal service. The existing generator system is obsolete and has been removed from service, and remains on site. Equipment served from the emergency panel are mixed emergency loads and life safety loads such as the clock system, exit lights, stair and hall lighting and the Fire Alarm Panel. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery units be added throughout the building as required by the Egress Code. In addition the non-battery exit lights should be replaced with new LED exist lights with battery backup, similar to the exit lights located in the 1997 project. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to have been up graded to T8 fluorescent lamps. Many fixtures such as the class room fixtures appear to have been retrofitted with T8 lamps and ballast. In some cases such as storage rooms and mechanical spaces incandescent fixtures are being utilizes. The gymnasium has been upgraded to LED lighting with minimal control and switching from the local panelboard. The Boiler room lighting has been updated to LED strip light. With exception of the fixtures in the 1997 project, most of the light fixtures are in bad condition and should be replaced with high efficiency LED light fixtures. Most spaces have Occupancy sensors to control lighting automatically with additional multilevel switching for the space.

The exterior lighting consists of HID lights with the exception of some fixtures that were replaced with LED light fixtures. All fixtures appear to have integral photo cells so lights are on from Sunset to Sunrise. It is recommended that the exterior lights be replaced with High efficiency LED lights to save on energy cost.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The Simplex Fire Alarm 4020 System was updated in the 1997 project. The main Fire Alarm Control Panel is located in the basement. Notification devices appear to be code compliant. The elevator does not have the required smoke detectors for elevator recall. Elevator shutdown is not provided because the building is not sprinkled therefore elevator shutdown via the Fire Alarm System is not required. It is recommended to add elevator recall smoke detection. Reprogramming of the elevator control panel may be required to add the recall smoke detection.

Public Address System

The building has a radio system with a base unit in the main office and some hand held units for Administration personal for communication back to the main office. There is a Dukane Sound System in the main office building wide announcements. An existing Simplex two way communication system is present with a main control panel in the main office and remote stations in offices and class rooms. This system is not being used.

Door Access/Security

The Paxton Door Access system appears to have been updated recently. The system consists of a main controller with video capabilities, an intercom with a video camera and key pad, and card readers at exterior doors and to the main office. The Paxton system is a campus wide system.

Clock/Bell System

It appears some of the existing Simplex Hard wired Clocks still remain in the building. It appears that when these clocks have failed they have been replaced with wireless battery clocks and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. The Bell and clock system is controlled by a Simplex 2350 Master Time System.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Maintenance Building

Maintenance Building,

GENERAL INFORMATION

Original Construction	1960 (approx.)
Approx. Size (Sq. Ft.)	12,000 (approx.)

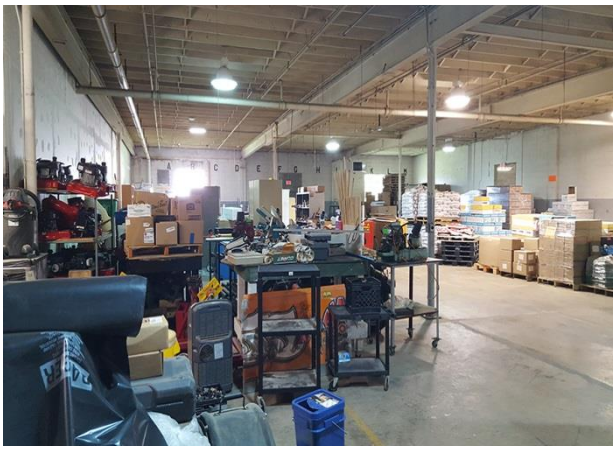
ROOF

The roofing system was reported as a TPO built up roofing system with expired warranty and a life expectancy of approximately 5 years. Additionally, there are reports of leaking in various areas of the roof. The reports were validated upon observing staining on the underside of the deck in various areas in the building due to the improper roof drainage and failing roofing system. Flashing, caulking, coping, etc. should be inspected/tested for failure. Recommendation for replacing entire roofing system on building due to the expired warranty, age of the roofing assembly, and reports and observations of water infiltration. Based on the previous use of the building, it is unknown if the roof was properly insulated. Upon roofing replacement analysis should be conducted on the amount of existing insulation in place. If deficient, recommend to completely replace or add to the existing insulation.

INTERIOR OF BUILDING

Maintenance Warehouse

The main maintenance/warehouse area consists of an uninsulated and insulated storage area with CMU exterior walls and wood stud interior partition walls. The area that has uninsulated exterior walls are recommended to be furred out and insulated to avoid increased energy loss and accelerated exterior wall deterioration. Cracking was observed at the exterior and interior CMU walls as well as at the concrete slab. Recommend to infill the concrete slab cracks with epoxy or replace portions if excessive displacement has occurred. The CMU wall should be tuckpointed to avoid further deterioration. Also observed was an existing opening which was infilled with wood. Due to the exterior exposure the wood should be removed and the opening should be infilled with CMU.



Uninsulated Storage/Maintenance Area

Insulated Storage Area

Cracks on Interior CMU Wall

Cracks on Exterior CMU Wall

Boarded Up Garage Opening & Door Window

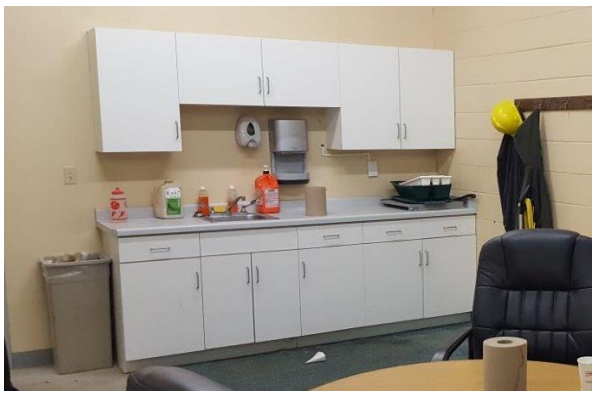
Concrete Slab Cracks

Maintenance Offices

The acoustical ceiling in one of the maintenance office was sagging/deteriorated and should be replaced. Base on the appearance the ceiling tiles may contain asbestos and should be tested and abated. The Toilet room adjacent to the offices is non-ADA compliant and should be retrofitted to comply with ADA requirements. The vinyl tile in one of the offices might contain asbestos based on style/age and should be tested and abated. The exposed roof joists and steel framing in these areas appeared in good condition.

Non-ADA Compliant Door Width at Toilet Room; Possible Asbestos in Vinyl Tile

Deteriorated/Damaged Ceiling and Diffuser



Non-ADA Compliant Casework/Sink at Break Room

Typical Office Layout

BUILDING ENCLOSURE / PERIMETER

Exterior Envelope

Based on reports, the entire complex was once an industrial building which was renovated/converted into (2) separate programmed areas – the Don Smith Learning Academy and the Maintenance Building. Due to the age of the building, several issues on the exterior were observed (see Don Smith Learning Academy building section for additional information). The original exterior wall construction consists of non-insulated single-wythe concrete masonry unit (CMU) exterior walls. Interior wall furring and insulation was added to the exterior walls at the Don Smith Learning Academy space. At several areas, major cracking was observed in the CMU wall system. Also observed were drainage issues around the building as the grade elevation around the perimeter is allowing water to build up at the exterior foundation which can lead to structural failure due to hydrostatic pressure buildup and freeze/thaw heaving in the winter months. Additional factors causing cracking are lack of control joints in the CMU wall. Recommend to regrade the perimeter of the building, enhance the drainage components along the perimeter of the building, install proper control joints and tuckpoint the failing/cracked areas in the exterior CMU wall.

Peeling Paint

Failing Mortar Joints

Major Cracking/Displacement at CMU Corner

Previous CMU Repair

Foundation Cracks

Previous CMU Repair

No Downspout Termination

Cracking From Window Opening to Foundation

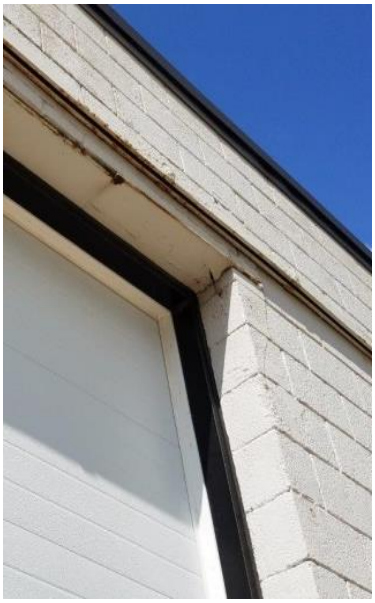
Cracking at CMU Corner

Exterior Doors & Windows

The exterior man doors were observed to be in bad condition. The original exterior wood doors are heavily deteriorated and should be replaced with insulated doors. Also, there are no stoops at the man door exits locations. Recommend installing concrete stoops at each exit location. The overhead door appeared to be in good condition – no replacement is recommended at this time. The windows appeared original to the building and are non-insulated single pane window assemblies. These windows should be replaced with insulated window assemblies to avoid increased energy loss.

Original Single Panel WIndow

Original Exterior Wood Door



Exterior Overhead Door

Exterior Wood Storage Shed

The wood framed storage shed adjacent to the Don Smith Learning Academy was observed to include various issues. The double doors are installed in a wood frame which is rotting/deteriorating and should be replaced with an exterior grade frame. There was damaged vinyl trim observed at the corner along with missing siding near the peak and should be replaced. The entire structure sits on a wood floor/framing system which is showing signs of discoloration ad rotting. The rotted floor framing should be replaces and the structure should be placed on a concrete slab to avoid further deterioration.

Exterior Wood Storage Shed

Doors in Deteriorated Wood Frame

Cracked Vinyl Trim

Missing Vinyl Siding

Wood Framing for Foundation

Exterior Metal Storage Shed

The metal storage shed adjacent to the complex was observed to include various issues. The exterior man door adjacent to the overhead door was showing signs of rust and was damaged. Recommend to replace door and frame. Sever areas of the exterior metal cladding were damaged and heavily rusted at the base. Recommend to replace the deteriorated panels and seal the base exterior wall at the foundation. The building includes water service and is heated to protect from the pipes from freezing.

Roof insulation was observed to be deteriorated and detached in several areas and should be replaced. At an area where the insulation was missing the metal roof deck was rusted and should be analyzed for deterioration. If the roof deck is deteriorated the decking should be replaced. Several windows were broken or infilled with wood framing. These should be replaced with insulated glazing assemblies to avoid increased energy loss.

Exterior Metal Storage Shed

Damaged Exterior Door

Deteriroated Metal Deck and Insulation

Damaged Metal Siding

Rusted Metal Siding at Base

Damaged Overhead Door Jamb

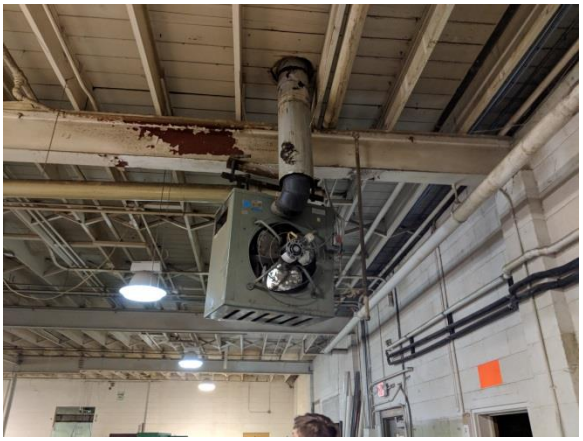
Damaged Metal Siding Corner

Damaged/Infilled Window

MECHANICAL SYSTEMS

Primary Heating System

There are two furnaces suspended from the ceiling that are serving the offices and break rooms and are in good condition. These units also have evaporator coils and condensing units on the roof. In the storage sections of the building, four gas fired unit heaters are used for heating only. Three of these units are in poor condition and are in need of replacement. It is recommended that these units be replaced with unit similar to the new Renzor unit in this facility. There also is an abandoned unit heater that is recommended to be removed.



Peerless Gas Fired Unit Heater

Empire Gas Fired Unit Heater

Modine Gas Fired Unit Heater

Abandoned Unit Heater

Controls Systems

Various unitary control systems are being used to service each piece of heating equipment. These controls are acceptable for this type of facility.

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a 1" water service with a 1" water meter located in the Don Smith Leaning Academy. The water distribution system is combined with the Academy Center. Piping after the meter is constructed of copper and appears to be in good to fair condition. Piping appears to be original to the building and building additions. Maintenance building and Don Smith Learning Academy are attached buildings. Building piping is installed above and below floor. Water piping is typically insulated throughout the building with gaps or damage to the insulation in various points on the system. Piping appears to be in good condition.

The hot water to the bathrooms is heated with a 50 gallon, 45kw electric water heater, located in the mechanical room within the maintenance building. The storage/service area has a laundry tub style sink that is supplied with an electric water heater. The water heaters appear to be in fair condition and functioning.

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains throughout the building. The sanitary system is connected to the municipal sewage system. The sanitary drains by gravity to the sewage system – no sewage ejectors are present. Piping is typically original to the building and building additions. Sanitary system is constructed of cast iron with PVC piping in areas that have been renovated or added on. The system piping appears to be in good condition for the age of the building. Recommend the CI SW&V piping be replaced if future renovations are performed due to its age.

Storm Drainage

Roof for this section of the building is part sheet flow with gutters to grade and conductor drain piping run along the ceiling draining to grade. Roof conductors are run over head to the back of the building and drain to grade. Typically horizontal roof conductors are insulated for condensation issues. Possible roof conductor piping has been renovated to PVC due to hanger spacing. Current hanger spacing is acceptable to CI installations. Hanger spacing for PVC material is 4' spacing for code compliant supports. Recommend hanger spacing be corrected and horizontal portions be insulated for condensation.

Plumbing Fixtures

The bathrooms with this portion of the building consist of tank type water closets, wall mounted lavatories with an optical faucet and a shower. The bathrooms are ADA compliant for the time of construction and have an ADA accessible shower. There are breakroom/coffee sinks located between the Learning center and maintenance building. The service or storage area has a laundry style wall mounted service sink. Bathroom fixtures and sinks are in good condition and utility/service sink is in fair condition.

Fire Protection System

This building has a wet fire protection service system entering the front of the building in the attached Learning center. System is combined with the attached Learning Center FP. The system services the maintenance service building and learning center. System has a single inline check valve which today's codes require a double detector check valve. Exterior FP connections caps are loose and lying on the ground, should be installed when not in use.

Recommendations:

- Seal all gaps, breaks or missing pipe insulation.
- Properly provide drain for Ice Maker used in cafeteria food serving area.
- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.
- Inspect potable water systems cross connection control for proper code compliance.

ELECTRICAL SYSTEMS

Normal Power Distribution System

The Maintenance building is served from the Don Smith Learning Center with a 208/120 volt 3 phase 4 wire 100 amp feeder. Panels throughout the building are a mixture of Cutler Hammer and Square D, all devices appear to be in poor condition. It appears the original service to the building was a single phase service. It appears when the Feeder from the Don Smith Learning Center was brought over, some panels remained single phase panels, with newer panels being 3 phase panels. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. It is recommended to replace the panels and conductors with new.

Emergency Power Distribution and Lighting System

There is no emergency power in this building. There is a combination battery type LED exit/Emergency Battery Unit at the front door for Life Safety Egress lighting. Other than the front door there is no Life Egress lighting. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery units be added throughout the building as required by the Egress Code. In addition the non-battery exit lights should be replaced with new LED exist lights with battery backup. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Office are fluorescent recessed troffer type with acrylic lenses. The stock room uses fluorescent strip lights the shop area utilizes High Bay LED fixtures, and in the storage area HID fixtures in combination to fluorescent strip lights are uses. The offices have multi-level switching and the other areas appear to have manual switching. The light fixtures are in acceptable condition but it may be prudent to replace these fixtures with high efficiency LED light fixtures to save on energy cost. As another option it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost. The HID fixtures in the storage area should be replaced with High Bay LED fixtures and occupancy sensors to save on energy cost.

The exterior lighting consists of HID fixtures. The fixtures appear to have integral photo cells so lights are on from Sunset to Sunrise. It is recommended that the exterior lights be replaced with High efficiency LED lights to save on energy cost.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting

was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

There is no Fire Alarm System in this building. If a Fire Alarm system is desired it may be possible to extend the Fire Alarm System in the Don Smith Learning Center into the Maintenance building.

Public Address System

There is no public address system.

Door Access/Security

There is no Door Access system in this building.

Clock/Bell System

The clocks are wireless battery clocks, and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. There is not a bell system.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Prairie View Elementary School

Prairie View Elementary School

GENERAL INFORMATION

Original Construction	1998
Addition	2008
Approx. Size (Sq. Ft.)	62,500

ROOF

Roofing System

The roofing system was observed and reported as asphalt shingles on a sloped roofing system approximately 15 years old. Based on reports, the manufacturer's warranty has approximately 10 years left. No replacement is recommended at this time.

INTERIOR OF BUILDING

**NOTE: Interior renovation in was observed in progress at the administration area. There were also reports of ongoing maintenance projects in progress throughout the building over the summer break. References to various deficiencies may have been addressed/corrected since this analysis was conducted.

Acoustical Ceiling Tile

The acoustical ceiling tiles in most areas were observed to be in good condition. There was some observed staining at ceiling tiles in the Multipurpose Room. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. There were various minor maintenance-level defects/damage to acoustic ceiling tiles and should be corrected as necessary

Stained Diffuser

Stained Ceiling Tile at Multi-Purpose

Damaged Ceiling Tile

Vinyl Tile

The vinyl flooring tiles throughout the building appeared to be in good condition. There was some minor cracking observed in a few areas. Recommend to replace the damaged tiles. Due to the age of the building some tiles may contain asbestos. These tiles may remain in place if the flooring system is in good condition without any noticeable defects or delamination and can be sealed in place via waxing, etc. If tiles are damaged or delaminating, recommendation for testing and abatement if asbestos is present.

Cracked Vinyl Tile at Art Room

Typical Vinyl Tile at Corridors

Carpet/Base/Transitions

The carpeted areas throughout the building were observed to be in good condition aside for some light to moderate staining. Heavily stained carpeted areas are recommended for replacement as necessary. Transitions also generally appeared in good shape aside for some minor defects which should be corrected to avoid tripping hazards.

Heavy Carpet Staining at Copy Area

Missing Transition at Carpet/Vinyl Tile

Casework

Casework throughout the building was observed to be in good condition and generally ADA compliant. There was some minor PLam chipping and wear observed and should be corrected as necessary. Casework in classrooms included the ADA-required knee space under sinks and accessible –height counter tops. Casework in the administration areas/rooms was observed to include a removable panel under sinks to accommodate the ADA required knee space. The circulation desk at the IMC was observed to be ADA compliant including the Required ADA transaction height counter.

PLam Chipping on Casework

ADA-Required Transaction Height at IMC Casework

ADA Required Knee Space at Classroom Sink

Casework in Administration Area With Removable Panel Under Sink

Toilet Rooms

The toilet rooms throughout the building were observed to be generally ADA compliant. ADA toilet rooms with traditional and child height toilets were missing required vertical grab bars and should be installed throughout the building. Some minor maintenance-level issues were observed including rusted louvers on doors,

Missing Grab Bar at Men's Restroom

Missing Vertical Bar at Women's Restroom

Rust on Door Louver at Men Restroom

Vertical Grab Bar Installed at Child Restroom

Classrooms

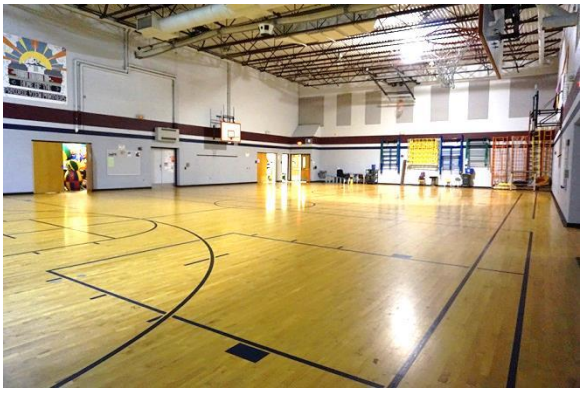
Classrooms were observed to be in overall good condition, aside from some maintenance-level issues such as chipping PLam on casework, broken outlet covers, carpet staining, and scratched/marked-up walls.

Typical Classroom Layout

Typical Reading Alcove

Gymnasium

The Gymnasium was observed in good condition with only minor maintenance-level issues such as broken outlet covers, minor scuffing on walls, and some chipping paint. These issues should be corrected.



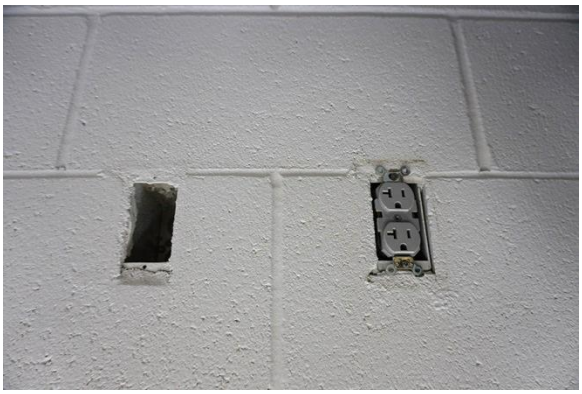
Gymnasium

Broken Outlet Cover

Kitchen/Cafeteria

The Kitchen and Cafeteria area were observed in good condition aside for some minor maintenance-level issues such as missing light switch and outlets covers. The kitchen area was very clean and the equipment/casework was in good condition. No improvements recommended at this time.

Kitchen Area



Missing Outlet Covers in Cafeteria

Miscellaneous Rooms & Issues

Several maintenance-level issues were observed throughout the building such a s damaged signage, rusting door frames, and damaged insulation on plumbing piping. These issues should be addressed and corrected.

Damaged Insulation at Gymnasium

Scratched/Rusted Door Frame

Damaged Signage

BUILDING ENCLOSURE / PERIMETER

Building Envelope/Perimeter

The masonry wall cladding was observed to be in good shape. Proper installation of flashing, control joints, and weeps were observed. There was some minor efflorescence at some areas on the exterior wall which is caused by moisture diffusion through the masonry to the exterior depositing salt compounds on the brick face. This can be removed with brushing, power washing, and solvent treatment. Some minor cracking in the brick was observed at a building corner and should be further analyzed and mitigated if the problem is severe enough. At Exit W2 from the gymnasium, there was a chain link fence installed closing off the proper egress route which is a code violation. Any obstruction to egress paths from the building must be removed. Areas of the concrete walk were observed to be heaved/displaced from settlement. Any severe deviations in the walking paths should be corrected to avoid tripping hazards and ADA non-compliance. Exterior doors were observed to be scratched/dented at various areas and should be refinished or replaced if necessary. Gas piping on at the exterior was showing signs of rust and should be refinished/repainted to avoid further deterioration.

Egress Route Blocked at Exit W2

Efflorescence on Brick at Entry W4

Scratches/Dents on Exterior Doors

Rusted Pipes Between Entrances W-4 & W-3

Heaving Concrete Walks

Cracks on Brick Façade

Construction Near Main Entrance

Glazing/Windows

Insulated glazing systems are installed throughout the building and in good condition. No replacement recommended at this time.

Insulated Glazing Throughout Building

Insulated Glazing at Reading Alcove in Classrooms

MECHANICAL SYSTEMS

Primary Cooling Systems

The cooling system for the building is comprised of four (4) air cooled condensing units on the roof. The units are all Trane units that were installed in 1997 and have an effective life of 20 years. Recommended that all of these units be replaced within the next 5 years. There are air handlers serving the gymnasium and multipurpose room that are nearing the end of their effective life and will require minor upgrades and cleaning. These units were installed in 1997 with an average life of 25 years. Routine maintenance will be important to keep the air handler in operable condition.

The systems are reported to be in good working condition. However, during the cooling season the west half of the building does not cool properly and there are humidity issues. The east potion appears to over-cool the associated areas. It is recommended to provide a Testing, Adjusting and Balancing Agency to re-balance the airflows for this facility.

Air Cooled Condensing Units on Roof

Air Handling Unit 6 - Serves Gymnasium

Primary Heating Systems

Heat for the building is provided by four (4) Thermal Solution boilers in the mechanical room and have an average life of 25 years and are in good condition.

Control Systems

This building uses a Direct Digital Control System (DDC) as installed by Reliable.

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

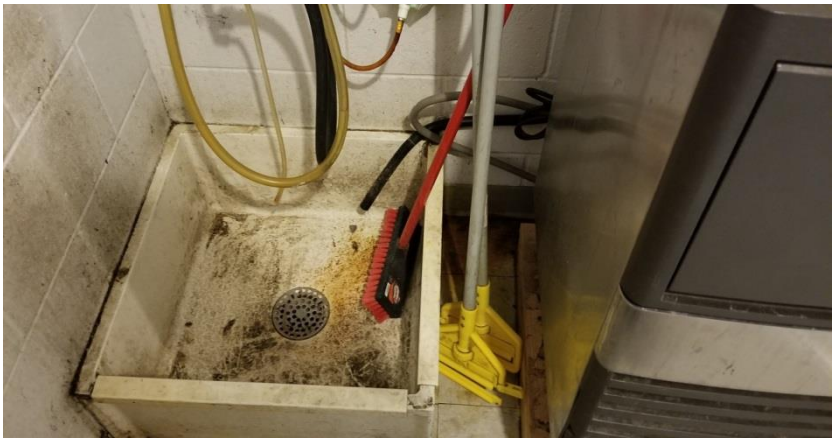
The building is served by a 4" water service located entering the building in the mechanical room. Building has a compound meter with bypass. The water distribution piping after the meter is constructed of copper and appears to be in good condition. Piping is original to the building. Water piping is typically insulated throughout the building.
The domestic hot water is heated with an A.O. Smith Cyclone high efficiency HWH located on the mechanical room. The water heater is in good condition and appears to be functioning properly. Water systems are typically insulated throughout.

Water Heater

Plumbing Piping

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains.
The sanitary drainage systems drain by gravity to the municipal sewer. Piping is typically original to the building and constructed of cast iron and PVC piping. The piping appears to be in good condition with no apparent drainage issue. Cafeteria food serving area is equipped with an ice machine that drains to the service sink serving the area. Current code compliance requires the ice machine to have its own dedicated drain.



Utility Sink

Storm Drainage

Roof drains are combined where possible and drain by gravity to the storm drainage system.
Piping is typically original to the building and constructed of cast iron hub and PCV. Piping appears to be in good condition for the age of the building.

Plumbing Fixtures

The toilet rooms consist of battery optical flush valve water closets, battery optical flush valve floor set urinals and battery optical faucet wall hung lavatories. The fixtures are in good condition and ADA compliant. The vehicle maintenance area has a laundry tub and emergency eyewash. The fixtures are in good condition.

Fire Protection System

This building currently does not have a sprinkled fire protection system installed.

Recommendations:

- Seal all gaps, breaks or missing pipe insulation.
- Properly provide drain for Ice Maker used in cafeteria food serving area.
- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.

- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.
- Inspect potable water systems cross connection control for proper code compliance.

ELECTRICAL SYSTEMS

Normal Power Distribution System

The Main Distribution Panel (MDP) is Square D 208/102 volt 3 phase 4 wire 2000 amp Main Circuit Breaker panel with (4) 200 amp spaces and (4) 400 amp spaces for future circuits. The peak demand recorded is approximately 192 kW / 530 amps. The Peak demand is the Maximum load on a service at a specific time. All panels throughout the building appear to be original to the building as manufactured by Square D and appear to be in good condition.

Emergency Power Distribution and Lighting System

There is no emergency power in this building. There are battery type LED exit lights and Emergency Battery Units throughout the building for Life Safety Egress lighting that appears to meet current code requirements. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Many fixtures such as the class rooms, corridors and office areas are fluorescent recessed troffer type with acrylic lenses. The class rooms have multi-level switching and some rooms have occupancy sensors. The corridor fixtures have Key type switches with occupancy sensors. The gymnasium has HID light fixtures and manual control. Most spaces have Occupancy sensors to control lighting automatically with additional multilevel switching for the space. The lighting appears to be in good condition. It is recommended that the Gymnasium be upgraded to LED fixtures to save on energy cost. The remainder of the interior lighting appears to be in good condition. It is recommended to add occupancy sensors in all the class rooms and offices. As another option it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost.

The exterior lighting consists of HID down lights and sconces. All fixtures appear to be controlled by a Time Clock. It is recommended that the exterior lights be replaced with High efficiency LED lights to save on energy cost.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting

was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The EST System appears to be original to the building. The main Fire Alarm Control Panel is located near the main office. Notification devices appear to be code compliant.

Public Address System

The building has a radio system with a base unit in the main office and some hand held units for Administration personal for communication back to the main office. There is a Rauland Sound System in the main office building wide announcements via the telephone system. The Bell system operates over this paging system.

Door Access/Security

The Paxton Door Access system appears to have been updated recently. The system consists of two main controllers, one in the main office area and a second in the cafeteria area. The systems have video capabilities, an intercom with a video camera and key pad, and card readers at exterior doors and to the main office. The Paxton system is a campus wide system. CCTV cameras are located at the front entrance and monitored at the front desk at the Main Server located in the Educational Services Center.

Clock/Bell System

The clock and bell system is a Rauland system. The system is not functioning properly.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

South Beaver Dam Elementary School

South Beaver Dam Elementary School

GENERAL INFORMATION

Original Construction	1959
Addition 01	1998
Shed Module Additions	2001
Approx. Size (Sq. Ft.)	19,550

ROOF

Roofing System

The roofing system was observed and reported as a ballasted TPO roofing system at the majority of flat roof areas, EPDM membrane at the gymnasium, and PVC roofing membrane at the sloped roof areas over the adjacent shed modules – all with expired warranties. Additionally, there are reports of leaking in various areas. The reports were validated upon observing staining on the ceiling tile in various areas in the building. Recommendation for replacing entire roofing system on all buildings due to the expired warranty, age of the roofing assembly, and reports and observations of water infiltration.

INTERIOR OF BUILDING

Acoustical Ceiling Tile/Plaster Ceilings

The acoustical ceiling tiles in various areas were observed to be stained. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Overall, many of the acoustical ceiling tiles/grid was observed to be sagging, broken, missing, or deteriorating. Recommendation would be to completely replace the ceiling tile/grid system in these areas. Plaster ceilings were observed in toilet rooms and a few storage rooms. There were visible stains where water infiltration was present in various areas. Recommend to replace any damaged plaster ceilings with gypsum board ceilings or acoustical ceiling tile systems.

Ceiling Tile Sagging at Classroom 100

Possible Asbestos-Containing Ceiling Tiles at Gym Storage Room

Ceiling Water Damage at Staff Restroom

Vinyl Flooring Tile

Due to the age of the building, the vinyl flooring tiles and adhesive should be tested for asbestos. The tile may remain in place if the flooring system is in good condition without any noticeable defects or delamination. If tiles are damaged or delaminating, recommendation for testing and abatement if asbestos is found. For aesthetics, consider matching tiles throughout areas where two or more different styles are being used.

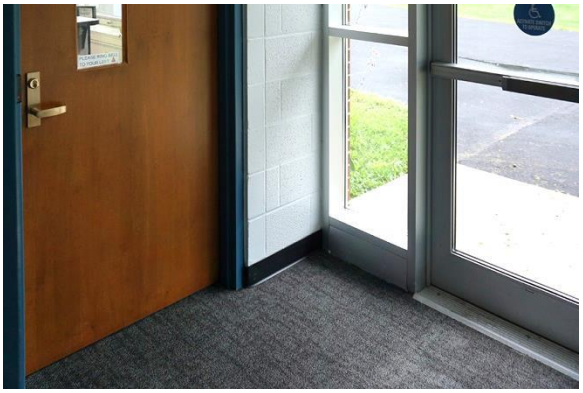
Cracked Vinyl Tile at Corridor

Cracked/Deteriorated Vinyl Tile

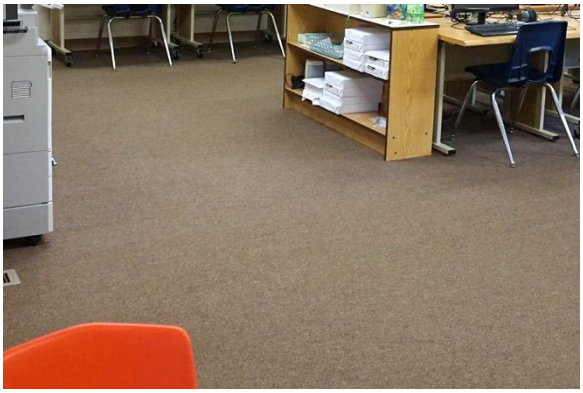
Cracked/Deteriorated Vinyl Tile at Mechanical Room

Carpet/Base/Transitions

The carpeted area was observed as a mix of old and newer installations. Carpet near the administration area appeared newer. These carpeted areas appeared to be in good condition aside from some minor staining and wear. Replacement is not recommended this time. The carpeted areas at the wood shed modules were moderately stained/deteriorated and should be replaced as necessary. The carpeted areas near the gymnasium were heavily deteriorated and should be replaced. Wall base and flooring transitions in various areas were also observed to be damaged in various areas. Recommend to replace wall base and flooring transitions as necessary.



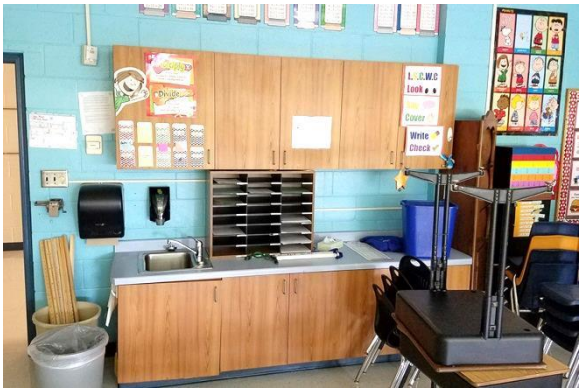
Newer Carpeted Areas Near Main Entry



Carpet Area at Wood Shed Module

Casework

Casework throughout the building was observed to be a variety of older and newer installations. The casework at the wood shed modules included the more updated casework but was not ADA compliant and should be replaced. The casework at the older building was damaged, scratched and non-ADA compliant. All non-ADA compliant casework should be replaced as well as damaged/deteriorated casework.



Non ADA Compliant Casework at Classroom 102

Non ADA Compliant Casework at Room 113

Toilet Rooms

The toilet rooms were observed to be original to the building in many areas. Chipping paint, damaged toilet partitions, and damaged ceilings were also observed in these areas. Exposed plumbing at the underside of sinks should be covered in pipe wrap to avoid contact with skin. There were no ADA compliant toilet stalls found throughout the building. The doors/vestibule leading into the gang toilet areas were undersized. The Staff Restroom did not meet required ADA clearances. Toilet facilities should be retrofitted to include ADA compliant toilet rooms.

Flaking Paint at Boys Restroom Floor

Non-ADA Compliant Door (24") at Staff Restroom

Missing Vertical ADA Grab Bar at Boys Restroom

Abandoned Sky Light Boys Restroom

Missing Vertical ADA Grab Bar at Girls Restroom

Non-ADA Compliant Staff Restroom

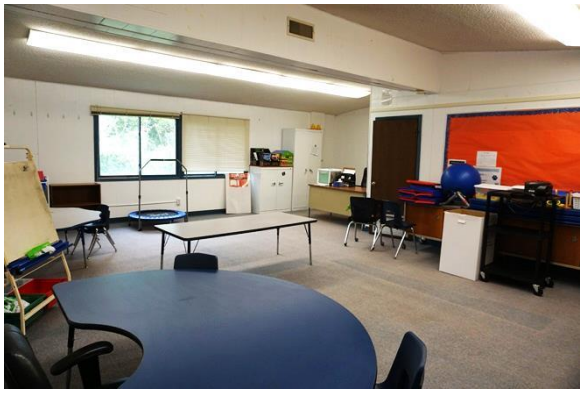
Non-ADA Compliant Entry at Girl's Restroom

Exposed Plumbing Pipes at Underside of Sink at Girl's/Boy's Restroom

Classrooms

Classrooms were observed to be in satisfactory condition, aside from some maintenance-level issues such as chipping PLam on casework, broken outlet covers, carpet staining, and scratched/marked-up walls.

Typical Classroom Layout – Original Building



Typical Classroom Layout – Wood Shed Modules

Gymnasium/Cafeteria/Kitchen

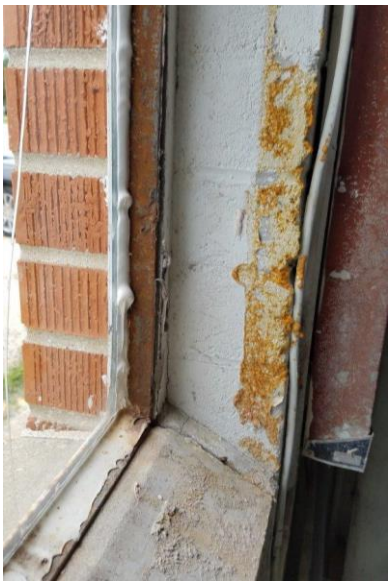
The gymnasium also serves as the school's cafeteria which is adjacent to a small kitchen. The gymnasium/cafeteria contains a stage that doesn't have any ramp or ADA access. Depending on the use of the stage area, the stage should be retrofitted to allow ADA access.

Gymnasium/Cafeteria – no ADA Stage Access

Kitchen/Serving Area

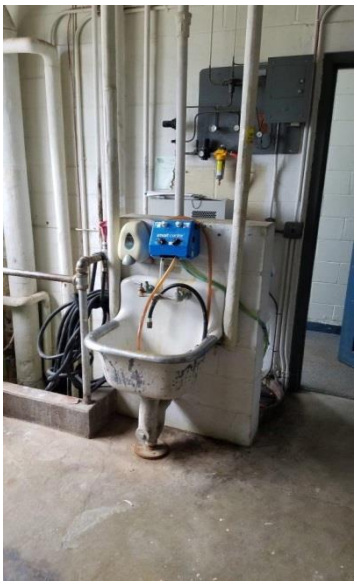
Boiler/Mechanical Room

The Boiler/Mechanical Room allocated at the original building was reported having sustained major damage in a fire approximately 5 years ago. Much of the mechanical/plumbing/electrical system has been replaced but still appears in poor condition. Asbestos notifications on plumbing insulation were observed –all asbestos should be tested and abated. The window in the boiler room has a rusted frame and is a non-insulated single pane window assembly. All non-insulated windows should be replaced with insulated window units to avoid excessive energy loss.



Rusted Window Frame/Deteriorating Caulk

Single Pane Window, Ventilation Fan



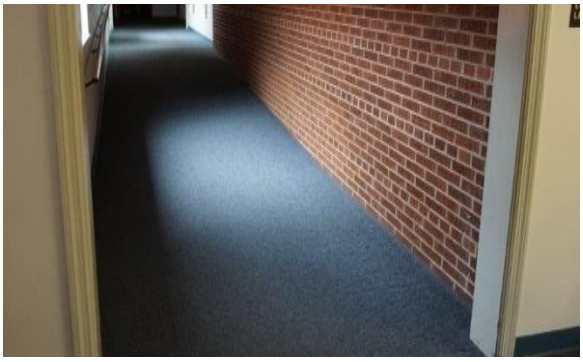
Mechanical/Plumbing Piping, Utility Sink

Asbestos Notification on Piping

Electrical Panel Mounting Location

Corridors

Corridors in the original building were observed to be in satisfactory condition with only maintenance-level issues such as damaged vinyl tiles, chipped/damaged wood shelving, scuffed walls, etc and should be corrected. The ramping leading to the wood shed modules is not ADA compliant and should be retrofitted to comply with ADA requirements.



Non-Ada Compliant Ramp at Shed Module

Typical Corridor at Original Building

Miscellaneous Rooms & Issues

Various miscellaneous issues were observed throughout both the original building and the wood shed modules. These issues include non-illuminated exit signage, cracking at interior CMU walls, and damaged signage. These issues should be addressed and corrected.

Non-Illuminated Exit Sign

Cracking CMU Wall at Storage Room

Damaged Signage

BUILDING ENCLOSURE / PERIMETER

Building Enclosure/Envelope - Masonry Building

The exterior of the masonry building was observed to include various defects and issues. Column bases were rusted and should be refinished and protected. Rust was observed on several of the exterior metal doors and frames which should be replaced. Many of the concrete stoops at exits have heaved/deteriorated and should be re-leveled or replaced. Brick spalling was observed at the masonry wall construction most likely due to improper flashing and no weeps installed. Recommend to install weeps and flashing to avoid further deterioration of the masonry. Cracking was observed at areas of the foundation and should be further analyzed for structural failure and repaired if necessary. There are observed drainage issues around the building as the grade elevation around the building has settled and allowing storm water to build up at the exterior foundation which can lead to structural failure due to hydrostatic pressure buildup and freeze/thaw heaving in the winter months. Recommend to regrade the perimeter of the building and enhance the drainage components along the perimeter of the building.

Rust at Canopy Column Base

Gutter Assembly Used as Conduit, Exposed Wires

Rusted Door/Frame, Stoop Settlement at Exit/Entry

Cracking at Foundation

Rusted Canopy Column Base; Stoop Settlement

Missing Downspout

Improper Conductor Termination, Grade Settlement

Concrete Lintel Deterioration

Leaking Conductor/Gutter; Exposed Insulation

Missing Downspout, Foundation Discoloration

Improper Flashing Installation at Window Sill

Spalling Masonry at Base of Wall

Piping/Ventilation at Mechanical Room Exterior

Rusted and Damaged Louver

<u>Building Enclosure/Envelope – Wood Shed Modules</u>

The wood shed modules were reported to be added around 2001. These wood structures were observed to be heavily deteriorated. The wood siding/cladding, wood trim and exterior wood ramp has rotted/deteriorated and should be completely replaced. There is no ADA compliant exit from the modules to grade. Recommend to add code compliant ramping to allow for proper egress. Also

reported (wood skirting obstructing observation), the structures are bearing on masonry block under the floor structure which has settled and shifted of the foundation.


Flaking Paint at Wood Cladding


Wood Trim Deteriorating at Base

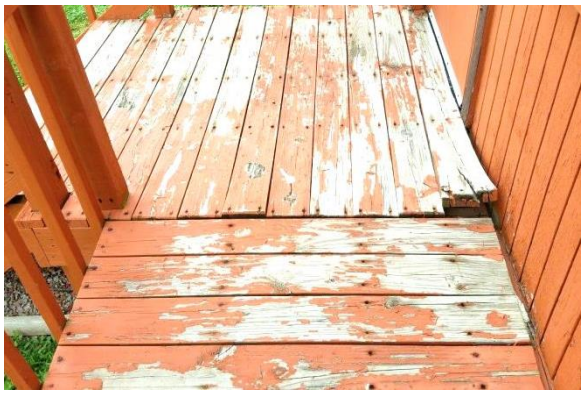

Wood Siding Deteriorating At Base

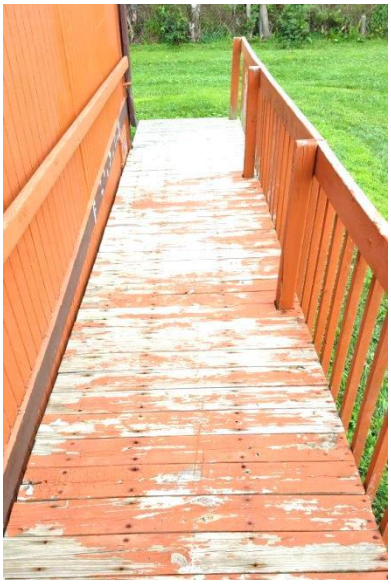

Dented & Damaged Vent & Siding


Improper Drainage; Rotted Wood Decking


Deteriorated Single Pane Window


Exterior Envelope/Ramp Deterioration


Non-ADA Compliant Ramp, Decking Worn/Deteriorating



Non-ADA Compliant Ramp, Structure Deteriorating

Non-Code Compliant Wood Stair Deteriorating, Paint Flaking Off

Non-Code Compliant Entrance/Exit at N3

Glazing/Windows

Single pane window assemblies were observed at many of the classrooms in the original building portion which is a significant energy loss issue. Recommend to replace all non-insulated single pane window assemblies with insulated window assemblies.

Single Pane Glazing at Original Building Classrooms

Insulated Glazing at Addition Classrooms

MECHANICAL SYSTEMS

Primary Cooling Systems

The only cooling in the building is provided by two air cooled condensing units (ACCU) that are connected to gas furnace systems. The units and systems are undersized and in poor condition. It is recommended to replace the units with a grade-mounted roof top type variable air volume hot water reheat system with new controls.

The area served by these units appears to have a high moisture level beneath the floor as musty smells were very evident. The source of this should be located and corrected as there is a potential for a health hazard occurring.

There are two furnaces that provide heating and cooling.

Primary Heating Systems

The primary heating system is a steam boiler located in the mechanical room. While this boiler was replaced 2013 and have an average life of 30 years, the overall condition of the piping and insulation is in poor condition. Recommend replacement of existing system to a new hot water system.

York Furnace

Primary Ventilation Systems

The unit ventilators in classrooms serve as the primary ventilation system. The units are past their recommended service life. . If air conditioning is needed in class rooms, the units should be replaced with new units that have direct expansion (DX) cooling coils and air cooled compressor condensing units.

The two air handlers serving the gym located in an adjacent equipment room are in poor condition and should be replaced soon. It is recommended this unit be replaced with a unit that has a direct expansion cooling coil and air cooled condensing unit on the roof. When replacing this unit, it is recommended to replace the unit with a variable air volume unit controlled by carbon dioxide detectors. The CO2 detectors will determine the occupant load through CO2 levels, and would then adjust the amount of

outside air treated and brought into the facility in conjunction with varying the total supply airflow based on occupancy.

Control Systems

This school uses pneumatic controls. The air compressor for the pneumatic systems was recently replaced and is in excellent condition. From an energy management and operational improvement standpoint it is recommended that the entire pneumatic system be upgraded to Direct Digital Control System (DDC) over the next 3 to 5 years.

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a new well water system installed in 2017. The water service from the well is located entering the mechanical room and is treated by a Hellenbrand water conditioner. The water distribution piping after the meter is constructed of a mix of copper and galvanized piping and appears to be in fair to poor condition. Piping is original to the building with renovations where needed with system changes. Water piping is typically insulated throughout the building, piping has apparent missing insulation.

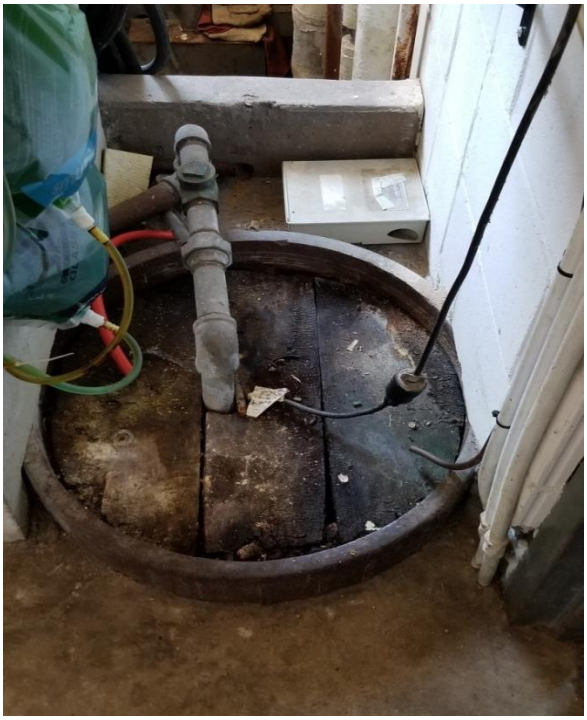
The majority of the domestic hot water is heated by a 40 gal power vent water heater located in the mechanical. A booster heater is located in the mechanical room that serves the kitchen/cafeteria serving area.

Water Heater


Water Service

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains. The sanitary drainage system drains by gravity to a private sewage system. A sewage ejector is located in the mechanical room. Piping is typically original to the building and constructed of cast iron hub & spigot 3" and under with galvanized waste and vent 2" and less. PVC piping has been used in areas of renovation and repair. The piping appears to be in fair to poor condition for the age of the building. There are apparent signs of leaks on some of the waste piping joints.



Sump

Storm Drainage

Roof drainage is buy sheet flow to gutters located around the perimeter of the building draining to grade, no apparent below grade storm sewer system.

Plumbing Fixtures

The toilet rooms consist of tank type water closets, floor set urinals with optical metering flush valves and wall hung lavatories with optical metering faucets. The class room sinks are stainless steel with manual faucets. The fixtures are in fair condition with some modifications for ADA compliance.

Fire Protection System

This building currently does not have a sprinkled fire protection system installed.

Recommendations:

- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.
- All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.

ELECTRICAL SYSTEMS

Normal Power Distribution System

There are two services to this building. The original building has a 120/240 volt 1 phase 3 wire 400 amp Main Fused Disconnect Switch. There are many small fused disconnect switches serving equipment and a Fused Distribution Panel to serve panels and large HVAC loads. The Second service is located in the addition is a Square D Load Center 120/240 volt 1 phase 3 wire with a 200 amp Main Circuit Breaker. The Peak Demand is not available for services using less than 70 KW per month. This indicates that the original service has less than 300 amp load and the addition service is unknown. The Peak demand is the Maximum load on a service at a specific time. Most of the panels throughout the building appear to be original to the building are Westinghouse panels that appear to be in poor condition. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. It is recommended to replace the original Main Disconnect Switch, original building panels, equipment disconnect switches and the conductors serving the panels with new.

Emergency Power Distribution and Lighting System

There is an Emergency panel appears to be a Tap before the Main Disconnect Switch. Tap before the main is not an acceptable practice for emergency power. Equipment served from the emergency panel is life safety loads such as exit lights, hall lighting and the Fire Alarm Panel. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery Units be added throughout the building

as required by the Egress Code. In addition the non-battery exit lights should be replaced with new LED exist lights with battery backup. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Many fixtures such as the class rooms, corridors and office areas are fluorescent recessed troffer type with acrylic lenses. The class rooms have multi-level switching and some rooms have occupancy sensors. The gymnasium has HID light fixtures and are switched by circuit breakers. Few spaces have Occupancy sensors to control lighting automatically and most have multilevel switching for the space. The lighting appears to be in good condition. It is recommended that the Gymnasium be upgraded to LED fixtures to save on energy. The remainder of the interior lighting appears to be in acceptable condition. It is recommended to add occupancy sensors in all the class rooms and offices. As another option it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost.

The exterior lighting consists of HID lights around the original building and incandescent around the addition. Some fixtures appear to have integral photo cells so lights are on from Sunset to Sunrise and the remaining are controlled by a time clock. It is recommended that the exterior lights be replaced with High efficiency LED lights.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The EST System appears to have been recently added. The main Fire Alarm Control Panel is located near the main office. Notification devices appear to be code compliant.

Public Address System

The building has a radio system with a base unit in the main office and some hand held units for Administration personal for communication back to the main office. There is a Dukane Sound System in the IT closet to make building wide announcements via speakers throughout the building.

Door Access/Security

The Paxton Door Access system appears to have been updated recently. The system consists of a main controller with video capabilities, an intercom with a video camera and key pad, and card readers at

exterior doors and to the main office. The Paxton system is a campus wide system. CCTV cameras are located at the front entrance and monitored at the front desk, there is no off site monitoring or recording of this system.

Clock/Bell System

The clocks are Wireless battery clocks and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. The bell system is a Faraday 1460 Master Time Programmer system. Both systems appear to be in good condition.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Washington Elementary School

Washington Elementary School

GENERAL INFORMATION

Original Construction	1949
Addition 01	1998
Addition 02	2001
Approx. Size (Sq. Ft.)	50,170

ROOF

Roofing System

The existing roofing system consists of a built-up TPO roofing system. The manufacturer's warranty has been voided based on reports. The roof has been reported and observed to be leaking in various areas and the scrim is visible throughout the roofing system. Temporary roofing repairs have been conducted at multiple problem areas. There is an anticipated 1 year life expectancy for the existing roofing system. Flashing, caulking, coping, etc. should be inspected/tested for failure. Recommend completely replacing roofing system with a durable membrane product.

TPO Roofing with Scrim Showing

Deteriorated/Plugged Roof Drain

INTERIOR OF BUILDING

**NOTE: Interior renovation in was observed in progress at classrooms. There were also reports of ongoing maintenance projects in progress throughout the building over the summer break. References to various deficiencies may have been addressed/corrected since this analysis was conducted.

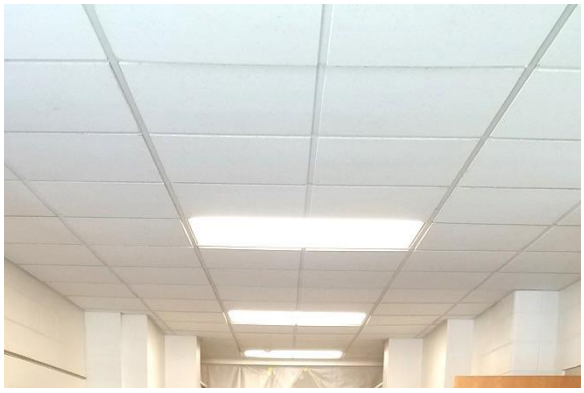
Acoustical Ceiling Tile/Plaster Ceilings

The acoustical ceiling tiles in various areas were observed to be stained/deteriorated. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Recommendation would be to completely replace the ceiling tile/grid system in these areas. Plaster ceilings were observed in areas of the original building. There was degradation/staining at most plaster ceiling areas. Recommend to replace any damaged plaster ceilings with gypsum board ceilings or acoustical ceiling tile systems. Newer acoustical ceiling tile systems were observed in corridors– no replacement recommended for these areas.

Ceiling Tile Staining, Sagging, and Deteriorating at Classroom 207

Ceiling Tile Deterioration and Staining at Classroom 302

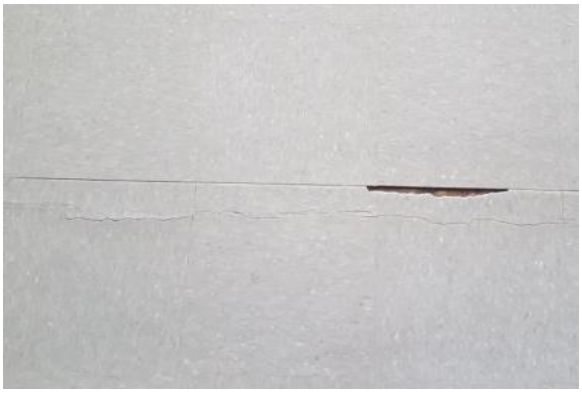
Deteriorated Plaster Ceiling at Restroom



Newer Ceiling Tile System at Corridor

Vinyl/Ceramic Tile Flooring

Due to the age of the building, the vinyl flooring tiles and adhesive should be tested for asbestos. The tile may remain in place if the flooring system is in good condition without any noticeable defects or delamination. If tiles are damaged or delaminating, recommendation for testing and abatement if asbestos is found. The majority of the corridors have ceramic tile flooring throughout these spaces which showed a few signs of cracking and deterioration in areas. Recommend to repair/replace tile flooring as necessary.



Cracked and Chipped Vinyl Tile at

Damaged Vinyl Tile and Rusted Metal Door Frame

Missing Flooring & Baseboard at Corridor

Cracks on Ceramic Tile Flooring

Typical Corridor with Ceramic Tile

Damaged & Cracked Glazed CMU and Wall Base at Corridor

Carpet/Base/Transitions

There were various areas with carpet observed – both newer and older installations. The older carpeted areas appeared to be in poor condition showing signs of delamination, heavy staining, and wear. Worn/deteriorated carpet should be replaced as necessary. Wall base and flooring transitions in various areas were also observed to be damaged and in need of replacement. Recommend to replace wall base and flooring transitions at these areas.

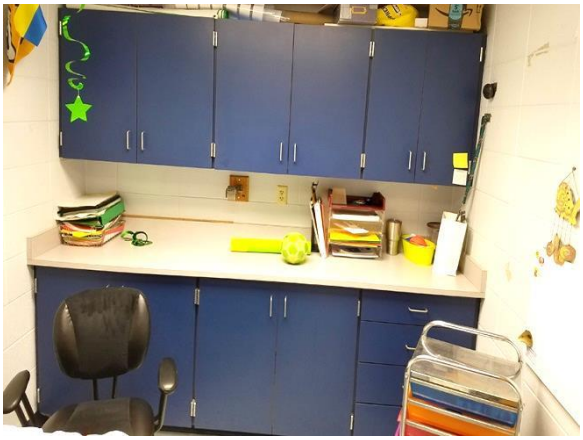
Lifting Wall Base at E2 Main Entrance

Carpet Stained and Delaminating at Classroom 204

Casework

Casework throughout the building was observed to be a variety of older and newer installations. The casework in administration areas included the more updated casework while the classroom casework was observed to be much older. Recommend to replace damaged casework and update for ADA compliance throughout building as necessary.

Non-ADA Compliant Casework/Sink at Break Room



Updated Casework at Phys Ed Office

Older Wood Casework at Classroom

Damaged Non-ADA Compliant Casework at Classroom

Toilet Rooms

The toilet rooms were observed to be original to the building in many areas. There was no ADA compliant toilet stalls observed throughout the building. A few restrooms were designated for accessibility, but were not ADA compliant. Many of the doors leading into the gang toilet areas were vastly undersized (24" wide) and often included a vestibule with non-ADA compliant clearances. The designated ADA toilets were missing vertical grab bars. Recommend installing vertical grab bars at all designated ADA toilet locations.

Missing Vertical Grab Bar at Men's Restroom

Missing Vertical Bar at Women's Restroom

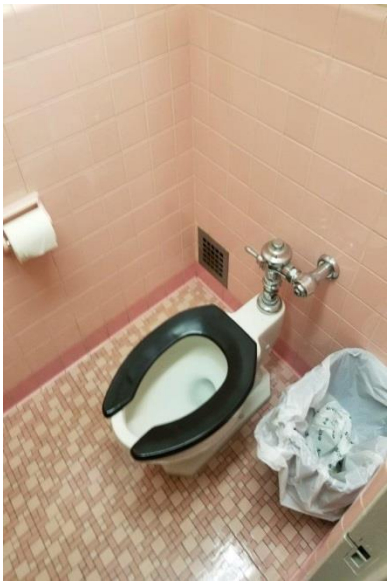
Lack of Vertical Bar at ADA Restroom

Tile Base Damaged

Cracked CMU Wall

24" Door at Women Restroom – Office

2 Shared Stalls Divided By Partition at Girl's Restroom

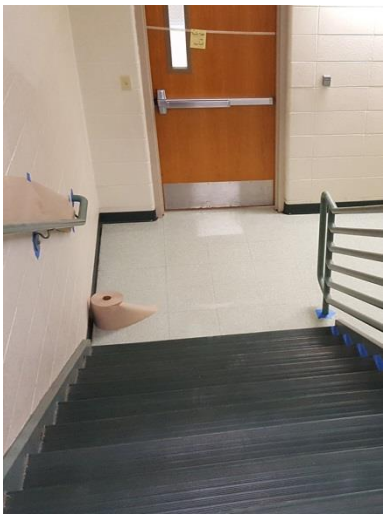


Non-ADA Compliant Toilet Room at Administration Area

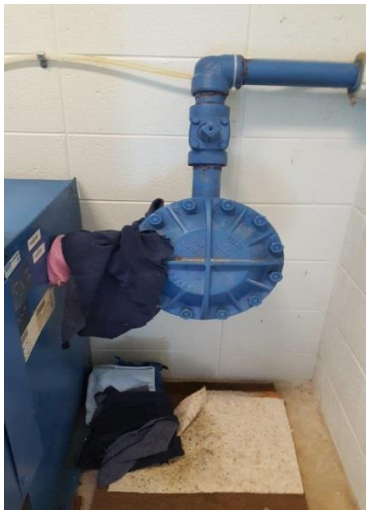
Stairs/Elevators

Stair treads and risers throughout the building showed signs of wear – delamination, peeling, cracking, etc. The ceramic tile stair treads should be covered with a non-slip material to avoid slipping/injury at the stairs. The railings at many of the stairs did not include the code required rail extensions at the top and bottom landings. Recommend to repair/replace damaged stair treads/risers and extend/replace existing railings that are non-compliant. Leaking equipment piping was observed at the elevator mechanical room. The elevator piping/equipment should be further analyzed and repaired. There was also stairs undergoing maintenance observed – painting, tread/riser replacement, etc.

Ceramic Stair Treads; Missing Code-Required Rail Extensions



Maintenance at Stairs



Leaking Elevator Equipment Piping

Classrooms

The classrooms are laid out in similar fashion throughout the building. The casework in the original building is older and shows signs of wearing – including scratches, chips, and discolored wood. The casework in renovated areas is in good condition. Recommend replacing damaged casework as necessary and updating for ADA compliance. Lighting is surface mounted and creates glare issues. At areas where the acoustical ceiling is replaced, recommend installing new lighting fixtures with indirect illumination features. There were also classrooms under renovation observed.

Typical Classroom Layout - Original Building

Classroom Under Renovation

Gymnasium

The gymnasium was observed to be in good condition. There were no visible signs of paint chipping/peeling, flooring degradation, etc. No renovation is recommended at this time.

Kitchen/Cafeteria

Kitchen casework/equipment appears to be in good condition with the exception of a few minor scratches and damaged edges. The damaged casework should be replaced with ADA-compliant casework at common areas. The metal floor access plate in kitchen is extremely rusted - recommend replacing. Rust was observed on metal doors and frames and should be replaced.

Rusted Metal Door/Frame

Rusted Kitchen Metal Floor Plate

Damaged Millwork

Boiler Room/Locker Rooms

The basement contains the mechanical/boiler room and abandoned locker rooms which are used as auxiliary storage spaces. There was abandoned equipment in the boiler room that should be removed. The boiler room also contains a mechanical chase with notification of existing asbestos. Recommend abating all asbestos in the boiler room area. The showers and plumbing fixtures at the locker rooms appear to be abandoned. Recommend removal of all abandoned plumbing fixtures and piping in these areas.

Boiler Room with Abandoned and New Equipment/Piping

Abandoned Locker Room used as Storage

Asbestos on Mechanical Pipes

Asbestos Notification at Chase

Asbestos Notification at Boiler Room

Asbestos on Mechanical Pipes

Asbestos on Plumbing Pipes

Miscellaneous Spaces & Issues

Various minor maintenance-level issues were observed in a few areas. Missing outlet covers, missing thermostat cover, and exposed plumbing at classrooms was observed. Metal lockers in corridors appeared to be rusting, scratched, and dented. Recommend replacing damaged locker banks as necessary.

Exposed Plumbing, Damaged Millwork at Classroom 302

Rusting, Dented, and Scratched Metal Lockers

Missing Outlet Cover/Exposed Wires

Damaged Signage

Missing Thermostat Cover

BUILDING ENCLOSURE / PERIMETER

Building Enclosure/Perimeter

Few areas of the exterior masonry wall were cracking and spalling due to lack of control joints, moisture infiltration/diffusion, building settlement, and lack of weeps at base of wall to drain the wall cavity. This was typically found at the original building portion. Recommend installing proper control joints at masonry wall and weeps at the base to remove excess moisture and avoid further deterioration. There were also cracks observed at some of the foundation corners which should be repaired.

ADA accessibility has been accommodated at the primary entrances, however, due to slab settlement many of the walks leading to entrances have cracked and heaved leaving non-ADA compliant elevation changes. All exterior slabs, stoops, and walks should be re-leveled to conform to ADA requirements and, if necessary replaced completely. Column bases show signs of rust and should be refinished and protected. The exterior louvers at the through-wall unit vents should be removed and replaced due to damage and reports of water infiltration from heavy rain events. New unit vent louvers should be designed to resist direct water infiltration from the exterior. Also, many of the steel lintels were showing signs of rust. Rusted lintels should be refinished, re-flashed, or re-caulked based on the condition of the lintel. Many exterior doors/frames were observed to be rusted and should be replaced.

Rusting at Base of Columns at W-2 Entrance; Heaving Concrete Walk

Ramp Not ADA Compliant; Deteriorated Dumpster Enclosure

Rusted Lintel

Foundation Cracks

Rusted and Damaged Exterior Unit Vent Louver

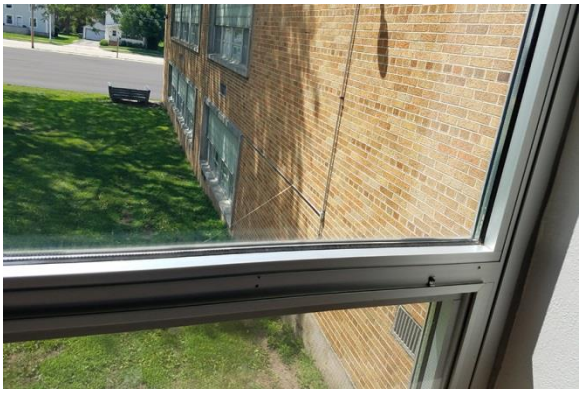
No Weeps Installed at Concrete Sill

Exposed Cavity Wall/Deficient Lintel

Previous Masonry Repairs

Glazing/Windows

Single pane window assemblies were observed at many of the classrooms in the original building portion which is a significant energy loss issue. Recommend to replace all non-insulated single pane window assemblies with insulated window assemblies.



Insulated Glazing at Addition Classrooms

Single Pane Glazing at Original Building Classrooms

MECHANICAL SYSTEMS

Primary Cooling Systems

The primary cooling system consists of four (4) Trane rooftop units that were installed in 1997 and have an anticipated life expectancy of 15 years. It is recommended that all of these units should be replaced within the next 1-3 years. Various unit ventilators that serve the classrooms were replaced in the last few years and others will require replacement soon.

Trane Rooftop Unit

Primary Heating Systems

There is a steam boiler that is in poor condition and should be replaced in the next 3-5 years. It is recommended to replace the current steam pipe and condensate piping system with a new hot water system.

Burnham Fire Tube Boiler

Control Systems

This building uses both an existing pneumatic control system and an added partial Direct Digital Control System (DDC) as installed by Reliable Controls. The air compressor for the pneumatic systems was recently replaced and is in excellent condition. From an energy management and operational improvement standpoint it is recommended that the entire pneumatic system be upgraded to DDC over the next 3 to 5 years.

Miscellaneous

The current IT area seems it could use more ventilation, adding a transfer fan could help alleviate the problem.

In the kitchen no ventilation exhaust hoods were present. This is a “gray” area of the current International Mechanical Code (IMC) and falls upon the local code inspector’s interpretation. According to the IMC 2015, Type II kitchen hoods must be installed above cooking or dishwashing appliances that produce heat and moisture and/or products of combustion.” This kitchen may require a type II commercial hood over equipment that produces heat or moisture.

Commercial Oven

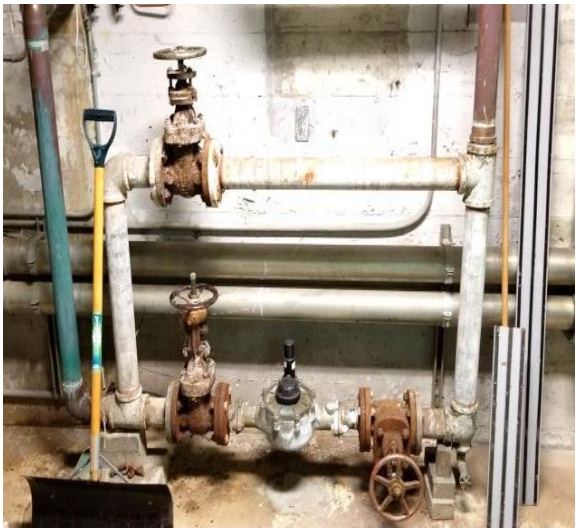
Transfer Duct to IT Area

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a 4" water service located in the mechanical room with a 2" water meter. The water distribution piping after the meter is constructed of copper & galvanized piping and appears to be in good to fair condition. Piping is original to the building with additions and renovations having newer copper piping. Water piping is typically insulated throughout buildings on domestic water systems. System has missing insulation.

The domestic hot water system is heated with a gas fired draft hot water heater with a circulated storage tank and a tube bundle from the hydronic heating system. System appears to be in the process of being replaced with 2 high efficacy cyclone HWH's. See photos below.



Plumbing Piping

Water Heaters

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains.
The sanitary drainage systems drain by gravity to the municipal sewage system. Piping is typically original to the building and constructed of cast iron hub & spigot. PVC piping has been used in areas of renovation, repair and additions. The piping appears to be in good to fair condition for the age of the building.

Plumbing Chase at Toilet Rooms

Plumbing Piping/Equipment

Storm Drainage

Roof drains are combined where possible and drain by gravity to the storm drainage system. Piping is typically original to the building and constructed of cast iron hub & spigot. Renovated areas have been installed with a combination of PVC and cast iron. Piping appears to be in good condition for the age of the building.

Plumbing Fixtures

The toilet rooms consist of flush valve wall hung water closets, flush valve floor set urinal and wall hung lavatories. Flush valves are a combination manual and optical metered type. Lavatories are a combination of optical metered and manual type. Some fixtures are installed to accommodate child height. The fixtures are in good to fair condition with some ADA compliant modifications.

Fire Protection System

This building currently does not have a sprinkled fire protection system installed.

Recommendations:

- Domestic water Piping systems are insulated for condensation and energy loss issues.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.
- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.

All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.

ELECTRICAL SYSTEMS

Normal Power Distribution System

The Main Disconnect Switch is Square D 208/102 volt 3 phase 4 wire 800 amp fused switch. This Switch serves a Square D Main Distribution Panel (MDP). There appears not to be any space or spares in the MDP. There is a Surge Protection Device installed at the MDP. The peak demand recorded is approximately 90 kW / 250 amps. The Peak demand is the Maximum load on a service at a specific time. It appears that the Main Disconnect Switch and MDP was added in the 1997 project along with some new panels. The MDP also back feds the existing panel in the building, Roof Top Units and the

elevator. Some of the panels throughout the building appear to be original to the building as manufactured by Westinghouse and some newer Square D panels. The Westinghouse panels are in poor condition, however the Square D panels are in acceptable condition. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. Other than the panels added in the 1997 project, it is recommended to replace the panels and the conductors serving the panels with new.

Emergency Power Distribution and Lighting System

There is no emergency power in this building. There are battery type LED exit lights and Emergency Battery Units throughout the corridors for Life Safety Egress lighting that appears to meet current code requirements. Other areas such as stair ways, mechanical rooms and Locker room don't have any Emergency Battery Units. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery units be added throughout the building as required by the Egress Code. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to be T8 fluorescent lamps. Many fixtures such as the class rooms, corridors and office areas are fluorescent recessed troffer type with acrylic lenses or surface mounted wraparound type fluorescent fixtures. The Media room utilizes parabolic recessed troffers. The class rooms have multi-level switching and a small percentage of rooms such as the YMCA area and upper level toilets have occupancy sensors. The gymnasium has HID lighting using manual switches. The light fixtures in the 1997 area are in good condition but it may be prudent to replace these fixtures with high efficiency LED light fixtures. Lighting in the other areas should be replaced with high efficiency LED light fixtures to save on energy cost. Some spaces have Occupancy sensors to control lighting automatically with additional multilevel switching for the space. It is recommended that all spaces have occupancy sensors to automatically shut off the lighting. As another option it is recommended when replacing the T8 fluorescent lamps that burn out to use the LED retrofit lamp and rewire the existing fixture to bypass the ballast to save on energy cost.

The exterior lighting consists of HID fixtures. The fixtures appear to have integral photo cells so lights are on from Sunset to Sunrise. There does not appear to be time clocks to control the light fixtures. It is recommended that the exterior lights be replaced with High efficiency LED lights.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The fire alarm system is a Simplex Fire Alarm 4020 System. The main Fire Alarm Control Panel is located in the basement. Notification devices appear to be code compliant. The elevator appears to have the required smoke detectors for elevator recall. Elevator shutdown is not provided because the building is not sprinkled therefore elevator shutdown via the Fire Alarm System is not required.

Public Address System

The building has a radio system with a base unit in the main office and some hand held units for Administration personal for communication back to the main office. There is a Bogan Sound System in the main office building wide announcements but is being replaced with a new system. An existing two way communication system is present with remote stations in the class rooms. It does not appear this system is being used.

Door Access/Security

The Paxton Door Access system appears to have been updated recently. The system consists of a main controller with video capabilities, an intercom with a video camera and key pad, and card readers at exterior doors and to the main office. This system is a campus wide system. CCTV cameras are located at the front entrance and monitored at the front desk at the Main Server located in the Educational Services Center.

Clock/Bell System

It appears the clocks have been upgraded with wireless battery clocks, and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. The Bell and clock system is controlled by a Lathem Time Clock System.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

Wilson Elementary School

Wilson Elementary School

GENERAL INFORMATION

Original Construction	1959
Addition 01	1998
Approx. Size (Sq. Ft.)	37,594

ROOF

Roofing System

The roofing system was observed and reported as a ballasted and fully adhered TPO roofing system with expired warranty. The roof has been reported and observed to be leaking in various areas and the scrim is visible throughout the roofing system. Temporary roofing repairs have been conducted at problem areas. There is an anticipated 5-8 year life expectancy for the existing roofing system. Flashing, caulking, coping, etc. should be inspected/tested for failure. Recommendation for replacing entire roofing system on building due to the expired warranty, age of the roofing assembly, and reports and observations of water infiltration.

TPO Roofing with Scrim Showing

Existing Ballasted and Fully Adhered Membrane Roof

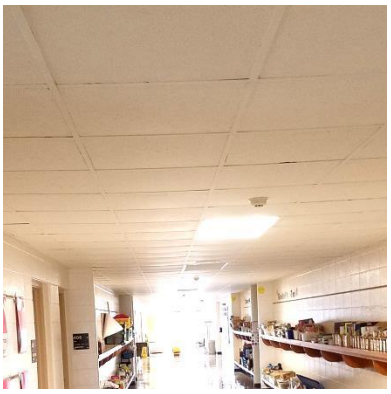
INTERIOR OF BUILDING

Acoustical Ceiling Tile

The acoustical ceiling tiles in various areas were observed to be stained. At locations where a roof is directly above stained tiles, further analysis is recommended to determine the cause of the staining as the roof may be leaking at these areas. Overall, many of the acoustical ceiling tiles/grid was observed to be sagging, broken, or deteriorating. Recommendation would be to completely replace the ceiling tile/grid system in these areas.

Ceiling Tile Staining at Kindergarten Room 100

Ceiling Tile Sagging at Music Room



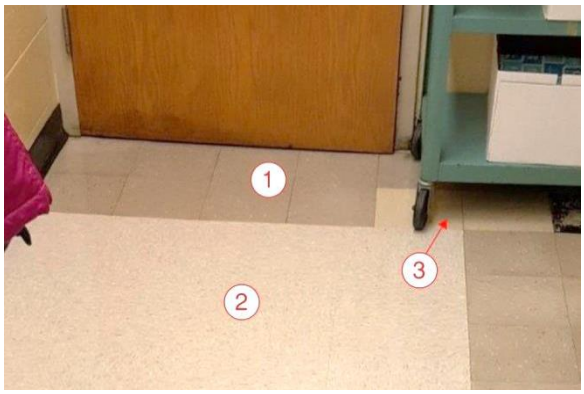
Sagging Ceiling Tile/Grid at Corridor

Vinyl Flooring Tile

The vinyl tile throughout showed a few signs of wear but was in relative good condition. Tile in the older portions of the building could possibly contain asbestos. Due to the age of the building, the vinyl flooring tiles and adhesive should be tested for asbestos. The tile may remain in place if the flooring system is in good condition without any noticeable defects or delamination. If tiles are damaged or delaminating, recommendation for testing and abatement if asbestos is found. Mismatched tiles were observed throughout the building used as replacements for damaged tiles.

Cracked Vinyl Tile at Media Center - 207

Vinyl Tile Delamination; No Transition



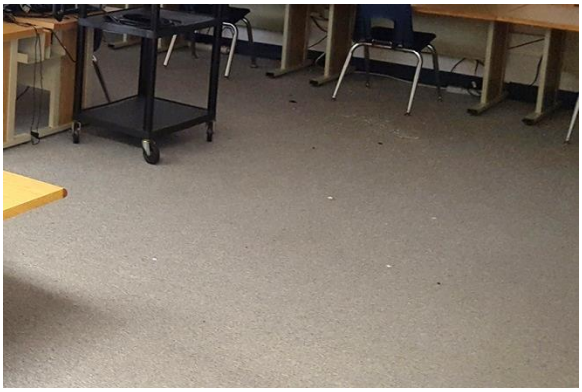
Three Different Styles of Vinyl Tile at Kitchen – Gym

Damaged Tiles at Boiler Room Corridor

Carpet/Base/Transitions

There was a very limited amount of carpet observed – mainly in the administration area, entry areas and a few classrooms. Carpeted areas and transitions appeared to be in poor condition and signs of staining and wear were visible. Recommend replacing worn/damaged carpet/transitions as necessary. Wall base and flooring transitions in various areas were also observed to be damaged and in need of replacement. Recommend to replace wall base and flooring transitions at these areas.

Damaged/Taped Carpet Transition at Classroom 100



Stained/Worn Carper at Computer Lab

Casework

Casework throughout the building was observed to be a variety of older and newer installations. The casework in administration areas included the more updated casework while the classroom casework was observed to be much older. Recommend to replace damaged casework and update for ADA compliance throughout building as necessary.

Non-ADA Compliant Casework/Sink at Class Rooms

Updated Casework at Work Room

Toilet Rooms

The toilet rooms were observed to be original to the building in many areas. There was no ADA compliant toilet stalls observed throughout the building. A few restrooms were designated for accessibility, but were not ADA compliant. Many of the doors leading into the gang toilet areas were vastly undersized (24" wide) and often included a vestibule with non-ADA compliant clearances. The designated ADA toilets were missing vertical grab bars. Recommend installing vertical grab bars at all designated ADA toilet locations. Toilet partitions were observed to be rusted and should be replaced

Missing Grab Bars; Non-ADA Compliant Clearances

Non-ADA Compliant Toilet Room at Administration

Non-ADA Compliant Lavatory

Rusting Toilet Partition

Missing/Damaged Privacy Locks on Toilet Partition Door at Staff Toilet Room

Toilet Room Vestibules Non-ADA Compliant

Toilet Room Doors 2' Wide Non-ADA Compliant

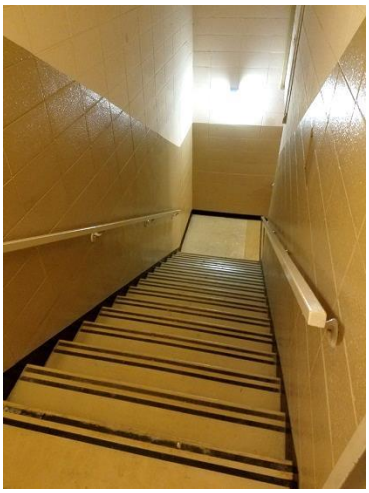
Missing Grab Bars at ADA Toilet Room

Stairs/Elevators

Stair treads and risers throughout the building showed signs of wear – delamination, peeling, cracking, etc. The railings at many of the stairs did not include the code required rail extensions at the top and bottom landings. Recommend to repair/replace damaged stair treads/risers and extend/replace existing railings that are non-compliant. The elevators were observed to be in good condition

Code Compliant Stairs

Missing Code-Required Rail Extensions at Stairs

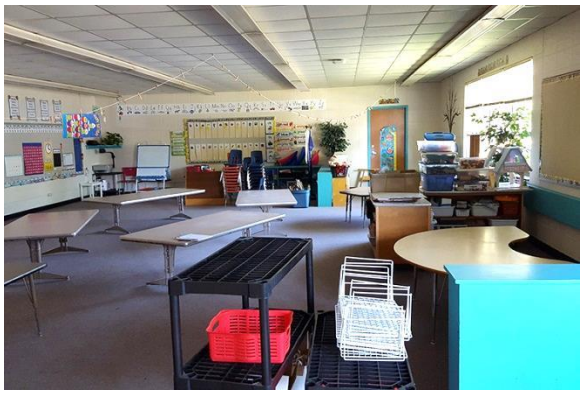


Stairs Leading to Boiler/Locker Room

Classrooms

The classrooms are laid out in similar fashion throughout the building. The casework in the original building is older and shows signs of wearing – including scratches, chips, and discolored wood. The casework in renovated areas is in good condition. Recommend replacing damaged casework as necessary and updating for ADA compliance. Lighting is surface mounted and creates glare issues. At areas where the acoustical ceiling is replaced, recommend installing new lighting fixtures with indirect illumination features. There were also classrooms under renovation observed.

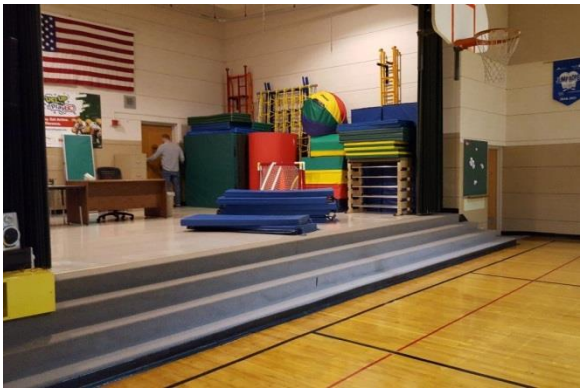
Typical Classroom Layout



Classroom layout at Kindergarten

Gymnasium

There was no observed ADA access to the stage adjacent to the gym. Depending on the use in this area – ADA accessibility may not be required. Overall, the gymnasium space appeared to be in good condition. Recommend addressing maintenance issues in this space only.



No ADA Stage Access

No ADA Stage Access

Kitchen

Kitchen casework/equipment was observed to be non-ADA compliant. Casework at the kitchen should be replaced with ADA-compliant casework. The metal floor access plate in kitchen is extremely rusted - recommend replacing. Rust was observed on metal doors and frames and should be replaced. Wood blocking was installed as a door stop and a coat rack. The wood blocking should be removed and proper components should be installed.

Old and Worn Non-ADA Compliant Casework

Kitchen Casework

Wood Block Door Stop

Wood Block Coat Hooks

Boiler/Basement

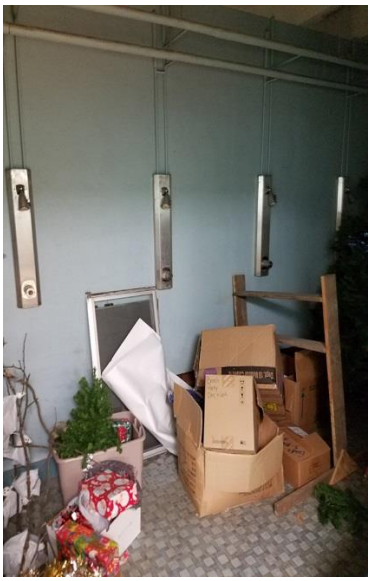
The basement contains the mechanical/boiler room and abandoned locker rooms which are used as auxiliary storage spaces. There was abandoned equipment in the boiler room that should be removed. The boiler room also contains a mechanical chase with notification of existing asbestos. Recommend abating all asbestos in the boiler room area. The showers and plumbing fixtures at the locker rooms appear to be abandoned. Recommend removal of all abandoned plumbing fixtures and piping in these areas. There was also an Art room observed in the basement area. Vinyl tile should be tested for asbestos and abated. Abandoned mechanical equipment and plumbing piping in the room should be removed f the room is currently used. Walls and ceilings appeared to have been damaged by water infiltration and should be replaced.

Boiler Room with Abandoned and New Equipment/Piping

Abandoned Locker Room used as Storage

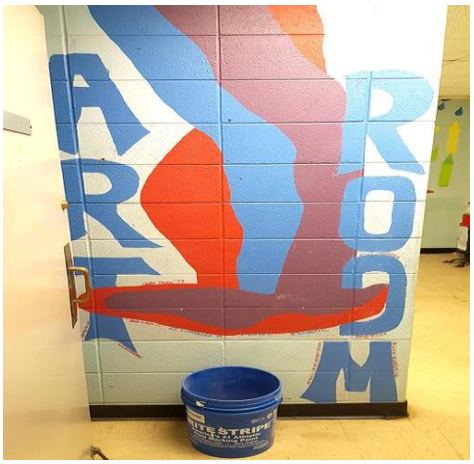
Abandoned Mechanical Equipment

Asbestos Notification at Chase



Abandoned Locker/Shower Rooms

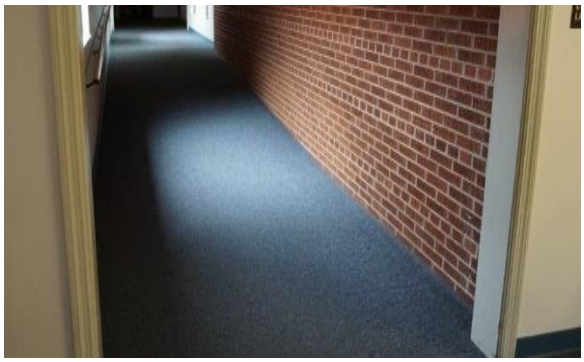
Water Damaged Ceiling Tiles



Art Room in Basement

Corridors

Corridors in the original building were observed to be in satisfactory condition with only maintenance-level issues such as damaged vinyl tiles, chipped/damaged wood shelving, scuffed walls, etc and should be corrected.



Non-Ada Compliant Ramp at Shed Module

Typical Corridor at Original Building

Miscellaneous Spaces & Issues

Various minor maintenance-level issues were observed in a few areas including damaged switch covers, missing thermostat cover, and malfunctioning plumbing fixtures at classrooms. These issues should be addressed and corrected.

Faucet Working Incorrectly

Damaged Light Fixture

Broken Outlet Cover

Damaged Signage

Missing Thermostat Cover

BUILDING ENCLOSURE / PERIMETER

Building Enclosure/Perimeter

Few areas of the exterior masonry wall were cracking and spalling due to lack of control joints, moisture infiltration/diffusion, building settlement, and lack of weeps at base of wall to drain the wall cavity. This was typically found at the original building portion. Recommend installing proper control joints at masonry wall and weeps at the base to remove excess moisture and avoid further deterioration. There were also cracks observed at some of the foundation corners which should be repaired.

ADA accessibility has not been accommodated at the primary entrances, and due to slab settlement, many of the walks leading to entrances have cracked and heaved leaving non-ADA compliant elevation changes. All exterior slabs, stoops, and walks should be re-leveled to conform to ADA requirements and, if necessary replaced completely. Column bases show signs of rust and should be refinished and protected. The exterior louvers at the through-wall unit vents should be removed and replaced due to damage and reports of water infiltration from heavy rain events. New unit vent louvers should be designed to resist direct water infiltration from the exterior. Also, many of the steel lintels were showing signs of rust. Rusted lintels should be refinished, re-flashed, or re-caulked based on the condition of the lintel. Many exterior doors/frames were observed to be rusted and should be replaced.

Rust at Handrails

Cracked Masonry at Window Edge

Cracked Foundation

W-1 Not ADA Compliant - Missing ramp and handrails

Rusted Exterior Door at Exit S4 handrails

Vestibule Addition at W-1 Entrance

Rusted Column Base

Non-ADA Compliant Main Entry

Deteriorated Louver at Unit Vent at S-3 Entrance

Glazing/Windows

Single pane window assemblies were observed at many of the classrooms in the original building portion which is a significant energy loss issue. Recommend to replace all non-insulated single pane window assemblies with insulated window assemblies.

Insulated Glazing at Addition Classrooms

Single Pane Glazing at Original Building Classrooms

MECHANICAL SYSTEMS

Primary Cooling Systems

The primary cooling system consists of three (3) new Trane rooftop units that were replaced in 2018 and have an average life of 15 years. Recommend replacement of the unit ventilators serving classrooms. These units were replaced in 1997 and have an expected life of 15 years. The gymnasium has its own air handling unit located in the neighboring equipment room, which is in poor condition. We recommend replacing this unit with a variable air volume unit that is controlled by a carbon dioxide detector to adjust the airflow based on occupancy.

Primary Heating Systems

The heating for this building is supplied by two Thermal Solutions gas-fired boilers that were replaced in 2014. These boilers are in good condition and have an average life of 25 years. The associated boiler circulator pumps are in good condition and have an expected life of 10 years. For the base mounted hot water pumps, these have an average life of 20 years are in good condition. There is an old cabinet unit heater that we do recommend replacing to help reduce infiltration during the winter.

Cabinet Unit Heater

Mechanical Room

Primary Ventilation Systems

The primary ventilation systems are the unit ventilators in classrooms and the air handling unit serving the gymnasium. The unit ventilators where last replaced in 1997 and are in good condition. We recommend that when these units are being replaced that they be replaced with units that have direct expansion (DX) cooling coils and a 4 ton air cooled condensing unit to also provide cooling for the classrooms. If budget constraint s d o not allow purchase of the unit ventilators and air cooled condensing units, then it is recommend purchasing unit ventilators with DX and installing the air cooled condensers later.

The air handler serving the gym is located in a neighboring equipment room and is in poor condition and should be replaced soon. We recommend that this unit be preplaced with a unit that has a direct expansion cooling coil and air cooled condensing unit on the roof. When replacing this unit it is our recommendation to replace the unit with a variable air volume unit that is controlled by a carbon dioxide detector. CO2 detectors will determine the amount of people in the space. These detectors would then be used to adjust the amount of outside air being treated and brought into the facility along with varying the total supply airflow based on occupancy.

Control Systems

Some of the controls have been updated to Direct Digital Controls System (DDC) by Reliable Controls for the new rooftop units while the rest are on an existing pneumatic control system. The air compressor for pneumatic air control system was replaced in 2009 and has an average life expectancy of 25 years. Form an energy management recommendation we recommend changing the entire pneumatic system to a DDC system in 3 – 5 years.

Miscellaneous

In the kitchen no ventilation exhaust hoods were present. This is a "gray" area of the current International Mechanical Code (IMC) and falls upon the local code inspector's interpretation. According to the IMC 2015, Type II kitchen hoods must be installed above cooking or dishwashing appliances that produce heat and moisture and/or products of combustion." This kitchen may require a type II commercial hood over equipment that produces heat or moisture.

Spray Dishwasher

Kitchen

PLUMBING AND FIRE PROTECTION SYSTEMS

Water Distribution

The building is served by a 4" water service entering the building in the lower level mechanical room with a 2"water meter. The water distribution piping after the meter is constructed of copper and appears to be in good to fair condition. Majority of the building is original piping with renovations and new piping installed at the time of renovations. Water piping is typically insulated throughout the building with missing or removed areas. Meter configuration is missing supports for water piping.

The water is heated with a 50 gallon draft HWH, water heater located in the lower level mechanical room. Heater is not original to the building and believes it was installed around 2006, apparent pipe leaks located on piping by HWH.

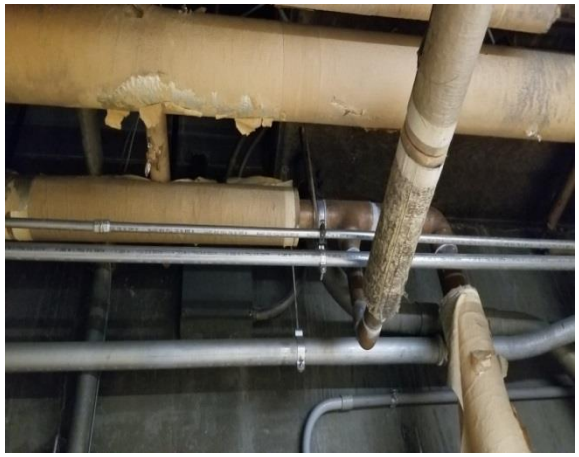
Plumbing Chase at Toilet Rooms

Water Heater

Sanitary Drainage

The sanitary drainage system serves the building plumbing fixtures and floor drains.
The sanitary drainage systems drains by gravity to the municipal sewer – no sewage ejectors are present. Piping is typically original to the building and constructed of cast iron hub and spigot. PVC piping has been used in areas of renovation and repair. The piping appears to be in good condition for the age of the building with no apparent signs or reports of issues.

Plumbing Piping



Plumbing Piping with Asbestos

Storm Drainage

Roof drains are combined where possible and drain by gravity to the storm drainage system. Piping is typically original to the building and constructed of cast iron hub & spigot and galvanized with cast iron fittings. Piping appears to be in fair condition for the age of the building. Roof drain heads and strainers need to be checked and repaired or cleared of debris when possible.

Plumbing Fixtures

The toilet rooms consist of wall hung flush valve water closets, flush valve urinals and wall hung lavatories with a mix of optical or manual metering faucets and flush valves. The fixtures conditions range from good to fair with renovations being all on the fair range and installed with ADA compliant requirements. The lower level locker rooms and outside entry bathrooms have been abandon and are used more as storage space than a shower room. Abandon fixture should be removed and capped.

Fire Protection System

This building currently does not have a wet fire protection system installed.

Recommendations:

- Domestic water Piping systems are insulated for condensation and energy loss issues. Domestic Hot Water systems are to be insulated per SPS 382.40(5)(b)3. for code compliance.
- Fixtures are a combination of renovated and original, recommend replacing with water conserving type fixtures.
- All faucets are replaced with lead free type faucets.
- All fixtures, appurtenances and appliances connected to the water distribution system are of water conserving type.

- Renovations and remodeling performed, all below ground sewers are visually camera inspected prior to reuse and plumbing system(s) older than 50 years be replaced.
- All storm drainage roof drain heads be inspected for obstructions and strainer damage. All obstructions be removed and strainers replaced (if damaged) and secured to roof drain heads.
- All storm drainage piping/systems are visually camera inspected for damage or obstructions. All piping systems older than 50 years are replaced in renovated and remodeled areas.

All abandon fixtures be removed and waste, vent and water pipe systems connecting to the abandon fixtures be removed and capped as close to the mains as possible.

ELECTRICAL SYSTEMS

Normal Power Distribution System

The Main Distribution Panel (MDP) is Square D 208/102 volt 3 phase 4 wire 800 amp Main Circuit Breaker panel with (2) 200 amp spaces for future circuits. There is a Surge Protection Device installed at the MDP. The Peak Demand is not available for services using less than 70 KW per month. This indicates that the original service has less than 200 amp. The Peak demand is the Maximum load on a service at a specific time. It appears that the MDP was added in the 1997 project that back fed the existing fused main distribution panel, a new panel in the mechanical room, some pumps and the elevator. Most of the panels throughout the building appear to have been updated in 1966 and are Square D panels that appear to be in good condition. Panels have a life expectancy of about 30 to 40 years if kept clean and dry, at that point the reliability of a circuit breaker operating properly under an overload or short circuit is unpredictable. Also parts and circuit breakers for these panels may be difficult to find and in some cases obsolete. Conductors serving the panels also have a life expectancy of approximately 30 to 40 years, at that point the insulation on the cables can become brittle and begin to cause short circuits in the system. Other than the panels added in the 1997 project, it is recommended to replace the panels and the conductors serving the panels with new.

Emergency Power Distribution and Lighting System

There is an Emergency panel being served only from the normal service. The existing generator system is obsolete and has been removed from service, and remains on site. Equipment served from the emergency panel are mixed emergency loads and life safety loads such as the clock system, exit lights, stair and hall lighting and the Fire Alarm Panel. It is recommended that the Life Safety Egress lighting be evaluated, and Emergency Battery units be added throughout the building as required by the Egress Code. In addition the non-battery exit lights should be changed out to new LED exist lights with battery backup, similar to the exit lights located in the 1997 project. There is no exterior Life Safety Egress lighting at the exterior exit doors. It is recommended to add exterior Emergency Battery units at each exterior egress door to meet current Life Safety codes.

Lighting

Fluorescent Lighting throughout the building appears to have been up graded to T8 fluorescent lamps. Many fixtures such as the class room fixtures appear to have been retrofitted with T8 lamps and ballast. In some cases such as storage rooms and mechanical spaces incandescent fixtures are being utilizes. The gymnasium utilizes Metal Halide fixtures with minimal control and switching from the local panelboard. The Boiler room lighting has been updated to LED strip light. With exception of the fixtures in the 1997 project, most of the light fixtures are in poor condition and should be replaced with high efficiency LED light fixtures. Most spaces have Occupancy sensors to control lighting automatically with additional multilevel switching for the space.

The exterior lighting consists of HID lights with the exception of some fixtures that were replaced with LED light fixtures. All fixtures appear to have integral photo cells so lights are on from Sunset to Sunrise. It is recommended that the exterior lights be replaced with High efficiency LED lights to save on energy cost.

Current Lighting codes have more stringent requirements for control of the light fixtures and a requirement to use high efficiency light fixtures such as LED light fixtures. If 50% of the building lighting was replaced, then the new lighting codes will need to be implemented with the light fixtures being replaced.

Fire Alarm System

The Simplex Fire Alarm 4020 System was updated in the 1997 Addition. The main Fire Alarm Control Panel is located in the basement. Notification devices appear to be code compliant. The elevator does not have the required smoke detectors for elevator recall. Elevator shutdown is not provided because the building is not sprinkled therefore elevator shutdown via the Fire Alarm System is not required. It is recommended to add elevator recall smoke detection. Reprogramming of the elevator control panel may be required to add the recall smoke detection.

Public Address System

The building has a radio system with a base unit in the main office and some hand held units for Administration personal for communication back to the main office. There is a Bogan Sound System in the main office building wide announcements. An existing Simplex two way communication system is present with a main control panel in the main office and remote stations in offices and class rooms. It does not appear this system is being used.

Door Access/Security

The Paxton Door Access system appears to have been updated recently. The system consists of a main controller with video capabilities, an intercom with a video camera and key pad, and card readers at exterior doors and to the main office. The Paxton system is a campus wide system.

Clock/Bell System

It appears some of the existing Simplex hard wired Clocks still remain in the building. It appears that when these clocks have failed they have been replaced with Wireless battery clocks and non-wireless battery clocks. Wireless clocks are automatically synchronized to the Atomic Clock system. The Bell and clock system is controlled by a Lathem Time Clock System.

Communication System

The communication system consisting of the Telephone System, Network System, Cable TV system was not reviewed.

PROBABLE COST ESTIMATES

Probable Cost for Necessary Improvements within the next five years

NOTE: for plumbing cost information see **Appendix B

BEAVER DAM MIDDLE SCHOOL

Roof

Issue #1	Roof Tear Off	$375,000
Issue #2	Roof Replacement	$850,000

Interior of Building

Issue #1	Ceiling Replacement	$3/Sq. Ft.
Issue #2	Flooring	$5,000
Issue #3	Chemistry Casework	$55,000/Room
Issue #4	Stairs	$45,000
Issue #5	Retrofit Locker Rooms	$125,000
Issue #6	Stair and Sidewall Replacement	$250,000
Issue #7	Tuckpointing	$7.25/Sq. Ft.
Issue #8	Miscellaneous	$10,000

Building Enclosure / Perimeter

Issue #1	Window Replacement	$45/Sq. Ft

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace all existing rooftop units	
	Crane Rental	$25,000
	60 Ton Unit	$80,000
	40 Ton Unit	$55,000
	12.5 Ton Unit	$15,000
	10 Ton Unit	$15,000
	5 Ton Unit	$10,000
Issue #2	Replace all existing make-up air units	
	2300 CFM Unit	$8,000
	3600 CFM Unit	$8,000
	16000 CFM Unit	$35,000
Alternate	Upgrade to units with cooling	

	2300 CFM Unit	$10,000
	3600 CFM	$10,000
	16000 CFM	$35,000
Issue #3	Replace all unit ventilators (19)	$7,000 EA $133,000 Units
	Upgrade outside air system	$20/ Square foot of remodeled space
Alternate	Upgrade to unit with air conditioning	$11,000 EA $209,000 Total
Issue #4	Replace boiler pumps (2)	$2,000 EA $4,000 Total
Issue #5	Replace base mounted pumps (2)	$3,000 EA $6,000 Total
Issue #6	Replace 3 ton ductless split serving main electrical room	$7,000
Issue #7	Upgrade remaining pneumatic system to DDC	$5.00 per square foot of area remodeled

Electrical & Lighting Systems

Issue #1	Replace existing panel with new	$6,000/panel
Issue #2	Replace panel feeder cable in existing conduit	
	100 amp feeder	$20/foot
	200 amp feeder	$35/foot
	400 amp feeder	$100/foot
	600 amp feeder	$130/foot
Issue #3	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #4	Replace existing exit light with new LED battery exit light	$250/fixture
Issue #5	Add new exterior emergency battery unit	$600/fixture
Issue #6	Replace existing fluorescent fixture with new LED fixture	$500/fixture
Issue #7	Add room occupancy sensor	$500/sensor
Issue #8	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture
Issue #9	Replace existing exterior fixtures with LED fixtures	$700/fixture

DON SMITH LEARNING ACADEMY

Roof

Issue #1	Roof Tear Off	$34,400
Issue #2	Roof Replacement	$75,000

Interior of Building

Issue #1	Ceiling Replacement	$3/Sq. Ft.
Issue #2	Flooring	$1,000
Issue #3	Casework Replacement	$200/LF
Issue #4	ADA Restrooms	$24,000
Issue #5	Daycare	$25,000

Building Enclosure / Perimeter

Issue #1	Tuckpointing	$7.25/Sq. Ft

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace Goodman furnace and condensing unit	$6,000
Issue #2	Upgrade remaining pneumatic system to DDC	$25,000
Issue #3	Kitchen Hoods Above Range vented outside	$2,500

Electrical & Lighting Systems

Issue #1	Add new exterior emergency battery unit	$600/fixture
Issue #2	Replace existing fluorescent fixture with new LED fixture	$500/fixture
Issue #3	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture
Issue #4	Replace existing exterior fixtures with LED fixtures	$700/fixture

EDUCATIONAL SERVICES CENTER

Roof

Issue #1	Roof Tear Off	$55,000

Issue #2	Roof Replacement	$113,000

Interior of Building

Issue #1	Ceiling Replacement	$3/Sq. Ft.
Issue #2	Ceramic Tile in Restrooms (Replace and Install)	$9/Sq. Ft.
Issue #3	Restroom ADA Improvements	$600/Room
Issue #4	Miscellaneous ADA Improvements	$6,000

Building Enclosure / Perimeter

Issue #1	Repair/Replace Walks and Stoops	$7/LF
Issue #2	Rust Removal and Repainting	$8.25/Sq. Ft.

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace all existing condensing units 3.5 Ton Unit 5 Ton Unit (2)	 $3,500 $4,000 EA $8,000 Total
Issue #2	Replace hot water heating system	$100,000
Issue #3	Replace rooftop unit	$20,000

Electrical & Lighting Systems

Issue #1	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #2	Add new exterior emergency battery unit	$600/fixture
Issue #3	Add room occupancy sensor	$500/sensor
Issue #4	Replace existing fluorescent fixture with new LED fixture	$500/fixture
Issue #5	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture
Issue #6	Replace existing exterior fixtures with LED fixtures	$700/fixture

JEFFERSON ELEMENTARY SCHOOL

Roof

Issue #1	Roof Tear Off (Skylight Removal and Patching Included in Tear-Off and Replacement)	$148,400

Issue #2	Roof Replacement	$325,000

Interior of Building

Issue #1	Ceiling Replacement	$3/Sq. Ft.
Issue #2	Vinyl Tile Flooring	$3/Sq. Ft.
Issue #3	Vinyl Floor Base	$2.75/Sq. Ft.
Issue #4	Ceramic Tile Base	$9.25/LF
Issue #5	Casework (Base Cabinets)	$175/LF
Issue #6	Casework (PLam Countertops)	$125/LF
Issue #7	Renovate Restrooms for ADA	$30,000/Room

Building Enclosure / Perimeter

Issue #1	Window Replacement	$45/Sq. Ft

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace rooftop units (2)	$10,000 EA $20,000 Total
Issue #2	Replace ductless split systems (2)	$6,000 EA $12,000 Total
Issue #3	Kitchen Hoods	
	Type II	$10,000

Electrical & Lighting Systems

Issue #1	Replace existing panel with new	$6,000/panel
Issue #2	Replace panel feeder cable in existing conduit	
	100 amp feeder	$20/foot
	200 amp feeder	$35/foot
	400 amp feeder	$100/foot
	600 amp feeder	$130/foot
Issue #3	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #4	Replace existing exit light with new LED battery exit light	$250/fixture
Issue #5	Add new exterior emergency battery unit	$600/fixture
Issue #6	Replace existing fluorescent fixture with new LED fixture	$500/fixture

Issue #7	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture
Issue #8	Add room occupancy sensor	$500/sensor
Issue #9	Replace existing exterior fixtures with LED fixtures	$700/fixture

LINCOLN ELEMENTARY SCHOOL

Roof

Issue #1	Roof Tear Off	$137,000
Issue #2	Roof Replacement	$245,000

Interior of Building

Issue #1	Ceiling Replacement	$3/Sq. Ft.
Issue #2	Floor Base	$2.75/Sq. Ft.
Issue #3	Casework (Base Cabinets)	$175/LF
Issue #4	Casework (PLam Countertops)	$125/LF
Issue #5	Stair Tread Replacement	$45/Sq. Ft.

Building Enclosure / Perimeter

Issue #1	Window Replacement	$45/Sq. Ft

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace all unit ventilators louvers	$1,000 EA $22,000 Total
Issue #2	Replace all unit ventilators (22)	$7,000 EA $154,000 Total
	Upgrade to unit with air conditioning	$11,000 EA $242,000 Total
Issue #3	Replace air handling unit serving gym	$25,000
Alternate	Upgrade to unit with air conditioning	$45,000
Issue #4	Kitchen Hoods Type II	$10,000
Issue #5	Upgrade remaining pneumatic system to DDC	$75,000

Electrical & Lighting Systems

Issue #1	Replace existing panel with new	$6,000/panel
Issue #2	Replace panel feeder cable in existing conduit	
	100 amp feeder	$20/foot
	200 amp feeder	$35/foot
	400 amp feeder	$100/foot
	600 amp feeder	$130/foot
Issue #3	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #4	Replace existing exit light with new LED battery exit light	$250/fixture
Issue #5	Replace existing fluorescent fixture with new LED fixture	$500/fixture
Issue #6	Add room occupancy sensor	$500/sensor
Issue #7	Replace existing exterior fixtures with LED fixtures	$700/fixture
Issue #8	Add elevator recall smoke detector	$500/detector
	Reprogramming elevator	$1500

MAINTENANCE BUILDING

Roof

Issue #1	Roof Tear Off	$23,000
Issue #2	Roof Replacement	$61,500
Issue #3	Roofing Insulation	$45/Sq. Ft.

Interior of Building

Issue #1	Ceiling Replacement	$3/Sq. Ft.
Issue #2	Floor Base	$2.75/Sq. Ft.
Issue #3	Casework (Base Cabinets)	$175/LF
Issue #4	Casework (PLam Countertops)	$125/LF

Building Enclosure / Perimeter

Issue #1	Tuckpointing	$7.25/Sq. Ft

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace gas fired unit heaters (3)	$4,000 EA $12,000 Total
Issue #2	Remove abandoned unit heater	$500

Electrical & Lighting Systems

Issue #1	Replace existing panel with new	$6,000/panel
Issue #2	Replace panel feeder cable in existing conduit	
	100 amp feeder	$20/foot
	200 amp feeder	$35/foot
	400 amp feeder	$100/foot
	600 amp feeder	$130/foot
Issue #3	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #4	Replace existing exit light with new LED battery exit light	$250/fixture
Issue #5	Replace existing fluorescent fixture with new LED fixture	$500/fixture
Issue #6	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture
Issue #7	Replace HID shop fixtures with LED high-bay fixtures	$700/fixture
Issue #8	Replace existing exterior fixtures with LED fixtures	$700/fixture
Issue #9	Add fire alarm system to building	$20,000

PRAIRIE VIEW ELEMENTARY SCHOOL

Interior of Building

Issue #1	Miscellaneous Vinyl Flooring	$3/Sq. Ft.
Issue #2	Floor Base	$2.75/Sq. Ft.
Issue #3	Casework (Base Cabinets)	$175/LF
Issue #4	Casework (Upper Cabinets)	$150/LF
Issue #5	Casework (PLam Countertops)	$125/LF
Issue #6	Staff Restroom ADA Upgrades	$30,000
Issue #7	Miscellaneous ADA Improvements	$600/Room
Issue #8	Miscellaneous Painting and Flooring	$10,000

Building Enclosure / Perimeter

Issue #1	Tuckpointing	$7.25/Sq. Ft
Issue #2	Repair/Replace Walks and Stoops	$7/LF
Issue #3	Window Replacement	$45/LF

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace all air cooled condensing	
	30 Tons (2)	$25,000 EA $50,000 Total
	20 Tons	$20,000
	15 Tons	$15,000
Issue #2	Re-adjust Air Flows	$5,000

Electrical & Lighting Systems

Issue #1	Add new exterior emergency battery unit	$600/fixture
Issue #2	Replace HID gymnasium fixtures with LED high-bay fixtures	$1100/fixture
Issue #3	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture
Issue #4	Replace existing exterior fixtures with LED fixtures	$700/fixture

SOUTH BEAVER DAM ELEMENTARY SCHOOL

Roof

Issue #1	Roof Tear Off	$52,000
Issue #2	Roof Replacement	$105,000

Interior of Building

Issue #1	Plaster Ceiling Repair	$9.50/Sq. Ft.
Issue #2	Miscellaneous Vinyl Flooring	$3/Sq. Ft.
Issue #3	Vinyl Tile Flooring	$3/Sq. Ft.
Issue #4	Renovate Restrooms for ADA	$600/Room
Issue #5	Stage Renovation for ADA	$30,000
Issue #6	Miscellaneous Painting and Flooring	$10,000

Building Enclosure / Perimeter

Issue #1	Foundation Repair	$15/LF
Issue #2	Caulking and Tuckpointing	$7.25/Sq. Ft
Issue #3	Repair/Replace Walks and Stoops	$7/LF
Issue #4	Replace Wood Ramp and Landing	$9,500
Issue #5	Replace Wood Siding	$22/Board Foot

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace furnace and condensing unit with Roof top	$25,000
Issue #2	Replace steam system with hot water system	$20,000
Issue #3	Replace all unit ventilators	$40,000 Total
	Upgrade to unit with air conditioning	$65,000 Total
Issue #3	Upgrade remaining pneumatic system to DDC	$75,000
Issue #4	Replace air handling unit serving gym	$25,000
Alternate	Upgrade to unit with air conditioning	$45,000

Electrical & Lighting Systems

Issue #1	Replace existing panel with new	$6,000/panel
Issue #2	Replace panel feeder cable in existing conduit	
	100 amp feeder	$20/foot
	200 amp feeder	$35/foot
	400 amp feeder	$100/foot
	600 amp feeder	$130/foot
Issue #3	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #4	Replace existing exit light with new LED battery exit light	$250/fixture
Issue #5	Add new exterior emergency battery unit	$600/fixture
Issue #6	Replace HID gymnasium fixtures with LED high-bay fixtures	$1100/fixture
Issue #7	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture

WASHINGTON ELEMENTARY SCHOOL

Roof

Issue #1	Roof Tear Off	$149,000
Issue #2	Roof Replacement	$275,000

Interior of Building

Issue #1	Plaster Ceiling Repair	$9.50/Sq. Ft.
Issue #2	ACT Ceiling Replacement	$3/Sq. Ft.
Issue #3	Vinyl Tile Flooring	$3/Sq. Ft.
Issue #4	Miscellaneous Vinyl Flooring	$3/Sq. Ft.
Issue #5	Replace Vinyl Base	$2.75/LF
Issue #6	Casework (Base Cabinets)	$175/LF
Issue #7	Casework (PLam Countertops)	$125/LF
Issue #8	Stair Railing	$32/LF
Issue #9	Stair Tread Replacement	$50/Tread
Issue #10	Upgrade Staff Restrooms for ADA	$30,000/Room
Issue #11	Renovate Restrooms for ADA	$300/Room
Issue #12	Miscellaneous Painting and Flooring	$10,000

Building Enclosure / Perimeter

Issue #1	Foundation Repair	$15/LF
Issue #2	Caulking and Tuckpointing	$7.25/Sq. Ft
Issue #3	Repair/Replace Walks and Stoops	$7/LF
Issue #4	Window Replacement	$45/Sq. Ft.

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace rooftop units	
	12 Tons (2)	$15,000 EA $30,000 Total
	5 Tons (2)	$10,000 EA

		$20,000 Total
Issue #2	Replace steam boiler with hot water system	$250,000
Issue #3	Kitchen Hoods Type II	 $10,000
Issue #4	Transfer fan	$2,000
Issue #5	Upgrade remaining pneumatic system to DDC	$100,000

Electrical & Lighting Systems

Issue #1	Replace existing panel with new	$6,000/panel
Issue #2	Replace panel feeder cable in existing conduit	
	100 amp feeder	$20/foot
	200 amp feeder	$35/foot
	400 amp feeder	$100/foot
	600 amp feeder	$130/foot
Issue #3	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #4	Add new exterior emergency battery unit	$600/fixture
Issue #5	Replace existing fluorescent fixture with new LED fixture	$500/fixture
Issue #6	Replace HID gymnasium fixtures with LED high-bay fixtures	$1100/fixture
Issue #7	Replace (4) lamp T8 fluorescent fixture with LED retrofit lamps	$225/fixture
Issue #8	Add room occupancy sensor	$500/sensor
Issue #9	Replace existing exterior fixtures with LED fixtures	$700/fixture

WILSON ELEMENTARY SCHOOL

Roof

Issue #1	Roof Tear Off	$155,000
Issue #2	Roof Replacement	$290,000

Interior of Building

Issue #1	ACT Ceiling Replacement	$3/Sq. Ft.
Issue #2	Vinyl Tile Flooring	$3/Sq. Ft.

Issue #3	Miscellaneous Vinyl Flooring	$3/Sq. Ft.
Issue #4	Replace Vinyl Base	$2.75/LF
Issue #5	Casework (Base Cabinets)	$175/LF
Issue #6	Casework (PLam Countertops)	$125/LF
Issue #7	Stair Railing	$32/LF
Issue #8	Stair Tread Replacement	$50/Tread
Issue #9	Upgrade Staff Restrooms for ADA	$30,000/Room
Issue #10	Renovate Restrooms for ADA	$300/Room
Issue #11	Miscellaneous Painting and Flooring	$10,000

Building Enclosure / Perimeter

Issue #1	Foundation Repair	$15/LF
Issue #2	Caulking and Tuckpointing	$7.25/Sq. Ft
Issue #3	Repair/Replace Walks and Stoops	$7/LF
Issue #4	Window Replacement	$45/Sq. Ft.

Heating Ventilation and Air Conditioning Systems

Issue #1	Replace all unit ventilators (8)	$7,000 EA $56,000 Total
Alternate	Upgrade to unit with air conditioning (8)	$11,000 EA $88,000 Total
Issue #2	Replace cabinet unit heater	$2,500
Issue #3	Replace air handling unit serving gym	$25,000
Alternate	Upgrade to unit with air conditioning	$45,000
Issue #4	Upgrade remaining pneumatic system to DDC	(Waiting on pricing)
Issue #5	Kitchen Hoods Type II	$10,000

Electrical & Lighting Systems

Issue #1	Replace existing panel with new	$6,000/panel
Issue #2	Replace panel feeder cable in existing conduit	

	100 amp feeder	$20/foot
	200 amp feeder	$35/foot
	400 amp feeder	$100/foot
	600 amp feeder	$130/foot
Issue #3	Add new emergency battery unit or LED battery exit light	$500/fixture
Issue #4	Replace existing exit light with new LED battery exit light	$250/fixture
Issue #5	Add new exterior emergency battery unit	$600/fixture
Issue #6	Replace existing fluorescent fixture with new LED fixture	$500/fixture
Issue #7	Add room occupancy sensor	$500/sensor
Issue #8	Replace existing exterior fixtures with LED fixtures	$700/fixture
Issue #9	Add elevator recall smoke detector	$500/detector
	- Reprogramming elevator	$1500

Service Life Estimates					
Equipment Item	**Median Service Life (Years)**	**Equipment Item**	**Median Service Life (Years)**	**Equipment Item**	**Median Service Life (Years)**
Air Compressors	25	**Unit heaters**		**Condensers**	
		Gas	13	Air-cooled	20
Air Conditioners		Hot-water or steam	20		
Window Unit	10			**Pumps**	
Commercial through-the-wall	15	**Fans**		Base-mounted	20
		Centrifugal	25	Pipe Mounted	10
Roof-top Air Conditioners		Ventilating roof-mounted	20	Sump and well	10
Single-zone	15			Condensate	15
Mulitzone	15	**Coils**			
		DX, water, or steam	20	**Controls**	
Boilers, Hot-Water(Steam)		Electric	15	Pneumatic	20
Steel water-tube	30			Electric	16
Steel fire-tube	25	**Heat Exchangers**		Electronic	15
Cast iron	30	Shell-and-tube	24		
				Valve actuators	
Boiler Burners	21	**Packaged Chillers**	20	Hydraulic	15
				Pneumatic	20
Furnaces		**Cooling Towers**		Self-contained	10
Gas-fired	18	Galvanized Metal	20		

Service life estimates are based off of American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) standards

APPENDIX B – General Statement for Plumbing and Fire Protection systems

The following statements are based on the requested building assessments for the Beaver Dam area and listed buildings. The reports are derived from viewable access and available existing information. The site/civil sanitary sewer, storm sewer and water services area not part of this report. Due to inability to access below grade or existing civil information the civil services locations and conditions were undetermined. We recommend that all exterior services for all buildings be located through a site survey done by the owners or through contracting out the services privately. The locations of building water service curb stops, control valves and site sewer locations provide critical information in the event or need for emergency situations.

PLUMBING:

- Current state plumbing code compliance requires all faucet fixtures to be lead free due to the federal water act.
  Many faucets and valves older than 1 year are not lead free compliant.
- Current state plumbing code compliance requires all plumbing fixtures to be water conserving fixtures. Many of the unrenovated areas do not have water conservation fixtures installed. Many of the renovated fixtures need to be evaluated to determine if they are water conserving compliant fixtures.
- Current state plumbing codes require all water services to be protected from backflow when connected to plumbing fixtures, appliances and appurtenances. These codes are aligned with the Federal Water Act issued by the federal government.

FIRE PROTECTION:

- Current fire protection codes require all building areas to be F.P. Depending on building sizes and proposed areas for remodeling/renovations they may require wet protection. The majority of building supplied water services are undersized to provide wet F.P. throughout.
- Current F.P. and plbg codes require wet F.P. systems to have double detector check valves installed for code compliance.

Current plumbing and Fire Protection codes require the systems to be code compliant when renovating or installing new systems. Current existing systems are required to be code compliant at the date the codes were active at the time of installation.
Current state plumbing codes dictate how fixtures, appliances and appurtenances are to be connected to the plumbing systems. State plumbing codes do not dictate fixtures, appliances and appurtenances counts within a building. Fixtures, appliances and appurtenances are dictated by occupancy loads, ADA requirements and customer preferences to building types. Changes to the plumbing fixtures, appliances and appurtenances counts maybe driven by future occupancy requirements for architectural code compliance and customer needs based on the anticipated or the requested future time frame given for the assessment.

- Estimated cost per water closet FV – $ 430.00.
- Estimated cost per Lav/Sk optical fct replacement – $780.00.
- Estimated cost/ plbg fix replacement - $ 5200.00.
- Estimated new construction plbg cost per sq/ft – $10.14.

REFERENCES

[i] "About Our District". *Beaver Dam Unified School District.* <https://www.bdusd.org/district/index.cfm>
[ii] "District Facts", *Beaver Dam Unified School District.* < https://www.bdusd.org/district/districtfacts.cfm>