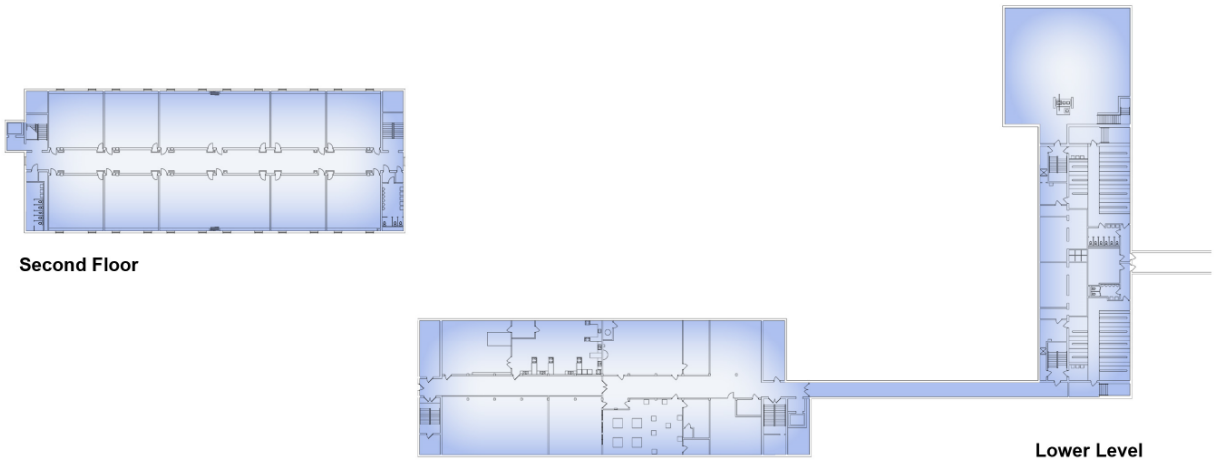
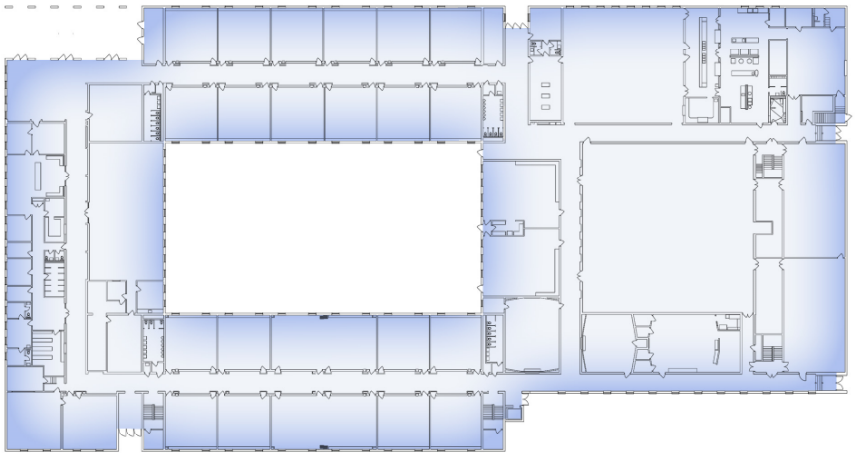
HISTORIC PLAN AND SITE PLAN

HISTORIC PLAN – NOT TO SCALE



Second Floor

Lower Level



First Floor

Historical Key - Building Additions

1961

eppstein uhen : architects

Menomonee Falls School District
Thomas Jefferson - Facility Study
Historical Plan

NORTH

SITE PLAN – NOT TO SCALE

NORTH

BUILDING INSPECTION REPORT

The assessment of site and building systems identifies the condition of categorized elements observed during inspection and graded for relative fitness by the following criteria for expected service.

Good: The reviewed element has been observed to have the following characteristics:

- Is between the beginning and middle of its expected service life.
- Meets optimum functional and / or performance requirements.
- Requires routine maintenance or minor repair.
- Less that 25% of the element is in substandard condition or has failed.

Fair: The reviewed element has been observed to have the following characteristics:

- Is between the middle and end of its expected service life.
- Meets minimum acceptable functional and / or performance requirements.
- Requires attention to repair beyond routine maintenance.
- 25 - 50% of the element is in substandard condition or has failed.

Poor: The reviewed element has been observed to have the following characteristics:

- Is at or has passed the end of its expected service life.
- Fails to meet functional and / or performance requirements.
- Requires excessive and constant attention, and major corrective repair.
- More that 50 percent of the element is in substandard condition or has failed.

Rusted hollow metal door frame

Broken glass in aluminum frame

Aluminum-framed entry door

EXTERIOR ENVELOPE

EXTERIOR DOORS

- Expected life span 20 years for steel, 30 years for aluminum/ FRP systems
- Current Condition - fair
- Steel doors have areas of rusting on the interior and exterior.
    - The lower portion of exterior steel door and frames are prone to rust and deterioration faster than aluminum is. Steel systems are not thermally broken causing condensation to form on the interior which results in steel corrosion.
    - Exterior hinges and locksets are prone to fail most and are the most costly to replace. Screw holes may strip out losing holding power, doors may drop and no longer align between lockset and frame latch, closers will fail to due to over burden, and surface applied weather-stripping fails.
- A single set of FRP doors are in good condition.
- Aluminum doors are in good condition.
    - One of the doors was recently broken into and has been boarded up.

RECOMMENDATIONS

1. Replace all exterior steel doors and frames with new FRP (fiber reinforced plastic) doors in aluminum frames. Include replacement of all exterior door hardware.

Dented fascia

Damaged mechanical louver

Entry soffit

Concrete retaining wall

BUILDING CANOPIES / FASCIAS / SOFFITS / MISC

- Life Expectancy – same as building
- Current Condition – good to fair
- There are areas of chipped painting on the building's entry soffits.
- A metal fascia is provided around the building. This is generally in good condition. There are a few areas of dented fascia.
- Mechanical louvers below windows are dented and damaged in areas.

RECOMMENDATIONS

1. Replace/repair any damaged mechanical louvers.
2. Repaint entrance soffits.
3. As roof replacements are required, replace metal fascia.
4. Repaint all concrete retaining walls at lower level exits.

Playground

Trash enclosure

Playground area

Damaged light pole

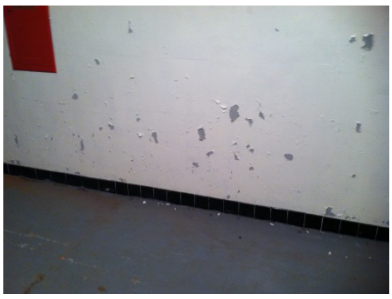
GROUNDS

GROUNDS/ DRAINAGE

- Concrete and asphalt were reviewed independently. See appendix for reference reports.
- Grounds are well maintained.
- Trash enclosure is old and failing.
- Playground spaces appear to be in good condition, despite the lack of use the past few years.
- Playing fields for soccer, athletics and phy ed appear to be in good condition.
- There is no outside storage for lawn or grounds equipment.

RECOMMENDATIONS

1. Replace/repair trash enclosure doors.
2. Repaint all exterior metal (stair handrails).
    a. Consider replacing any non-code complaint exterior railings.



Wall in need of painting

INTERIOR

WALLS

- Expected life span - 50 -100 years with periodic maintenance
- Current Condition - Good
- Most interior walls are concrete block and show no signs of cracks, fractures or failure.
- Paint is in fair condition.

RECOMMENDATION

1. If Thomas Jefferson becomes fully operational again, consider painting the entire building.

Carpet at office area

VAT (Vinyl asbestos tile)

Corridor VCT

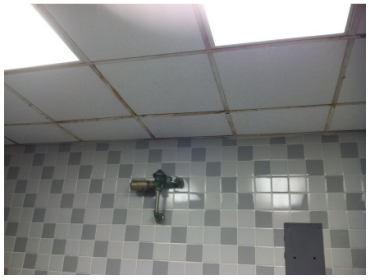
FLOOR COVERINGS

- Expected life span 20 years
- Current Condition - good
- Carpet – There are limited amounts of carpet in the building; primarily in offices.
    - Office carpet is in poor condition.
- VCT (Vinyl Composition Tile) – is in good to fair condition.
    - There are minimal areas of VCT used in the building.
- VAT (Vinyl Asbestos Tile) – is original to the building and in fair condition.
- Wall base is in fair condition.

RECOMMENDATIONS

1. Continue annual maintenance for small areas of VCT flooring.
2. Consider replacing all VAT with alternative material.
3. Replace all carpeting.

Stained / damaged ceiling tile



Rusted ceiling grid

Sound door at Music

Classroom door

CEILINGS

- Expected life span 15 years
- Current Condition – poor
- Acoustical ceilings are generally in poor shape with several areas of water-damaged and discolored tile and grid. There are areas of sagging tiles.
- Typical classrooms have adhered ceiling tiles. There are areas where the glue has failed and tiles have dropped. Tiles are also discolored.

RECOMMENDATION

1. Replace all acoustical lay-in ceiling tile and grid.
2. In rooms with adhered tiles, add dropped lay-in ceilings.

DOORS FRAMES AND HARDWARE

- Expected life span 40 years with periodic maintenance
- Current Condition - fair to poor
- A majority of doors appear to be in fair condition, however due to lack of use there are missing vents, door hardware and glass in some doors.
- Continued operation of interior wood doors will cause the facing veneer will chip and tear over time and experience scrapes and dents.
- Metal door frames are in fair condition.

RECOMMENDATIONS

1. Replace or refinish doors in poor condition.
2. Paint all door frames.
3. Replace all door hardware to be ADA compliant.

Typical classroom metal shelving

Art casework

Science casework

Corridor lockers

CABINETRY, COUNTERTOPS AND LOCKERS

- Expected life span 20-25 years
- Current Condition - poor
- Typical classroom casework is limited to metal shelving that is integral with the room's unit ventilator.
- Science and Art areas include additional casework.
    - Some cabinets do not remain closed.
    - Plastic laminate is prone to chips, dents, and delamination. In wet areas, the backing plywood swells and causes adhesive to let go.
    - Steel drawer slides experience ball bearing slide failures, friction and worn surfaces. Hinges lose their loading ability over time due to door weight, pressure applied when opened by hanging on them, frequent open /close and poor adjustment.
- Sink / faucet – see plumbing report.
- Corridor lockers are in good to fair condition.

RECOMMENDATION

1. Replace casework in typical classrooms.
2. Replace Art casework with more durable countertops and cabinets.
3. Paint corridor lockers.
4. Replace blinds/roller shades in building.

Typical restroom

Typical restroom

Single-fixture restroom

SPECIALTY AREAS

RESTROOMS

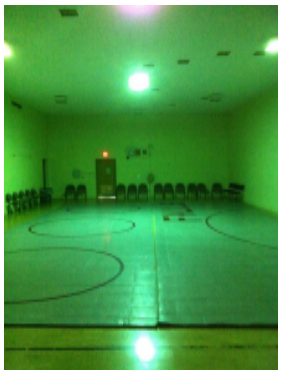
- Current Condition - fair
- Refer to ADA report for accessibility recommendations
- Finishes are worn and dated but in fair condition. They are original to the 1961 building.
    - Ceramic Floor and Wall Tile (expected life span 40 years) – fair, older grout holds bacteria
    - Ceiling- (expected life span 15 years) fair
    - Toilet Partitions -(expected life span 15 years) fair
    - Accessories – (expected life span 8-10 years) good
- Public restrooms floor are well-located throughout the building.
- The single-hole restrooms are original to the building. Four have been provided in the administrative suite. Two others are located near the cafeteria.

RECOMMENDATION

1. All restrooms: Remove and replace all finishes: ceilings and wall and floor tile. Replace toilet partitions with anti-graffiti plastic type. Paint all walls that are not tiled. Some restrooms may need to be reconfigured due to accessibility requirements.
2. Refer to MEP reports for fixture, ventilation and lighting recommendations.

Gym

Gym



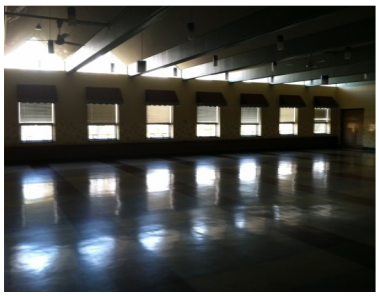
Auxiliary gym

GYMNASIUM

- Current Condition – good condition
- Basketball backboards and wall mats are in good condition.
- There is an operable partition to allow for two-sections of activity. It functions well, but is damaging the floor.

RECOMMENDATIONS

1. None.



Cafeteria

Cafeteria

Kitchen

CAFETERIA/KITCHEN

- Current Condition – good to fair condition
  - Flooring – good condition.
  - Ceiling – fair condition.
- Cafeteria is not furnished.
- Kitchen equipment has been removed from the site.
  - Kitchen had been a fully-functioning cook kitchen. Some equipment has been removed from the facility.
  - Currently used as storage.

RECOMMENDATIONS

1. Provide Cafeteria furniture if the building is to be used for a school use.
2. Provide appropriate serving/cooking kitchen equipment.
3. Consider replacing the ceiling tile with a lay-in ceiling.

SECURITY / EMERGENCY

- Main entrance supervision and control is not directly secure.
- A limited exterior/interior camera system is provided.
  - Two entries have cameras.
- Exterior exit doors are locked and operable.
  - See 'Exterior Doors' for additional comments.
- Fire Extinguishers are up-to-date.

RECOMMENDATIONS

1. If building operates as an educational occupancy, provide secure main entry and exterior/interior security system equal to other district buildings.

HEATING VENTILATION AND AIR CONDITIONING

The following report is the result of a site visit by Randy All of Fredericksen Engineering, Inc. that occurred on November 7, 2013. Site observations, construction plan review, and interviews with staff were all used in the preparation of this report.

The building was constructed in 1961 and operated until it was closed down in 2008. The building HVAC systems are original to the building.

Hot Water Boilers

Hot Water Pumps

HEATING SYSTEM

EXISTING DATA

The boiler plant serves the entire building. The boiler plant consists of two Cleaver Brooks hot water boilers each fired with natural gas. Each boiler has an input capacity of 8,375,000 btu.

The piping and pumping system for the boilers is a straight through constant flow arrangement. The pumps push water through the entire system and rely on 3-way control valves to control system water temperature as well as the flow at each piece of heating equipment.

OBSERVATIONS

- The boiler plant is in relatively good condition but the boilers have exceeded their expected service life of approximately 30 years.
- Only one system pump remains operational. The stand-by pump currently has a cracked volute. The motor has been saved as a backup in case the main pump motor fails.
- Boiler water chemical systems are in place and are reported to be maintained.
- Insulation at most piping is of adequate thickness.
- Thermometers and gauges are present and appear to be working at all locations.
- Piping is adequately supported where observed.

RECOMMENDATIONS

1. If the building is to put back on line in the school system, the boiler plant should be replaced with a high efficiency boiler plant with primary-secondary variable flow pumping.

VENTILATION AND AIR CONDITIONING SYSTEMS

EXISTING DATA

The building is ventilated by multiple system types. These systems include unit ventilators and single zone constant volume.

The classrooms are served by unit ventilators. Each unit contains a hot water heating coil to maintain the room temperature setpoint.

The library, gymnasium, auxiliary gymnasium, home economics, and office areas are all served by single zone constant volume air handling systems. Each air handler contains a hot water heating coil to maintain room temperature setpoint.

There is no air conditioning in the building.

OBSERVATIONS

- The unit ventilators have been well maintained but have exceeded their expected service life of 20-25 years. It is difficult to locate spare parts for units of this age.
- The air handling equipment has also been well maintained but has exceeded its expected service life of 25-30 years.

RECOMMENDATIONS

1. Replace all unit ventilators and air handling units with new equipment containing both hot water and chilled water coils.
2. Install a new central chilled water system consisting of a high efficiency variable speed chiller with a variable flow pumping system.

CONTROL SYSTEMS

EXISTING DATA

The temperature control system is a pneumatic system that is original to the building.

OBSERVATIONS

- The pneumatic control system has been well maintained but is outdated and in need of replacement. Pneumatic systems are obsolete by today's standards, require frequent recalibration, and qualified service technicians are becoming difficult to locate.

RECOMMENDATIONS

1. Replace the pneumatic control system with a new digital building automation system.

Service Panel

ELECTRICAL

The following report is the result of a site visit by John Russell of Muermann Engineering, LLC that occurred on December 13th, 2013. Site observations and interviews were used in the preparation of this report.

The original building was built in 1961.

ELECTRICAL SERVICE

OBSERVATIONS

- The facility is fed with two (2) 12 kV unit substations, each with a 300 kVA transformer. Each substation has a 1,000 amp 208Y/120 volt 3 phase, 4 wire distribution panel. One distribution panel is a Federal Pacific the other is a newer Square D. The service age is dated to the original construction of the 1961 building.
- No surge suppression device was present on the main service gear.

RECOMMENDATIONS

1. The unit sub-stations are approximately 50 years old and are nearing the end of their useful lifespans. The unit sub-stations should be considered for a maintenance upgrade/replacement. The unit substation should be replaced with a new electric service with a utility owned transformer. A new service distribution panel should be installed at that time also as part of the service upgrade.
2. We do recommend all electric services be provided with surge devices.
3. Add phase monitoring relays to service for electrical system protection.

Branch Panel

BRANCH PANELS

OBSERVATIONS

- Most of the branch panels in the facility are old Federal Pacific type.
- There are approximately 20 existing panels that are over 50 years old and should be scheduled for replacement. Replace feeder wires also.
- There are newer Square D NQ type panels for computer circuits.

RECOMMENDATIONS

1. Keep existing new QO panels in place and add additional circuits if required.
2. Replace existing Federal Pacific panels.
3. Replace all old feeder wires.

General Lighting

Gym Lighting

RECEPTACLES

OBSERVATIONS

- Receptacle quantities in the classrooms appear to be very minimal.

RECOMMENDATIONS

1. Additional receptacles can be added to existing classrooms if required.
2. Replace old branch circuit wiring as required.
3. Replace all existing receptacles.

INTERIOR LIGHTING AND LIGHTING CONTROLS

OBSERVATIONS

- The classrooms have old surface wrap fixtures with T12 lamps. Lighting motion sensors were not present in any areas. No day lighting sensors were present.
- There are acrylic lens 2x4 fixtures with T12 lamps in the corridors.
- The gym has metal halide high bay fixtures.

RECOMMENDATIONS

1. Replace all light fixtures with new architectural 2x4 fixtures that use T8 lamps and electronic ballasts.
2. Provide dual level switching, occupancy sensors, and daylight sensors to control classroom lighting.
3. Provide occupancy sensors to control corridor lighting.

EMERGENCY LIGHTING

OBSERVATIONS

- Exits lights do not have battery back-up.
- There are no battery-powered emergency lights in the corridors.

RECOMMENDATIONS

1. Provide egress light fixtures connected to new emergency generator.

Exterior Lighting

Exterior Parking Lot Pole

Data Rack

Exterior Cameras

OUTDOOR LIGHTING

OBSERVATIONS

- The majority of the outdoor lighting consists of wall-mounted fixtures that have metal halide lamps.
- The site lighting consists of pole mounted fixtures with metal halide lamps.

RECOMMENDATIONS

1. We would recommend replacement of the existing exterior fixtures with new LED type to increase efficiency and lower maintenance cost.
2. As increased security is addressed, the district may consider adding security lighting around the perimeter of the facility.

DATA

OBSERVATIONS

- Data cabling is provided to classrooms and office areas.
- Data cabling is CAT5.
- Data cabling is installed in surface raceway.
- Cabling is routed to a main data rack. The main data rack is located in a classroom.
- There is a PBX analog phone system.

RECOMMENDATIONS

1. Replace all existing CAT5 cabling with new CAT6 cabling.
2. Provide new data drops as required.
3. Provide new data racks in dedicated IT room.
4. Provide new Cisco VoIP phone system.
5. Provide proper telecom grounding system.

SECURITY (CCTV/ACCESS CONTROL)

OBSERVATIONS

- A CCTV system was installed in 2013 and consists of IP based cameras.
- Cameras are located on the interior and exterior of the facility.
- This is a state-of-the-art CCTV system and can be expanded as needed.
- There is no door access control system in this building.

RECOMMENDATIONS

1. Expand the CCTV system as required.
2. Add district compatible door access system as required.

Fire Alarm Control Panel

Fire Alarm Notification Appliance

Public Address

Clock

FIRE ALARM SYSTEM

OBSERVATIONS

- The fire alarm system is an old 120 volt Simplex system that is original to the building. There are horns in the corridors and manual pull stations near the exit doors. The fire alarm system 50 years old and is obsolete.

RECOMMENDATIONS

1. Provide new Simplex addressable fire alarm system.

CLOCK/PUBLIC ADDRESS SYSTEM

OBSERVATIONS

- There is a Simplex synchronized clock system.
- There is a Deltacom intercom system located in the main office.
- Staff indicated the intercom system and clock system are not working.

RECOMMENDATIONS

1. Provide new public address system with programmed bells.
2. Connect public address system in all buildings for mass notification.
3. Provide new GPS based wireless clock system.

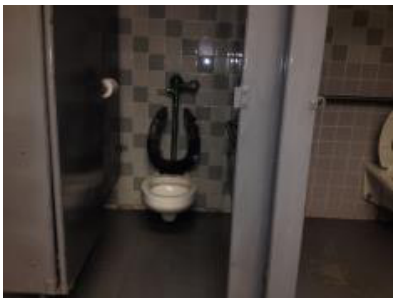
EMERGENCY POWER

OBSERVATIONS

- This building does not have a generator.

RECOMMENDATIONS

1. Add emergency generator for life safety systems including phone and PA system.



Typical Water Closet

Typical Floor-Mount Urinal

Typical Wall-Hung Lavatory

PLUMBING

The following report is the result of a site visit by Tim Kehoe of Muermann Engineering, LLC. that occurred on November 8th, 2013. Site observations, existing plan review, and interviews with staff were all used in the preparation of this report.

At the time of this report, the school was empty. Very few fixtures and/or systems remain operational.

RESTROOM FACILITIES

OBSERVATIONS

- Toilet rooms located in the lower level are in poor condition. These fixtures are original to the building and have not been maintained or used since the building was closed to students in 2008.
- Toilet rooms located in the lower level are in poor condition. Fixtures appear to be original to the building.
- Toilet rooms located on the first floor are in poor condition. Water closets and urinals are original to the building. Lavatories appear to have been replaced at some time but are at best in fair condition.

RECOMMENDATIONS

1. All toilet room fixtures would need to be replaced and the rooms would need to be renovated to comply with current ADA requirements.

Domestic Water Heater

Water Softening Equipment

Summer Use Water Heater

PLUMBING EQUIPMENT

OBSERVATIONS

- The existing domestic water heating system consists of two (2) sealed combustion domestic water heaters and a storage tank. The system appears to be significantly over sized for the actual building demand. The water heater has approximately 8 years of useful life left.
- The water heaters and storage tank are in fair condition.
- An 80 gallon gravity-vented, gas-fired water heater was provided to supply domestic hot water during the summer months. This heater is no longer in use.
- New duplex sewage ejector pumps were installed recently. The pumps discharge the majority of the sanitary for the building. The pumps are in excellent condition.
- Water softening equipment is located in the lower level boiler room. The equipment appears to be in good condition however is no longer is required because the school is now on city water.

RECOMMENDATIONS

1. Schedule the water heating system for replacement. The water heaters should be resized to accommodate the actual hot water demand for the building.
2. Provide continual maintenance on the existing sewage ejector.
3. Remove the existing 80 gallon water heater.
4. Remove obsolete water softening equipment.

Sanitary Piping

Grease Trap 1

Grease Trap 2

Sewerage Ejector

FIRE SPRINKLER SYSTEM

OBSERVATIONS

- A fire protection system in the building was not located. It is likely that any major renovation would require the building to have a fire sprinkler system installed throughout. Further investigation with state codes and the local Fire Marshal would be required to determine if a system would be needed.

RECOMMENDATIONS

1. Provide interior fire sprinkler system for the building as required.

DOMESTIC WATER SUPPLY SYSTEM

OBSERVATIONS

- The water supply piping for this building is galvanized piping. This piping system is at the end of its life expectancy. Note, without continual water running through the piping on a continual basis, the piping becomes more corroded.
- The domestic water piping for the building is hot and cold water only. A new hot water return system would need to be added to comply with current codes.
- The building is supported by a 4" water service and 3" water meter. The water service and water meter appears to be adequately sized for the building.
- Water pressure appears to be adequate throughout the building.

RECOMMENDATIONS

1. Replace existing galvanized water distribution piping and replace with either type "L" copper tube or Schedule 40 PVC piping.
2. Install new hot water return system.

SANITARY WASTE SYSTEM

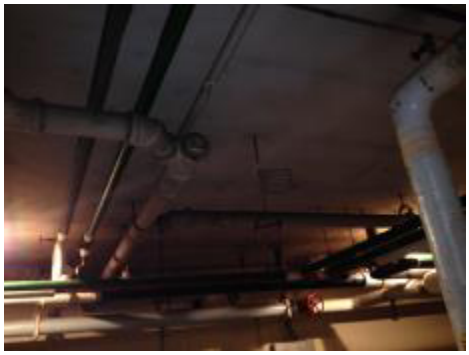
OBSERVATIONS

- The sanitary waste and vent piping is a mixture of cast-iron, galvanized and schedule 40 PVC. Schedule 40 PVC waste and vent piping was used to repair piping failures.
- The primary piping system is original and is in poor condition.
- Two (2) interior grease interceptors are located in the lower level below the kitchen. Both interceptors are old and appear to be in poor condition.

RECOMMENDATIONS

1. Replace the existing grease interceptors.
2. Replace all interior sanitary waste and vent piping.
3. We recommend that a building of this age video inspect the interior sewers below the floor to determine the internal condition of the piping.

STORM SYSTEM



Storm Piping

OBSERVATIONS

- The existing roof drainage system appears to be operating well. The owner did not indicate any problems with the interior storm sewer system.
- Piping systems for this building are original and are nearing the end of their life expectancy.
- Most of the original storm piping is galvanized piping.

RECOMMENDATIONS

1. Schedule the remaining original cast iron piping for replacement.
2. We recommend that a building of this age video inspect the storm sewers below the floor and exterior of the building to determine the internal condition of the piping.

PLUMBING FIXTURES – CLASSROOM AREAS

Typical Classroom Sink

OBSERVATIONS

- Classroom fixtures are original to the building and are in poor condition. None of the fixtures are ADA compliant per today's requirements.

RECOMMENDATIONS

1. All classroom fixtures should be replaced.

AMERICANS WITH DISABILITIES ACT (ADA) - FACILITY COMPLIANCE REPORT

A – SITE

	ITEM	ADA /ANSI A117.1 REFERENCE
1.	Striped and marked accessible vehicle parking spaces are provided.	F208, 502
2.	There is a marked accessible route from the parking to the "designated" main entrance.	502.3
3.	Public sidewalk pavement around the property is compliant at the front of the building. Path from the building to the playground area is not compliant due to the slope of the site.	302, 402, 403
4.	There is no identified accessible loading zone.	503

RECOMMENDATION:
1. Provide an accessible loading zone.
2. Parking lot should be restriped.

B - INTERIOR ACCOMODATIONS

	ITEM	ADA REFERENCE
1.	Main Entrance is accessible.	402, 404
2.	Classroom doors are typically accessible. Doors in the administrative suite are generally not accessible.	404
3.	Main Office reception desk does not meet the requirements for accessibility.	308

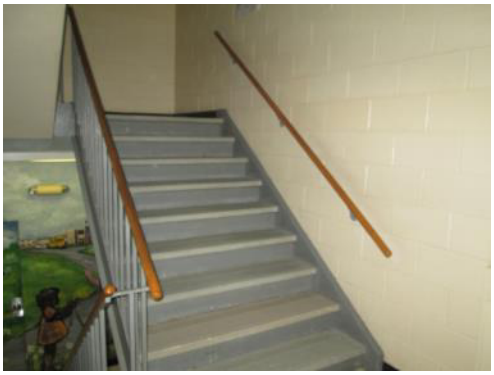
RECOMMENDATION:
1. A service counter, maximum 34" above the floor is required for accessibility. Modify the existing reception desk.
2. Provide accessible door hardware.

Accessible door lever

Main office service counter is not ADA accessible

C - INTERIOR STAIRS / RAMPS

	ITEM	ADA REFERENCE
1.	Stair handrails do not have compliant extensions.	505
RECOMMENDATION: 1. None.		



Handrail extensions

D – ELEVATORS

	ITEM	ADA REFERENCE
1.	An elevator is provided.	407
RECOMMENDATION: 1. None.		

Elevator

E - DRINKING FOUNTAINS

	ITEM	ADA REFERENCE
1.	Drinking fountains are not accessible.	602

RECOMMENDATION:
1. Replace drinking fountains with ADA-compliant models.

Drinking fountain

F - TOILET FACILITIES

	ITEM	ADA REFERENCE
1.	Several toilet facilities have been upgraded to meet accessibility requirements – at the time of upgrade. However one of the boys' and one of the girls' restrooms on the first floor have not been updated.	603
2.	None of the single fixture restrooms in the building are accessible.	603
3.	Locker rooms provided in the lower level are not accessible. The Girls' locker room is not ADA accessible from the first floor.	402. 404, 603
RECOMMENDATION: 1. If building is used for an educational occupancy, update locker rooms to be ADA-complaint, including an accessible route to the girls' locker room.		

Anticipated Lifespan of Building Components

**Data from Institutional Facilities Manager resources, ASHRE research, and School District Facility Manager client information.*

EXTERIOR

Component or System	Typical Use Lifespan	
Exterior Closure	Years	0 10 20 30 40 50 60
Aluminum Doors/Frames	30	 1961 Building (53 years)
	Years	0 10 20 30 40 50 60
Steel Doors/Frames	20	 1961 Building (53 years)

INTERIOR

Component or System	Typical Use Lifespan	
Interior Construction	Years	0 10 20 30 40 50 60
Interior Walls (Masonry)	50	 1961 Building (53 years)
	Years	0 10 20 30 40 50 60
Interior Walls (Drywall, other)	30	 1961 Building (53 years)
	Years	0 10 20 30 40 50 60
Acoustical Ceiling Tile	15	 1961 Building (53 years)
	Years	0 10 20 30 40 50 60
Classroom Floor Tile	15	 1961 Building (53 years)
		0 10 20 30 40 50 60
Paint	10	 1961 Building (53 years)
	Years	0 10 20 30 40 50 60
Cabinets and Countertops	25	 1961 Building (53 years)
	Years	0 10 20 30 40 50 60
Wood Doors	40	 1961 Building (53 years)
	Years	0 10 20 30 40 50 60
Door Hardware	25	 1961 Building (53 years)

Anticipated Lifespan of Building Components

**Data from Institutional Facilities Manager resources, ASHRE research, and School District Facility Manager client information.*

MECHANICAL

Component or System	Typical Use Lifespan		
Heating Plant	Years	0 10 20 30 40 50 60	
Boilers	30		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Hot Water Piping	50		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Pumps	20		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Pnuematic Temperature Controls	15		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Air Handling Units	35		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Unit Ventilators	25		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Packaged Roof-top Unit	20		1961 Building (53 years)

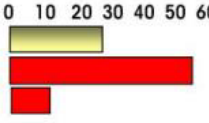
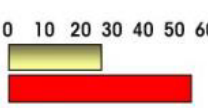
Anticipated Lifespan of Building Components

**Data from Institutional Facilities Manager resources, ASHRE research, and School District Facility Manager client information.*

PLUMBING

Component or System	Typical Use Lifespan		
Sanitary Drainage	Years	0 10 20 30 40 50 60	
Cast Iron Piping	50		1961 Building (53 years)
	Years	0 10 20 30 40 50 60 70 80	
Copper Water Piping	75		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Galvanized Piping	35		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Gas-Fired Water Heaters	20		1961 Building (53 years)
Plumbing Fixtures	Years	0 10 20 30 40 50 60	
Toilets, Urinals	30		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Drinking Fountains	20		1961 Building (53 years)

ELECTRICAL

Component or System	Typical Use Lifespan		
Power & Distribution	Years	0 10 20 30 40 50 60	
Service Distribution	35		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Branch Panels	35		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Interior Lighting	25		1961 Building (53 years) Upgrades (Unknown)
	Years	0 10 20 30 40 50 60	
Exterior Lighting	25		1961 Building (53 years)
	Years	0 10 20 30 40 50 60	
Alarm	20		Unknown