

## HISTORIC PLAN AND SITE PLAN

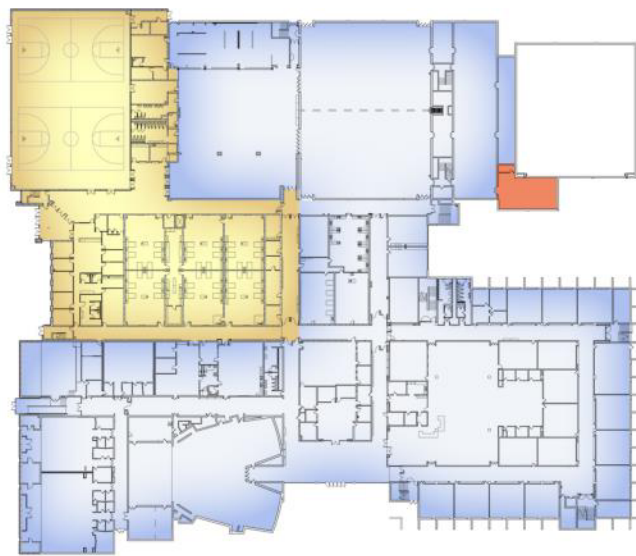
### HISTORIC PLAN – NOT TO SCALE



Ground Floor



Second Floor



First Floor

#### Historical Key - Building Additions

Blue	1969
Orange	1985
Yellow	2007

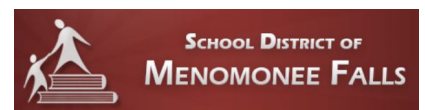


Menomonee Falls School District  
Menomonee Falls High School - Facility Study  
Historical Plan

NORTH ↑

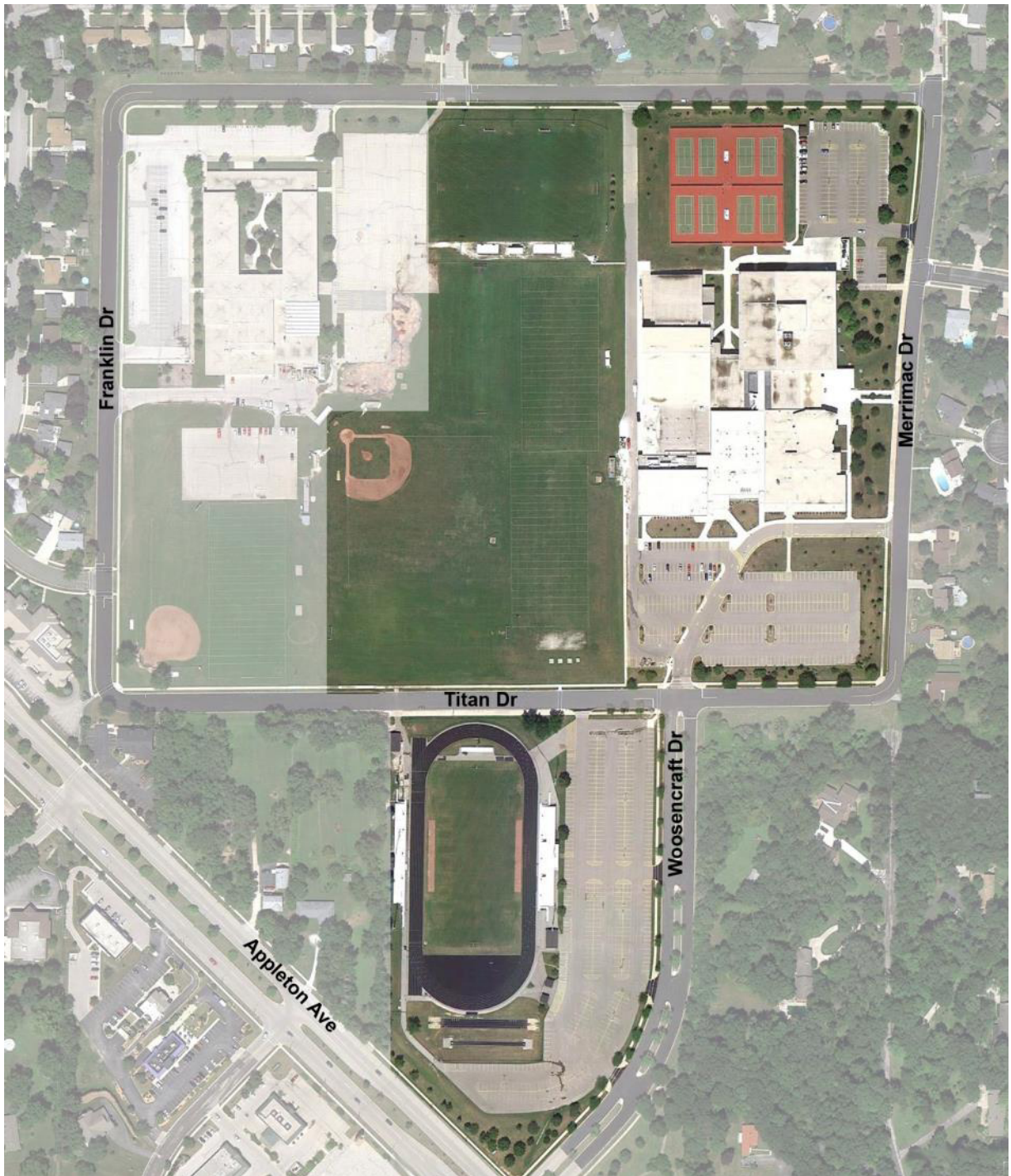


eppstein uhen : architects  
EUA No. 313258-01





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 than 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 than 50 percent of the element is in substandard condition or has failed.



## EXTERIOR ENVELOPE

### EXTERIOR DOORS

- Expected life span 20 years for steel, 30 years for aluminum/ FRP systems
- Current Condition - Good
- In general the exterior doors are either FRP doors in steel or aluminum frames or aluminum doors in aluminum frames, all of which are in good condition. However there are a few steel doors in steel frames and steel coiling doors that are in poor condition.
- Some of the FRP doors are beginning to discolor.
- The exterior steel door and frame in the auto shop has significant rusting and denting.
- The coiling doors in the auto shop and wood shop has significant rusting and general wear.

### RECOMMENDATIONS

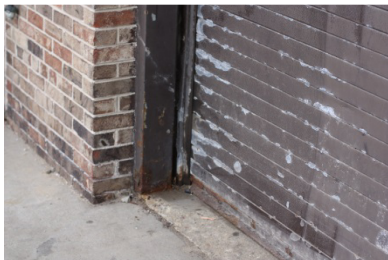
1. Replace all exterior steel doors and frames with new FRP (fiber reinforced plastic) doors in aluminum frames. Include replacement of all exterior door hardware.
2. Replace all exterior steel coiling doors and frames.



FRP door discoloring

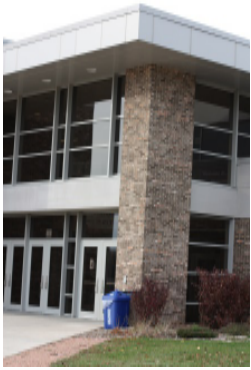


Rusted steel frame / Door



Rusted coiling door





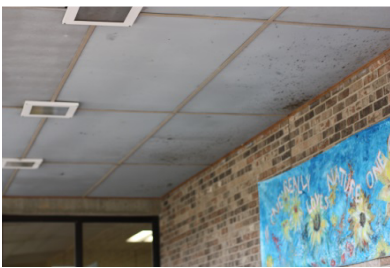
Main entrance

#### BUILDING CANOPIES / FASCIAS / SOFFITS / MISC

- Life Expectancy – same as building
- Current Condition – good to poor
- The building soffits range from good to poor condition
  - At the 2007 addition the soffits are in good condition.
  - At the 1969 portions of the building, the soffits are in poor condition.
    - Water stains, mold and rust were present on the soffits.
- The mechanical louvers have areas of rust.

#### RECOMMENDATIONS

1. Replace soffits at 1969 portion of building
2. Paint mechanical louvers.



Damaged Soffit



Damaged Soffit



Rusted mechanical louver





Grade pitching towards building



Damaged fence at field event



Chipped paint at dugout



Rusted soccer goal

## GROUNDS

### GROUNDS / DRAINAGE

- Current Condition – good
- The building has play fields on north and west sides of the property all in good condition.
- The tennis courts are in good condition.
- The baseball field is in good condition.
  - The dugouts walls have areas where the paint has fallen off.
- The soccer fields are in good condition.
  - Some goals have areas of rust.
- A storage shed is located on the west end of the property.
  - The roof of the shed is missing roof shingles.
- The fences for field events have areas of damage and rust.
- The practice goal posts have areas of rust.
- On the east side of the school some areas of grading are pitched back towards the building.
- The competition football field and track complex are in good condition.
  - The Field goal posts have areas of rust.

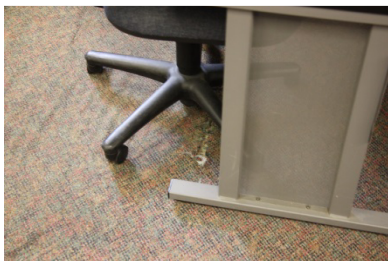
### RECOMMENDATION

1. Paint all metals on site that show signs of wear or rusting.
2. Paint walls at baseball field dugout.
3. Reroof the storage shed.
4. Evaluate grading at east side of building to ensure water is draining away from building.





Concrete block corridor wall/ VCT flooring



Torn and wrinkled carpet



Carpet in library

## 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 good condition.
- Drywall walls shown signs of light abuse but have been regularly maintained.
  - Drywall walls are easier and less messy to demolish, easier to rebuild and are more flexible than concrete block. While the durability of walls are essential inside of schools given the nature of abuse they take, for future flexibility the District should consider the types of walls it plans for future spaces given the flexibility, cost and disruption of drywall versus masonry construction.
  - Drywall walls allow flexibility for changes in electrical wiring, computer wiring and plumbing more so than concrete block since the drywall can easily be cut into and the patch will blend easier and look the same as remainder of wall. Concrete block is more difficult to cut into and patch usually ending up with surface mounted electrical or plumbing when changes occur.

### RECOMMENDATION

1. None.

### FLOOR COVERINGS

- Expected life span - 20 years
- Current Condition – good to poor
- Carpet – There are limited amounts of carpet in the building; primarily in the computer labs and library, in poor condition.
  - There are areas of torn and wrinkled carpet.
  - The carpet finish is outdated.
- VCT (Vinyl Composition Tile) – The VCT is in good condition.
- Wall base is in good condition.

### RECOMMENDATIONS

1. Continue annual maintenance for VCT flooring.
2. Replace carpet in computer labs and library.





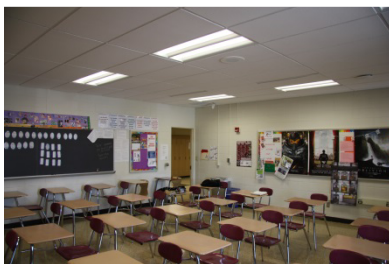
Stained / damaged ceiling tile

#### CEILINGS

- Expected life span 15 years; replaced in 2007
- Current Condition – good
- Acoustical ceilings are generally in good shape with few areas of water-damaged or discolored tile.
  - Acoustical lay-in ceilings have tendency to sag over time and discolor.
  - Ceiling grid discolors as well.
- There were a few instances where ceiling tiles were removed and never replaced.
- When mechanical systems above ceilings are renovated, it is customary to remove and replace the entire ceiling at that time because it is less costly to remove and reinstall the same ceiling.

#### RECOMMENDATION

1. Replace acoustical lay-in ceiling tile where damaged or water-stained.



Acoustical ceiling tile

#### DOORS FRAMES AND HARDWARE

- Expected life span 40 years with periodic maintenance
- Current Condition – 75% fair, 25% good
- A majority of doors are in fair condition, except for those installed during the renovation/addition in 2007, which are in good condition.
- All locksets were replaced and are ADA compliant. These appear to be in good shape.
- Metal door frames can be repaired and painted. Door chips and scratches can be sanded, filled and restrained to revive an old door. Depending on severity of door or frame damage, it may be cost effective to replace the entire door and frame.

#### RECOMMENDATIONS

1. Replace doors in poor condition.
2. Paint all door frames.



Typical classroom door



2007 classroom door





Science Lab cabinetry

#### CABINETRY, COUNTERTOPS AND LOCKERS

- Expected life span 20-25 years
- Current Condition – good to fair
- 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 working condition.



FACE casework

#### RECOMMENDATION

1. Repair damaged cabinet doors in art and FACE rooms.

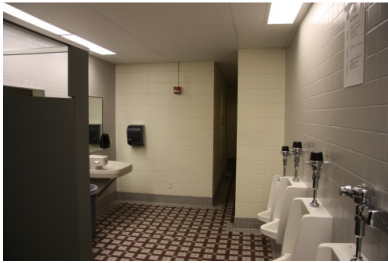


Corridor lockers



Art room casework





Typical restroom



Typical restroom



Boys' Locker Room



Girls varsity Locker Room

## SPECIALTY AREAS

### RESTROOMS

- Current Condition - Good
- Refer to ADA report for accessibility recommendations
- Finishes are new and in good condition
- Ceramic Floor and Wall Tile (expected life span 40 years) – good
- Ceiling- (expected life span 15 years) good
- Toilet Partitions -(expected life span 15 years) good
- Accessories – (expected life span 8-10 years) good

### RECOMMENDATION

1. Refer to MEP reports for fixture, ventilation and lighting recommendations.
2. See Section 3 – Educational Adequacy Assessment for additional recommendations.

### LOCKER ROOMS

- Current Condition – good to fair
- Finishes are worn and dated but in fair condition.
  - Ceramic Floor and Wall Tile (expected life span 40 years) – fair, older grout holds bacteria
  - Ceramic tile has been patched with mismatching tile.
- Lockers are in good condition.

### RECOMMENDATION

1. Consider upgrading finishes.
2. See Section 3 – Educational Adequacy Assessment for additional recommendations.





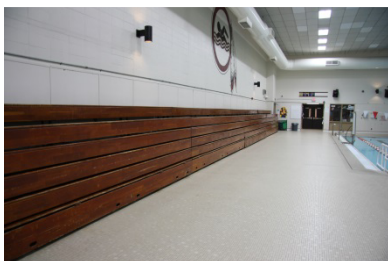
New gymnasium



Main gymnasium



Pool



Pool bleachers

## GYMNASIUM

- Current Condition – good to fair
- The school has two gymnasiums:
- The New gymnasium is in good condition.
  - Flooring – good condition
  - Basketball backboards and wall mats are in good condition.
- The Main gymnasium is in fair condition.
  - Ceiling – fair condition, some of the adhered acoustical ceiling tiles are beginning to fall.
  - Flooring – good to fair
    - The wood gym floor is in good condition.
    - The VCT (Vinyl Composition Tile) around the perimeter of the gymnasium is in poor condition.
  - Basketball backboards and wall mats are in good condition.
  - The bleachers are in good condition.

## RECOMMENDATIONS

1. Replace ceiling tiles in main gymnasium.
2. Replace VCT flooring around perimeter of main gymnasium.
3. Replace ceiling fans in main gymnasium.
4. Paint auxiliary gym and replace wall padding.
5. Repair motorized partition in auxiliary gym.
6. See Section 3 – Educational Adequacy Assessment for additional recommendations.

## POOL

- Current Condition – fair
  - Flooring – fair condition
    - There are cracked tiles around the pool vessel.
    - Tile patching has been done with mismatched tiles.
  - Ceiling – fair condition
    - There were missing ceiling tiles.
    - The tiles are a mismatched of new and old, newer tiles are white older tiles are stained.
  - Bleachers – poor condition
    - Bleachers are aged and at the end of their life expectancy.

## RECOMMENDATIONS

1. Consider replacing ceiling tiles.
2. Repair cracked floor tiles.
3. Consider retiling pool room floor.
4. Replace bleachers.
5. See Section 3 – Educational Adequacy Assessment for additional recommendations.

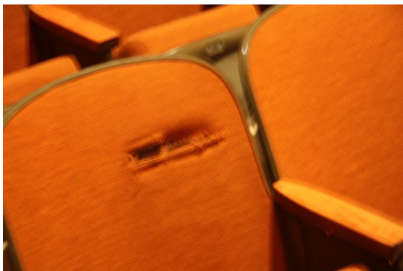




Auditorium

#### AUDITORIUM

- Current Condition – fair to poor
- Flooring – fair condition
  - The carpet is worn and outdated.
- Ceiling – good
- Seating – poor
  - The fabric on some chairs is worn or torn.
  - The fabric is outdated.



Auditorium seating

#### RECOMMENDATIONS

1. Consider replacing carpet.
2. Replace or refinish auditorium seating.
3. See Section 3 – Educational Adequacy Assessment for additional recommendations.

#### CAFETERIA

- Current Condition – good
- Flooring – good condition.
- Ceiling – good condition.
- Tables – good condition.



Cafeteria

#### RECOMMENDATIONS

1. See Section 3 – Educational Adequacy Assessment for additional recommendations.

#### SECURITY / EMERGENCY

- Exterior/interior camera system is provided.
- Exterior exit door are locked and operable.
- Exterior windows lock.
- Fire Extinguishers- up-to-date labels, charged and within 75 ft. distance.

#### RECOMMENDATIONS

1. See Section 3 – Educational Adequacy Assessment for additional recommendations.





*Hot Water Boilers*



*Hot Water Pumps*

## 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 1969 with a building remodeling completed in 2007 that included a major renovation of the existing HVAC systems. The renovation replaced a large portion of the HVAC equipment with the exception of the central chiller and boiler plants from 1969.

In general the HVAC systems are in good condition due to the 2007 renovation project, however, there are some issues with the building. The largest issue is the age of the central chiller and the original boiler plant. Another intriguing issue is the inability to condition isolated areas of the building that are utilized for evening meetings and smaller events.

### HEATING SYSTEM

#### EXISTING DATA

The original 1969 boiler plant serves the majority of the building. The boiler plant consists of two Cleaver Brooks hot water boilers each fired with natural gas. Each boiler has an input capacity of 12,544,000 btu.

The piping and pumping system for the boilers is a straight through pumping arrangement. Each boiler is also served by a recirculation pump to ensure a minimum water temperature entering the boiler to prevent thermal shock.

An additional boiler plant was installed in 2007 to serve a portion of the 2007 renovation. The boiler plant consists of two (2) Thermal Solution hot water boilers each fired with natural gas. Each boiler has an input capacity of 1,500,000 btu.

The piping and pumping system for the newer boilers is a primary-secondary variable flow arrangement. The primary pumps push water through each boiler as it fires. The secondary pumps distribute hot water throughout the building and are controlled by a variable frequency drive to more closely match actual building loads.

There is also a standalone boiler that was installed in 2007 to serve the pool air handling unit. This boiler is also a Thermal Solution hot water boiler and is rated at 2,000,000 btu input capacity.

#### OBSERVATIONS

- The boiler plants are in good condition. With recommended maintenance, the 2007 boilers should continue to serve the facility for approximately 15 more years. However, the 1969 boiler plant has well exceeded its ASHRAE service life expectancy of 25-30 years.
- Boiler water chemical systems are in place and are reported to be maintained.
- The hot water piping serving the original boiler system is approximately 44 years old. Typical service life of steel piping is approximately 50 years.
- Insulation at most piping is of adequate thickness.





*Centrifugal chiller*

- Thermometers and gauges are present and appear to be working at all locations.
- Piping is adequately supported where observed.

#### RECOMMENDATIONS

1. Continue preventative maintenance on the systems.
2. Replace the 1969 boiler plant. The boilers are 44 years old and have exceeded their expected service life. Install new high efficiency boilers with a primary-secondary variable flow pumping system to optimize system efficiency.

### VENTILATION AND AIR CONDITIONING SYSTEMS

#### EXISTING DATA

The building is ventilated by multiple system types. These systems include dual-duct variable air volume, packaged rooftop variable air volume, and single zone constant volume.

The majority of the classrooms are served by a hot deck/cold deck dual-duct air handling unit that serves multiple dual-duct boxes. Each dual-duct box serves an individual classroom or zone and modulates the amount of air provided from each of the hot and cold duct mains to maintain the zone temperature setpoint. This system was significantly remodeled in 2007, but the original 1969 air handling unit remains.

A second hot deck/cold deck dual-duct system serves the music and disabilities classrooms. This air handling unit is also original to the building and received only control upgrades in 2007.

Large volume spaces such as the gym and cafeteria are served by single zone constant volume air handling systems. The original gymnasium is served by an indoor air handling unit that was installed in 2007. This unit contains a hot water heating coil and a chilled water cooling coil. The 2007 gymnasium and cafeteria are each served by packaged rooftop heating and cooling units.

The office area and classroom areas renovated in 2007 are each served by packaged rooftop heating and cooling units with hot water VAV boxes for individual room temperature control.

The guidance area and auditorium are each served by multi-zone air handling units. These units are original to the building and each contains a hot deck and cold deck within the air handling unit. A multi-zone air handler utilizes multiple zone control dampers located at the unit with individual supply duct runs extending to each control zone. The dampers modulate the amount of air provided from each of the hot and cold decks, provided by hot water and chilled water coils within the air handler, to maintain the zone temperature setpoints.

Air conditioning is provided throughout the building by a combination of packaged rooftop units and a chilled water cooling system. The chilled water system serves the dual-duct air handling units, multi-zone air handling units, and the gym air handling unit. The chiller is a 550 ton water-cooled centrifugal unit that was installed in 1969. The chiller condenser loop is served by an outdoor cooling tower that was rebuilt in 2012.



### OBSERVATIONS

- The 1969 air handling equipment has been well maintained but has exceeded its expected service life.
- A packaged rooftop air conditioning unit is expected to serve a building for 20 years. The rooftop units that were installed as part of the 2007 renovation project are approximately 6 years old and should continue to serve the building for another 15 years.
- It was reported that the tech ed areas experience humidity control issues, gym destratification fans are problematic, the auxiliary gym has ventilation concerns, and the kiln exhausts need improvement. These are all issues that will require further investigation.
- It was also reported that certain areas of the building such as the Library and TV Studio are utilized for functions at night. These areas are served by large air handling systems that are required to operate when the areas are in use.

### RECOMMENDATIONS

1. Replace the existing 1969 water-cooled chiller with a new high efficiency variable speed type unit. The existing chiller operates on an obsolete refrigerant and at much lower efficiencies than newer equipment with advanced technology.
2. The air handling equipment from 1969 has exceeded expected service life. Plans should be made for replacement within the next 3 years. When this equipment is replaced, additional attention should be given to the use of multiple smaller air handling systems to accommodate areas that are utilized at night.
3. Continue with the current maintenance program on the 2007 equipment.

### CONTROL SYSTEMS

#### EXISTING DATA

The temperature control system is a digital control system manufactured by Automated Logic and installed by ALC of Wisconsin. The control system was installed as part of the 2007 mechanical systems renovation.

### OBSERVATIONS

- The Owner has expressed great satisfaction with the ALC system.

### RECOMMENDATIONS

1. Continue to maintain the existing DDC control system.
2. Any new or replacement equipment should be added to the existing DDC.





Service Panel 1



Service Panel 2

## ELECTRICAL

The following report is the result of a site visit by John Russell of Muermann Engineering, LLC that occurred on November 8<sup>th</sup>, 2013. Site observations and interviews were used in the preparation of this report.

The original building was built in 1969. There have been two (2) additions to the building; one in 1985 and the other in 2007.

### ELECTRICAL SERVICE

#### OBSERVATIONS

- The facility is fed with two (2) electric services. The east service is a 2,500 amp 480Y/277 volt 3 phase, 4 wire. The west service is 1,600 amp 480Y/277 volt 3 phase, 4 wire. The services are fed underground from pad mounted transformers. One transformer is located on the west side of the building and the other is on the east side. Historical electrical data provided by We Energies indicates the maximum demand for the east service is 678 KW. This equates to approximately 817 amps. The maximum demand for the west service is 317 KW. This equates to approximately 382 amps. This demand data was taken over the past 24 months. The service age is dated to the 2007 addition to the building.
- Each electric service has a Square D QED switchboard.
- Both services have a main surge suppression device.
- There is an old 600A motor starter for the chiller that has caused the main service circuit breaker to open when the chiller starts.

#### RECOMMENDATIONS

1. The main distribution panels have capacity for future loads and also space for additional circuit breakers.
2. Expand the electrical distribution system as required.
3. Add phase monitoring relays to both services for electrical system protection.
4. Provide new motor starter for the chiller to prevent main circuit breaker from tripping.

### BRANCH PANELS

#### OBSERVATIONS

- Most of the branch panels in the facility are newer Square D NQ type.
- There are approximately 8 existing panels that are over 30 years old and should be scheduled for replacement.

#### RECOMMENDATIONS

1. Keep existing Square D panels in place; add additional circuits if required.
2. Replace the old panels.
3. Replace all old feeder wires.





*General Lighting*

## RECEPTACLES

### OBSERVATIONS

- Receptacles in the classrooms appear to be adequate in most classrooms.
- The Band and Music classrooms do not have enough receptacles.

### RECOMMENDATIONS

1. Additional receptacles can be added to existing rooms if required.
2. Add additional receptacles and circuits to Band and Music classrooms.
3. Add switch to control power to Cafeteria TV's.

## INTERIOR LIGHTING AND LIGHTING CONTROLS

### OBSERVATIONS

- All of the light fixtures in the building have been replaced with architectural 2x4 fixtures with T5 lamps and ballasts. No day lighting sensors were present.
- The fixtures in the classrooms are step dimmed, dual level switched and have occupancy sensors. Some occupancy sensors have been disconnected because they no longer work.
- There is a Leviton Z-Max lighting control system that controls corridor and common area lights. This system is difficult to program and has been malfunctioning.
- The Fieldhouse was upgraded to 2x4 fluorescent high bay lighting fixtures.
- The Gym has older 2 lamp T5HO light fixtures. The light level is low in this Gym.
- The auditorium house lighting fixtures are old 250W and 500W quartz downlights. The lighting control board does not function properly.

### RECOMMENDATIONS

1. Replace the existing low voltage lighting control system with new Greengate lighting control system.
2. Provide new dual-technology occupancy sensors in classrooms.
3. Provide new 2x4 fluorescent high bay light fixtures in Gym to match Fieldhouse.
4. Replace Auditorium house light fixtures with dimmable LED down lights.  
Replace Auditorium lighting control board.

## EMERGENCY LIGHTING

### OBSERVATIONS

- Exits are powered off the emergency generator.
- Emergency power is provided to fluorescent fixtures through the emergency generator.

### RECOMMENDATIONS

1. None.





*Exterior Lighting*



*Exterior Parking Lot Pole*



*Data Rack*

## OUTDOOR LIGHTING

### OBSERVATIONS

- The majority of the outdoor lighting consists of wall-mounted fluorescent and metal halide wall pack fixtures.
- The parking lot pole lighting has metal halide fixtures.
- The exterior lighting is controlled by a LiteKeeper lighting control panel.

### 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 CAT5e, and CAT6.
- Wireless was also installed in some areas. District indicated additional wireless receivers will be installed to provide complete building wide coverage.
- Cabling is routed to a main data rack. The main data rack is located centrally in the building.
- The district has a Cisco VoIP telephone system.
- Ben Franklin and the High School are connected with fiber optic cable that is not functioning properly.

### RECOMMENDATIONS

1. New data drops can be added at any point. A possible new data rack may be required to accommodate any new rack mounted equipment.
2. Provide upgrade to Cisco VoIP telephone system.
3. Provide proper telecom grounding system.
4. Provide new underground fiber optic cable backbone between Ben Franklin and the High School.





*Interior Cameras*



*Keyless Entry*



*Fire Alarm Control Panel*



*Fire Alarm Notification Appliance*

## 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 are select exterior doors with access controls. The system head end is an Open Options Access Technology type. This system is networked and is controlled with FOB's. It appears to be functioning properly and can be expanded.
- There is currently no security alarm system.

### RECOMMENDATIONS

1. Expand the CCTV system as required.
2. Expand the Door Access system as required.
3. Add new security alarm system with contact switches on all exterior doors and motion sensors in all corridors.

## FIRE ALARM SYSTEM

### OBSERVATIONS

- The fire alarm system was upgraded to a Simplex 4100U addressable type. The facility has smoke detectors in corridors. The system, as it is installed, appears to provide proper coverage with horns and strobes to meet current codes. The fire alarm system is also connected to the dialer.
- An annunciator is located near the front entrance.

### RECOMMENDATIONS

1. Continue to test the system to ensure proper operation and code compliance.

## CLOCK/PUBLIC ADDRESS SYSTEM

### OBSERVATIONS

- The building is furnished with battery-powered clocks.
- There is also a Primex GPS wireless synchronized clock system.
- There is a Rauland Telecenter public address system located in the IT room.
- Staff indicated the public address is working in all areas of the facility at time of walk thru.
- Paging is done to rooms through phones.
- The class bells are controlled by a public address system tone.

### RECOMMENDATIONS

1. Expand the intercom system as required.
2. Connect public address system in all buildings for mass notification.
3. Replace all battery-powered clocks with Primex wireless clocks. Provide additional Primex transmitters for proper signal strength to all clocks.





*Public Address*

## EMERGENCY POWER

### OBSERVATIONS

- There are two emergency generators that serve this building. The west generator is Cummins 60KW, and the east generator is Cummins 95KW. Each generator has a separate life safety and equipment automatic transfer switch.
- The generators are natural gas fueled.

### RECOMMENDATIONS

1. Provide emergency power to phone and PA system.

## SOUND SYSTEM

### OBSERVATIONS

- The Fieldhouse sound system consists of a portable amplifier and audio inputs connected to permanent ceiling speakers. The system does not function properly.
- The Auditorium has an older sound system with ceiling and wall mounted surface speakers. The system does not function properly.
- The Cafeteria has a sound system with a rack mounted amplifier and ceiling mounted PA speakers. There are wired microphone outlets. The system sound quality is poor.

### RECOMMENDATIONS

1. Provide new Fieldhouse sound system.
2. Provide new Auditorium sound system.
3. Provide upgrade to Cafeteria sound system speakers.

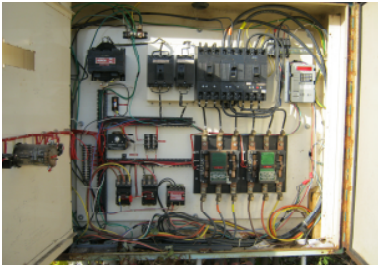


*Emergency Generator*



*Transfer Switches*





Service Panel 1



Service Panel 2



Service Panel 3



Sports Lighting

## STADIUM ELECTRICAL

The following report is the result of a site visit by John Russell of Muermann Engineering, LLC that occurred on November 8<sup>th</sup>, 2013. Site observations and interviews were used in the preparation of this report.

The stadium was built in 1970's.

### ELECTRICAL SERVICE

#### OBSERVATIONS

- The field lighting is fed with an overhead 200 amp 480Y/277 volt 3 phase, 4 wire electric service. The main electrical panel is freestanding located in the south west corner of the field. This service is 40 years old.
- The field maintenance building is fed with an underground 100 amp 120/240 volt single phase 3 wire electric service.
- The concessions building is fed with an underground 200 amp 120/240 volt single phase 3 wire electric service.
- No surge suppression device was present on any of the main service gear.

#### RECOMMENDATIONS

5. The field lighting electric service needs to be replaced due to the age and poor condition of the equipment.
6. We do recommend all electric services be provided with surge devices.

### BRANCH PANELS

#### OBSERVATIONS

- The field lighting panel is an old NEMA 3R enclosure with separately mounted circuit breakers and lighting contactors. This panel is 40 years old.
- The field maintenance building panel is an old Bryant and is 40 years old.
- The concessions building panel is a newer Cutler Hammer panel that is 20 years old.

#### RECOMMENDATIONS

4. Replace field lighting panel and lighting control.
5. Replace field maintenance panel.

### SPORTS FIELD LIGHTING

#### OBSERVATIONS

- There are six poles each with eight 1500W metal halide fixtures.
- The three poles on the east and three poles on the west side are each fed with two 125A/3P circuit breakers.
- There is a new electrical feeder run to the east side poles.

#### RECOMMENDATIONS

4. Provide new manual field lighting control.



## OUTDOOR LIGHTING

### OBSERVATIONS

- The parking lot has 400W metal halide fixtures.  
The lighting is controlled by a timeclock.

### RECOMMENDATIONS

3. None.

## DATA

### OBSERVATIONS

- The stadium currently does not have data service.

### RECOMMENDATIONS

1. Provide fiber optic cable from High School to Stadium IDF rack for data and VoIP telephone service.





Toilet Room Fixtures - Lunch Room 1



Toilet Room Fixtures - Lunch Room 2



Toilet Room Fixtures in Original School 1



Toilet Room Fixtures in Original School 2

## 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.

## RESTROOM FACILITIES

### OBSERVATIONS

- The main toilet rooms supporting the cafeteria are in very good condition. These rooms were renovated as part of a project in 2007. Toilet rooms are provided with flush valve, wall-hung water closets and urinals. Two (2) three-station Bradley wash fountains are located in each restroom.
- Toilet rooms throughout the building are in fair condition. These fixtures are old however they are not original to the building and have been very well maintained.
- The toilets for the pool are too small for the space.

### RECOMMENDATIONS

1. Continually maintain toilet room fixtures.
2. Schedule toilet room fixtures for replacement. These fixtures could be placed on a long term maintenance budget.
3. Modify pool toilet rooms to accommodate more people.





Water Heaters



Fire Pump



Fire Service

## PLUMBING EQUIPMENT

### OBSERVATIONS

- The domestic water heating system for the school consists of three (3) A.O. Smith 250,000 BTU, sealed-combustion, gas-fired domestic water heaters. The heaters are in good condition and appear to be accurately sized for the actual building demand. The water heaters life expectancy is approximately another 15 years.
- The domestic water heating system supplies hot water for the kitchen, laundry and all remaining hot water demands for the building. The heaters are set with an outlet temperature of 140 degrees which is designated for the laundry and kitchen. The remaining water is controlled with a mixing valve and routed through the building at 120 degrees.
- The domestic water heating equipment for the pool is in fair condition.

### RECOMMENDATIONS

4. Provide continual maintenance on the existing water heating equipment.
5. Provide long-term budgeting for replacement equipment.

## FIRE SPRINKLER SYSTEM

### OBSERVATIONS

- The 2007 addition was provided with a new 8" water service and fire pump. This system is in very good condition; however it appears to be oversized for its current demand. This system currently only serves the 2007 addition but it is believed that the system is sized to provide fire protection for the entire building should the school district chose to do so.
- Sprinkler piping materials are schedule 40 and schedule black iron pipe. Piping appears to be in good condition.

### RECOMMENDATIONS

3. Provide interior fire sprinkler system for the existing building as required.





Water Service

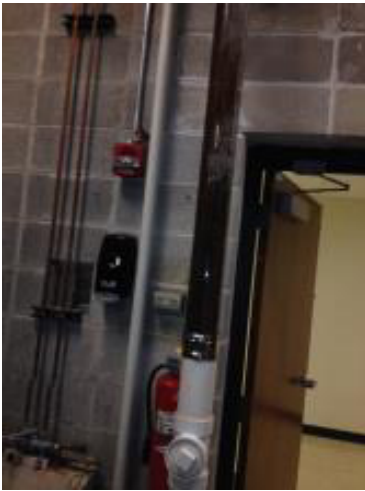
## DOMESTIC WATER SUPPLY SYSTEM

### OBSERVATIONS

- The building is provided with a 6" domestic water service and 6" water meter. This service and meter appear to be oversized for the domestic water demand.
- Domestic water piping in the addition is entirely type "L" copper tube. The domestic water supply mains were replaced in the original building as part of the 2007 addition. Some galvanized branch piping still remains in the walls that serve existing fixtures.
- Water pressure appears to be adequate throughout the building.

### RECOMMENDATIONS

1. The remaining galvanized water piping should be scheduled for replacement. This will be difficult because the existing piping is located in the concrete walls. The piping should be replaced on a as- needed basis.



Sanitary Piping

## SANITARY WASTE SYSTEM

### OBSERVATIONS

- The existing sanitary waste and vent piping is a mixture of cast-iron, galvanized and schedule 40 PVC. All piping located in the 1969 building is primarily cast iron and galvanized unless the space was renovated.
- Schedule 40 PVC was used in throughout the 2007 addition. This piping is in good condition.
- The owner indicated that the primary piping system is original and is in good condition. The system was viewed with a camera and appeared to be in good condition.
- This facility has an interior grease interceptor. The interceptor appears to be in fair condition and is reported to be maintained on a regular basis
- Art room sinks are provided with plasters traps as required.

### RECOMMENDATIONS

1. Original sanitary sewers should be continually monitored and inspected with a camera on a regular basis.
2. Per code, a grease interceptor is not required until modifications are made to the existing kitchen, dishwasher or the original grease interceptor. At that time, a new grease interceptor should be added for dishwasher.
3. Continually maintain the existing grease interceptor.





Roof Drains

## STORM SYSTEM

### OBSERVATIONS

- The existing storm piping is a mixture of cast-iron, galvanized and schedule 40 PVC. All piping located in the 1969 building is primarily cast iron and galvanized unless the space was renovated.
- Schedule 40 PVC was used throughout the 2007 addition. This piping is in good condition.
- The owner indicated that the primary piping system is original and is in good condition. The system was viewed with a camera and appeared to be in good condition.
- Lower levels are provided with clear water sump pumps for drain tile. None of the pumps witnessed are provided with alarms or controls. A sump pump is installed in the lower level to discharge this storm water.

### RECOMMENDATIONS

1. Add controls and alarms to sump pumps.

## PLUMBING FIXTURES – CLASSROOM AREAS

### OBSERVATIONS

- Classroom sinks are generally in good condition. Many of the fixtures are new as part of the 2007 addition. Only a few classrooms have sinks within the room, which is typical of a high school.
- Science rooms are in good condition. All sinks are phenolic type integral bowls with hot and cold water and dual outlet gas controls.
- The science rooms are supported by an emergency eye wash/shower. The fixture is in good working condition; however, it does not have a thermostatic mixing valve to control water temp. This is not a code requirement but is an OSHA recommendation.
- Science rooms also have an emergency shut off valve for the gas system. The main gas control is in a locked wall access panel which is very cumbersome to operate.
- Art room sinks appear to have been updated and are in good condition.

### RECOMMENDATIONS

1. Provide a mixing valve for all eye-wash/shower stations.
2. Relocate controls for the main gas shut-offs to each science room.



Emergency Eye Wash



Science Rooms



## 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 appears to be compliant for the most part.	302, 402, 403
4.	There is no identified accessible loading zone.	503
RECOMMENDATION: 1. Provide an accessible loading zone.		

### B - INTERIOR ACCOMODATIONS

	ITEM	ADA REFERENCE
1.	Main Entrance is accessible. Corridors and egress doors have accessible lever type hardware.	402, 404
2.	Classroom doors are accessible.	404
RECOMMENDATION: 1. None		



#### C - INTERIOR STAIRS / RAMPS

	ITEM	ADA REFERENCE
1.	Stairs in the new additions meet accessibility requirements. In the original building many of the Stairs handrails do not comply with current extension requirements beyond the top and bottom stair risers.	505
RECOMMENDATION: 1. Replace existing handrails with accessible handrails at the original building.		



#### D – ELEVATORS

	ITEM	ADA REFERENCE
1.	The building has two elevators, both of which meet accessibility requirements.	407
RECOMMENDATION: 1. None.		

#### E - DRINKING FOUNTAINS

	ITEM	ADA REFERENCE
1.	Multiple drinking fountains are not of an accessible design. Some drinking fountains have been replaced with accessible types.	602
RECOMMENDATION: 1. Update all drinking fountains to accessible models.		





#### F - TOILET FACILITIES

	ITEM	ADA REFERENCE
1.	All toilet facilities appear to meet accessibility requirements	603
RECOMMENDATION: 2. None.		





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

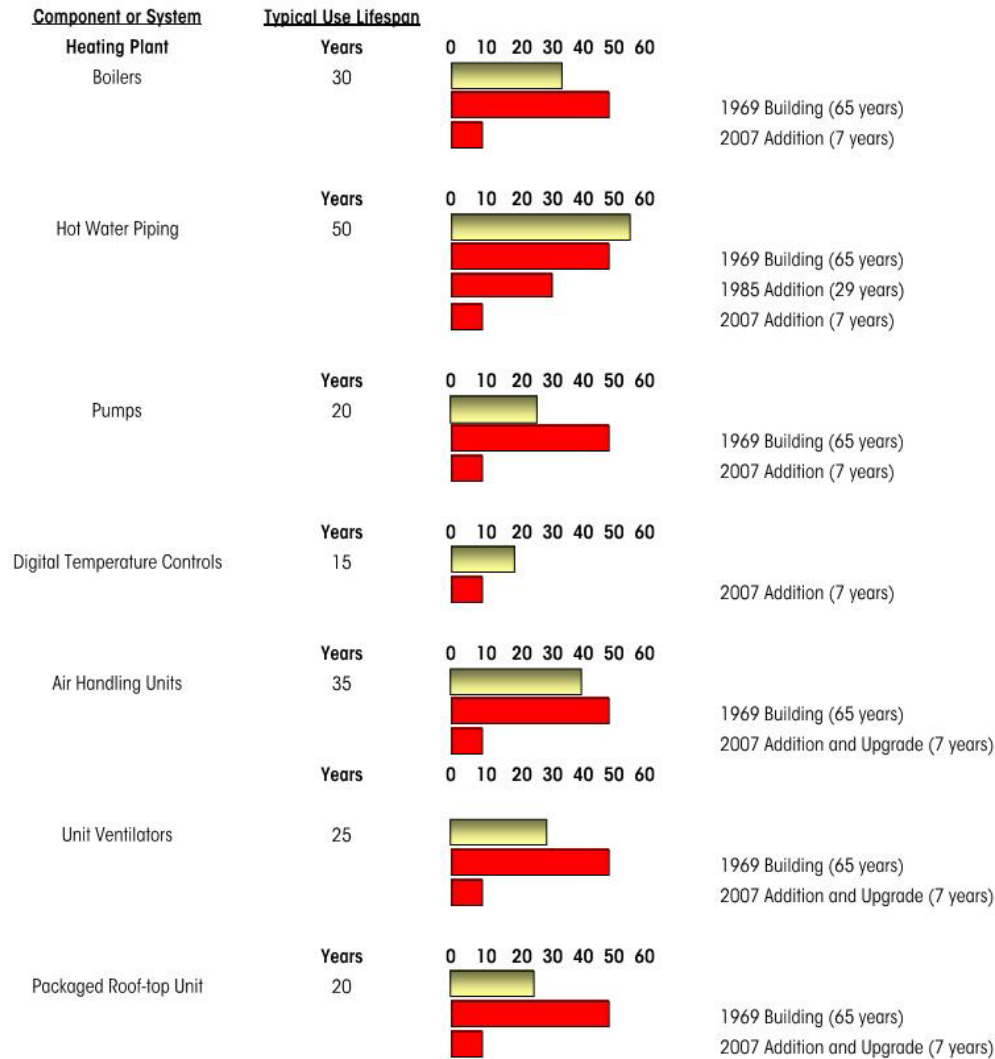
Component or System	Typical Use Lifespan							
<b>EXTERIOR</b>								
Exterior Closure	Years	0	10	20	30	40	50	60
Aluminum Doors/Frames	30							
								1969 Building (65 years) 1985 Addition (29 years) 2007 Addition (7 years)
Steel Doors/Frames	20							
								1969 Building (65 years)
<b>INTERIOR</b>								
Component or System	Typical Use Lifespan							
Interior Construction	Years	0	10	20	30	40	50	60
Interior Walls (Masonry)	50							
								1969 Building (65 years) 1985 Addition (29 years) 2007 Addition (7 years)
Interior Walls (Drywall, other)	30							
								1969 Building (65 years) 1985 Addition (29 years) 2007 Addition (7 years)
Acoustical Ceiling Tile	15							
								2007 all ACT replaced (7 years)
Classroom Floor Tile	15							
								1969 Building (65 years) 1985 Addition (29 years) 2007 Addition (7 years)
Paint	10							
								Building on annual painting rotation
Cabinets and Countertops	25							
								1969 Building (65 years) 1985 Addition (29 years) 2007 Addition (7 years)
Wood Doors	40							
								1969 Building (65 years) 1985 Addition (29 years) 2007 Addition (7 years)
Door Hardware	25							
								2007 all Updated (7 years)



### Anticipated Lifespan of Building Components

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

#### MECHANICAL

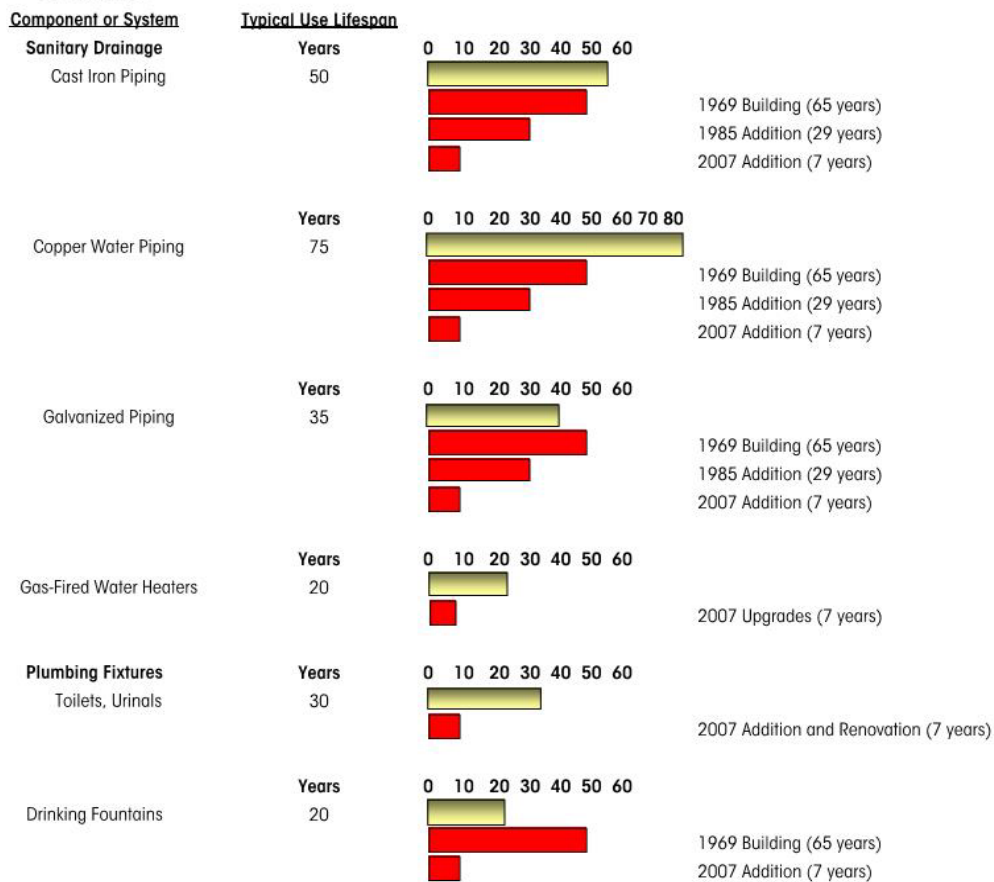




### Anticipated Lifespan of Building Components

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

#### PLUMBING





### Anticipated Lifespan of Building Components

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

#### ELECTRICAL

