School District of Manawa

Students Choosing to Excel, Realizing their Strengths

Facilities Assessment Report

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Draft

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Introduction

The following facilities assessment is intended to document the physical condition of the existing Manawa Elementary School, Little Wolf Junior/Senior High School, and the currently unoccupied school buildings including the campus sites for the purposes of master planning. Programmatic and space concerns are not a part of this assessment but will be evaluated as part of the master planning.

As we evaluate District facilities we compare them to how Hoffman would design and build new facilities today. For example, we will point out items that “do not meet code”, which references current building codes. The District’s buildings are grandfathered regarding these code issues, meaning that the buildings are generally only required to meet the building codes in force at the time of the building’s original construction. Having said that, remodeled portions of existing buildings must be brought into compliance with today’s building codes, and if that remodeling exceeds a certain percentage of the building’s area, the entire building must be made compliant.

Therefore, since this master planning process may result in remodeling the existing facilities, this report identifies (as much as possible) items that do not comply with current building codes. The exact magnitude of changes required by the code varies greatly with the type and extent of the proposed remodeling. Further definition of any proposed remodeling is required to define exactly what changes are mandated by the codes.

We will also reference accessibility (handicapped) codes and the ADA (Americans with Disabilities Act), which are part of the building codes by reference. The ADA is a federal civil law governing handicapped accessibility that influences the building codes. ADA continues to be tested in the court system and thus it is continuously evolving, modifying its prescriptive requirements for equal access. Unfortunately, the building codes are slow to incorporate these changes (by design), meaning as a public building owner, you could be in full compliance with the accessibility requirements of the building code yet at the same time be in violation of the ADA (federal civil law). As building solutions are developed, we will identify these issues.

An important part of any school facility assessment includes surveys/interviews with a significant number of the staff members that utilize these buildings. It is very difficult, if not impossible, for anyone to walk through a given school building and completely understand the benefits and the challenges that these buildings present to their users. We have found these regular users provide valuable insights into the buildings they occupy. We have and will include this information into our understanding of the physical condition of these District buildings.

The School District of Manawa serves a student population of approximately 701 students in grades 4-Year-Old Kindergarten-12th. District buildings include Manawa Elementary School (MES) serving Early Childhood-6th and Little Wolf Jr/Sr High School (LWJSHS) for grades 7th-12th, along with an unoccupied school structure that was previously the elementary school.

Grade	Manawa Elementary	Little Wolf Jr / Sr High	Total
4 Year Kindergarten	35	-	35
Kindergarten	47	-	47
Grade One	34	-	34
Grade Two	32	-	32
Grade Three	59	-	59
Grade Four	48	-	48
Grade Five	40	-	40
Grade Six	52	-	52
Grade Seven	-	55	55
Grade Eight	-	49	49
Grade Nine	-	68	68
Grade Ten	-	57	57
Grade Eleven	-	62	62
Grade Twelve	-	63	63
Total	**347**	**354**	**701**

This report focuses on the three primary buildings as described above; the evaluation will begin with a general statement about the buildings followed by specific details:

- Section 1 - Site
- Section 2 - Structural components
- Section 3 - Architectural Components (Spaces and Interiors)
- Section 4 - Envelope (building enclosure)
- Section 5 - Plumbing Systems
- Section 6 - Heating Ventilating and Air Conditioning Systems (HVAC)
- Section 7 - Electrical Systems

Each Section will be further subdivided into ***Existing Conditions*** about each category, any ***Observations*** from the walk-through and concluding with ***Recommendations*** in each category.

Recommendations are classified into three categories; Immediate Recommendations, Long-Term Recommendations, and Remodeling Activated Recommendations. Immediate concerns should be addressed as quickly as possible. Long-term concerns can be planned to be addressed in the future. Remodeling activated recommendations will need to be addressed if

any portion of the existing school building is remodeled more extensively than simple finish or maintenance replacements (i.e. two small classrooms were combined into a larger classroom which will cause the requirement of a classroom door non-compliant in current building codes to be replaced)

Immediately following the floor plans is a ***Summary of Recommendations***, taken directly from the more detailed report which follows the Executive Summary. The recommendations are provided with an eye towards simple maintenance projects assuming the buildings remain largely as-is; the master planning process will identify projects beyond that scope.

Hoffman Study Team

At Hoffman, we require that our professional consultants participate in the building evaluation process and the writing of our facility assessment reports; the resultant report is much more accurate and comprehensive. As we work with your buildings and grounds committee during the master planning process, these consultants will also be involved to assure comprehensive, accurate cost estimating for any and all proposed modifications and additions.

- ***Section 1 - Site***
  Jody Andres, AIA, LEED AP | Licensed Architect | Hoffman
- ***Sections 2, 3, 4 – Structural, Architectural, Envelope***
  Jody Andres, AIA, LEED AP | Licensed Architect | Hoffman
- ***Sections 5 - Plumbing Systems***
  Dan Green, PE | Mechanical Engineer | Mead & Hunt
- ***Section 6 - Heating Ventilating and Air Conditioning Systems (HVAC)***
  Dan Green, PE | Mechanical Engineer | Mead & Hunt
- ***Section 7 - Electrical Systems***
  Aaron Gudeyon, PE, LEED AP | Electrical Engineer | Mead & Hunt

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Mead & Hunt

Exclusions

This report includes casual observations of the site, food service facilities, possible extant hazardous materials, and performance spaces; however, as the master planning process progresses towards more defined projects, Hoffman recommends the following:

Site – To more effectively determine the exact parameters, restrictions and capacities of the various site components, Hoffman recommends that the District hire a Civil Engineer or Licensed Land Surveyor to complete a full meets-and-bounds, utility and topographic survey of the Manawa campuses. This will include information on any restricted wetlands or contaminated areas. Once a specific project has been identified, this engineer can be retained to provide site design services.

Additionally, once areas of new construction are identified, Hoffman recommends the District hire a civil testing firm to create and analyze soil borings in appropriate locations on the site so we may assess the capacity of the soil for structural purposes.

Kitchen – A basic review of kitchen conditions and operations is included in this facility assessment. To properly assess the capabilities and possible duplication of equipment at the three food service facilities, Hoffman recommends that the District hire a Food Service specialist to do a complete inventory, condition report, and operations analysis of your equipment and facilities. This should include staff involvement and observation of a typical daily routine. If the master planning process proposes new or renovated facilities, this specialist can be retained to provide design services.

Hazardous Materials – Hoffman personnel can make general observations about existing materials and help determine whether further expert testing and removal might be required. We will then recommend the District hire a certified hazardous material testing and abatement firm to carry out identification and removal (if necessary) of asbestos, mold, lead, or mercury-containing materials.

Acoustics / Audio / Theater Lighting – To properly assess the acoustical, audio and specialty lighting capabilities of any performance spaces, including the gymnasiums / stage as well as the auditorium and large group rooms, Hoffman suggests a full analysis by a certified Audio-Visual specialist. This analysis can be included in any design services required if master planning proposes any new or remodeled spaces of this type.

Executive Summary

Manawa Elementary School

Immediate Recommendations

1. Rework MES site at main parking lot to improve site circulation safety, replace poor asphalt, and add loop route around the school. The revisions will allow the separation of parent drop-off from bus drop-off.
2. Provide additional hard surface play area at MES.
3. Restore rated doors to original function by reconnecting door closers and removing door stops.
4. Install detectable warning for AED cabinet.
5. Replace carpet.
6. Repair damaged drywall.
7. Relocate functions taking place in storage room or provide fresh air supply to the room per code requirements.
8. Reconfigure main entry for secure entry.
9. Install magnetic door holders for classroom wing doors to allow better access control.
10. Install missing gutter.
11. Replace deteriorated or missing sealant.
12. Replace windows.
13. Paint exterior doors which are only primed.
14. Replace existing generator and relocate away from building switchboard.
15. Emergency and standby power are not segregated.
16. Add surge suppression to emergency system.
17. Replace the fire alarm system entirely with a new system that is speaker based and provide full intelligibility.
18. Fire alarm visual and audible coverages.
19. The existing door grilles installed at each room allow AHU system return air to flow into the path of the egress corridor for collection at a central location. Present day code does not allow this as an acceptable basis of design.
20. The two existing domestic gas-fired water heaters 120 MBH and storage tank should be replaced immediately upon receipt of available funding for equipment replacement. The water heaters are beyond repair. The recirculation pumps should be replaced with the water heater replacement.
21. Replace existing two hot water boilers 2,000 MBH with high efficiency condensing boilers (minimum of three) sized at 40% capacity. The existing boilers are at the end of their useful life. One of two boilers is not functioning while the other has difficulty staying on.
22. Replace air handling unit (AHU-7) indoor fan coil unit, DX condensing unit and associated duct electric coils.

Long-Term Recommendations

1. Enclose dumpsters at MES in a location accessible to both the building and refuse vehicles.
2. Rework site at MES main building entry to incorporate walkway edge protection landscaping, new benches or seating areas and bicycle rack locations.
3. Remove or relocate all vegetation adjacent to building structures.
4. Continue to monitor structure for any movement. Seal and protect any movement and cracking as it occurs.
5. Due to the integral function of the art room sinks, a more accessible roll-under sink should be installed.
6. Install drywall expansion joints at manufacture recommended intervals.
7. Reconfigure kitchen serving line to be age appropriate.
8. Relocate remaining science equipment.
9. Remodel and update collaboration areas in classroom wings to be more appropriate personalized or flexible learning spaces.
10. Provide sound absorption and treatment in collaboration areas, library and commons to reduce noise levels.
11. Replace classroom door hardware for better security options.
12. Extend partition walls up to deck to reduce sound transmission between rooms.
13. Replace EPDM membrane roof original to building.
14. Continue to monitor and replace sealant as necessary.
15. Continue to replace hollow metal doors and frames as they deteriorate. Consider a fiberglass door with aluminum frame which is a more expensive option that will be more durable than hollow metal.
16. All panels that are original to the building are recommended to be replaced.
17. Provide increased lighting controls in classrooms, library and office areas to allow occupants to reduce lighting levels depending on tasks being performed.
18. Replace all receptacles and switches that are older than 10 years.
19. Add receptacles in classroom and offices that lack adequate number of receptacles.
20. Replace the existing clock system with wireless GPS technology type system.
21. Replace existing public address system with new.
22. Consider replacement of existing phone system to VoIP.
23. Implement control strategy for duct static pressure reset in polling VAV air terminals and optimizing the fan energy use.
24. Use lighting occupancy sensors to control HVAC air terminal setpoints for unoccupied/occupied conditions.
25. Implement demand ventilation controls for control strategy that varies the amount of ventilation outside air delivered to a space based on input from a single carbon dioxide (CO2) sensor or group of sensors, which is representative of the quantity of occupants within the space.

26. Replace the hot water primary and secondary circulating pumps. The secondary circulating pumps could be replaced with variable speed pumps with VFD drives and piping loop differential pressure sensors.
27. Replace the chilled water primary and secondary circulating pumps. The secondary circulating pumps could be replaced with variable speed pumps with VFD drives and piping loop differential pressure sensors.
28. Consider replacement of (16) exhaust fans with direct drive with ECM motor as a part of facility improvement measure for increased efficiency and reduced maintenance costs.
29. Consider adding occupancy sensors within all corridors, classrooms, library, offices, and storage rooms for automatic shutoff of the lighting when spaces are not occupied.
30. Replace exterior metal halide fixtures with more energy efficient LED type fixtures. It's recommended that new fixtures be dark sky compliant to reduce the existing light pollution in the sky, and also ensure that light energy reaches the intended surfaces and is not wasted.

Remodeling Activated Recommendations

1. The building temperature controls should be upgraded to Direct Digital Control (DDC) as part of any future building renovation or upgrade. The current DDC system with electronic control is over 20 years old, which exceeds its expected life span and calibration.

Little Wolf Junior / Senior High School

Immediate Recommendations

1. Undertake comprehensive analysis of soil and subsurface conditions of the football field and track including extensive soil borings and geotechnical analysis. Improve soil structure, improve drainage and reconstruct these areas as required to insure safe student participation in activities on these facilities.
2. To maintain integrity and weather tightness of exterior wall structure, install vertical expansion joints in all masonry veneer per industry standard recommendations for location, frequency and sealants. When joints are installed on upper walls of commons, evaluate and repair bowing masonry wall as required.
3. Restore rated doors to original function by reconnecting door closers and removing door stops.
4. Remove items stored in front of electrical panels.
5. Do not park any vehicles in garage adjacent to the kitchen.
6. Restore proper door and hardware removed from openings in technical education shops to address rating requirements.
7. Remove plywood and storage from ceiling trusses in agricultural shop storage room.
8. Do not use rolling expanding gates.
9. Install detectable warning for AED cabinet and drinking fountains.
10. Replace carpet.
11. Abate and replace VAT.
12. Replace ACT.
13. Remove wood shelving from kitchen. Replace with stainless steel options.

14. Reconfigure main entry for secure entry.
15. Replace classroom science lab and classroom casework. Install proper casework and equipment for junior high science.
16. Replace asphalt shingle roofs with new shingle or standing seam metal roofs.
17. Remove vegetation from roof and from overhanging roof.
18. Attach roof ladder to wall at commons roof.
19. Replace 1995 ballasted EPDM roof.
20. Tuckpoint masonry.
21. Replace deteriorated or missing sealant.
22. Replace failing windows.
23. Replace main entrance doors.
24. Service Entrance Conductors within the building exceed 8' in length.
25. Emergency and standby power are not segregated.
26. Add surge suppression to emergency system.
27. Replace the fire alarm system entirely with a new system that is speaker based and provide full intelligibility.
28. Fire alarm pullstations at 60" above finished floor.
29. Fire alarm visual and audible coverages.
30. The two existing domestic gas-fired water heaters 670 MBH and storage tank should be replace immediately upon available funding for equipment replacement. Water heaters have been serviced over the years and are beyond repairs. The recirculation pumps should be replaced with the water heater replacement.
31. The building temperature controls should be upgraded to Direct Digital Control (DDC) as part of any future building renovation or upgrade. The current Johnston Controls DDC system with electronic control is over 22 years old, which exceeds its expected life span and calibration.
32. Replace existing distribution transformers with new transformers meeting the DOE 2016 Federal mandate. Exact savings for this depends on existing transformer age and size. However, efficiency savings will range from 0.4% to 1.5%.

<u>Long-Term Recommendations</u>

1. At LWJSHS, reconfigure and replace the front steps. Consider installing handicap access ramps to allow main entry to be accessible.
2. Remove or relocate all vegetation adjacent to building structures.
3. Replace asphalt paving at LWJSHS including any regrading necessary to adjust site drainage and handicap accessible route.
4. Continue to monitor structure for any movement. Seal and protect any movement and cracking as it occurs.
5. Address tiered seating in chorus and band rooms to create accessible spaces.
6. Install drywall expansion joints at manufacture recommended intervals.
7. Replace classroom door hardware for better security options.
8. Make football field concessions stand counter height accessible.

9. Install electronic door strikes at card reader locations to eliminate power transfer cable.
10. Consider relocating locker rooms, wrestling room and fitness/weight room.
11. Relocate the training room to provide equal access to all users.
12. Consider options for integrating personalized and flexible learning spaces.
13. Update performing arts spaces including sound and lighting systems or consider providing new performing arts space.
14. Replace dust collection system.
15. Replace roof over office/classroom/kitchen areas.
16. Replace remainder of membrane roofs.
17. Continue to monitor and replace sealant as necessary.
18. Replace hollow metal doors and frames as they deteriorate. Consider a fiberglass door with aluminum frame which is a more expensive option that will be more durable than hollow metal.
19. Add surge suppression at service entrance switchboard.
20. Replace panelboards that are original to the building.
21. Arc flash study and labeling required.
22. Replace all receptacles and switches that are older than 10 years.
23. Provide increased lighting controls in classrooms, library and office areas to allow occupants to reduce lighting levels depending on tasks being performed.
24. Add receptacles in classroom and offices that lack adequate number of receptacles.
25. Replace the existing clock system with wireless GPS technology type system.
26. Replace existing public address system with new.
27. Replace door power transfer cabling with an armored door cable assembly.
28. For existing indoor AHU-1 & 2, implement control strategy for duct static pressure reset in polling VAV air terminals and optimizing the fan energy use.
29. For existing indoor AHU-1 & 2, use lighting occupancy sensors to control HVAC air terminal setpoints for unoccupied/occupied conditions.
30. For existing indoor AHU-1 & 2, implement demand ventilation controls for control strategy that varies the amount of ventilation outside air delivered to a space based on input from a single carbon dioxide (CO2) sensor or group of sensors, which is representative of the quantity of occupants within the space.
31. Consider replacement of (3) exhaust fans for the shop areas.
32. Consider replacement of (9) outdoor power roof ventilators (PRV) and seven (7) sidewall exhausters with direct drive with ECM motor as a part of facility improvement measure for increased efficiency and reduced maintenance costs.
33. Replace the hot water primary and secondary circulating pumps. The secondary circulating pumps could be replaced with variable speed pumps with VFD drives and piping loop differential pressure sensors.
34. Provide occupancy sensors within all corridors, classrooms, library, shop areas, offices, storage rooms and restrooms for automatic shutoff of the lighting when spaces are not occupied. This will result in significant energy savings as well as bring the lighting controls up to compliance with current energy code (2009 IECC).

35. Replace exterior metal halide fixtures with more energy efficient LED type fixtures. It's recommended that new fixtures be dark sky compliant to reduce the existing light pollution in the sky, and also ensure that light energy reaches the intended surfaces and is not wasted.

Remodeling Activated Recommendations

1. Replace doors which are shorter than code allows.
2. Provide accessible and proper number of toilet fixtures per the requirements dictated by the capacity of the gymnasium and commons.
3. Provide accessible and code compliant stairways to the basement.
4. Provide accessible path to stage.
5. Provide elevator to basement level spaces.

Unoccupied School

Long-Term Recommendations

1. Continue to monitor structure for any movement. Seal and protect any movement and cracking as it occurs.

Remodeling Activated Recommendations

1. If reuse is considered, replace asphalt paving at unoccupied school including any regrading necessary to adjust site drainage and handicap accessible route.
2. If the building is going to continue to be used, consider repairing water infiltration areas of the roof to prevent any structural deterioration.
3. If the building is going to continue to be used, all interior finishes and elements will need to be replaced. Interior elements will need to be brought up to current code.
4. Replace roofs.
5. Replace windows.
6. Replace doors.

General Building History

Manawa Elementary School – 85,578 square feet

Date(s) of Construction:

- 1996 – Original Construction – 85,578 square feet
- 2000 – Telecommunications and Power Systems Upgrade
- 2016 – Roof Upgrade
- 2016 – Energy Efficiency Projects
- 2017 – Mechanical Upgrades

Little Wolf Junior / Senior High School - 93,261 square feet

Date(s) of Construction:

- 1969 – Original Construction - 73,069 square feet
- 1983 – Energy Conservation Measures
- 1992 – Roof and Mechanical Upgrades
- 1996 – Building Addition - 20,192 square feet
- 2000 – Telecommunications and Power Systems Upgrade
- 2011/2012 – First School Year with Junior High Students
- 2015 – Energy Efficiency Projects and Mechanical Upgrades

Unoccupied School - 43,542 square feet

Date(s) of Construction:

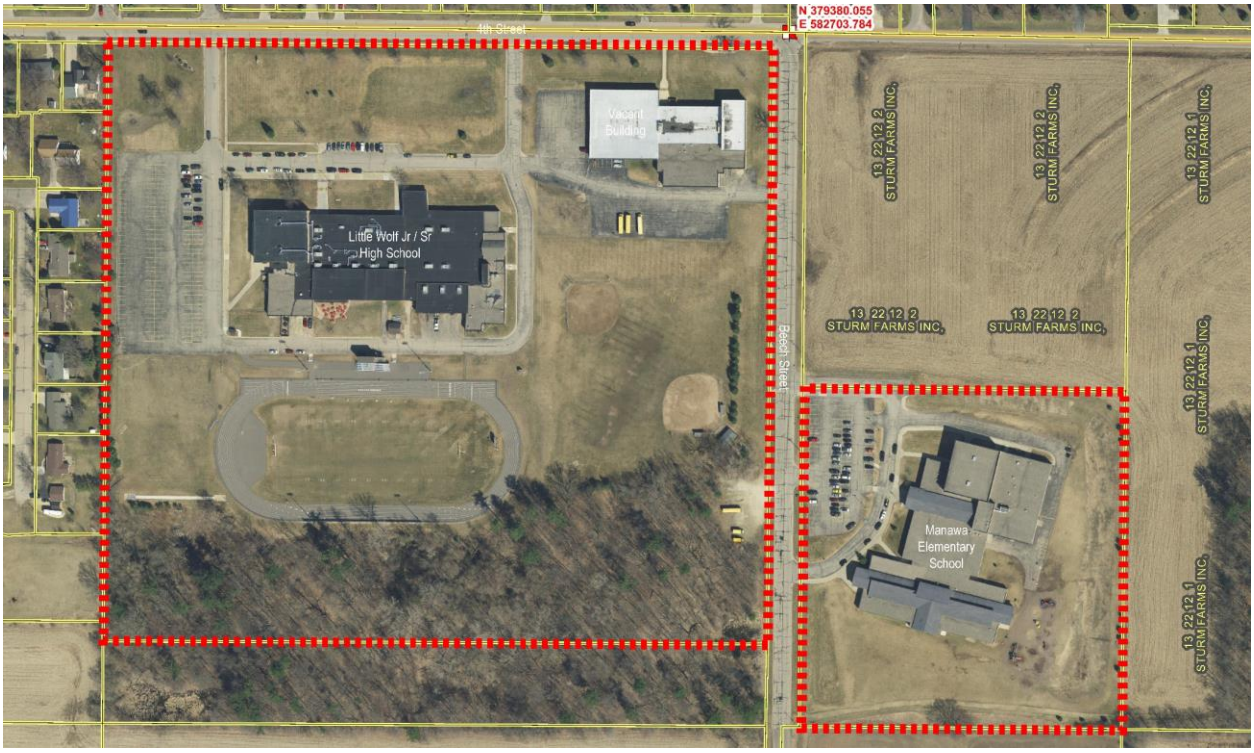
- 1973 – Original Construction – 31,810 square feet
- 1983 – Energy Conservation Measures
- 1992 – Roof and Mechanical Upgrades
- 1996 – Building Addition – 11,732 square feet
- 2000 – Telecommunications and Power Systems Upgrade
- 2011 – School Closure
- 2012 – Building Contents Auction

Site

All Sites - Existing Conditions

Location

Manawa Elementary School (**MES**) serving Early Childhood-6th and Little Wolf Jr/Sr High School (**LWJSHS**) for grades 7th-12th, along with an unoccupied school structure that was previously the elementary school are all located on two adjacent sites in the Village of Manawa in central Waupaca County. The address of MES is 800 Beach Street. The address of LWJSHS is 515 East 4th Street.



General Description

The school properties include three main school structures and several accessory structures including a well building, a storage garage, a ticket booth, and combination concessions / press box building. Outdoor athletic facilities include several non-regulated practice fields, a performance football field with aluminum bleachers on asphalt pads, an 8-lane 400-meter track, field event areas, and a softball/little league field with bleachers dugouts and storage building. An outdoor seating area for eating is located on the south side of the school immediately outside of the interior cafeteria. The trash / recycling dumpsters are located within a fenced and screened area on the south side of the school immediately outside the kitchen delivery entrance.

The school district utilizes a performance baseball and a performance softball field at Lindsey Park under an agreement with the City of Manawa. These fields are located approximately 0.6 miles northwest of the high school; a 12-minute walk or a 4-minute drive.

Legal Description
MES - SEC22 T23N R13E NENW EX S5A | V357P403 V390P3
LWJSHS - SEC22 T23N R13E NENW EX S5A | V357P403 V390P395

Zoning
Both properties are zoned Residential R-1 by the City of Manawa. Public schools are an acceptable Conditional Use for this zoning classification.

Property
The elementary school property consists of 10.4 acres. The site changes elevation 28 feet sloping from north down to south. On the east side of the site, 1.7 acres is highly sloped, is used for stormwater collection, and would be highly unsuitable for construction. The main entry to the site is on the western border at three locations. Most the adjacent properties are zoned Agricultural Enterprise and currently used for farming with a small wooded lot located west of the property adjacent to the high school property.

The high school property consists of 36.3 acres. The site changes elevation 40 feet sloping from southeast down to northwest. On the south side of the site, 10.4 acres is sloped and wooded. The main entry to the site is on the northern border at two locations with one location on the east border near the vacant school building. The softball / little league field has an access point across the street from the elementary school. Most the adjacent properties are zoned residential and currently used for residences on the western and northern edges with a small wooded lot located south of the property across the street from the elementary school.

Parking and Circulation
MES has one parking lot location on the west side of the building containing 80 regular parking stalls and 3 handicap accessible parking stalls. A two-lane drop-off drive exists on the west side of the school between the parking and the school which is currently one direction from south to north. A single two-way entry to the parking lot is located on the west side of the parking lot. A two-lane drive from the main drive to the rear delivery area (east) is located on the north and east sides of the school. No distinct bus drop-off exists separate from parent drop-off. The drive does not completely loop the building. Curbing and sidewalk exist on the north and west sides of the school.

LWJSHS has three parking lot locations. A large lot is located on the west side of the building containing 195 regular parking stalls. A small lot is located on the north side of the building containing 12 regular parking stalls and 3 handicap accessible parking stalls. A small parking

area for accessible access to the building is located on the south side of the building immediately adjacent to the kitchen / service entrance containing 2 handicap accessible parking stalls – one adjacent to the building and one closer to the football field. Additional parking occurs on the service drive around the school but is not marked. A two-way, two-lane drive completely loops the school. Two entries connect the drive and parking to 4th Street which are both entry and exit points. One point of access connects the drive to the unoccupied school building which is controlled by a rolling chain-link fence gate. Sidewalks exist on the west side of the school and northwest corner of the school. A concrete walk connects the main entry of the school and 4th Street at the west entry point. Bus drop-off is marked on the north side of the school.

The **unoccupied school** has parking identified, but the function is indeterminate since to uses are currently occurring.

Drainage

All school buildings are at a good elevation to allow adequate surface drainage from adjacent to the building. MES collects stormwater by sheet draining to collection areas depressed in the landscaping. These collection areas are east of the school and southwest of the school. LWJSHS collects stormwater with storm basins in the pavement areas which are connected to the city storm sewers in 4th Street.

Utilities

It was reported to us that Alliant Energy is the electrical and gas energy utility for the district serving both MES and LWJSHS. No gas or electrical utilities are currently connected to the unoccupied school.

Water and sewer serviced by the City of Manawa for both schools. The water for the unoccupied school is disconnected, and the sewer is connected and still billed to the district.

The telecom company for the district is CenturyLink. No telecom is active at the unoccupied school. It was reported to us that fiber is run to buildings by Solarus, fiber is not owned by the district.

Fire Protection

A single fire hydrant is located each on three sides – west, east and north – of MES adjacent to access drives or pavement. Fire hydrants are located on all sides of LWJSHS adjacent to access drives or pavement.

Fire department access roads are present at approximately 70% of the front (west) side of MES, all the north side and approximately 50% of the rear (east) side. Fire department access roads are present on all sides of LWJSHS. Fire department access roads are present at the south and west sides of the unoccupied school building.

Manawa Rural Fire and Ambulance currently serves the school district properties.

Environmental

In, 1990, an underground storage tank was removed from the high school property. The 10,000-gallon tank, used for refueling busses and district vehicles, was located south of the high school adjacent to the exterior storage garage. In subsequent years, soil contaminated with petroleum was mitigated and contained.

There are no new reports of environmental concerns or hazards located on the District Property. A complete environmental evaluation should be completed prior to planning or completing any projects.

Soils

Based on data from the United States Department of Agriculture: Natural Resources Conservation Service, soils on the school sites are primarily a mix of HrC2-Hortonville loam, 6 to 12 percent slopes, eroded and HnB-Hortonville fine sandy loam, 2 to 6 percent slopes.

HrC2 is a sloping, well-drained soil on convex side slopes of ridges and knolls. In most cultivated areas, on the crest of ridges and knolls and on upper side slopes, the original surface layer has been lost through erosion. Typically, the surface layer in cultivated areas is brown loam about 6 inches thick. The subsoil is reddish brown and is about 21 inches thick. It is mostly firm clay loam in the upper part and firm loam in the lower part. The substratum to a depth of about 60 inches is reddish brown, calcareous fine sandy loam. In some places, near the base of slopes and in swales, the surface layer is very dark grayish brown fine sandy loam that is 10 to 20 inches thick. In some places, the surface layer is fine sandy loam or silt loam, and it is not eroded.

HnB is a gently sloping, well-drained soil on convex ridgetops and on the lower side slopes. Most areas are irregular in shape and range from 10 to 200 acres in size. Typically, the surface layer is dark grayish brown fine sandy loam about 9 inches thick. The subsoil is about 19 inches thick. It is mostly brown, firm sandy clay loam in the upper part; reddish brown, firm clay loam in the middle part; and reddish brown, firm loam in the lower part. The substratum to a depth of about 60 inches is reddish brown, calcareous fine sandy loam. In some places, the surface layer is loamy sand. In some small areas, as much as 4 inches of the surface layer has eroded away

Permeability of this Hortonville soil is moderate, and the available water capacity is high. The organic matter content of the surface layer is moderately low. Natural fertility is medium. Reaction in the surface layer and subsoil is mildly alkaline to medium acid. It is mildly alkaline or moderately alkaline in the substratum. There are free carbonates in the substratum. The surface layer is friable. It can be tilled only within a narrow range of moisture content. Clods form if the soil is tilled when wet because some subsoil material has been mixed into the plow layer. This

soil responds well to additions of plant nutrients, which should be applied in amounts based on soil tests.

In most areas, this soil is used as cropland. In a few areas, it is used as pasture or woodland. This soil type is not considered prime farmland.

This soil is poorly suited to local roads and streets because of low strength. This limitation can be overcome by covering or replacing the upper part of the soil with a coarse base material, such as sand or gravel. Increasing the thickness of the pavement, base, or subbase material also helps offset the low strength of this soil.

Further site analysis, surveying, and soil borings would be recommended for any significant modifications or additions.

Playgrounds

MES site includes a small paved play area east of the building which is also used as a delivery drive. A woodchip soft play area is also located east of the school adjacent to the delivery area. Immediately south of the school is a grass play area. The site includes a Frisbee golf course and a portion of the Patrick Wade Memorial Trail.

All Sites - Observations

Manawa Elementary School

Trash / recycling dumpsters are unenclosed located on the service and access drive northeast of MES.

The bench supports at the main entry are deteriorating.

There are no bicycle racks.

Basketball hoops are a mixture of fixed and portable.

Playground is constructed of clean wood chips which are acceptable as a fall attenuation surface. There is a notable lack of hard-surface play area. Current hard-surface play area occurs on service road.

Traffic circulation between bus, parent and staff traffic is difficult. Several different patterns and options have been tried by administration to alleviate congestion, confusion and issues including having staff direct traffic. These attempts have met with various success. The two main challenges for site circulation are lack of clear wayfinding for traffic and the lack of a road that loops the entire school. A road looping the school would allow bus and parent traffic to drop-off at different sides of the school.

Pavement condition is poor. The district has noted the desire to resolve site circulation issues in conjunction with repairing pavement deterioration.

Walks at main entry allow foot traffic to destroy grass and landscaping adjacent to sidewalks.

Little Wolf Junior / Senior High School

Discussions occurred concerning the soil structure of the area beneath the football field and the safety concerns with continued use of the track and field. Thoughts were shared that landfill materials of stumps, trees and other organic matter were buried under the site. Previous civil engineers indicated no evidence of these landfill materials in soil borings completed prior to previous projects. Extensive geotechnical borings and testing would be needed to either confirm or deny the existence of these landfill materials prior to any further projects.

The front steps on the north side of the school are settling, cracking and are difficult to maneuver due to the sloping sidewalk condition and the base of the stairs. Erosion is occurring adjacent to the stairs and sidewalks.

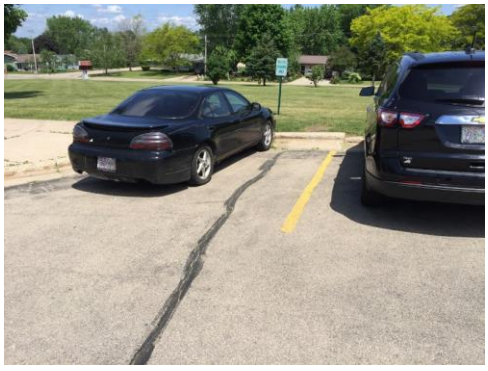
Bicycle rack locations are at multiple entrances. Bicycle racks at the main entry on the north side are in a location that is not easily accessible by a cyclist.

Plantings immediately adjacent to building are problematic for building exterior finishes. Vegetation does not allow the circulation of air and evaporation of moisture which will result in damage to the finish over an extended period.

Asphalt pavement conditions are poor.

Grading and curbing at front (north) parking area have settled significantly and create very steep slopes.

The handicap accessible entrance and parking at the south side of the building adjacent to the kitchen area is not accessible. The slope at the parking space is steeper than the 1:48 allowed for the access aisle for the parking space. The approach to the entry door is also steeper than the 1:20 maximum slope allowed before the requirements of an accessible ramp need to be met. The slope is 3.7 degrees where only 2.86 degrees is allowed. There are no handrails and level landings as required.



Unoccupied School
Asphalt pavement conditions are poor.

All Sites - Recommendations

Immediate Recommendations
Rework MES site at main parking lot to improve site circulation safety, replace poor asphalt, and add loop route around the school. The revisions will allow the separation of parent drop-off from bus drop-off.

Provide additional hard surface play area at MES.

Undertake comprehensive analysis of soil and subsurface conditions of the football field and track including extensive soil borings and geotechnical analysis. Improve soil structure, improve drainage and reconstruct these areas as required to insure safe student participation in activities on these facilities.

Long-Term Recommendations
Enclose dumpsters at MES in a location accessible to both the building and refuse vehicles.

Rework site at MES main building entry to incorporate walkway edge protection landscaping, new benches or seating areas and bicycle rack locations.

At LWJSHS, reconfigure and replace the front steps. Consider installing handicap access ramps to allow main entry to be accessible.

Remove or relocate all vegetation adjacent to building structures.

Replace asphalt paving at LWJSHS including any regrading necessary to adjust site drainage and handicap accessible route.

If reuse is considered, replace asphalt paving at unoccupied school including any regrading necessary to adjust site drainage and handicap accessible route.

Remodeling Activated Recommendations

If reuse is considered, replace asphalt paving at unoccupied school including any regrading necessary to adjust site drainage and handicap accessible route.

Structural Components

MES – Existing Conditions

The structure is a single-story building with mezzanines and the following structural systems;

- Cast-in-place concrete footings, foundations, and floor slabs
- Load-bearing masonry cavity exterior walls
- Load-bearing masonry interior walls
- Wood timber roof trusses and wood roof decking in the cafeteria, and classroom wings collaboration spaces
- Steel joists and structural metal decking for all other roof structures
- Mezzanine floors are precast concrete plank

MES – Observations

The structure is in excellent condition. Very few settlement, expansion or movement cracks were noted in the masonry.

MES – Recommendations

Immediate Recommendations
None.

Long-Term Recommendations
Continue to monitor structure for any movement. Seal and protect any movement and cracking as it occurs.

Remodeling Activated Recommendations
None.

LWJSHS – Existing Conditions

The structure is a single-story building with mezzanines, a basement, and the following structural systems;

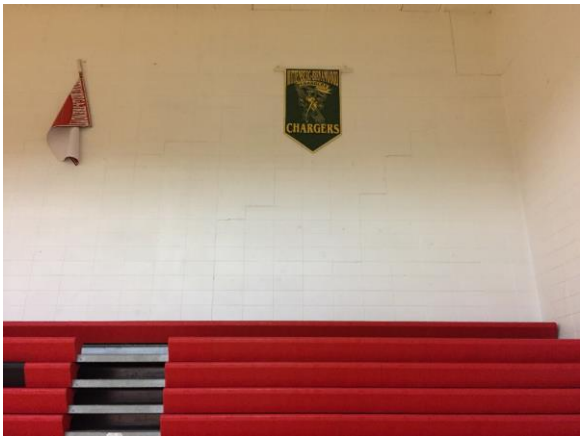
- Cast-in-place concrete footings, foundations, and floor slabs
- Load-bearing masonry cavity exterior walls
- Load-bearing masonry interior walls

- Precast T system with lightweight precast concrete deck is the roof structure for the gymnasium
- Steel joists and structural metal decking for all other roof structures
- Mezzanine floors and floors over basement locker room and weight room areas are precast concrete plank

LWJSHS – Observations

The structure is in generally good condition.

The gymnasium walls display significant movement and cracking. The exterior brick veneers of the gymnasium walls have been repaired to install expansion joints at the northeast, northwest and southwest corner locations. The southeast corner has not been repaired.



Volleyball sleeves have been installed in the precast gymnasium floor and protrude into the spaces below.

Masonry expansion joints do not exist on any of the masonry walls in the original high school building. Expansion joints would have allowed the masonry to expand, contract and move along with changes in weather and moisture without cracking masonry units or mortar joints. Industry standards recommend vertical expansion joints at openings and not more than 20-25 feet apart depending on the frequency of openings.

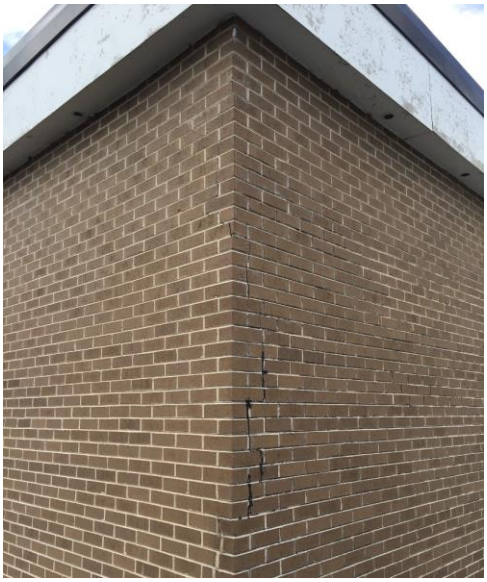
The masonry on the exterior of the upper walls of the commons are bowed and showing signs of movement. These walls do not have vertical expansion joints at the minimum recommended spacing. Additionally, the wall shows signs of the brick masonry veneer pulling away from the

structural concrete masonry wall behind. This condition may indicate improper flashing or ties to the structure behind.

LWJSHS – Recommendations

Immediate

To maintain integrity and weather tightness of exterior wall structure, install vertical expansion joints in all masonry veneer per industry standard recommendations for location, frequency and sealants. When joints are installed on upper walls of commons, evaluate and repair bowing masonry wall as required.



Long-Term

Continue to monitor structure for any movement. Seal and protect any movement and cracking as it occurs.

Remodeling Activated

None.

Unoccupied School – Existing Conditions

The structure is a single-story building with a mezzanine and the following structural systems;

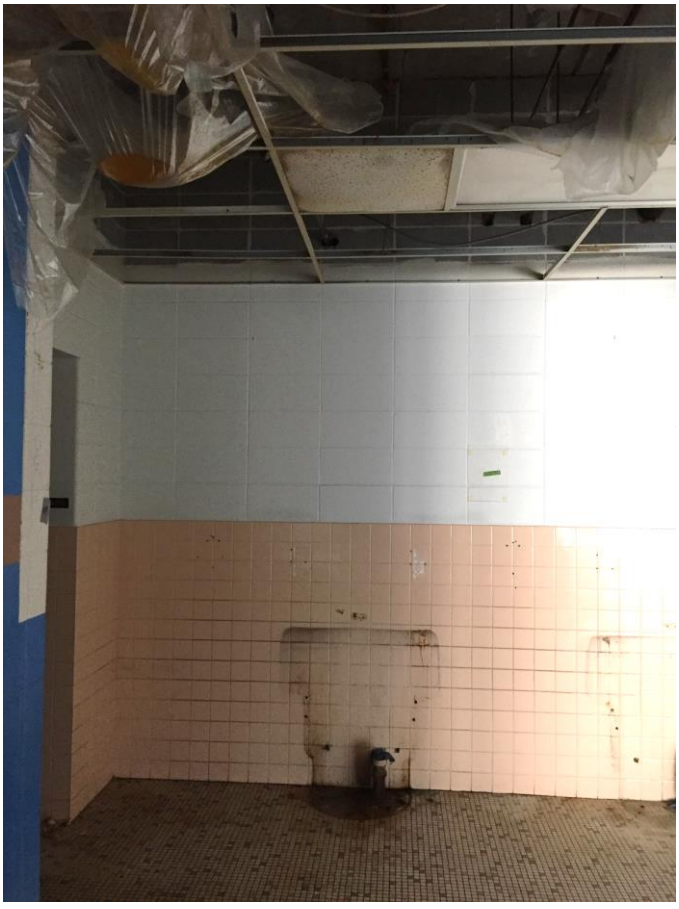
- Cast-in-place concrete footings, foundations, and floor slabs
- Load-bearing precast concrete exterior walls
- Precast concrete column and beam structure for most of the interior structure
- Precast concrete plank for most the roof structures
- Mezzanine floor is wood joists and deck
- Load-bearing masonry cavity exterior walls for the most recent addition
- Load-bearing masonry interior walls for the most recent addition
- Steel joists and structural metal decking for the most recent addition

Unoccupied School – Observations

The structure is in generally good condition.

Water infiltration has damaged wood mezzanine deck beyond repair.

Water infiltration has occurred in other areas of the building. The water infiltration has done little damage to the precast building elements.



Unoccupied School – Recommendations

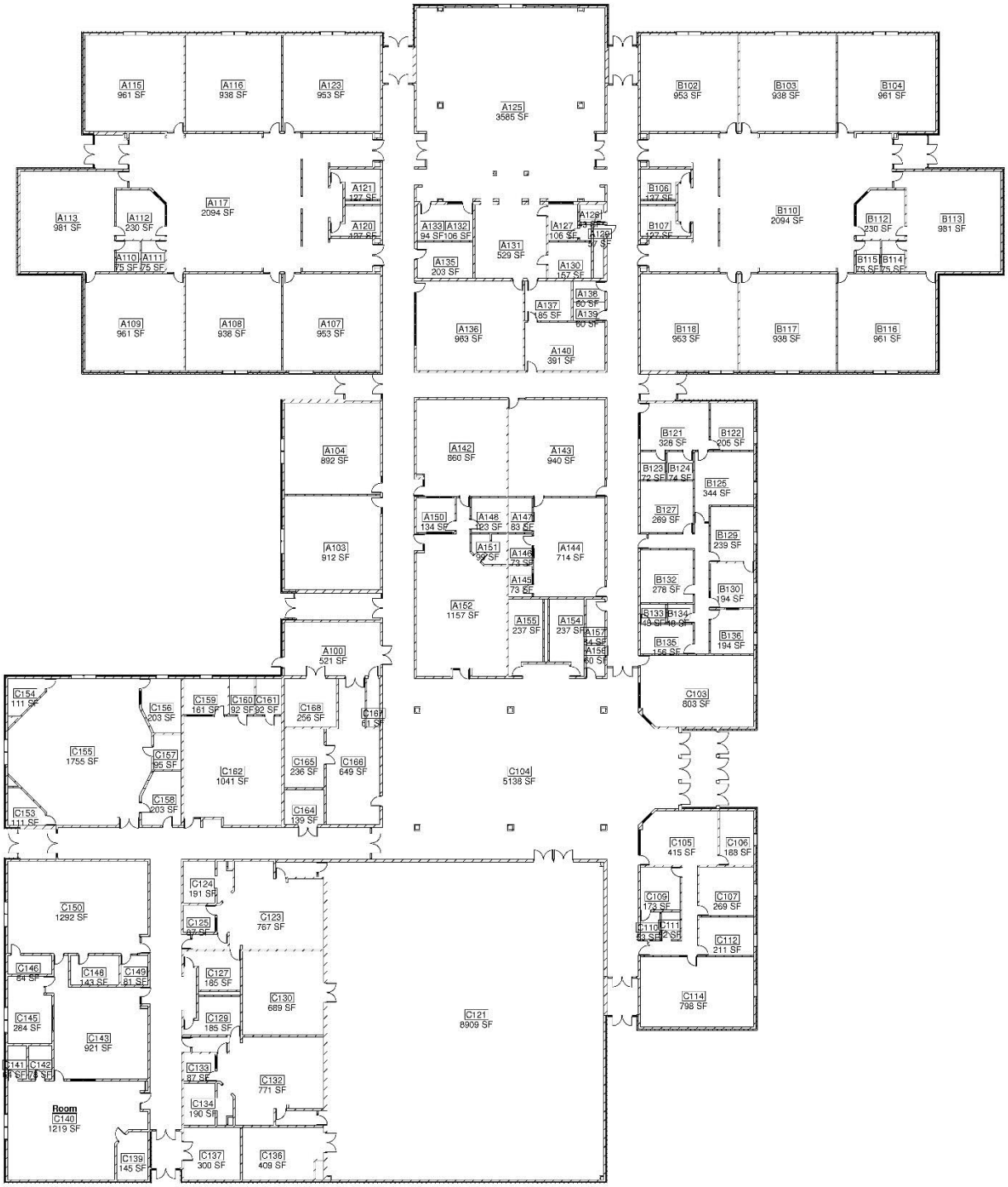
Immediate Recommendations
None.

Long-Term Recommendations
Continue to monitor structure for any movement. Seal and protect any movement and cracking as it occurs.

Remodeling Activated Recommendations
If the building is going to continue to be used, consider repairing water infiltration areas of the roof to prevent any structural deterioration.

Architectural Components

MES – Existing Conditions



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Today's Building Code is different than the building code from when this building was constructed. Any major remodeling/additions to this facility must meet the current code. An evaluation of the nature of the proposed changes/modifications will need to be completed to fully understand what effect the current code would have on the existing building.

Doors and Openings
Solid wood doors; hollow metal doors, frames and borrowed lights.

Finishes
Floors: Carpet, vinyl composition tile (VCT), wood at gymnasium, ceramic tile at bathrooms and locker rooms, quarry tile in kitchen, walk-off tile in vestibules, and sealed concrete in all the service areas.

Walls: Painted concrete block, painted drywall, brick, and ceramic tile.

Ceilings: Acoustic ceiling tile (ACT), vinyl faced gypsum board, painted drywall, and wood.

Equipment
Plastic laminate casework, science lab equipment and fume hood, metal student and athletic lockers without built-in locks, wood gymnasium bleachers, folding basketball backstops, climbing wall, metal toilet partitions, toilet room accessories and a full serving kitchen.

Interior Environment
Partition walls terminate just above the ceiling and do not extend to the deck above.

MES – Observations

Code

Many doors have manual kick doorstops. These doorstops are largely illegal to have in place since most doors with closers that necessitate stops are rated doors and shall not be blocked in the open position.

Door closers have been disconnected on several rated doors defeating the requirements for a rated opening.

Accessibility

The art room has sinks that are difficult for a person in a wheelchair to use.

Most countertops in classrooms are 34.5” in lieu of 36” which allows them to be considered within a handicap persons reach range and therefore accessible.

Equipment like AED units added later are frequently inaccessible due to their protruding into the accessible path more than 4” without a detectable floor warning.

Doors and Openings

Heavily trafficked doors only have a kickplate. The doors are marked and damaged from pushing carts and equipment through these doors.

Finishes

Carpet is original and in need of replacement

Several areas have damaged drywall.

Large expanses of drywall interior walls and soffits do hot have expansion joints and have developed expansion and movement cracks.

Equipment

Kitchen serving equipment is too high for small and very young students. The kitchen also contains wood shelving which is not allowed for health reasons. Food and equipment are stored in the same storage room.

Most of the science equipment has been removed from the science labs.

Educational Adequacy

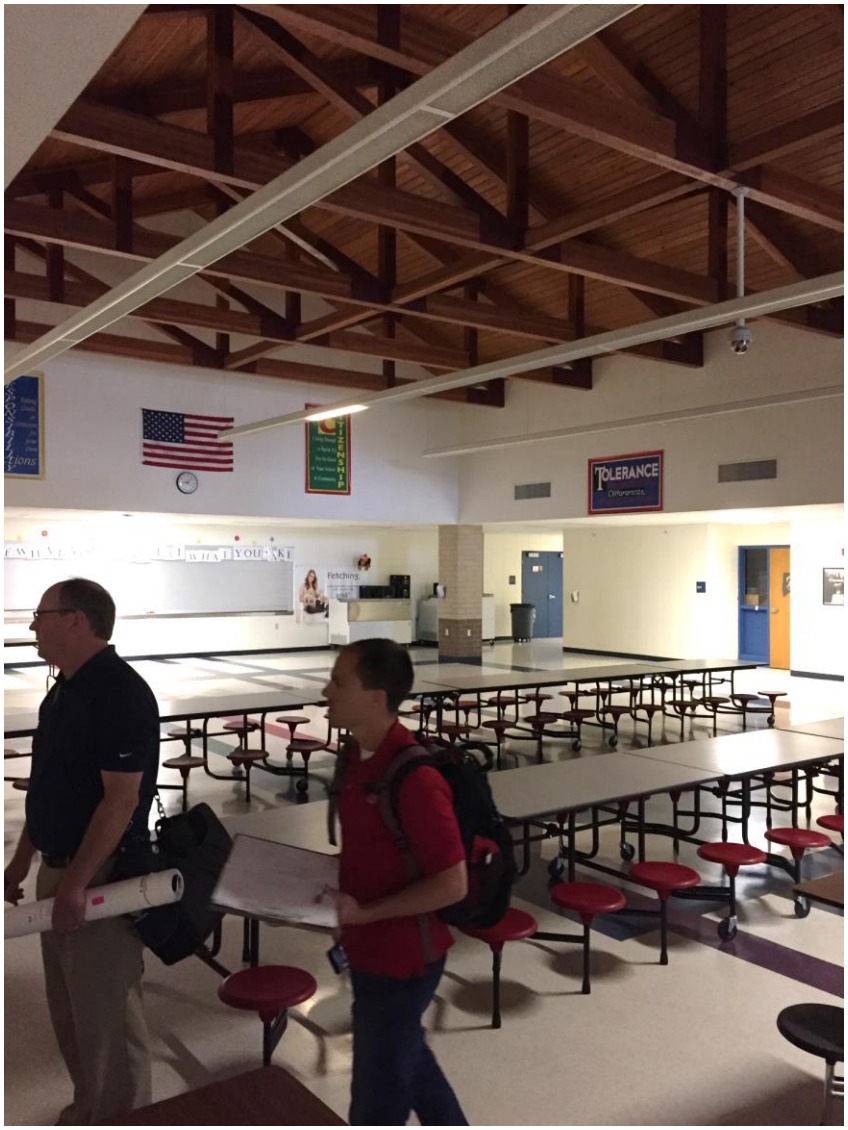
The storage room located in the previous family and consumer science suite of rooms is being used as a teaching space. The space does not meet the fresh air requirements for an occupied room.

Collaboration areas in classroom wings are underutilized.

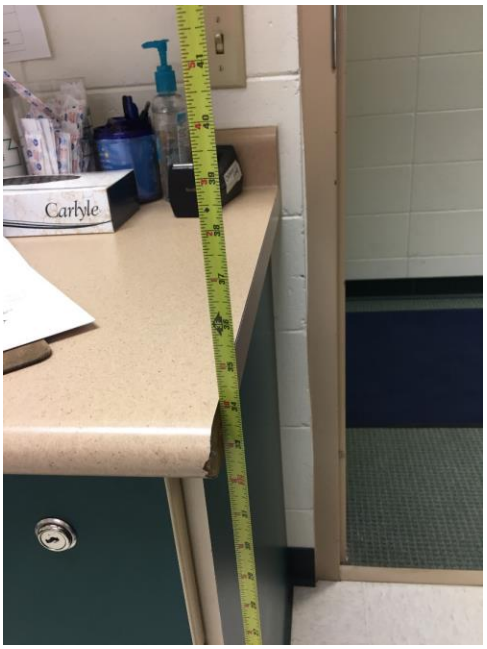
Interior Environment

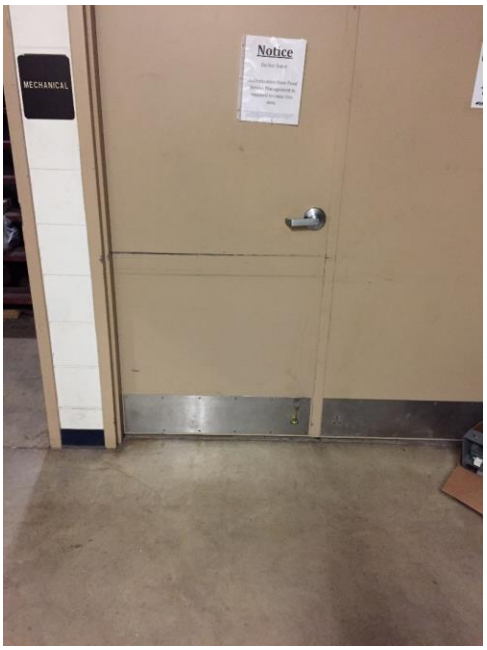
Some of the spaces are drafty due to the volume of air generated by the heating and ventilation system. The controlling of the heating and cooling systems is also reported to be difficult.

The commons, classroom collaboration areas, and the library have high ceilings that make the space noisy.




AED
RECYCLING ONLY
GARBAGE ONLY


Carlyle


Notice
MECHANICAL


IF YOU THINK someone could use a FRIEND, BE ONE!
Leveled Books
STOP

There is no secure entry into the building at main entry. Visitors are allowed into the building via a remote videophone lock system.

Classroom doors are not easily secured in an emergency due to the type of lockset.

Doors leading into the classroom areas are propped open and do not allow the automatic closure and locking in the event of a lockdown situation.

Sound is easily transmitted between office areas over the top of partition walls that do not extend to the deck above.

MES – Recommendations

Immediate Recommendations
Restore rated doors to original function by reconnecting door closers and removing door stops.

Install detectable warning for AED cabinet.

Replace carpet.

Repair damaged drywall.

Relocate functions taking place in storage room or provide fresh air supply to the room per code requirements.

Reconfigure main entry for secure entry.

Install magnetic door holders for classroom wing doors to allow better access control.

Long-Term Recommendations
Due to the integral function of the art room sinks, a more accessible roll-under sink should be installed.

Install drywall expansion joints at manufacture recommended intervals.

Reconfigure kitchen serving line to be age appropriate.

Relocate remaining science equipment.

Remodel and update collaboration areas in classroom wings to be more appropriate personalized or flexible learning spaces.

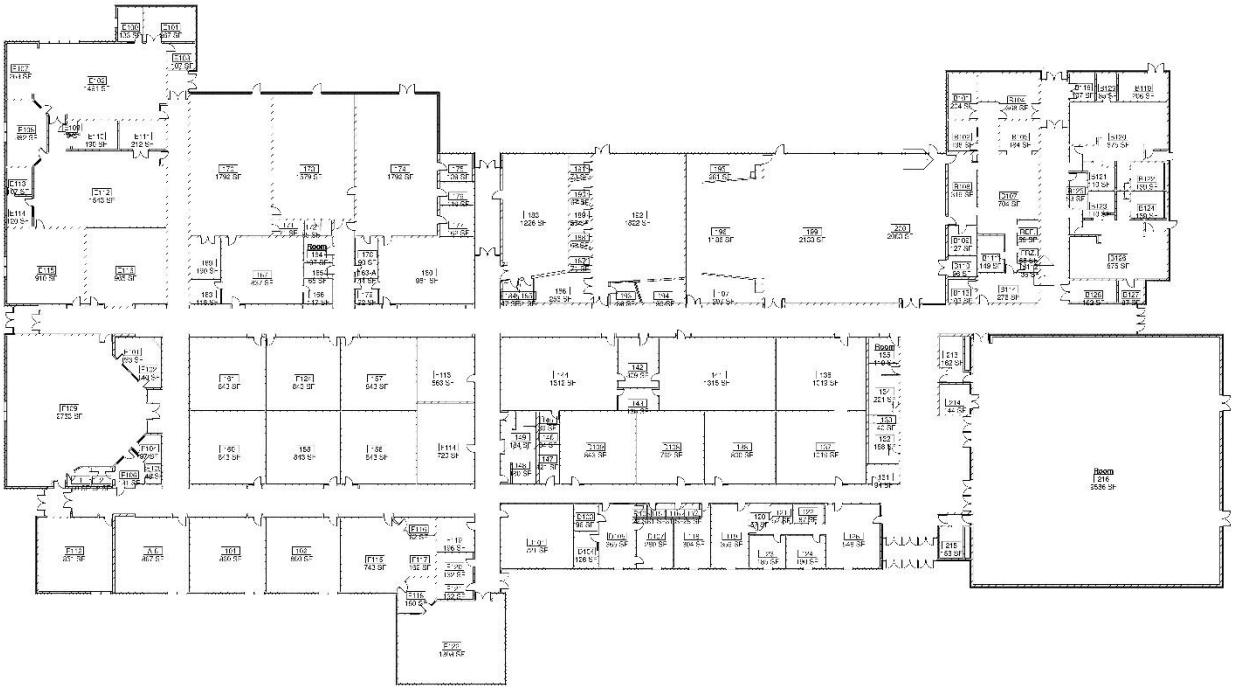
Provide sound absorption and treatment in collaboration areas, library and commons to reduce noise levels.

Replace classroom door hardware for better security options.

Extend partition walls up to deck to reduce sound transmission between rooms.

Remodeling Activated Recommendations
None.

LWJSHS – Existing Conditions



Code
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Today's Building Code is different than the building code from when this building was constructed. Any major remodeling/additions to this facility must meet the current code. An evaluation of the nature of the proposed changes/modifications will need to be completed to fully understand what effect the current code would have on the existing building.

Doors and Openings

Solid wood doors; hollow metal doors, frames and borrowed lights. Doors in the original building have wood transom panels.

Finishes

Floors: Carpet, terrazzo, vinyl composition tile (VCT), vinyl asbestos tile (VAT), wood at gymnasium, ceramic tile at bathrooms and locker rooms, quarry tile in the kitchen, walk-off tile in vestibules, and sealed concrete in various areas.

Walls: Painted concrete block, painted drywall, brick, and ceramic tile.

Ceilings: Acoustic ceiling tile (ACT), vinyl faced gypsum board, and painted drywall.

Equipment

Plastic laminate casework, science lab equipment and fume hood, metal student and athletic lockers with and without built-in locks, plastic gymnasium bleachers, folding basketball backstops, plastic and metal toilet partitions, toilet room accessories and a full production and serving kitchen.

LWJSHS – Observations

Code

Many doors have manual kick doorstops. These doorstops are largely illegal to have in place since most doors with closers that necessitate stops are rated doors and shall not be blocked in the open position.

Door closers have been disconnected on several rated doors defeating the requirements for a rated opening.

Storage of items in front of electrical panels is a general issue.

Most of the interior doors are 6'-7" high. Current code requires all egress doors to be a minimum 6'-8" high.

The quantity of toilet fixtures is not adequate to accommodate the capacity of the gymnasium. Eight fixtures are required for females only while four fixtures are required for males.

At the time of the walk-through, the food delivery van owned by the district was parked in an interior room that is not rated. Vehicle storage rooms must be separated from the rest of the facility by fire rated construction. The openings in the room do not indicate rated construction.

Steps in the band and chorus room exceed the maximum riser allowable by code.

Significant fire separation issues exist between technical education shops and between shops adjacent rooms, and classrooms.

Storage system created by putting plywood between roof trusses in the storage room adjacent to the agricultural shop is not allowed by code.

Rolling expanding gates were noted in some locations of the corridor. These gates are not allowed by code to created dead-end corridors which can potentially trap occupants in an emergency.

Accessibility

The stairs to the basement level were constructed prior to current accessibility requirements. The handrails and stair construction do not meet current code or accessibility requirements.

Modifications to the toilet rooms have been made to toilet rooms to make them accessible. Most the elements in the toilet rooms designated as accessible are accessible, but not completely. Not all toilet rooms are designated as accessible.

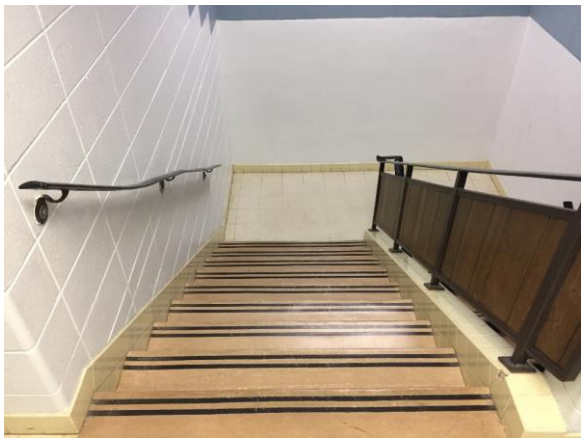
Tiered floors in the band and chorus rooms are not accessible. Additionally, the steps exceed the maximum riser allowable by code.

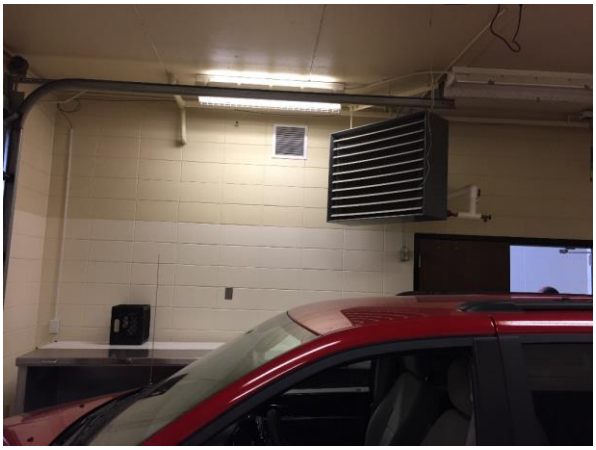
The stage is not accessible.

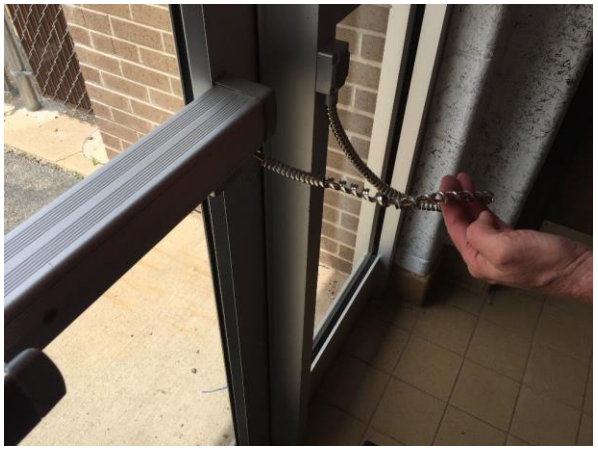
No elevator is provided to spaces in the basement.

Equipment like AED units and drinking fountains added later are frequently inaccessible due to their protruding into the accessible path more than 4” without a detectable floor warning.

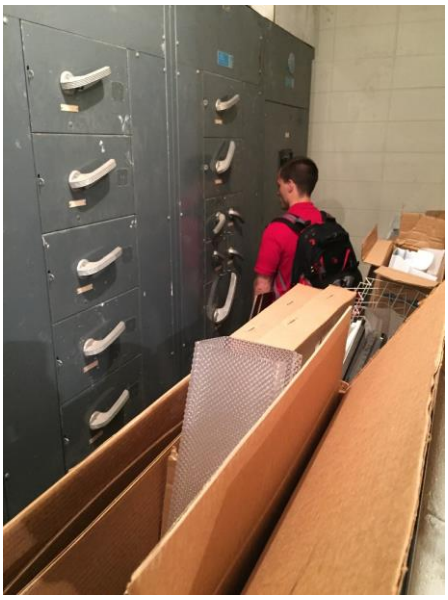
The football field press box is not required to be accessible. The lower concessions stand is required to be accessible and the counter must be lowered.








Do as you "Otter"



Doors and Openings
Interior doors are poor to fair condition. Note the comment in this section concerning Code issues with the doors.

Doors with card readers on the exterior of the building were installed with shielded power transfer cables. These cables have been damaged by vandalism.

Finishes
Carpet is in poor condition in most areas.

VAT should be abated and replaced for environmental concerns.

ACT is in poor condition in many rooms.

Large expanses of drywall interior walls and soffits do hot have expansion joints and have developed expansion and movement cracks.

Equipment
Lockers are in good condition in both the athletic areas and the corridors.

Kitchen equipment is generally in good condition. The kitchen also contains wood shelving which is not allowed for health reasons. Food and equipment are stored in the same storage room.

Casework is original in many rooms including the family and consumer science lab and the science labs. The original casework is outdated and in several cases inadequate. Some items such as fume hoods and safety showers have been updated in the science labs. Music instrument storage casework in the band room is in poor condition. Music library storage is inadequate.

Dust collection system needs replacement.

Educational Adequacy
The weight and fitness room in the basement is a composite of several rooms joined to function as one space. The space is broken up, non-accessible, and difficult for the public to access.

Access to the training room is difficult due to the location within the locker rooms in the basement.

Drama and prop storage is limited in rooms around and including the stage.

The distance learning lab and computer lab are no longer used for their original purposes.

The junior high students were brought to this school with no program adaptations or age appropriate accommodations. As an example, junior high science is taught in the previous sewing lab. There are no distinct areas for junior high versus senior high students.

Classroom configurations are considered traditional. Four interior classrooms have operable partitions which allow two classrooms to join into one. No significant other considerations have been made towards personalized or flexible learning concepts.

Interior Environment

The wrestling room in the basement has recently experienced issues with hygiene and cleanliness. Air circulation is poor and currently the air is being treated with a portable UV unit.

The sound system and theatrical lighting in the commons and stage are poor to average condition. The acoustics of the commons is poor for any type of performance.

There is no secure entry into the building at main entry. Visitors are allowed into the building via a remote videophone lock system.

Classroom doors are not easily secured in an emergency due to the type of lockset.

LWJSHS – Recommendations

Immediate Recommendations

Restore rated doors to original function by reconnecting door closers and removing door stops.

Remove items stored in front of electrical panels.

Do not park any vehicles in garage adjacent to the kitchen.

Restore proper door and hardware removed from openings in technical education shops to address rating requirements.

Remove plywood and storage from ceiling trusses in agricultural shop storage room.

Do not use rolling expanding gates.

Install detectable warning for AED cabinet and drinking fountains.

Replace carpet.

Abate and replace VAT.

Replace ACT.

Remove wood shelving from kitchen. Replace with stainless steel options.

Reconfigure main entry for secure entry.

Replace classroom science lab and classroom casework. Install proper casework and equipment for junior high science.

Long-Term Recommendations
Address tiered seating in chorus and band rooms to create accessible spaces.

Install drywall expansion joints at manufacture recommended intervals.

Replace classroom door hardware for better security options.

Make football field concessions stand counter height accessible.

Install electronic door strikes at card reader locations to eliminate power transfer cable.

Consider relocating locker rooms, wrestling room and fitness/weight room.

Relocate the training room to provide equal access to all users.

Consider options for integrating personalized and flexible learning spaces.

Update performing arts spaces including sound and lighting systems or consider providing new performing arts space.

Replace dust collection system.

Remodeling Activated Recommendations
Replace doors which are shorter than code allows.

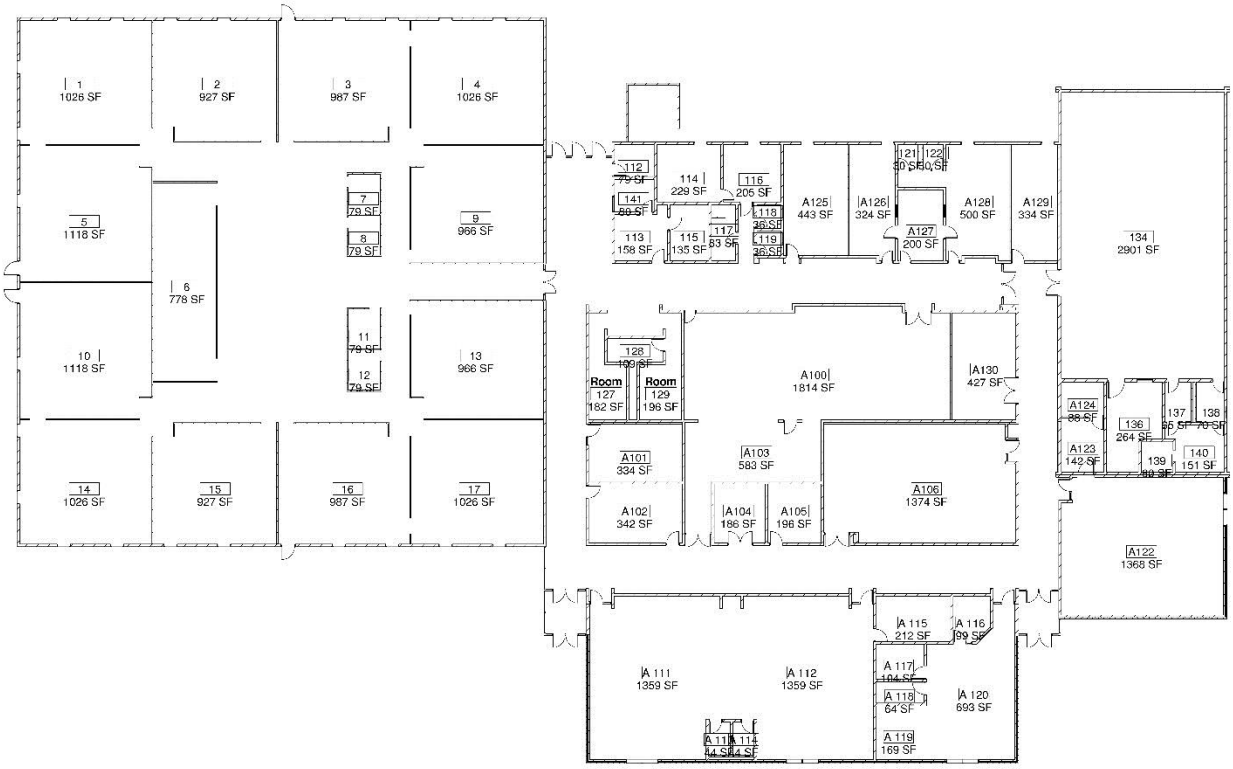
Provide accessible and proper number of toilet fixtures per the requirements dictated by the capacity of the gymnasium and commons.

Provide accessible and code compliant stairways to the basement.

Provide accessible path to stage.

Provide elevator to basement level spaces.

Unoccupied School – Existing Conditions



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Interior Environment
The building was abandoned in 2011 and an auction was held in 2012 to sell the interior elements.

Unoccupied School – Observations

Interior Environment
Random interior elements were salvaged and removed from the building. In the process of salvaging materials, remaining construction was damaged during the removal. The remaining interior elements have been allowed to deteriorate beyond salvage when the utilities were disconnected and the building was no longer conditioned.

Unoccupied School – Recommendations

Immediate Recommendations
None.

Long-Term Recommendations
None.

Remodeling Activated Recommendations
If the building is going to continue to be used, all interior finishes and elements will need to be replaced. Interior elements will need to be brought up to current code.

Envelope

MES – Existing Conditions

Roof
A combination of ballasted EPDM membrane and sloped standing seam metal roofs.

Walls
Brick with exterior plaster finish system accent panels.

Walls are insulated with 1-1/2” rigid cavity wall insulation.

Windows
A combination of fixed and operable, aluminum clad wood windows with double pane glazing including integral blinds.

Doors
Hollow metal doors and frames.

MES – Observations

Roof
A recent roof project was completed to replace asphalt shingle roofs with metal standing seam roofs. At the same time, rubber flashing was replaced and repaired where the existing EPDM membrane was pulling away from parapet walls. The new flashing will extend the life of the roof 3-8 years, but most the membrane roof is original to the building and at the end of its useful life.

One gutter for the new metal roof was not installed on the north side of the west science room.

Walls
Some deterioration of the mortar was noted on the northwest corner of the classroom wing from vegetation next to the building which has been removed and the absence of gutters and downspouts on the sloped roof above.

Sealant in some expansion and control joints has deteriorated and/or is missing.

Windows
Windows are failing. Water is infiltrating the wall which is common of this window and wall detail.

Doors
Hollow metal doors and frames are deteriorating. Some doors have been recently replaced and remain primed but unpainted.

MES – Recommendations

Immediate Recommendations
Install missing gutter.

Replace deteriorated or missing sealant.

Replace windows.

Paint exterior doors which are only primed.

Long-Term Recommendations
Replace EPDM membrane roof original to building.

Continue to monitor and replace sealant as necessary.

Continue to replace hollow metal doors and frames as they deteriorate. Consider a fiberglass door with aluminum frame which is a more expensive option that will be more durable than hollow metal.

Remodeling Activated Recommendations
None.

LWJSHS – Existing Conditions

Roof
A combination of fully adhered EPDM membrane, ballasted EPDM membrane, and sloped asphalt shingle roofs.

Walls
Brick with composite aggregate accent panels.

Walls are insulated with 1-1/2" rigid cavity wall insulation in newer construction and uninsulated in original construction.

Windows
A combination of aluminum framed fixed and operable, double and single pane windows.

Doors
A combination of aluminum framed storefront and hollow metal doors and frames.

LWJSHS – Observations

Roof
Several locations on the asphalt shingle roofs have missing or damaged shingles.

The ballasted EPDM roof which was installed in 1995 is at the end of its useful life.

Vegetation is growing on several areas of the roof and trees are overhanging portions of the roof.

The roof over the office area and adjacent classrooms and kitchen should be considered for replacement within the next 3-5 years.

The remaining roof areas should be considered for replacement within the next 5-8 years.

The roof ladder to the roof over the commons area is not attached.

Walls
Several areas on the south side of the exterior wall adjacent to the commons need tuckpointing.

See Structural Components section for comments on issues with veneer.

Sealant has deteriorated or is missing at several locations. Most common areas of concern are where two different materials meet such as the brick veneer and composite aggregate panels around windows.

Windows
Windows have gaps and are at the end of their useful life.

Doors
Aluminum doors and frames at main entrance are deteriorating. Hollow metal doors and frames are deteriorating.

LWJSHS – Recommendations

Immediate Recommendations
Replace asphalt shingle roofs with new shingle or standing seam metal roofs.

Remove vegetation from roof and from overhanging roof.

Attach roof ladder to wall at commons roof.

Replace 1995 ballasted EPDM roof.

Tuckpoint masonry.

Replace deteriorated or missing sealant.

Replace failing windows.

Replace main entrance doors.

Long-Term Recommendations
Replace roof over office/classroom/kitchen areas.

Replace remainder of membrane roofs.

Continue to monitor and replace sealant as necessary.

Replace hollow metal doors and frames as they deteriorate. Consider a fiberglass door with aluminum frame which is a more expensive option that will be more durable than hollow metal.

Remodeling Activated Recommendations
None.

Unoccupied School – Existing Conditions

Roof
A combination of fully adhered PVC membrane and fully adhered EPDM membrane.

Walls
Natural finish precast panels.

Walls are insulated with 1-1/2” rigid cavity wall insulation in newer construction and 1” rigid interior insulation behind the drywall in the older construction.

Windows
A combination of aluminum framed fixed and operable double pane windows.

Doors
A combination of aluminum framed storefront and hollow metal doors and frames.

Unoccupied School – Observations

Roof
Several roof leaks are present and the membranes should be replaced

Walls
Exterior walls are in excellent condition

Windows
Most of the original building windows are fogged.

Doors
Hollow metal doors are deteriorating and in poor condition. Aluminum storefront is in fair condition.

Unoccupied School – Recommendations

Immediate Recommendations
None.

Long-Term Recommendations
None.

Remodeling Activated Recommendations
Replace roofs.

Replace windows.

Replace doors.

Section 5 – Plumbing/Fire Systems
Elementary School

PLUMBING SYSTEMS:

Domestic Water

Observations:

The building is fed by a 6" water service with a 3" water meter. The domestic water piping is copper. There is no report by owner of problems with water piping or major leaks. Water pressure in the building appears to be in good working order. Copper supply lines should have 20 or more years of useful life.

There is no softened water except for that serving the kitchen area. Lime scale may build up inside the water heater, reducing its efficiency and life span. PVC and copper pipes are not as susceptible to magnesium and calcium deposits, but steel pipes may experience water flow issues which slow down with the buildup of lime scale. We don't see this as piping concerns with this facility.

Photo: Main Water Service

Photo: Kitchen Water Heater

Recommendations:

The existing domestic piping can remain in place and is in fair to good condition. When piping approaching end of life expectancy, the domestic piping specialties, valves, and piping system should be schedule for a replacement. Check isolation valves for any corrosion, and exercise semi-annually. Outdoor faucet hose bib should be checked periodically and tightened or replace packing as needed.

Plumbing Equipment

Observations:

There are four domestic water heaters serving the Elementary School. Two of the four water heaters are gas-fired and serve the north side of the school. These water heaters have a storage tank and recirculation pumps and are located on a mezzanine level in the mechanical space. These two units are A.O. Smith, atmospheric at 120 MBH each with 80% water heater efficiency. The third water heater is an electric A.O. Smith 50 gal with recirculating pump serving the south side of the school's classroom sinks and restrooms. The fourth water heater, located in kitchen storage area, is also an electric A.O. Smith 50 gal which serves the dishwasher equipment.

Photo: Main Domestic Water Heaters

The gas-fired AO Smith water heaters are gravity vented through the roof. The facility has experienced operational issues with these existing gas water heaters on the mezzanine level in the mechanical room. These water heaters are at the end of their useful life and need to be replace immediately to avoid long term loss of hot water.

Recommendations:
The existing domestic gas-fired water heaters and storage tank should be replaced immediately upon receipt of available funding for equipment replacement. The water heaters are beyond repair. The existing domestic electric water heaters are relatively new and can remain in service. As a facility improvement measure, the electric water heaters could be replaced with gas-fired to save energy costs.

Fixtures System

Observations:
The plumbing fixtures appear to be in good condition. Fixtures installed were meant originally to accommodate the Middle School. Water closets and urinals are manual flush valves. Fixtures and accessibility should be age appropriate to reach, wash hands, etc…

Photo: Drinking Fountains

Recommendations:
The number of fixtures and accessories are not appropriate for elementary school use and should be replaced given toddler's needs. Schedule plumbing fixtures for replacement as needed. Consider low flow fixtures for replacement as water conservation measure. Restroom and plumbing fixtures shall comply with ADA requirements. The required heights to the top of the toilet seats are shown in the following table.

Grade	Federal Standard	Regular	ADA
Pre-kindergarten	11-1/2" to 12-1/2"	12 inches	12 inches ("baby toilets")
K-3	12 to 15 inches	15 inches	15 inches (lowest wall-hung")
4-6	15 to 17 inches	15 inches	15 inches (lowest wall-hung")

All faucet's aerator/screen should be removed, inspected for particulate accumulations, scrubbed clean, and reinstalled. If particulates are found, the aerator/screen should be periodically checked and cleaned. Recommend fixtures be re-caulked along the abutment to the attached wall.

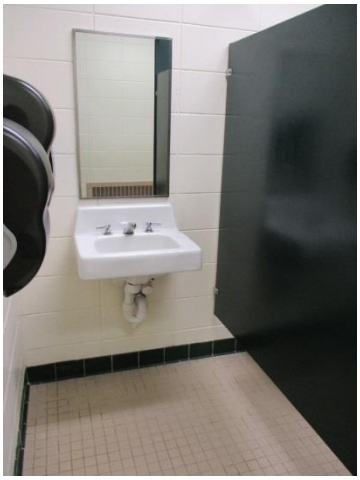


Photo: Restroom Sink

Photo: Floor Mounted Urinal

Photo: Wall Mounted Water Closet

Photo: Recaulk Fixtures

Photo: Storage Tank for Main Water Heaters

Photo: ADA Floor Mounted Water Closet

Photo: Shower Fixtures

Sanitary System

Observations:

The buried sanitary waste lines are assumed to be cast-iron and should be in fair condition given the age of the facility.

Recommendations:

The existing domestic piping can remain in place. It's recommended the sewers below finish floor be inspected with a camera to determine the actual condition.

Storm System

Observations:

Storm piping is drained internally. The existing piping is cast-iron. The piping should be in fair condition.

Recommendations:

The existing storm piping can remain in place. Iron storm piping should have 40 or more years of useful life. Recommend ongoing maintenance with inspections of existing storm roof drains to be clear of debris and checking for potential roof leaks at roof drain pans.

Kitchen Equipment

Observations:

The kitchen equipment appears to be in good working condition and includes a 6'x6 canopy hood, four compartment sink, pot sink disposal, dishwasher, gas range, and free standing cooler/freezer.

Recommendations:

The existing domestic piping can remain in place. Provide annual maintenance of grease interceptor. It's recommended the sewers below finished floor be inspected with a camera to determine the actual condition.

Photo: Four Compartment Sink

The fire extinguishers and kitchen hood suppression system should be inspected on monthly bases thorough examination and if repair or replacement is needed. Annual maintenance is also required to be recorded on a tag or label attached to each extinguisher. Grease hood filters/baffle should be cleaned regularly. Existing grease duct should be cleaned based on frequency and use of hood.

FIRE PROTECTION SYSTEMS:

Observations:

The building does not have a sprinkler fire suppression system.

Recommendations:

Should this building be renovated or expanded, it is likely a fire protection system would be required depending on use, construction type, and occupancy. This will require extension of the existing 6" water service to accommodate fire protection.

Photo: Grease Hood

Section 5 – Plumbing/Fire Systems
Junior/Senior High

PLUMBING SYSTEMS:

Domestic Water

Observations:

The building is fed by a 4" water service with a 3" water meter. The domestic water piping is copper. There is no report by facility of problems with water piping or major leaks. Water pressure in building appears to in good working order. Copper supply lines appear to 40 or more years of useful life.

There is new two water softeners serving the High School. Check isolation valves for any corrosion and exercise semi-annually.

Outdoor faucet hose bib should be checked periodically and tightened or replaced packing as needed.

Photo: Water Softeners

For the science labs, the domestic water lines and gas piping are direct buried to extend from the wall to the island bench sinks. The existing gas and water piping below grade have potential for leaks based on age and corrosion of the piping system.

Recommendations:

The existing domestic piping installed in 1968 and 1995 Additions can remain in place and is in reasonable condition. The piping is nearing its life expectancy, the domestic piping specialties, valves, and piping system should be schedule for replacement. Gas piping to the science labs which have accessible isolation valves and emergency gas shut off switch to isolate system.

Photo: Science Lab Sink

Plumbing Equipment

Observations:

There are three domestic gas-fired water heaters serving the High/Middle School. Two of the three water heaters are gas-fired which serves the High/Middle school. These water heaters has storage tank and recirculation pumps located in the basement mechanical space. These two units are A.O. Smith atmospheric at 670 MBH each with 80% water heater efficiency. The third water heater is gas-fired A.O. Smith 50 gal with 80% efficiency serving the kitchen area.

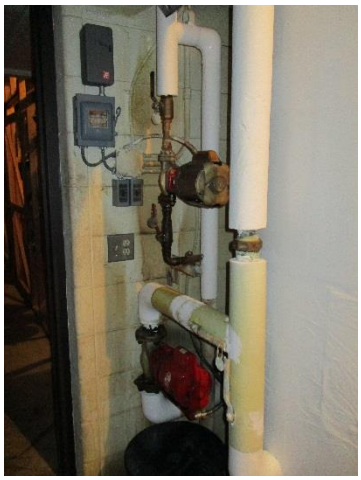


Photo: Recirculation Pumps

Photo: Main Water Heaters

The gas-fired AO Smith water heaters are gravity vented through the roof. These water heaters are at their end of useful life and need to be replace immediately to avoid long term outage with hot water system.

Photo: Kitchen Water Heater

Recommendations:

The existing domestic gas-fired water heaters and storage tank should be replace immediately upon available funding for equipment replacement. Water heaters have been serviced over the years and are beyond repairs. The existing domestic kitchen gas-fired water heater is relatively new and can remain in place.

Fixtures System

Observations:

The plumbing fixtures appear to be in good condition. Water closets and urinals are manual flush valves.

Photo: Lavatory Sinks

Recommendations:

Schedule plumbing fixture for replacement as needed. Consider low flow fixtures for replacement for water conservation measures. Restrooms and plumbing fixtures shall comply with ADA requirements.

All faucet's aerator/screen should be removed, inspected for particulate accumulations, scrubbed clean, and reinstalled. If particulates are found,

the aerator/screen should be periodically checked and cleaned. Recommend fixtures be recaulked along the abutment to the attached wall.

Photo: Locker Room Showers

Photo: Restroom Urinals

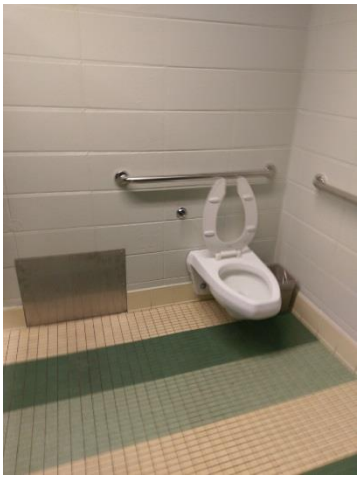


Photo: ADA Water Closet

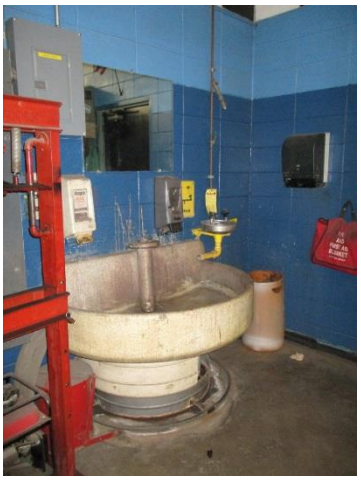


Photo: Shop Sink

Photo: Laundry Room Sink

Sanitary System

Observations:

The buried sanitary waste lines are assumed to be cast-ironed and should be in fair condition given the age of the facility. Sanitary discharges on the westside of the school.

The lower level basement has storm sump pump serving the floor drains in the mechanical area well and stairs landing. The elevator simplex sump pump in also lower level storage room. The 1995 east side addition has simplex sewage pump for service classroom service sinks.

Recommendations:
The existing domestic piping can remain in place. We recommend the sewers below finish floor be inspected with a camera to determine the actual condition.

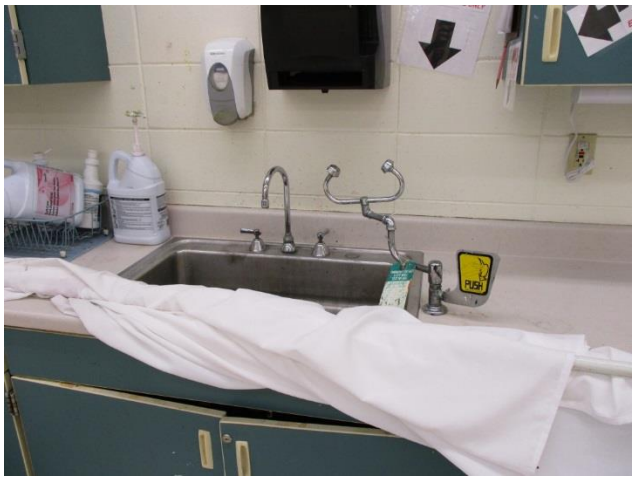


Photo: Art Room Sink - Eye Wash

Storm System
Observations:
Storm piping is drained internally and discharges on north side of the original 1968 school. The 1995 additions tie into the storm piping on south side perimeter loop system. The existing piping is cast-iron. The piping should be in fair condition.

Recommendations:
The existing storm piping can remain in place. Iron storm piping should have 40 or more years of useful life. Recommend ongoing maintenance with inspections of existing storm roof drains to be clear of debris and checking for potential roof leaks at roof drain pans.

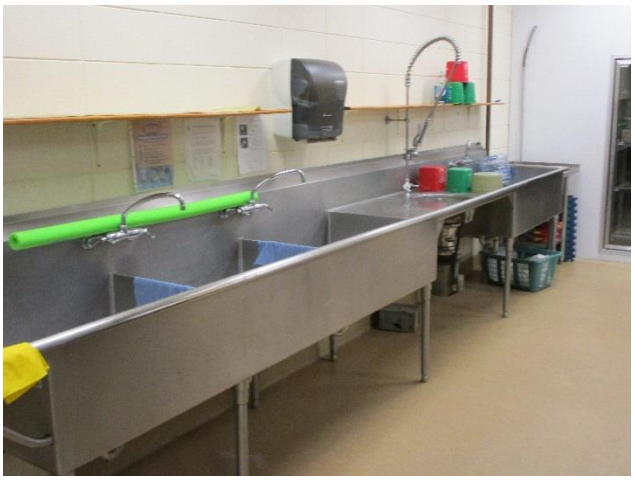


Photo: Three Compartment Sink

Kitchen Equipment
Observations:
The kitchen equipment appears to be in good working condition includes 9'x8' canopy hood, three compartment sink, pot wash sink and disposal, dishwasher, gas range and free standing cooler/freezer.

Recommendations:
The existing domestic piping can remain in place. Provide annual maintenance of grease interceptor. We recommend the sewers below finished floor be inspected with a camera to determine the actual condition. The fire extinguishers and kitchen hood suppression system should be inspected on monthly bases thorough examination and if repair or replaced as needed. Annual maintenance is also required to be recorded on a tag or label attached to each extinguisher. Grease hood filters/baffle should be cleaned regularly. Existing grease duct should be cleaned based on frequency and use of hood.

Photo: Kitchen Hood

FIRE PROTECTION SYSTEMS:

Observations:

The building does not have a sprinkler fire suppression system.

Recommendations:

Should this building be renovated or expanded, it is likely a fire protection system would be required depending on use, construction type and occupancy. This will require extension of the existing 6” water service outside of building to accommodate fire protection.

Section 5 – Plumbing/Fire Systems
Old Elementary

PLUMBING SYSTEMS:

Observations and Recommendations:
The main plumbing service for this building has been unused for an extended period due to the building being unoccupied. The plumbing systems within the building have been partially to fully removed or damaged by a previous demolition/salvage contractor or vandalism situations for the unoccupied structure. The plumbing fixtures remaining have been in an unoccupied building over the years, are not maintained, and are in poor condition. The restrooms are not ADA compliant and all the remaining fixtures don't meet current code requirements. It is recommended that if the building is to become occupied that all plumbing fixtures and systems be replaced. There is some value (copper piping) remaining in place and may hold some salvage value. All of the water heaters installed in 1983 have been removed.

Sanitary piping is all original to the building. It's recommended the sewers below finished floor be inspected with a camera to determine the actual condition.

Photo: Water Heater Removed

FIRE PROTECTION SYSTEMS:

Observations and Recommendations:
The building does not have a sprinkler fire suppression system. Should this building be renovated or expanded, it is likely a fire protection system will be required, depending on use and occupancy. This will require a new 6" water service.

Photo: Fixtures Removed

Photo: Fixtures Removed

Photo: Fixtures Removed

Photo: Fixture Removed

Section 6 – HVAC Systems
Elementary School

Main Gas Service:

Observations:

The facility is served by an Alliant Energy gas meter located at the receiving entrance behind bollards at the west end of the building. The 3" natural gas line carries 5300 CFH at 2 psig from the local utility company. The 2-1/2" main gas service extends up the side of the building and onto the roof to serve the penthouse mechanical room. The gas services feed the hot water boilers, domestic water heaters and kitchen range appliance.

Photo: Gas Meter - Aerial View

Recommendations:

The gas meter service and equipment are in good condition and can remain. There is adequate capacity to accommodate any future building additions or renovations.

Heating System:

Observations:

The existing boiler plant consists of two Kewanee model K-4 hot water, forced draft boilers with separated combustion. Combustion air is provided by space air handling unit AHU-6. Each boiler heating capacity is 2,000 MBH. The boilers are fired with natural gas. These boilers are original, 22 years old, with a heat plant efficiency of 75%. Currently, one boiler handles majority of the heating load of the building until outdoor temperature drops to 10 ˚F, at which point both boilers operate. The boiler pumps circulate hot water through a primary-secondary pumping system that supplies hot water to the building air handling units' heating coils, unit heaters, cabinet unit heaters, etc. The owner noted that only one of the two boilers currently operates which struggles to remain on due to the loss of ignition**.**

Photo: Hot Water Boilers

Recommendations:

The hot water boilers have been maintained over the years. However, these particular boilers are at the end of their useful life. One of two boilers is not functioning while the other has difficulty staying on. It is recommended that both boilers be replaced with high efficiency condensing boilers (minimum of three) sized at 40% capacity. New high efficiency boilers are recommended to have integrated controls and alarms with a Building Automation System (BAS). The breeching stacks also need to be modified. If boilers and domestic hot water heaters are to be replaced with condensing appliances, the existing combustion air handling unit AHU-6 should be removed at same time.

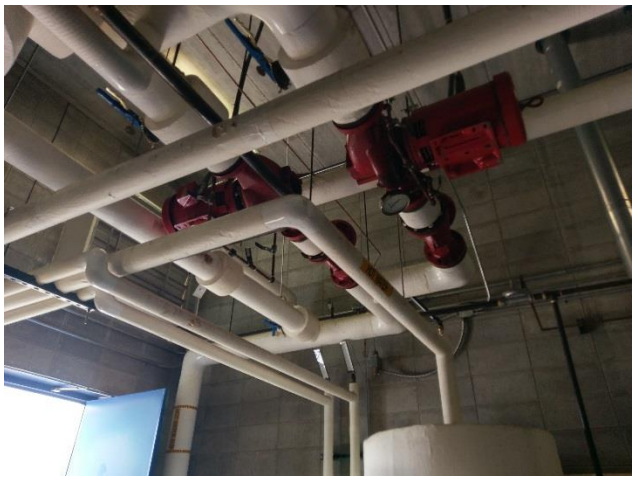
Photo: Existing Boiler's Breeching Stacks

Heating Hydronic System:

Observations:

There are two hot water pumps in a constant speed or constant volume (CV) application. Only one of two hot water pumps operate while the other pump is on standby. These secondary hydronic pumps distribute hot water from the boilers to the building.

The hot water supply and return piping is insulated. The existing valves and other hot water specialties also appear to be in good working condition.



Photos: Hot Water – Secondary Pumps

Recommendations:

The hydronic pumps for the primary-secondary pumping system are nearing the end of their useful life. It is recommended that the primary circulating pumps be replaced along with the boilers. The secondary circulating pumps are in average condition based on age of the equipment. As a facility improvement measure, the secondary circulating pumps could be replaced with variable speed pumps with VFD drives and piping loop differential pressure sensor. Pumps should be sized for 60% capacity for lead-lag automatic operation. All the pump's piping specialties to be replaced along with the pumps.

The main 4" hot water supply and return distribution piping from the boiler plant appears to be in good condition. The existing hot water piping can remain in place and is in fair to good condition. When piping approaches the end of its life expectancy, the hot water piping specialties, valves, and piping system should be scheduled for a replacement.

Continue with preventative maintenance. Provide regular quality testing of the circulated hot water. Add chemical treatment as recommended by boiler manufacturer to maintain recommend PH Level. With aging heating coils in air handling system, consider adding 10-15% propylene glycol solution with inhibitors as a preventative measure to provide some burst protection. Air handling heating coils are not equipped with circulating pumps which, at reduced flowrates, may freeze with the low water leaving temperature. Air handling unit tripping of freeze stat may not be adequate to prevent a burst coil**.**

Air-Cooled Chiller System:

Observations:

The existing chiller plant consists of a rooftop Trane model, Series R, air-cooled chiller with two helical rotary compressors and two circuits at a nominal 120 Ton capacity. This chiller has an EER of 9.6 with good linear part-loading. The unit has eight condenser fans at IPLV 12.6. This outdoor air-cooled chiller is original, which is 22 years old. The refrigerant type is R-22, which is being phased out over time. As of 2016, R-134a, R-410A, and R-407C began phasing-out as well. The unit has low ambient lockout. The chilled water temperature set point is 45˚ F and has a reset temperature feature based on return water or outdoor air temperature.

Photo: Air-Cooled Chiller

Recommendations:

The condition of the air-cooled chiller is average based on the age of the equipment. The Trane chiller compressor is robust and can likely be maintained for another 5 to 7 years, unless a refrigerant leak occurs in the system. It is recommended to continue with preventative maintenance by monitoring, tracking, and repairing any leaks to the system. The new equipment efficiencies for air-cooled chillers are marginal for the number of run-time hours being served. New refrigerants are forthcoming in the next two to three years when R-22 will no longer be produced or imported. HCFCs will also begin being phased out over the next ten years. It's important that the existing chiller is working properly and maintains peak efficiency.

Chilled Water Hydronic System:

Observations:

There are two chilled water pumps that are in a constant speed or constant volume (CV) application. The chilled water is circulated through a primary-secondary pumping system and supplied to the building's multiple air handling units' cooling coils.

The chilled water supply and return piping is insulated. The outdoor piping is insulated and has electric heat trace for preventing pipe freezing. The existing valves and other chilled water specialties also appear to be in good working condition.

Recommendations:
The hydronic pumps for primary-secondary pumping system are nearing the end of their useful life. It is recommended that the primary and secondary circulating pumps be replaced along with the air-cooled chiller. As a facility improvement measure, the secondary circulating pumps could be replaced with variable speed pumps with VFD drives and piping loop differential pressure sensors. It is recommended to add another secondary pump to the system, where both should be sized for 60% capacity for lead-lag automatic operation. All of the pump's piping specialties should be replaced along with the pumps.

The main 4" hot water supply and return distribution piping from the air-cooled chiller appears to be in good condition. The existing chilled water piping can remain in place and is in fair to good condition. When piping approaches end of life expectancy, the chilled water piping specialties, valves, and piping system should be scheduled for a replacement. Check the electric heat trace system with amp draw or megger test in fall operation conditions.

Continue with preventative maintenance of hydronic chilled water system. Provide regular quality testing of chilled water being circulated. Add chemical treatment as recommended by chiller manufacturer to maintain recommend PH Level. Always consider draining the chilled water coils in the "Fall" season prior to winter in the existing air handling units to avoid any freezing or bursting of coils. Another consideration is adding 10-15% propylene glycol solution with inhibitors as a preventative measure to provide some burst protection. Tripping of the freeze stat may not be adequate prevent a burst coil**.**

Air-Conditioning and Ventilation Systems:

Observations:
Air-conditioning and ventilation is provided through a combination of indoor air handling units located in the two mechanical penthouses. A total of six (6) indoor air handling units (AHU) were furnished and installed with the 1995 original building. Units are Trane M-series as manufactured with double wall construction. These units are still in service.

The six (6) AHU's installed were constant volume (CV), reheat systems. In 2009, most of these air handling units were converted to variable air volume (VAV) system with VFD drives. This type of system provides a variable volume airflow quantity with a temperature between 55 and 60 degrees F. Space zoning is accomplished with air terminals while final heating is provided through duct mounted heating coils with limited areas containing perimeter radiant heating.

Air Handling Units

Air Handling Units	Space Served	Zone Airflows	System
AHU-1*	SW Classrooms	17,320	Chilled/Hot Water
AHU-2*	SE Classrooms	17,070	Chilled/Hot Water
AHU-3*	NW Classrooms/Commons	17,560	Chilled/Hot Water
AHU-4*	Gymnasium	12,000	Chilled/Hot Water
AHU-5	Elem. Admin Offices	2,795	DX Refrig. with H.W.
AHU-6	Boiler Room	2,800	NA
AHU-7	School Dist. Offices	2,000	DX Refrig. with Elec.

* Converted to VAV Systems in 2009.

In 2016 as a facility improvement measure, air terminals for the individual classrooms and offices were upgraded with new Direct Digital Controls (DDC) by Alerton with new electric actuation.

The existing door grilles installed at each room allow AHU system return air to flow into the path of the egress corridor for collection at a central location. Present day code does not allow this as an acceptable basis of design.

Recommendations:
The existing indoor air handling units AHU-1 through 5 can remain in place and are in fairly good condition. Provide annual maintenance of all air handling unit filters, coils and fan wheels/belts. It's recommended that the fan belts be aligned and fan bearings be greased. Existing supply ductwork contains debris and should be inspected and cleaned. Ductwork is insulated and appears appropriate. The existing control valves to coils and other water specialties also appear in good working condition.

The air handing unit AHU-7 is a ceiling fan coil unit which should be replaced with a new outdoor DX condensing unit. This unit and the outdoor equipment is beyond its useful life. It is recommended the ducted space electric reheat coils for each office/conference area be replaced with hot water coils as a facility improvement measure.

Exhaust Systems:

Observations:
There are a number of exhaust fans serving spaces in the Elementary School. Most of the exhaust fans are of aluminum construction and reside outdoors on the roof. Fan powered units are belt driven manufactured by Penn-Barry. A total of sixteen (16) outdoor power roof ventilators (PRV) serving a number of space functions such as restrooms, locker rooms, kitchen, dishwasher, janitorial, and receiving area were all furnished and installed with the 1995 original building. These units are still in service with the exception of PRV-8, 10, 14, 15, and 16 which originally served spaces such as

Photo: Powered Roof Exhaust Fans

Home Economics' kitchen area, Art Room, Kiln, Shops and Science's fume hood.

Recommendations:
The existing outdoor exhaust fans can remain in place and are in reasonably good condition. It's recommend fan belts and bearings be checked for excessive noise, vibration or wear. It is recommended these exhaust fans be replaced with direct drive with ECM motor as a part of facility improvement measure for increased efficiency and reduced maintenance costs.

Gymnasium Destratification Fans:

Observations:
Six (6) destratification fans with an airflow of 23,000 cfm each serve the gymnasium for air circulation. All six appear to be in working condition.

Recommendations:
The existing destratification fans can remain in place and are in good condition. It's recommended that fan belts and bearings be checked for excessive noise, vibration or wear.

Temperature Controls:

Observations:
The building temperature controls are Direct Digital Controls (DDC) with electric actuation. The original DDC controls were KMC Control devices on a network system. Overall network and DDC system serving the existing air handlers units and pump systems are obsolete. Controllers cannot be repaired or replaced with available parts. The current DDC system with electronic control is over 20 years old, which exceeds its expected life span and calibration.

Photo: Direct Digital Controls (DDC)

Recommendations:
The building temperature controls should be upgraded to Direct Digital Control (DDC) as part of any future building renovation or upgrade. A temperature controls upgrade to DDC would provide a fully automated system, complete with software and graphics. Monitoring and adjustment of building systems and zone set points would be available through an operator workstation.

Section 6 – HVAC Systems
Junior/Senior High

Main Gas Service:

Observations:

The facility is served by an Alliant Energy gas meter located at the east end of the building adjacent to the brick screen wall. The 3" natural gas service line at 2 psig is provided from the local utility company. This line extends into the High School ceiling area above locker rooms and ties into the existing main gas line in basement. The gas services feed the 1995 Addition hot water boilers, 2014 gas-fired rooftop units, domestic water heaters in the basement and kitchen range appliances.

Photo: Main Gas Meter

Recommendations:

The gas meter service and equipment are in good condition and can remain. There is adequate capacity to accommodate any future building additions or renovations.

Heating System:

Observations:

Currently in the 1995 Addition, there are two high efficient condensing boiler serving the west and east ends of the High School. Each boiler's heating capacity is 450 MBH. The boilers are natural gas fired. These boilers were installed in 2008, making them 9 years old with a heating plant efficiency of 92%. The boilers circulate hot water through a primary-secondary pumping system which supplies to the building's VAV reheat coils, booster coils, perimeter radiation, cabinet unit heaters, etc.

Photo: Hot Water Boilers

Recommendations:

The boilers are relatively new and have been maintained over the years. Continue with preventative maintenance and operation of the boilers.

Heating Hydronic System:

Observations:

There are two (2) hot water pumping loop systems with individual dual constant speed or constant volume (CV) application. Only one of the two hot water pumps operate while the other pump is on standby. These secondary hydronic pumps distribute hot water from the boilers to the building.

The hot water supply and return piping is insulated. The existing valves and other hot water specialties also appear to be in good working condition.

Photo: One Pair of Hot Water Pumps

Recommendations:

The hydronic pumps for the primary-secondary pumping system are nearing the end of their useful life. It is recommended that the primary circulating pumps be replaced. The secondary circulating pumps are in average condition based on age of the equipment. As a facility improvement measure, the secondary system could be replaced with variable speed pumps with VFD drives and piping loop differential pressure sensor. Pumps should be sized for 60% capacity for lead-lag automatic operation. All of the pump's piping specialties should be replaced with the pumps.

The 4" mains and 2" branch hot water supply and return distribution piping from the boilers appears to be in good condition. The existing hot water piping can remain in place and is in to good condition. When piping approaches the end of its life expectancy, the hot water piping specialties, valves, and piping system should be scheduled for a replacement.

Continue with preventative maintenance. Provide regular quality testing of circulated hot water being circulated. Add chemical treatment as recommended by the boiler manufacturer to maintain recommended PH levels,

Air-Cooled Condensing Unit System:

Observations:

The existing installed DX chiller plant consists of an air-cooled condensing DX refrigerant, rooftop Trane model, with two scroll compressors and two circuits at a nominal 30 Ton capacity. This scroll condensing unit has an EER of 11.2 with good part-loading and three condenser fans at IPLV 16.2. The original outdoor air-cooled chillers were installed in 1995, but these units look like they have been recently replaced with 2014 rooftop equipment units. The refrigerant type is R-410A.

Photo: Air-Cooled Condensing Units

Recommendations:

The condition of the air-cooled DX condensing unit is good based on the age of the equipment. The Trane scroll compressor is robust and can likely be maintained for another 10 to 15 years, unless a refrigerant leak occurs in the system. It is recommended to continue with preventative maintenance by monitoring, tracking, and repairing any leaks to the system. It's important the existing condensing unit is working properly and maintains peak efficiency.

Refrigeration Piping System:

Observations:

The refrigeration piping serves the building's multiple air handling units' cooling coils. The refrigeration piping is insulated. The existing valves and other refrigeration specialties also appear in good working condition.

Recommendations:

Continue with preventative maintenance of the outdoor DX condensing equipment and fans.

Rooftop Units Systems:

Observations:

There are seventeen (17) rooftop units serving the original High School. These units are gas-fired with DX cooling with relief air. The cooling capacity ranges from 12-1/2 - 20 Tons. In 2014, all the rooftop units were replaced as a facility improvement measure. Trane Voyager is rated at an EER of 12. All units have new controls and thermostats serving the associated classrooms and support spaces.

Photo: Gas-fired Rooftop DX Units

Recommendations:
The existing rooftop units are in good condition and can remain in place. Continue with preventative maintenance and operation of the rooftop units. Replace belts and filters annually.

Indoor Air Handling Units:

Observations:
There are three indoor air handling DX units serving the 1995 Additions. Two air handling units serve the west end classrooms, with a cooling capacity of 25 Ton each. The other air handling unit is located on the east end serving the lockers. Outdoor condensing units were replaced in 2014.

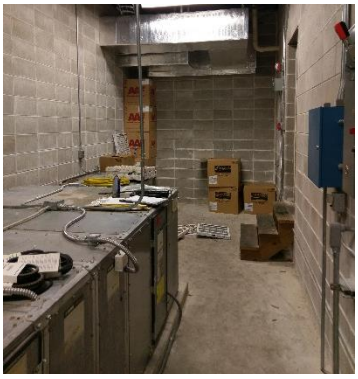


Photo: Indoor AHU DX Unit


Photo: Indoor AHU DX Unit

Recommendations:
The existing indoor units are in good condition and can remain in place. Continue with preventative maintenance and operation of the indoor units. Replace belts and filters annually.

Exhaust Systems:

Observations:
There are a number of rooftop exhaust fans serving spaces in the High School. Most of the exhaust fans are of aluminum construction. These fan powered units are belt driven, manufactured by Penn-Barry. A total of nine (9) outdoor power roof ventilators (PRV) and seven (7) sidewall exhausters on the 1995 Addition serving a number of space functions such as restrooms, locker rooms, kitchen, dishwasher, janitorial, recycling & receiving, storage areas, dark room, kiln, stain glass, and Art Dept. general exhaust were all furnished and installed with the 1995 Additions to the building.


Photo: Power Roof Exhaust Fans

Recommendations:
The existing outdoor exhaust fans can remain in place and are in reasonably good condition. It's recommended that fan belts and bearings be checked for excessive noise, vibration or wear. It is also recommended these exhaust fans be replaced with direct drive with ECM motor as a facility improvement measure for improved efficiency and reduced maintenance costs.

Gymnasium Destratification Fans:

Observations:

There are six (6) destratification fans with an airflow of 23,000 cfm each serving the gymnasium for air circulation. All six appears to be in working condition.

Recommendations:

The existing destratification fans can remain in place and are in good condition. It's recommended that fan belts and bearings be checked for excessive noise, vibration or wear.

Dust Collector Fan:

Observations:

There is an outdoor dust collector system with a centrifugal type separator with an airflow of 1,385 cfm serving the shop area. This unit is quite worn and at the end of its useful life. Also similar condition applies to the adjacent shops and their exhaust fans.

Photo: Shop Exhaust Fan

Photo: Dust Collector

Recommendations:

The existing duct collector can remain in place, but is in poor condition. It's recommended that fan belts and bearings be checked for excessive noise, vibration or wear.

Temperature Controls:

Observations:

The building temperature controls are Direct Digital Controls (DDC) with electric actuation. The original controls were upgraded recently to Trane Control devices with the 2014 roof equipment replacement project. Overall network DDC controllers serve the existing rooftop air handlers and unitary equipment. There are some JCI controllers and devices which serve the 1995 Addition. JCI controllers are over 22 years and are obsolete controls.

Photo: Johnson Controls Thermostats

Photo: Trane Controls - Thermostat

Recommendations:
The building temperature controls should be upgraded to Direct Digital Control (DDC) as part of any future building renovation or facility improvement measure. It is recommended that the temperature controls be upgraded to new DDC controller with a fully automated system, complete with software and graphics. Monitoring and adjustment of building systems and zone set points should be available through an operator workstation.

Photo: JCI Controllers

Section 6 – HVAC Systems
Old Elementary

VENTILATION/COOLING SYSTEMS:

Observations and Recommendations:
The old elementary school's ventilation system is served by several gas-fired rooftop units and one indoor unit. The units provides ventilation, heating and cooling for the entire building. The existing rooftop units are multizone air distribution with a common ceiling plenum return system. Rooftop units have constant volume fans with electronic controls, which is a very inefficient system for heating/cooling.

Photo: Indoor AHU

Multizone systems consume more energy because it is often necessary to both heat and cool supply air and mix the airstreams to obtain the desired zone temperature and humidity. The HVAC systems serving this building have not been operated for an extended period of time, due to the building being unoccupied. Most of the HVAC supply air distribution ducts remain intact. Most of the supply ductwork is uninsulated or damaged. All HVAC equipment is beyond its useful life.

Photo: Direct Digital Controls and VFDs

Cleaning, sealing and insulating the existing ductwork isn't cost effective given the configuration of the system (multizone) and its age. It is recommended that if the building is occupied that all HVAC systems and ductwork be replaced.

There are twelve exhaust fan systems which are either power roof exhausters or ceiling exhaust fans. The exhaust fans serve primary toilets and general exhaust areas which are not operational due to the building not having power. These fans are not salvageable.

Photo: Hot Water Pumps

HEATING SYSTEMS:

Observations and Recommendations:
The existing hot water boilers reside on the mezzanine level with the associated inline hydronic pumps. There are two Weil McLain GV, sealed combustion hot water boilers, with less than 150 MBH each with their associated pumps. All boilers are gas-fired which are subject to a recall for a gas valve concern. The heating systems are abandoned with no power, and have not been operational for an extended period of time. There is some salvage value (copper piping) that remains in place. The existing equipment and piping specialties have no salvage value. Electric wall mounted unit heaters at each vestibule are not salvable. It is recommended that if building is to become occupied that all boilers and piping be replaced.

Photo: Hot Water Boilers

Section 7 – Electrical Systems
Elementary School

Main Electrical Service:

Observations:

The facility is served by Alliant Energy via a pad mounted transformer located within a chain link fence off the north end of the building. The service lateral travels underground from the transformer to a wall mounted current transformer cabinet and then back underground, and up into the bottom of the main switchboard.

Photo: Service Equipment

The main switchboard is 1600A, 480Y/277V, 3-phase, 4-wire, Square D QED-2 and is in good condition. It contains a main circuit breaker with shunt trip power and ground fault sensor. The switchboard contains a double row branch distribution sections with feeder breakers to serve downstream loads. There is capacity to add additional breakers within this section.

Directly at the switchboard is a Liebert Interceptor Series surge suppressor.

Recommendations:

The main electrical service and equipment is in good condition and can remain. There is adequate capacity and feeder breaker spaces to accommodate any future building additions or renovations.

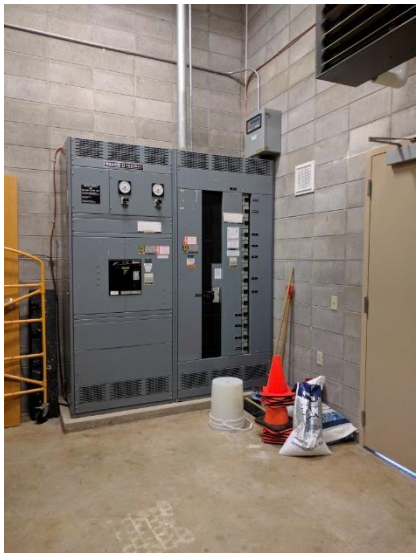


Photo: Main Switchboard

Panelboards:

Observations:

There are Square D panelboards that are original to the building. These panelboards are in good condition and most have several spare breakers and spaces.

There are several Square D I-Line distribution panels located within the building. These distribution panels original to the building and in good condition with plenty of spaces.

Recommendations:

The existing panelboards can remain in place. Existing spare breakers and spaces can be used to accommodate any future renovation projects.

Generator:

Observations:

The emergency systems are served by a natural gas fueled, Kohler 20KW/25kVA generator located within the main electrical room. The generator appears to be approximately 20 years old and is original to the building. The owner noted that this generator does not always start and function properly when there is a power outage.

Photo: Generator

The emergency feeder travels from the generator into an automatic transfer switch located in the in the main electrical room. The transfer switch is 40A, 480/277V, 3-phase, 4-wire, is manufactured by Kohler. It is original to the building.

The emergency system is currently serving egress lighting as well as telecommunications load.

Recommendations:

Given the generator does not always function properly, replacement is recommended. Consideration shall be given to the location of the new generator. Current codes do not allow the generator and transfer switch to be installed in the same room as the electrical service equipment due to the service voltage and ampacity. The existing transfer switch is in good condition and should be relocated out of the main electrical room.

Existing generator fed loads are part of NEC 700 (emergency) and NEC 701 (legally required) branches of power. Per NEC 700.10(B) these branches of power are required to be segregated which will require the addition of a transfer switch and panelboard so that the 701 loads can be removed from the 700 branch of power. In addition, all downstream branch wiring requires segregation from each other, as well as from the normal power branch wiring. It is recommended that this branch wring be re-done in new 700 and 701 dedicated raceways.

Photo: Panelboards and Transfer Switch

It is recommended that surge suppression be added to NEC 700, emergency systems panelboards to comply with current NEC article 700.8.

NEC article 700.28 and 701.27 require the emergency and legally required systems be selectively coordinated. It is recommended that a Device Coordination Study be performed on the system to determine selective coordination of existing and replaced emergency and legally required overcurrent devices.

Directly related to the Device Coordination study, it is recommended that an arc flash study be performed on the entire electrical system and that arch flash labels be deployed on all equipment in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* and as required by OSHA and NEC 110.16.

Lighting Fixtures and Controls

Observations:

Lighting and controls consists of the following:
Corridors: 2'x4' lensed troffers with (2) T-8 lamps, and manual on/off switching controls.
Restrooms: 1'x4' lensed troffers with (2) T-8 lamps, and ceiling mounted ultrasonic occupancy sensor control.
Gym: High bay, (6) lamp T-8 fixtures with dual level, manual on/off switching controls.
Classrooms: 2'x4' lensed troffers with (4) T-8 lamps and manual on/off dual level switching controls. Art classroom has industrial fixtures with (2) T-12 lamps. It was noted by the owner the elementary class room which used to be a shop classroom has T-12 lamp industrial fixtures installed above a lay-in ceiling that contains 2'x4' (2) lamp T-8 lensed troffers.

Photo: Typical Classroom Lighting

Lunch Room: Direct/indirect linear pendant fixtures, (3) T-8 lamps and manual on/off
Library: Direct/indirect linear pendant fixtures, (3) T-8 lamps and manual on/off
Exit Signs: Surface mounted, photoilluminescent with green face except for several exit signs near the main entry are LED exit signs original to the building.
Exterior Building Mounted: Most fixtures have been recently replaced with RAB LED wall pack fixtures. Egress doors that contain overhangs have recessed soffit lights with glass lenses and internal LED replacement lamps.
Exterior Pole Mounted: Multi head, 400W metal halide fixtures mounted on top of 20' tall square poles.

Photo: Typical Bathroom Lighting

Recommendations:
Consider adding occupancy sensors within all corridors, classrooms, library, offices, and storage rooms for automatic shutoff of the lighting when spaces are not occupied. This will result in significant energy savings as well as bring the lighting controls up to compliance with current energy code (2009 IECC).


Photo: Exterior Building Lighting

Provide increased lighting controls in classrooms, library and office areas to allow occupants to reduce lighting levels depending on tasks being performed. Specifically consider additional controls in areas that contain monitors or projectors with fixtures that wash the projection screens or monitors. Consider controlling these fixtures separately from the general room lighting controls so they can be turned off during presentations to maximize visibility of images/videos being displayed.

Replace exterior pole mounted metal halide fixtures with more energy efficient LED type fixtures. It's recommended that new fixtures be dark sky compliant to reduce the existing light pollution in the sky, and also ensure that light energy reaches the intended surfaces and is not wasted.

Wiring Devices:

Observations:
Receptacles and toggle switches all vary in age and condition. Older receptacles have decreased cord pulling tension which results in cords not staying fully engaged within receptacles.
Data outlets have been added throughout spaces, typically within ivory surface mounted raceways.
Data cabling is routed free-air, above the ceiling.

Recommendations:
Replace all receptacles and switches that are older than 10 years. This will ensure that pulling tensions on receptacles are adequate to hold plugs, fully engaged, into devices. It will also ensure that contact points and springs within switches are fully functional, as these parts wear out over time.

There are numerous areas (classrooms and offices) lacking an adequate number of receptacles. Add surface mounted receptacles in these areas to reduce the quantity and length of cords draped across the floor. This will increase convenience as well as reduce tripping hazards.

Fire Alarm System:

Observations:

The existing system is a Simplex 4005, zoned system with visual and horn based audible notification. There are a few scattered smoke detectors located throughout the building, as well as duct mounted smoke detectors within air handling unit ductwork for alarm initiation. In addition, there are pull stations located near each egress door.

Photo: Fire Alarm Control Panel

Notification devices are located in corridors and some larger rooms including the library and lunchroom spaces. However, audible coverage has is not installed in many of the classrooms.

Recommendations:

Replace the fire alarm system entirely with a new system that is speaker based and provide full intelligibility as required by 2015 International Building Code article 907.2.3. Consider providing full area detection coverage, unless a fire sprinkler system is provided.

Clock System:

Observations:

There is an existing Simplex Time Control Center installed in the building. Many of the Simplex clocks located throughout the building have been replaced with stand-alone, battery powered clocks that are not tied into the central Simplex system. None of these clocks are synchronized.

Photo: Typical Classroom Clock/PA

Recommendations:

Replace the existing clock system with wireless GPS technology type system. This will ensure that all occupants within the building are seeing the same time.

Public Address System:

Observations:

There is an existing Simplex 5100 Series Building Communication System in the MDF room that is in use. It appears to be approximately 15 years old. There are speakers located within each classroom that are dual mounted with the Simplex system clocks.

Recommendations:
Replace existing system with new. Simplex no longer supports this system and parts will become increasingly harder to find in the future. Provide new system, with new speakers, new amplifiers, multizone control and a telephone interface

Photo: Punchdown Blocks

Phone System:

Observations:
Phone system is an analog system. There is a phone service that enters into the main electrical room and into a Merlin Magix integrated system control unit. Phone lines are then terminated into 66 punch down style blocks and routed to phone outlet locations.

Recommendations:
Consider replacement of existing phone system to VoIP.

Data System:

Observations:
Single mode fiber from the high school building enters into the main electrical room and is then routed overhead through the building to the MDF room. The MDF room has a two post rack containing switches, patch panels, video surveillance. Backbone cabling is 6 pair of single mode fiber optic cabling. There is multimode fiber optic cabling distributed to a wall mounted rack located in the kitchen equipment storage room. Horizontal cabling is done via Belden Cat 5E and Cat 6 cables. All appear to be in good condition.

Photo: Main Data Room

Recommendations:
Existing equipment and cabling appears to be in good condition and has room for expansion. Minor modifications to rack mounted equipment and cable management are recommended.

CATV System:

Observations:
Main CATV system enters into the building in the MDF room and into a free standing equipment rack containing a combiner, splitters and distribution amplifiers. CATV outlets are located throughout the building mainly within classrooms.

Recommendations:
Add/modify CATV outlets as needed to address room uses.

CCTV System:

Observations:
There is an IP camera based video surveillance system located throughout the building. Cameras are located in the corridors, building entrances, library and cafeteria. All cameras are manufactured by Axis. There is a live view monitor located in the main office. Video surveillance head end equipment is located in MDF room and can accommodate additional cameras.

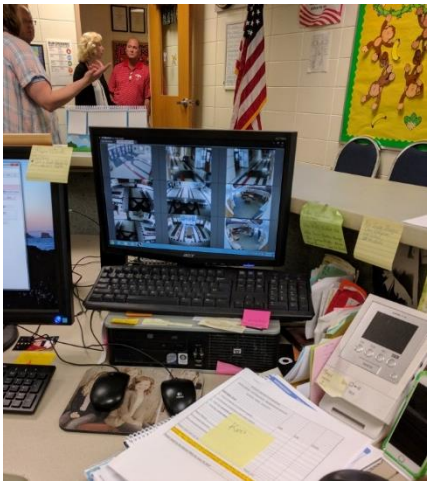


Photo: CCTV Monitor

Recommendations:
Add/modify cameras as needed.

Access Control/Security System:

Observations:
Building entrance is equipped with an Aiphone AX-DV door station. Door receiver station is located in main office. This Aiphone system has a camera and speaker microphone for communication between the main office and building visitors.

Doors are equipped with HID proximity readers.

Recommendations:
Maintain existing system and add/modify controlled doors as needed.

Section 7 - Electrical Systems
Junior/Senior High

Main Electrical Service:

Observations:

The facility is served by Alliant Energy via a pad mounted transformer located within a chain link fence off the west end of the building. The service lateral travels underground from the transformer to a wall mounted current transformer cabinet and then back underground, through the basement, to the building's main switchboard located in the main electrical room.

Photo: Alliant Energy Transformer

The main switchboard is 1600A, 480Y/277V, 3-phase, 4-wire, manufactured by I-T-E and has a manufacture date of 9/17/69. It contains a main, fused switch, with shunt trip power and ground fault sensor. The switchboard contains two distribution sections with branch fused switches to serve downstream loads. There are no spaces or unused switches within the distribution sections.

The switchboard bussing contains two taps. The tap conductors terminate in fused disconnected switches located directly Adjacent to the switchboard. One disconnect switch is rated 400A, 600V, 3-phase and the other is rated 200A, 600V, 3-phase.

Photo: Main Switchboard

Recommendations:

Replace existing switchboard that this antiquated and filled to capacity. New and replacement parts for this switchboard are going to become exceedingly hard to find when needed and any switchboard failure will likely result in an extended outage.

Per Wisconsin SPS 316.230, ***"Raceways containing service conductors or cables, or service entrance cable not contained within a raceway, may not extend longer than 8 feet into a building to the service disconnect or the first service disconnect of a group of disconnects as permitted by NEC 230.71. The raceways or conductors shall be considered to have entered the building at the point where they pass through the outer surface of the building exterior, except as permitted by NEC 230.6."*** As a result, the

replacement of this switchboard is going to require the service to meet current codes. This can be done a number of different ways, including the addition of a service disconnect on the exterior of the building, concrete encasement of the existing service feeder within the building, or relocation of the service equipment to limit the service conductor length within the building to no longer than 8 feet.

It is recommended that surge suppression be added to the main incoming service.

Panelboards:

Observations:

There is a combination of existing ITE panelboards that are original to the building as well as several newer Square D panelboards. Many of the existing, older panelboards are filled to capacity with no additional breaker space.

There are several larger fusible distribution panels located within the building. These distribution panels original to the building and are ITE Fusenater type..

Recommendations:

The existing Square D panelboards can remain in place. All other panels that are original to the building are recommended to be replaced. New or replacement parts for these panels are going to become exceedingly hard to find when needed and any component failure will likely result in an extended outage of that panel.

Generator:

Observations:

The emergency systems are served by a Generac exterior emergency generator fueled by natural gas. The generator is located within a chain link fence off the west end of the building, directly south of the utility transformer. The generator appears to be approximately 20 years old and installed under the 1995 addition project or shortly thereafter. It appears to be in good condition

Photo: Exterior Generator

The emergency feeder travels from the generator into an automatic transfer switch located in the basement main electrical room. The transfer switch 208/120V, 3-phase, 4-wire, 100A and is a Generac HTS type. It appears to have been installed within the last ten years and is in good condition.

The emergency system is currently serving egress lighting as well as telecommunications load.

Recommendations:

The generator appears to be in good condition, although it is nearing its life expectancy. It is recommended that it be replaced within the next five years or that it be replaced during any significant building renovations or additions. The existing generator fed loads are part of NEC 700 (emergency) and NEC 701 (legally required) branches of power. Per NEC 700.10(B) these branches of power are required to be segregated which will require the addition of a transfer switch and panelboard so that the 701 loads can be removed from the 700 branch of power. In addition, all downstream branch wiring requires segregation from each other, as well as from the normal power branch wiring. It is recommended that this branch wring be re-done in new 700 and 701 dedicated raceways.

Photo: Automatic Transfer Switch

It is recommended that surge suppression be added to NEC 700, emergency systems panelboards to comply with current NEC article 700.8.

NEC article 700.28 and 701.27 require the emergency and legally required systems be selectively coordinated. It is recommended that a Device Coordination Study be performed on the system to determine selective coordination of existing and replaced emergency and legally required overcurrent devices.

Directly related to the Device Coordination study, it is recommended that an arc flash study be performed on the entire electrical system and that arch flash labels be deployed on all equipment in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* and as required by OSHA and NEC 110.16.

Photo: Typical Classroom Lighting

Lighting Fixtures and Controls

Observations:

Existing lighting and controls consists of the following:
Corridors: 2'x4' and 4'x'4 lensed troffers with (2) and (4) T-8 lamps, respectively, and manual on/off switching controls.
Gym: High bay, (6) lamp T-8 fixtures with dual level, manual on/off switching controls.

Weight Room: T-8, 2-lamp wrap around lensed fixtures with manual on/off switching controls.
Classrooms: 2'x4' lensed troffers with (4) T-8 lamps and manual on/off switching controls. Classrooms added or renovated in 1995 have dual level switching.
Library: Combination of 2'x4', (4) lamp T-8 parabolic troffers, (2) lamp T-8 staggered strip cove lights and indirect (3) lamp T-8 pendant. Lighting is controlled manually in three separate zones.
Shop Areas: (2) lamp T-8 strip fixtures in continuous rows with manual on/off switching controls.

Photo: Typical Shop Area Lighting

Exit Signs: Surface mounted, LED diecast aluminum with red lettering and brushed nickel faces.
Exterior Building Mounted: Most fixtures have been recently replaced with RAB LED wall pack fixtures. Egress doors that contain overhangs have recessed soffit lights with glass lenses and internal LED replacement lamps.
Exterior Pole Mounted: Multi head, aimable metal halide fixtures mounted on top of 20' tall square poles. Fixture heads are aimed at an angle greater than parallel to the ground in order to throw light outwards. This also directs some light into the sky.

Recommendations:

Provide occupancy sensors within all corridors, classrooms, library, shop areas, offices, storage rooms and restrooms for automatic shutoff of the lighting when spaces are not occupied. This will result in significant energy savings as well as bring the lighting controls up to compliance with current energy code (2009 IECC).

Provide increased lighting controls in classrooms, library and office areas to allow occupants to reduce lighting levels depending on tasks being performed. Areas that contain monitors or projectors are recommended to have fixtures that wash the projection screens or monitors controlled separately so they can be turned off during presentations to maximize visibility of images/videos being displayed.

Photo: Exterior Pole Lighting

Replace exterior metal halide fixtures with more energy efficient LED type fixtures. It's recommended that new fixtures be dark sky compliant to reduce the existing light pollution in the sky, and also ensure that light energy reaches the intended surfaces and is not wasted.

Wiring Devices:

Observations:

Receptacles and toggle switches all vary in age and condition. Older receptacles have decreased cord pulling tension which results in cords not staying fully engaged within receptacles.

Data outlets have been added throughout spaces, typically within ivory surface mounted raceways.

Data cabling is routed free-air, above the ceiling.

Recommendations:

Replace all receptacles and switches that are older than 10 years. This will ensure that pulling tensions on receptacles are adequate to hold plugs, fully engaged, into devices. It will also ensure that contact points and springs within switches are fully functional, as these parts wear out over time.

There are numerous areas (classrooms and offices) lacking an adequate number of receptacles. Add surface mounted receptacles in these areas to reduce the quantity and length of cords draped across the floor. This will increase convenience as well as reduce tripping hazards.

Fire Alarm System:

Observations:

The existing system is a Simplex 4002, zoned system with visual and horn based audible notification. There are a few scattered smoke detectors located throughout the building, as well as duct mounted smoke detectors within air handling unit ductwork for alarm initiation. In addition, there are pull stations located near each egress door at 60” AFF.

Notification devices are located in corridors and some larger rooms including the library and shop spaces. However, strobe coverage is inadequate for the spaces covered.

Photo: Fire Alarm Control Panel

Recommendations:

Replace the fire alarm system entirely with a new system that is speaker based and provide full intelligibility as required by 2015 International Building Code article 907.2.3. Consider providing full area detection coverage, unless a fire sprinkler system is provided.

Clock System:

Observations:

There is an existing Simplex Time Control Center installed in the main office that is still in use. Many of the Simplex clocks located throughout the building have been replaced with stand-alone, battery powered clocks that are not tied into the central Simplex system. None of these clocks are synchronized.

Photo: Time Control Center

Recommendations:

Replace the existing clock system with wireless GPS technology type system. This will ensure that all occupants within the building are seeing the same time.

Public Address System:

Observations:

There is an existing Simplex 5100 Series Building Communication System in the main office that is in use. It appears to be approximately 15 years old. There are speakers located within each classroom that are dual mounted with the Simplex system clocks.

Photo: Public Address System

Recommendations:

Replace existing system with new. Simplex no longer supports this system and parts will become increasingly harder to find in the future. Provide new system, with new speakers, new amplifiers, multizone control and a telephone interface

Phone System:

Observations:

Phone system is a VoIP system and is in good condition. There is a phone service that enters into the MDF room F116. The service terminates onto 110 punch down blocks. It appears there are only two active phone lines here, which likely serve the fire alarm panel dialer.

Recommendations:

Maintain existing VoIP system. Phone cabling originating at existing 110 punchdown blocks that is no longer connected or active shall be demolished.

Data System:

Observations:

MDF room F116 contains building data service entrance. There is a two post rack in this room supporting switches, patch panels, video surveillance, VoIP switches and distance learning equipment. Backbone cabling is 6 pair of single mode fiber optic cabling. Horizontal cabling is done via Belden Cat 5E and Cat 6 cables. All appear to be in good condition.

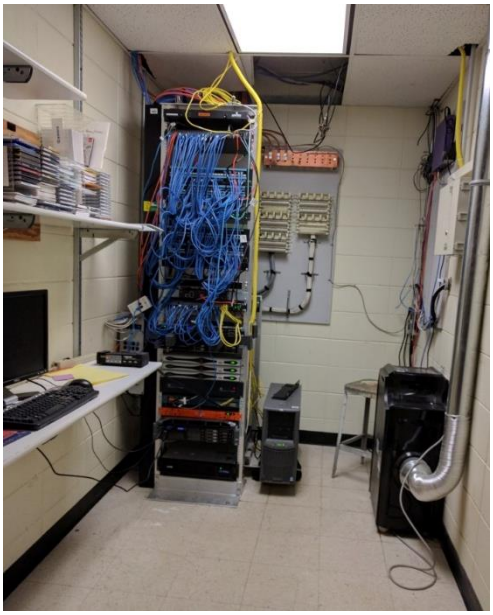


Photo: Main Data Room

Recommendations:

Existing equipment and cabling appears to be in good condition and has room for expansion. Minor modifications to rack mounted equipment and cable management are recommended.

CATV System:

Observations:

Main CATV system enters into the building in MDF room F116 and is split and distributed from there. CATV outlets are located throughout the building mainly within classrooms.

Recommendations:

Add/modify CATV outlets as needed to address room uses.

CCTV System:

Observations:

There is an IP camera based video surveillance system located throughout the building. Cameras are located in the corridors and at each exterior entrance. All cameras are manufactured by Axis. There is a live view monitor located in the main office. Video surveillance head end equipment is located in MDF room F116 and can accommodate additional cameras.

Photo: Typical Camera

Recommendations:

Add/modify cameras as needed.

Access Control/Security System:

Observations:

Building entrance is equipped with an Aiphone AX-DV door station. Door receiver station is located in main office. This Aiphone system has a camera and speaker microphone for communication between the main office and building visitors.

Doors are equipped with HID proximity readers. The door power transfer device cable at access controlled doors is done with metal clad (MC) cable and the metal cladding is separating, exposing the wiring.

Recommendations:
Consideration should be given to replace door power transfer cabling with an armored door cable assembly.

Photo: Door Power Cable

Section 7 - Electrical Systems
Old Elementary

Observations and Recommendations:
The main electrical service for this building is de-energized, and has been that way for an extended period of time. The existing utility pad mounted transformer has been removed and the service conductors cut off at ground level. In addition, the systems within the building have been partially to fully removed by a previous demolition/salvage contractor. The devices remaining have been in an unconditioned space and exposed to moisture due to a leaking roof. It is recommended that if building is to become occupied that all electrical systems be replaced. There is some value (copper feeders, ground wiring, busses and existing light fixtures) that remain in place and may have some salvage or as-is resale value.

Photo: Old Transformer Location

Photo: Typical semi-demolished space

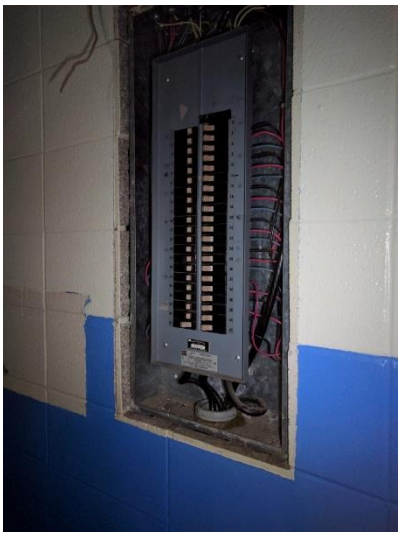


Photo: Panelboard

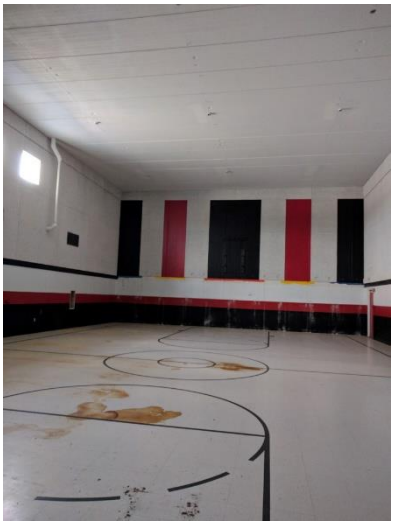


Photo: Gym (no light fixtures)