

FACILITY CONDITION ASSESSMENT NARRATIVE

SUN PRAIRIE PUBLIC LIBRARY

MAY 2018

ARCHITECTURAL ASSESSMENT

The 1998 Sun Prairie Public Library is one story, slab on grade 35,692 GSF building comprised of metal stud framing with masonry veneer in brick, stone, and limestone. Continuous gable roof forms intersect to create an open, vaulted interior aesthetic with low-slope roof quadrants to house mechanical equipment. Porches are location on the west and east ends of the building. A portion of the building northeast corner is occupied by the Sun Prairie Media Center; this is an acoustically separated space.



The Sun Prairie Public Library is in reasonably good shape but will require work to update accessibility, resolve some issues, and address maintenance due to end of life-expectancy on systems & equipment. The following is a report of the condition of the current building along with estimated costs for corrections needed.

EXTERIOR

The exterior of the building is primarily constructed of brick, stone, limestone veneers. The main entrance is on-grade centered on the south façade. Entrances on the west and east are provided for staff and the media center, respectively.

The mix of materials on the exterior create a complex aesthetic but there is little visible evidence of differential movement. There is some discoloration on the stone and mortar, which is mostly due to weathering and natural dirt build up. Cleaning the stones with as mild a solution as possible is a good way to both keep them looking good, but also to keep them safe from deteriorating due to oil and dirt residue. There are minimal instances of rust visible at masonry cracks; this

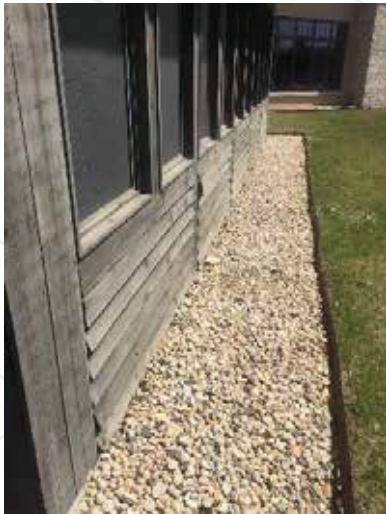


should be repaired. There are a few instances around the chimney where mortar is missing or deteriorated; this should be repointed.



The current concrete sidewalks around the building and parking lot to the north are suffering some chipping and cracking, which can become a tripping hazard for occupants. As these elements move and settle they will cause increasing problems for occupants trying to safely enter and exit the building. These should be monitored and corrected to maintain safety.

Sealant around windows and doors is cracking and contracting. It is at the end of its expected life and should be replaced at all exterior locations. There are some locations of pipe penetrations that are not sealed at the exterior, allowing entrance to pests and moisture; these should be sealed.



The porches provided on the west and east sides of the building have cedar siding and a cedar-trimmed fascia. This has weathered and has started cupping, with nails sticking out. The boards should be re-fastened and replaced if necessary. The stain finish has also deteriorated due to exterior exposure and should be reapplied. If these porches were to be occupied year-round, new siding material should be provided, they would require little structural modification, and should be evaluated for egress and code compliance.

The existing roof is a mix of forms and materials. The gables are asphalt shingles, cement tile roofing, copper standing seam roofing, with copper flashing and stone copings. The low slope roof quadrants that house mechanical equipment are covered with black EPDM roof membrane. The gable roofing portions are weathering well, but the roof membrane is nearing the end of its life expectancy. The sealant seams are contracting and in need of replacement. There are some punctures in the membrane that could allow water infiltration; these should be sealed. Exposed roof termination bars should be re-sealed. The walkway pavers are deteriorating and spalling, which is interrupting the water path to the roof drains and allowing water to pond. It is expected that fixes will help maintain the roof for a few



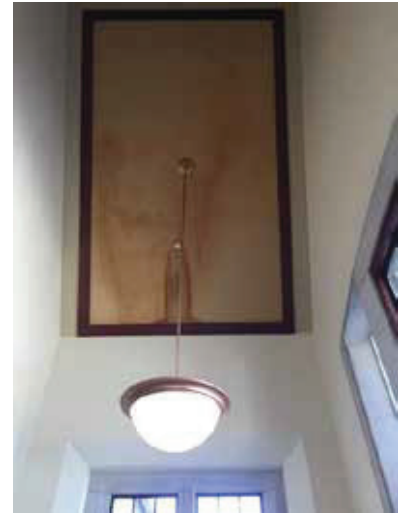
more years whereupon it should be replaced. A non-ballasted system is recommended with a light-colored membrane with a long warranty.

INTERIOR

The existing library interior is in good condition. Lack of space appears to be a primary issue, but there are few condition items that require attention.

There is evidence of water infiltration in the main entrance vestibule. The acoustical fabric in the gable is stained and becoming unglued. There are instances around the building where the fabric in the gables is loose and bubbling. This should be evaluated in closer detail to verify the substrate is sound and the fabric re-adhered.

Door hardware now requires free egress, so when an occupant exits a space, the person does not need to make more than one motion to exit or unlock a door to exit a space. The existing door exit hardware does not provide proper egress at the media center main doors.



ADA

Providing universal access to public spaces is required by the Americans with Disabilities Act (ADA). This law sets guidelines for clearances, reach ranges, and the extent that an object can project into the path of travel, among other requirements.

In libraries, the minimum space between shelving units is 36" clearance with a 5-foot circle or t-shaped turning space at the end of the aisle. 42-inches is the recommended clearance. There are locations where the stacks are arranged with book spinners in the main aisle, providing less turning clearance than what is required.

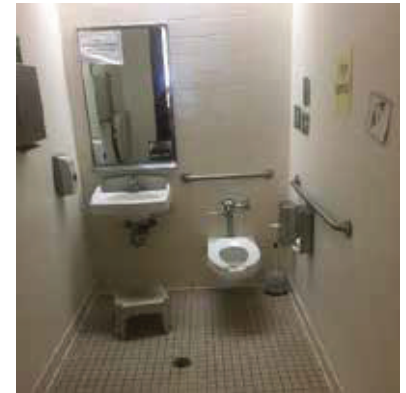
All publicly accessed water fountains are required to be installed in pairs at two mounting heights to allow for occupants of different reach ranges to use them. The current drinking fountains at the main entrance and the children's area are in pairs, but they are mounted in the path of egress travel, protruding too far from the face of the wall into the corridor. The drinking fountain in the Media Center is not accessible.



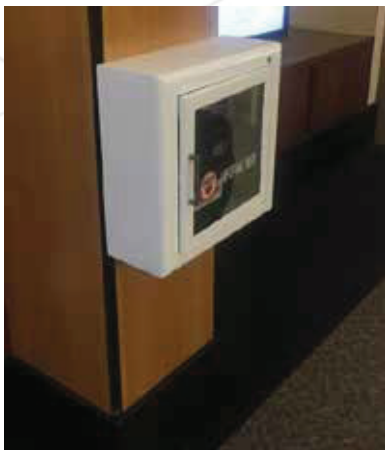
Generally, all doors in use by the public must have 1'-0" of clearance beside the door on the push side and 1'-6" on the pull side. There are instances of insufficient clearances adjacent to doors, specifically in the bathrooms and the door exiting the staff area. Proper clear space is also required where walls are greater than 8-inches thick. The exterior walls and acoustically-rated walls have door frames that are justified to the exterior plane of the wall, resulting in insufficient clearances at doors in the community room, the exterior, and the back entrance to the media center.



None of the six toilet rooms are fully accessible. Accessibility is not only the large toilet stall, but also includes the door clearances, grab bar locations, clear space in front of the sink, maneuvering spaces, and toilet accessories. The public bathrooms do not have the proper door clearances, insufficient space is provided between the stalls and the edge of the vanity, are missing a grab bar installed vertically above the 42" bar on the wall parallel to the toilet. The toilet paper dispenser protrudes too far into the accessible stall clear area. The staff toilet rooms are not required to be accessible since they are not open to the public. But, they do not have sufficient space around the toilet. The media center toilet room and youth toilet room are too small, without the proper clear space, improper grab bar sizes, and toilet accessories mounted too high. Shrouds are also required at piping below the sink.



The interior, automated book drop does not have the proper 30-inch by 48-inch accessible clearance in front of the drop for a person in a wheelchair.



Signage is not provided in all areas and must be accessible, with raised characters and braille.

The AED cabinet protrudes into the path of travel in a manner that presents a hazard. It should protrude no more than 4-inches or have detection below the cabinet.



The exterior curb ramps are required to have flared sides with a maximum slope of 1:10 and a 3-foot landing at the top of the ramp. These requirements are not met in the current configuration.

It was requested that FEH provide reasonable recommendations beyond the baseline guidelines of the ADA. Primary areas of expanded focus are entrances/doors, bathrooms, and paths of travel. Accessible design in this instance would include 48-inch wide doors or double doors opened by a single door operator. Five-foot aisles and common paths of travel would be recommended with a 6-foot turning radius. Bathrooms would include the enlarged turning radius with extra wall reinforcement at grab bars and floor-mounted toilet fixtures.

STRUCTURAL

The building is steel framed with exterior metal stud framing and with masonry veneer. Decorative wood trusses are exposed in the primary open gable at the entrance. The community room is designed with reinforced masonry walls and designated as a tornado shelter. Structurally, there is little evidence of settling or movement at the exterior. The building was designed to expand vertically and support a second floor with library floor loading, a 150 psf live load, which is consistent with the current code. Two knock-out panels were provided in the floor slab for future elevator hoistways. The elevator hoistway pits are indicated on the construction drawings to be 4'-0" deep, which is less than the current code-specified depth of 5'-0". If vertical expansion of the library were to be considered, current code requirements may necessitate lateral load support modifications to the first floor of the library. The second-floor exterior wall construction would be limited to metal stud and masonry veneer.

ENGINEERING SUMMARY

The purpose of this study is to investigate and evaluate the existing plumbing, fire, mechanical, and electrical systems for the existing library facility. The evaluation is to make general assessments of the condition of the systems, identify code related items, and establish equipment useful life and expectations. This also provides recommended strategies on the systems for operation and service. This evaluation shows that a good portion of the library's infrastructure in plumbing, mechanical and electrical systems are in reasonably good condition. Maintaining the existing equipment in the coming years is important with regular on-going maintenance.

PLUMBING SYSTEM

WATER HEATER

Domestic hot water is supplied from a 50 gallon, gas high efficiency storage type water heater, located in the mechanical room. The installed water heater (01/09/2008) appeared to be in excellent condition. The original water heater only lasted 10 years from 1998-2008, which would point to a water quality issue.

NATURAL GAS

Natural gas piping is steel welded and threaded with fittings which serves the rooftop units, boilers and water heater. The gas meter is located on the north side of the building. There are no known issues with this system. The rooftop gas piping should be painted to minimize the rusting and deterioration.

DOMESTIC WATER

Domestic water piping systems are copper with sweat fittings. Domestic hot water and cold water are insulated with fiberglass insulation. The hot water system has a hot water recirculation line. These piping systems appear to be in good condition; however visual observations do not reveal potential internal issues. It is unknown if there are issues with this piping system, although the calcium deposits present at the chemical feed system could be indicative of hard water. A water softener is installed on the system. The softener has a 15-year life expectancy and now is on its 20th year of service.

SANITARY

Sanitary waste and vent piping is a mixture of PVC and cast iron, with the majority being PVC. The sanitary system should be inspected with camera to determine the condition of the interior of the piping system and to determine if any remedial action would be required.

STORM

Storm drainage is accomplished by perimeter gutters and downspouts away from the building. These all appear to be in good condition. Some settling on the exterior concrete walkways has occurred and can be addressed during future work. There are internal roof drains. Piping on this system could not be verified.

PLUMBING FIXTURES

Plumbing fixtures are vitreous china (bathroom fixtures) or stainless steel (sinks, water fountains) and appear to be in good condition. Accessible fixtures are available. Water coolers are past their useful life. The dual water cooler in the children's area does not stop running. Wall hydrants, floor drains and clean outs are in good condition from visual inspection. The mop sinks appear to have water damage around the surrounding walls. These walls need protection from water intrusion. Water fountains and mop sinks should be replaced.

FIRE PROTECTION SYSTEM

FIRE SERVICE/SPRINKLER

This building is sprinkled for the fire suppression system. The system is a dry type system with an operational compressor, concealed heads and exposed pendant heads. There have been issues with the system due to freezing or below-freezing conditions in the porch areas. The building does have the fire alarm and detection system, which is addressed in the electrical narrative. NFPA 25 does require that a number of heads be replaced every 20-25 years. That number could be as high as 2 percent. The cost of this maintenance item and possible fixes for other issues should be considered as part of any remodel. The fire system is monitored at its entrance in the mechanical room. Certifications are current.

HVAC SYSTEMS

AIR DISTRIBUTION SYSTEM

The air distribution system to the spaces is served with fourteen commercial rooftop units by Trane which provide the cooling and heating to library as well as the support spaces. These are forced air unit systems to temper the air. Furnace output has an AFUE 80% efficiency unit. The heating mode has no modulation. The building system is a variable air volume supply (VAV) air to the space. The return air is a ducted return system. Life expectancy of rooftop units is 15-20 years depending on service, maintenance and changing filters. These rooftop units were installed 1998. Annual service checkups are recommended. The existing exhaust fans should be regularly inspected, fan belt checked, cleanliness and tested for system operation expectancy. It is recommended the supply and return air ducts be cleaned as an indoor air quality improvement measure. The outside air cannot be measured or assured due to the lack of economizer fans on the system. Addressing indoor air quality can be assured in a new design, if applicable.

The rooftop units can be replaced with curb adapters to a higher efficiency type unit with the necessary controls to bring them up to present-day code. Another option is to reduce the number of units to take advantage of the diversity in the system. Additional equipment added to the system can bring the building up to current code compliance.

VAV UNITS

The VAV units are original. The life of these units can extend to 30 years. Coil cleaning is recommended. Each unit should be assessed at the time of remodel or expansion, if applicable.

BOILERS

The three (3) boilers are original to the 1998 building and are at the end of their expected life. The boilers serve finned radiation, unit heaters, cabinet unit heaters, and VAV boxes. Boiler pumps are installed at the ceiling joist and are not serviceable. The boiler pumps should be moved to a serviceable location. The chemical feed system is rusted shut and has not been utilized in some time. A water quality test should be done to assess the need for treatment.

CONTROLS (DDC)

The main control panel has been replaced. The new panel is serving the existing equipment. Parts for the existing Direct Digital Control (DDC) system still in use will be hard to purchase as the system ages. The original control panel was abandoned in place and should be removed. Economizer and humidity control need to be added to the system and the equipment to guarantee air quality throughout the building.

RECOMMENDATIONS:

A replacement strategy should be used for DDC, VAV, boiler, finned radiation and other mechanical equipment as they are near the end of service. Finned radiation is controlled separately on standalone style thermostats. The radiation units were running at the time of inspection with the control system not

responding. There is no humidity control or outdoor air control in the space. An overall new design should be implemented to address the code compliance of the building in response to new energy and air quality requirements.

ELECTRICAL SYSTEMS

SERVICE ENTRANCE

A 1200A - 208y/120V, 3 phase, 4 wire service is provided underground to the building from Sun Prairie Utility by way of a pad mount transformer on the west side of the building. The transformer is located in a screening enclosure near the dumpsters. The utility meter is mounted to the side of the transformer. All components related to the service entrance are in good condition. The power reliability in Sun Prairie is said to be very good with minimal outages. When occurring, they are very brief.

GROUNDING SYSTEM

Grounding electrode conductor is present and the building water main. No other grounding electrodes were visible or reviewed. It is assumed that all branch circuit raceway contain an equipment grounding conductor.

DISTRIBUTION EQUIPMENT

The Siemens Type SB style circuit breaker switchboard is located in a common mechanical room on the west side of the building. The switchboard is original to the building (19 years old) and good condition. There is limited physical space to expand the switchboard or provide additional breakers. The switchboard has 2 sets of meters. Analog current and voltage meters are built into the main breaker section of the switchboard along with a digital EMON DMON kilowatt-hour meter attached to the distribution section. All meters appeared to be in working condition. At some point a few of the breakers looked to have been taped off for maintenance. When the tape was removed, it removed the breaker label. A surge protective device is not installed on the service entrance equipment.

Life expectancy for molded case circuit breakers in the industry is generally expected to be about 30 years, given favorable environment and regular maintenance. Required maintenance, especially for older breakers, includes annual exercising—OFF, ON, TRIP, RESET, ON. This will help to ensure that the mechanism remains operable. Conditions of service, including number of on-off cycles, number of load operations, overloads, short circuits, environmental conditions, and maintenance may affect the time of useful service.

Given the switchboard's good condition it seems reasonable to expect, under normal operating conditions, it will continue to serve the building reliably for an additional 10 years. Future expansion projects will need to consider the physical expansion limitations along with the increased demand.

RECOMMENDATIONS:

Exercise breakers per manufacturer's recommendations. If not already done annually, thermally scan bus and cable connections or consider de-energizing the switchboard for a brief period to allow the mechanical connections to be retorqued to ensure no loose connections exist which can lead to arcing and premature equipment failure.

BRANCH PANELBOARDS

Siemens Type S1/S2 branch circuit panelboards are located throughout the library to serve local branch circuit loads. All panels are original (19 years old) and good condition. Except for panel AR/AL, there are very few spare breakers or bus provisions available in the branch panels. All panels appeared to have updated directories. Based upon the branch circuit panels supplying primarily receptacles and lighting, there are no overloading concerns. As future lighting upgrades are made with possibly conversion to LED, the lighting power will be reduced, creating opportunities for additional receptacle load if necessary.

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MOTOR STARTERS / DISCONNECTS

Siemens equipment and is original (19 years old) to the building. All equipment appeared in good condition.

EXTERIOR LIGHTING SYSTEM

The lighting system consists primarily of metal halide lamps with a few LED ground mounted flood lights. All building-mounted and pole-mounted lights are in very good condition considering they are original to the building. Other than some paint fading from UV exposure, the pole mounted fixtures have held up extremely well to the weather and sidewalk salt.

At some point the ground-mounted floods on the south side of the building were replaced with LED. They are in good condition.

The cluster of flags on the site, which include the US Flag, are illuminated.

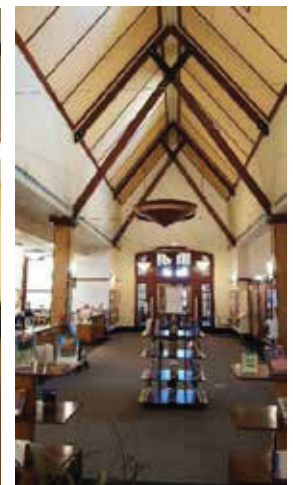
INTERIOR LIGHTING SYSTEM

The lighting system consists of 3 primary concepts within the stacks, public circulation and back of house. Luminaires utilize a variety of lamps from compact fluorescent, linear T8 and retrofit LED. It was noted that the linear T8 standard is now to use 5000K. The facility is currently working towards retrofitting existing sources to LED where it can easily be done. Upgrading the linear T8 to LED is currently not being considered. All of the luminaires were found to be in good working condition.

Stacks - Suspended direct/indirect fluorescent with T8 lamps. Fixtures are in good condition. Illumination levels within the stacks is appropriate and consistent with current illumination standards. Lamp color temperature (CCT) is varied unintendedly and very noticeable against the ceiling. It is likely the case of those replacing the lamps being unaware of the differences associated with CCT values. [Photo Right]



Public Circulation - A mixture of suspended direct/indirect bowl style pendants, decorative wall sconces and a custom catenary style vessel to indirectly illuminate the exposed beam structure. The layered lighting approach and decorative fixture seems to meet the spaces needs along the entry axis corridor which extends from the front door to the fire place. The suspended bowls in spaces perpendicular to the entry axis appear dated and do not provide sufficient illumination. These areas include the reference seating carrels and the children's area. These particular areas are also a concern of the library staff. [Photos Right]



Back of House - Recessed and Suspended T8 luminaires with local controls

Community Meeting Room - A mixture of suspended direct/indirect bowl style pendants, decorative wall sconces and recessed downlights. The room could be adequately illuminated for meeting functions with multiple zones of control to support AV functions.

Media Center - In addition to the back of house type lighting in the corridors and offices, there is a theatrical lighting system within the production rooms which utilizes the ETC Unison dimming racks. All components appeared to be in good condition. Date of installation unknown.

EMERGENCY LIGHTING & EXIT SIGNS

The emergency egress lighting system utilizes standalone battery packs which appear to be original to the building. Battery life on these types of products is 3-5 years. The units should be tested monthly with a 30-second test and annually with a 90-minute test. It was not possible to determine if the emergency units installed have self-test feature or if facility staff was performing the maintenance tests. Coverage of the units was infrequent but assumed to meet the code minimum requirements.

Exit signs utilize standalone internal batteries. The signs appeared to be original to the building. Battery life on these types of products is 3-5 years. The units should be tested monthly with a 30-second test and annually with a 90-minute test. It was not possible to determine if the emergency units installed have self-test feature or if facility staff was performing the maintenance tests. Coverage of the exit signage was adequate.

WIRING DEVICES

All receptacles, light switches and similar devices were found to be in good condition with no obvious signs of failure or excessive wear. Devices mounted near sinks and located outside are GFCI type. Floorboxes within the stacks area have held up well and remain in good condition. It was noted that a few of the covers have required replacement.

LIGHTING CONTROL SYSTEM

A Hubbell CX relay-based control panel was installed in the spring of 2017 as a replacement for the original control system, which used lighting contactors with timed control from the original Trane system. The new panel is astronomical-time-based with dedicated sequences which are not interfaced with the Trane temperature controls system. The panel controls public area interior lighting and exterior lighting. It is in new condition as is said to be working very well. There are 2 spare relays for future loads.

Staff and back of house areas utilize occupancy sensors. No daylight sensors were found. Many spaces have adequate natural light. Additional daylight responsive controls would provide some energy savings.

FIRE ALARM

The main control panel is a FireLite Alarms MS-9200UDLS addressable control panel which does not appear to be original to the buildings. The date of installation was not available at the time of the survey. All systems are shown as normal on the display with no trouble conditions. The time on the control panel was not correct and was a few hours behind. The remote annunciator is located in the main entry vestibule. Notification devices are horn-strobe type and located to provide adequate coverage throughout the library. Pull stations are located at building exits. The system is integrated with the dry pipe sprinkler system. There are a series of what looks to be legacy smoke detectors installed throughout the stack areas. It was difficult to tell if these were in operation or even associated with the fire alarm system.

CONCLUSION

As noted in the assessment, generally, the library is in good shape. There are some items throughout the building that require attention. There are also items that are reaching the end of their life expectancy and the library should plan to budget to replace items as needed.

LOOKING TO THE FUTURE

As designs and expectations are reviewed related to the existing library, there are some considerations to keep in mind. Many of the items listed in the architectural exterior and interior assessment will need to be addressed in the near future, since they are maintenance and upkeep items due to the age of the building. The engineering assessment highlighted items that are nearing the end of their life expectancy or that should be considered upon renovation or expansion.

The ADA or accessibility - specific items are related to a law and must be revised or a reasonable accommodation made for patrons or staff with disabilities. Any new space would be designed to meet ADA requirements.

When exploring an expansion, code compliance is a consideration. The building met code requirements upon construction in 1998.

Any renovation of the existing, single-fire-area building that is less than fifty percent of the floor area, does not require the building to be completely brought up to current code standards. If more than fifty percent of the floor area is renovated, the entire building must be brought up to the current code standards. This would apply to egress, door hardware, occupancies, structural loading and lateral design, requirements for a sprinkler system due to building size, mechanical equipment and controls, and energy efficiency.

These considerations will play into expansion options and can be reviewed in more specifics at the upcoming charrette design workshop.