

A FACILITY ASSESSMENT FOR THE LAKE BLUFF PUBLIC LIBRARY DISTRICT

123 E. Scranton Ave, Lake Bluff, IL 60044

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PREPARED BY;
STUDIOGC INC
223 W JACKSON BLVD.
SUITE 1200
CHICAGO, IL 60606
STUDIOGC.COM



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INTRODUCTION

This document assesses the condition and capacity of the existing Lake Bluff Public Library District's building. Evaluating site conditions, the building's exterior envelope, exterior architectural elements, structural conditions, interior architectural elements, and building engineering systems. The objective of the report is to provide the library with an understanding of the building's current state and its needs. The assessment includes a short commentary on the existing building components and provides recommended repairs and upgrades the library should consider.

There are 4 parts to this facility assessment as follows:

Site and Architecture assessment by Studio GC.

Engineered Building Systems assessment by 2010 Engineers.

Highlighted project listing and analysis of anticipated capital costs.

Overall Capital Improvement Spreadsheet.

The assessment is based on site observations conducted in September of 2025.

OVERVIEW AND BUILDING HISTORY

The Lake Bluff Public Library District facility is a three-story 12,625 square foot structure (Lower Level: 5,460 sf, Ground Level: 4,988 sf, Upper Level: 2,117 sf). Located on the South side of Scranton Avenue, the library sits on three parcels of land that are 0.43 acres in size combined (PIN: 1221116001, 1221116002, 1221116003). The building takes up the North side of the property area to maximize street frontage, similar to the adjacent houses and for the parking area on the south side of the property. There is a limited amount of green space with the paving and building take up to close 70% of the site.

The original building was constructed in 1975. There has been (1) addition to the building in 1999 with (1) minor renovation to the original building in 1994. The addition was constructed to East side of the original building. The grade elevation ranges between 685' to 680' with the site predominantly sloping from the Northwest to the Southeast.

Zoning District: Recreational, Institutional and Open Space

Allowable Use: Library (Permitted Use)

Level: 1 Level below Grade, 2 Levels above Grade

Building Height: 33'-0" (Glulam Piers extend an additional 1'-6" above roof height but are omitted from the building height calculation per Village Zoning Ordinance)

Allowable Height per Zoning Ordinance 10-16-4.E: 30'-0"
Building Perimeter: 460'-6"

Building Timeline

Building Construction Date: Original Building:

1975 (Perkins & Will Architects Inc. – Architect)

Toilet Renovation: 1994 (Altman Saichek Adams Architects)

- Interior renovation of the ground floor public bathrooms as well as additional work that was meant to help comply with Illinois Accessibility Code and ADA requirements.
- Exterior work included new 36" wide tactile warning surface located at north side of property leading to existing ramp/stairs at main entry.

Building Addition: 2002 (RJA Architects – Architect)

- Addition was constructed to the East side of the original building

ARCHITECTURAL ASSESSMENT

Site Components

Site Grading, Stormwater Management & Landscaping

Grade Elevation: 685'-680' (Sloping from the NW corner to SE corner)

Flood Plain: None per <https://msc.fema.gov>.

Delineated Wetland: None on site per the Lake County Wetland Inventory. However, the Wetness Index does show low areas on the property and adjacent areas that are at risk for ponding.

Site Grading: The South side of the property, which is predominantly parking lot, channels water to a 24" inlet basin (that appeared to be new) installed in the access drive aisle. The East side of the property, which is predominantly a driveway leading to the parking and Scranton Ave., also channels stormwater to the same 24" inlet basin and away from the building. The North side of the property, which is predominately sidewalk paving and grass areas, channels water away from the building toward the North-East corner of the site.

Building Drainage: Stormwater from the building is either diverted into the underground system or directed toward a grassy area. The process starts at the roof with stormwater running down the asphalt shingles into gutters along the north and south edges of the roof. The water is then routed toward a series of downspouts. The downspouts located on the North side of the building are connected to the existing

underground stormwater line. The downspouts located on the South side of the building carry the storm water to the parking lot and grassy area behind the building.

Landscaping: There is moderate tree coverage along both Oak Avenue and Scranton Avenue. The building mainly consists of grass, trees, and planting areas that surround the entire property. The North side of the property has multiple planting areas that include medium sized bushes and flowering plants with low ground coverage on both the North and West side of the building. The center of the main plaza features a hedge that wraps along the concrete walk leading to the main entry doors to the library.

West side of the property includes (2) wooden planters which houses various small plants that are part of the library's community garden. A patch of grass has been removed from the site and filled with mulch for the wooden planters to sit on. A grouping of medium sized shrubs line the edge of the existing stairs leading down to the lower level.

South side of the property includes small plants lining the wood fence that runs along the backside of the property along with patches of moss. A medium-sized bushes line the East side of the parking lot with various small plants planted behind it, helping to separate the library's property from the residential home next door.

Stormwater: Main storm water line is an underground 12" galvanized steel pipe that runs parallel to Scranton Avenue. A new 8" polyvinyl chloride pipeline ties into the existing 12" GSP line and runs along the east side of the property where transitions to a 6" PVC pipe. This PVC pipe splits and leads to the new 24" catch basin located on the south side of the property and it connects to the existing storm water line running on the South side of the property which runs to the existing sump pump located in the mechanical room on the lower level. There are inlets in both Scranton Ave and Oak Ave that are located NW and SW of the site. Additional inlets are further East on Scranton Aven at the Evanston Ave intersection.

Items To Be Addressed

The (2) downspouts located on the South side of the original building have multiple pieces of downspout taped together to help carry water toward grassy area. The connections between the downspouts have shown evidence of leaking. Downspouts are also dented in a few spots.

The recent installation of the 24" inlet has been placed in the area noted in the Lake County Wetness Index for potential ponding risk. The inlet should be monitored to confirm it is handling the stormwater volume which the site directs to it.

Structures, roof drains, and gutters should be cleaned of debris quarterly.

Remove/cut back any landscaping that would prohibit flow or clog the structures.

More in-depth inspection of the stormwater structures, piping and cleanouts should

be completed on a 5-year basis. The pipes should be looked at with a video camera to confirm free and positive drainage. Any intrusion of roots, displacement in pipes or full collapse should be noted and repaired.

Any planting material that is distressed should be monitored and then removed if unable to make a recovery. Remaining plantings should be spaced away from each other to allow for adequate sunlight and ability to grow (especially roots structures) freely. Trimming and shaping the landscaping is discretionary as it is an aesthetic issue only.

Site Utilities

Sanitary System: The building sanitary system line is a 9" vitrified clay sanitary pipe that runs underneath Scranton Avenue on the North side of the property to a manhole located at the north-west corner of the site. Connecting to the main line is a 6" vitrified clay pipe running along the west side of the property. The 6" pipe connects to a 4" galvanized iron pipe that runs into the building at a diagonal to the existing mechanical room on the lower level that connects to an existing clean out. The existing sanitary line connects and runs along the west side of the property under the public sidewalk.

Water: Building's water service is supplied from an 8" ductile iron pipe running under the public sidewalk that runs parallel to Scranton Avenue (North side of street in the ROW). The line feeding the building runs South from the watermain in a 4" pipe. A few feet from the connection to the main, there is a 4" tapping valve located within an offset precast valve vault. The new line enters the building into the lower level in the sprinkler room. The 4" line splits into a domestic and fire protection service line inside.

Fire hydrants: There are no fire hydrants located directly on the property. Closest fire hydrant is located across the street from the property just East of the intersection of Scranton Avenue and Oak Avenue. Existing drawings indicate this fire hydrant is being fed from the 8" DIP main water line.

Natural Gas: The underground main gas line runs parallel to Oak Ave. The line branches off the main (location was not specifically determined) and along the South side of the building, wrapping the corner to a gas meter located on the partial West elevation of the original building.

Electrical: Service is provided from the infrastructure running along the South Property line. The power line comes down the utility pole to underground conduit which travels North-East to a transformer sitting on a 4" concrete curb. The line continues to run from the transformer and enters the building on the lower level into

the storage closet.

Item To Be Addressed

Providing a yearly review of the visible elements of each system to identify signs of wear, damage, or displacement is highly recommended. An in-depth inspection of the sanitary structures and piping should be completed on a 5-year basis. Piping should be looked at with a video camera to confirm free and positive drainage. Any intrusion of roots, displacement in pipes or full collapse should be noted and repaired. Water bills should be examined yearly to see spikes in usage; this will typically relate to a leak if there have been no changes in operations. All exposed utility piping should be painted with a protective coating to limit corrosion.

Parking Lot Components

The asphalt parking lot including the access driveway is 5,342 sf; consisting of 9 standard spaces and 1 accessible space. The small parking lot area is located to the South of the building. From our team's observations, the asphalt paving in the parking lot is in fair condition. There was a new patch of asphalt work surrounding the 24" inlet basin located on the South-East part of the property. It is expected this was a very recent patch based on the color of the asphalt.

Curbs: Concrete curbs running along the North and West side of the property,

Items to be Addressed

The parking lot should be regularly maintained to maximize the longevity of the paving. Continued crack treatment and seal coating should be done on a bi-annual basis.

Concrete Paving - Flatwork

Exterior Stairs: Cast in Place Concrete

Exterior Ramps: Concrete with 55.75 linear feet of concrete curbs

Area (SF) Concrete Paving: 3,089 sf (1,385 sf public sidewalk)

Area (SF) Brick Pavers: 298 sf

Area (SF) Field Stone Paving: 569 sf

Exterior Stairs: Located on east side of building and leading to ground level, is a metal pan stair. The stair has concrete infill for the treads with all other components being treads with metal. The metal pan and stringers show severe weathering and chipping. All metal components show signs of rust, with the underside being quite significant.

There are two cast in place concrete exterior stairs. One being located on the east side

underneath the metal pan stair and one being located on the west side. Both stairs lead from the lower level up to grade level. Both have some minor cracking but are in good condition. (Railings will be addressed in next section.)

Sidewalks: There is standard municipal concrete paving along the north and west side of the property running parallel with Scranton Avenue and Oak Avenue. Extensions from public sidewalks run South and East toward the building's main and old entry (now an exit). At the main entry, the sloped concrete ramp is curved around a plaza area leading to main doors. There is also a walk and stair providing direct access. The paving in this area is in fair condition with wear that is consistent with concrete. At the entry the surface is compromised which is likely due to salting. The old main entry features a sloped concrete ramp and concrete stairs. The concrete work for both is significantly settling and showing signs of deterioration.

Paver Areas: There are multiple areas of red brick pavers and field stone pavers. These areas highlight spots for outdoor seating. In some locations the pavers are defined with concrete borders, but in most cases the pavers are edged with gravel or grass. The pavers are not within the accessible paths, which is good planning. Both types of pavers are in good to fair condition and are not displaced or uneven.

Engraved Stones: On the North side and North-East corner of the property, there are special engraved stones with various quotes.

Items to Address

Regular inspection of the concrete flatwork should occur. Any cracks that do develop should be patched and sealed to protect against deterioration. As deterioration becomes more significant, the concrete flatwork should be replaced. This replacement should be done prior to the surface becoming a major safety concern. The surface should provide sure footing and not have any cracks over ½" wide or vertical displacement between sections.

The concrete ramp extending from the public sidewalk running South toward the building at the old entry does not meet accessibility requirements and should be replaced to comply. The stair adjacent, which is showing signs of deterioration and settlement should be replaced as well.

The metal pan stair on the East side of property should be replaced due to severe weathering, rust, and cracking.

Other Site Components.

The site had a number of miscellaneous features that shall be addressed in this section.

Retaining Walls: There are concrete retaining walls at either side of concrete stairs leading to basement (West side of property). One side of retaining wall has large amounts of algae present but are in good condition. A second set concrete retaining walls are at either side of ramp leading to the main entry (north side of property). These are short and show some deterioration along the top surface. A concrete retaining wall defines on side of the concrete stair which leads to the basement on the East side of property. The concrete looked in fair shape but is significantly stained from the severe rusting of the metal stairs directly above.

Metal Railing: There are multiple railings around the building.

Entry Stair: There are painted metal railings at the main entry stair. One in the center and one on each side. These are all in fair shape. The railing set is compliant per code requirements.

East Stairs: There are painted metal railings at the East Stairs. One section is sleeved into the concrete retaining wall that defines the stair running to the lower level. These sleeves are showing some signs of degradation. The railings (and support posts) that are part of the metal pan stair are also showing signs of deterioration. These railings are in fair to poor shape. The railings are not fully compliant per code requirements

West Stair: The guard railing that sits on top of the retaining wall is aluminum bar stock. The handrails are connected and run down the stair itself. The railings are unfinished and are showing some signs of rust. The railings are not fully compliant per code requirements.

Metal Block Railing: There is an old thick metal railing in the center of the stair on the West side of the building. This was part of the original entrance. The railing is weathered and not code compliant.

Wood Fencing: A wood post and wood board/batten fence runs along the South property line. This separates the library property from the residential houses. This fencing was noted on the 1999 drawings, so it is assumed it is on the library's property and the library's responsibility. The fence has weathered with age but appears stable and in good condition.

Site Furnishings: There are (10) wood benches located around the site, each are well-worn from age and weather (located on north, west, and northeast side of property). There is (1) wall mounted flag (mounted by main entry) which is fine condition (although the flag is faded considerably). There is (1) wall mounted dedication plaque

(mounted by main entry) that is in good condition. There is (1) plaque set in the stone patio located on the west side of property that has oxidized with age. There are (2) metal book drops. One located north side leading to main entry and 1 located on south east corner of property on a concrete curb – both were in acceptable condition.

Monument Sign: There is (1) painted oval wood sign on painted wood timber posts at northeast corner of site (There was no documentation on its construction.) The oval sign is wrapped in a metal frame and secured to the posts with metal brackets. The face of the sign has carved lettering which has then been painted. The sign has weathered but is stable. The wood timber posts are painted but show more weathering. There is (1) hanging wood sign mounted to a light pole at north side of property. This appeared to be in good condition.

Monument Statue: There is (1) weathered metal goose statue secured on a concrete curb. The statue and concrete curb are in overall good condition

Site Lighting: There are metal bollards with integrated lighting (south, north side of property) that are wearing from the elements. On the building, there are (2) low wall mounted light packs located as approaching main entry. Additionally, there is (1) painted metal light pole at main entry with the hanging signage. A single (1) ground mounted light fixture is installed to illuminate the monumental sign at north-west corner of site. There was condensation observed within the fixture during our visit. The building exterior has other wall mounted sconces (multiple different styles) on each elevation. Wall packs mounted on the wood fencing running along parking lot provide extra lighting for the parking lot. The observations made by the team were during the day so a full assessment of the light's operation and lighting levels was not documented.

Miscellaneous Site Furniture: On the property, there are (2) metal bike racks. One is located on the north side of the site which is prefinished. The other is located at the west side of the property. This one is unfinished aluminum. There is (1) prefinished metal trash can on the north side of the property. Each piece is showing signs of typical wear from exposure to the elements.

Items To Be Addressed

The miscellaneous site elements should be inspected annually for damage and to confirm proper operation.

The curved ramp that is at the main entry needs to be further investigated for slope compliance. The ramp may be greater than 1:20 (5%) which would require handrails.

The concrete retaining walls should be monitored for cracking and surface deterioration. A patching compound should be used to repair any spalling. The walls that run along the curved path could receive such a repair within the next 3 years.

The metal railings need to be replaced to provide currently compliant installations. Only the main entrance railings could remain.

The wood fence along the South property line should be sealed or stained to prolong its life.

The monumental sign should be cleaned to remove all dirt and paint to protect against weathering. Any areas that are weathered and splintered should be sanded with wood filler applied for improved protection.

Wooden benches should be considered for replacement due to weathering and accumulation of algae. The stability of the benches did not seem affected.

Building Structure

Building Foundation:

1975 Building: The original foundation are constructed of solid grouted 12" wide concrete masonry units.

2002 Addition: The addition has cast in place concrete foundations.

Basement Floor Structure: The floor is a slab-on-grade condition for both portions of the building.

First and Second Floors: The upper floors are constructed of 8" precast hollow core planks with a 2" concrete topping.

Building Structure: The building is a combination of concrete masonry unit bearing walls, steel columns and laminated wood columns (within the original second floor).

Roof Structure: The roof is constructed with a 3" tongue and groove wood decking on stained glue-laminated wood beams.

Items To Be Addressed

The concrete masonry unit foundations and masonry bearing walls should be regularly monitored. Any cracking that develops beyond a hairline in the future should be repaired promptly. Concrete foundation walls should also be monitored in a similar manner. Cracks in masonry should be routed and then patched with a repair mortar. Cracks in the concrete should be routed and injected with an epoxy repair mortar.

Building Envelope

Exterior Walls

The building is predominantly clad with a 4" brick veneer of two different types. (The addition uses a matching brick, but it is not the same as the original.) Sections of the

building are solid stained (or painted) cedar siding over 3/4" exterior grade plywood sheathing. Behind the brick is a concrete masonry back up course. The framing behind the siding/sheathing is 2x4 wood framing.

On the original building, there does not appear to be any thru-wall flashing or consistent weeps. The existing drawings do not specifically call these components out. On the addition, evidence of the flashing is there. There are also plastic weeps. The existing drawings show these elements were to be installed.

The original building has a series of recessed window sections. The overhangs of these recesses are finished with stained and painted tongue and groove planks. The addition also has small recesses which utilize a prefinished metal soffit panel installed over blocking. There is fiberglass insulation above the metal soffit panels in the addition.

Items To Be Addressed

There is efflorescence at the base of the windows on north side indicating water infiltration. This efflorescence is also visible on the site wall at the main entry as well as the building wall opposite. This is likely due to the walls being constructed without thru wall flashing and without weep joints. The walls could be improved by providing open head joints at the base and top of the wall to allow airflow through the wall cavity. This allows the wall to dry out faster, limiting water build up. The stains can be cleaned at the library's discretion.

There is discoloration of the face brick at East elevation at the top of the shed roof from water overflow. The brick should be cleaned and the roof drainage modified to divert the water.

The cedar siding and T&G soffit planks should be regularly checked. Those that are warped, rotten, cracked or displaced should be replaced. The boards should be refinished on an approximate 6-8 year cycle. There was evidence of warping and deterioration on both the original building (tall clearstory above roof) and addition in spots.

The wall directly below the clearstory windows should be repaired in the immediate future. The siding at the base of each looked in poor condition.

The metal soffit panels should be checked and secured. There were sections on the addition where the panels were loose and displaced from position.

Sealants

Exterior sealants were observed in masonry control joints and around doors per standard construction practices. There was not sealant at the transition between the

siding and masonry. There was also quite a bit of missing sealant around windows. Much of the sealant that was currently installed looked in fair condition. There were minor voids observed, but that is typical on any building and easily corrected. The sealant in the mechanical area on the South side of the building was in worse shape. This is typical in high exposure areas to sunlight. Sealant around penetrations for surface mounted fixtures or at wall penetrations was not always present.

Items To Be Addressed

The library should have an exterior sealant company come out and seal any existing voids, around all windows, louvers, and around all of the fixture boxes, and other miscellaneous penetrations. The library should plan inspections yearly to confirm the sealant is in place and not compromised. Once the exterior sealant shows signs of deterioration the library should begin a scheduled replacement. A sign that the sealant is failing is the material will become dry/brittle and start cracking extensively. It is recommended that all of the sealants are replaced on an 8-10 year schedule.

Exterior Doors

The existing building has four hollow metal doors. A single door with a sidelite at the lower level of the original building that acts as the second exit from the meeting room. A full glass double door (steel) at the original entry that now serves only as an exit. There are also two simple doors on the East elevation of the addition. Both are exit doors from the lower and main levels. All are believed to be from the original associated building construction. The doors were operating as intended. The door material was not compromised. The current entry has an aluminum storefront entry door system. The finish has not compromised and the material integrity is sound. The doors are operating as intended. The exit hardware is the older push bar type, which are no longer used for improved accessibility reasons.

Items To Be Addressed

All of the doors should be checked and adjusted annually for proper opening and closing. During annual inspections the aluminum doors should be checked for surface defects that could accelerate rusting. The seals and gaskets around the glass units should be checked. The hollow metal doors should be scheduled for refinishing to keep the metal protected in 3-5 years.

The existing hollow metal door to the lower level (original building) has evidence of water infiltration at the threshold. The threshold should be removed and a full be of sealant applied to the concrete with the threshold reset.

The main entry doors should receive current exit devices which are safer and more reliable than the existing old style push bar.

Fenestration

There are thirty-three exterior window units around the library. Nine are aluminum storefront windows, which are located on the north elevation at ground level but provide daylight to multiple interior levels. On the 1975 building side, each storefront window has a section that is operable.

There are four clearstory aluminum-clad wood windows on the north side of the original 1975 building with an 18' tall aluminum-clad window system above the original entrance to the building at the northwest corner of the building. On the south side of the building, there are 8 aluminum-clad windows in the 1975 portion of the building, and 12 aluminum-clad windows in the 1999 addition.

These are all believed to be from the original associated construction and look to be holding up fairly well; the windows aluminum cladding showed few surface flaws. The interior wood did not appear to have significant water damage. The exceptions were at the sills of the low windows on the North elevation which are set at grade or just above grade. Additionally, along the west wall of the large, tall window system there was also some moisture staining. The glass in the units from the 1999 construction are insulated 1" thick. The older clad windows were only 1/4" thick panes.

Items To Be Addressed

All of the windows should be checked for surface defects that could accelerate rusting or allow for water intrusion. The clad units need to protect the wood component frames so these units need to be scrutinized more thoroughly. The seals and gaskets around the glass units should be checked to confirm their integrity. The clad windows, based on age and condition, still have another 10 years of service life if the care shown by the library continues. The storefront windows should last another 25 years. If budget allows, replacing the older clad windows that are single pane glazing with new units that have 1" insulated glass should be considered within a 5 year timeframe.

Roofs

The library has two types of roofs. A small area of roof, above the elevator and duct shaft, has a low slope single ply membrane system (includes 1-1/2" rigid insulation) over the 3" T&G decking. The lower section has different transitions on each side creating unique flashing and coping details. The taller section over the duct shaft has a concrete coping, that is original, that has since been partially covered by a metal system.

The other roof type is an asphalt shingle style. This runs over the two volumes that make up the original building and addition. These are placed over the existing rigid insulation and the T&G roof deck from the original construction. It is believed an additional sheathing layer has been introduced as it is uncommon to secure shingles through insulation. The shingles looked in good condition. None looked out of place and the surface looked secure. There was some curling along the rake edge.

There are gutters formed from break metal that are mounted on the low edge of the sloped roofs (eaves). Water is diverted to regularly spaced downspouts and into the underground storm piping or to grade. The gutters were clear of debris and looked to be watertight.

A layered metal fascia is installed on the eave and rake roof edges. The material overlaps the other pieces; the metal was in fine condition and appeared secure.

The roof has only a few pipe vents, and no roof access. Our team was not able to get onto the flat roof sections to check for appropriate flashings, curbs and drainage.

Items To Be Addressed

The library should have the roof thermally scanned to confirm the insulation condition. Any insulation that is saturated with water will show up on a thermal scan. Insulation that is wet does not provide the thermal protection that it is supposed to. In addition to the age of the roof, the current amount of existing insulation installed is a quarter of what is required by today's energy code. The library should review the warranty period on the current roof. At the end of the warranty period, the library should plan for an upgrade. If the warranty is 20-25 years out, the library should consider a sooner replacement.

The library should plan inspections yearly to confirm the sealant at the coping and counterflashing is in place and not compromised. Once the exterior sealant shows sign of deterioration the library should begin a scheduled replacement. A sign that the sealant is failing is the material will become dry/brittle and start cracking extensively. It is recommended that all of the sealants are replaced on an 8-10 year schedule.

Thermal Barriers & Moisture Control

The exterior mass walls of the original 1975 building were constructed with no thermal insulation between the face brick and structural concrete masonry units. The exterior mass walls of the 1999 addition were constructed with 1 1/2" rigid insulation in between the masonry wythes for thermal protection. The wood framed window walls at the North and South ends of the building were constructed with batt insulation between the studs. The moisture control in the walls of the 1999 addition was managed by thru wall flashing, weep holes at the base of the wall and mortar

drainage net in the cavity. Standard practice at the time of construction. No weep holes or mortar drainage was observed in the 1975 portion of the building. An “infiltration barrier” (Tyvek, or equal), was called for in the wood framed portions of the 1999 addition, but not in other exterior wall constructions. The foundation walls are coated with a waterproofing membrane. The 1999 addition has 2” rigid insulation between furring strips on the inside face of the foundation. The system is mechanically fastened into the foundation.

Items To Be Addressed

Current energy code requires significantly more insulation in exterior wall construction today, but it is not feasible to improve the condition within the masonry cavity walls for the library. The framed stud walls do not have any continuous insulation and the fiberglass material is installed only between the framing. This would also be difficult to improve. As part of a future project, the library should consider installing spray foam insulation on the interior side of all exterior walls. The insulation will coat the surface and eliminate any gaps in the insulation barrier. This would allow the exterior walls to remain intact, but it would require the sacrifice of a few inches of space on the interior.

Interior Environment

The interior walls within the addition building are predominantly gypsum wall board on metal framing. In the original 1974 portion of the building there are predominately painted CMU walls, with gypsum wall board on metal framing at areas that have been reconfigured since the original construction. Exterior walls and the East and West walls of the main entry are face-brick matching the exterior. The masonry units (both the brick and CMU) show no stress cracking. Overall, both types of masonry are in good condition. The gypsum wall board is in varying states of wear. This depends on its location. The wear is from general use. No significant moisture damage was observed in the gypsum walls. Gypsum wall board compound within the library has tested positive for asbestos content.

Items To Be Addressed:

- Interior masonry walls should be regularly monitored. Any cracking that develops beyond a hairline in the future should be repaired promptly. Cracks in masonry should be routed and then patched with a repair mortar.
- Interior gypsum walls should be regularly monitored. Any moisture damage that appears should be followed with more investigation to determine the source of water. The repair of worn gypsum surfaces is at the discretion of the library based on aesthetic concerns.
- All interior gypsum board compound that has tested positive for asbestos

material should be remediated and restored.

The facility has a combination of interior doors. The interior aluminum swing doors are in good shape. Hollow metal frames paired with either wood doors or hollow metal doors had no notable issues. Multiple wood doors showed signs of wear and damage. All of the doors were functioning properly. The hardware varies per the requirements of the door. The hardware was operating per their required function, with the exception of the door to the Sprinkler Room (016) which was duct taped in the open position. There are some small issues that should be addressed. A few door closers need adjusting; they currently do not close in a controlled and safe manner. The team observed several door levers being loose; these need tightening to be fully secured. Several doors in the basement of the building utilize door knobs which are not compliant with current accessibility requirements. Multiple doors have non-tempered glass lites or wire-mesh glazing and which do not comply with current building code requirements.

Interior Door Types:

- Wood Doors in Hollow Metal Frame
- Wood Doors in Hollow Metal Frame (w/Lite)
- Wood Doors in Hollow Metal Frame (w/Grille)
- Hollow Metal Door in Hollow Metal Frame
- 30-Minute Rated Wood Door in Hollow Metal Frame

Items To Be Addressed:

- Multiple doors have non-tempered glass lite or wire-mesh glazing. Glazing should be replaced to meet current safety standards.
- Remove hold-open hardware (door stops) on fire rated doors. As fire doors, these need to close and latch to meet operational requirements.
- Multiple door closers need to be adjusted or replaced on doors that do not close in a controlled and safe manner. Their swing speed is too fast.
- Multiple doors are heavily chipped on the edges and should be replaced at the library's discretion. The damage is not affecting the operation.
- Multiple door levers need to be securely fastened to the door.
- Missing doorstops should be replaced.
- Non ADA compliant hardware is addressed in a later section of the report.

A significant area of the library does not have a ceiling; the underside of the tongue and groove roof deck is exposed or the concrete floor slabs. In smaller rooms and the lower level, there are 2x2 and 2x4 acoustical ceiling panels (of varying types) supported by a metal suspension system. The system components are in fair shape, there are a few damaged and stained tiles scattered around the building. There are small areas that are gypsum wall board soffits that are on framing. The gypsum

board appears to be in good condition. Very little cracking or water staining was observed.

Items To Be Addressed:

- Interior ceilings should be regularly monitored. Any moisture damage that appears should be followed with more investigation to determine the source of water. The repair of worn, damaged ceiling components is at the discretion of the library based on aesthetic concerns.

The main level flooring is a mixture of carpet tile and vinyl composite tile. The carpet is stained in some spots but is overall in good to fair condition. The VCT in the workroom and restrooms is more distressed. A carpeted walk off floor tile is installed in the vestibule and is performing well and is still in good shape. The rubber base that is installed had no discernable issues.

The lower level flooring is a mixture of carpet tile, vinyl composite tile, and exposed concrete slab. The carpet tile, similar to the main level, is in good-fair shape. The VCT in the service spaces and activity room appeared to be in a fair condition but moving toward needing attention. The bare concrete was in fair condition.

The flooring transitions, base on gypsum board walls, rubber stair treads, and stair nosings were in pretty fair condition.

Items To Be Addressed:

- The repair of worn, stained, damaged flooring is at the discretion of the library based on aesthetic concerns unless it is vertically displaced or loose causing a fall hazard.
- All flooring and mastic that has tested positive for asbestos material should be remediated and restored.

The building is detailed with wood running trim, paneling, and trim details. This occurs at the 1974 stair and its enclosure between the lower level space. There is also trim work at window openings. The wood did not appear to be warped or damaged. The finish was still in good shape.

The casework in the building is a combination of wood construction and laminate faced particle/fiber board substrate. The service desks, activity room, service room casework are all standard particle/fiber board construction with laminate finishes. The counters were either laminate or solid surface (activity room). The casework flanking the new fireplace is hardwood construction, the small cabinet in the workroom is also wood. The main level service desk is well worn and deteriorating along the edges and the base. The remaining components and hardware are wearing from normal usage but appeared to be in fair condition.

Items To Be Addressed:

- The main level service desk laminate face is well work and damaged. Refinishing (or a full replacement) is needed for it to be the primary public facing service point.
- Cabinet hardware should be periodically checked and tightened/adjusted for proper operation.
- The repair of worn, damaged casework is at the discretion of the library based on aesthetic concerns.

The multi-user toilet rooms (2 Lower Level) have a VCT tile with nothing on the walls. Those are painted CMU. The floor tile is worn and is showing its age but still performing. Changing would be for aesthetics at the library's discretion.

The toilet rooms (2 Main Level) have 12x12 ceramic floor tile. The walls are painted CMU. The floor tile has cracked and is chipped.

The stacked toilet rooms off the lobby on the Main Level and Second Level have VCT flooring. The walls in each room are painted gypsum board. The floor tile is worn and is showing its age but still performing. Changing would be for aesthetics at the library's discretion.

Each toilet room had a group of toilet accessories (grab bars, toilet paper dispensers, soap dispensers, paper towel dispensers, mirrors, etc.). The types vary per location. The items are operating as intended. The location of some items conflict with clearance requirements to other components due to the size of the rooms and other items do not fall within the needed reach ranges.

Items To Be Addressed:

- The damaged ceramic tile should be replaced.
- A vertical grab bar (which is currently required) should be added within the toilet rooms that are currently providing them.
- The toilet accessories should be mounted per accessibility requirements.
- The toilet fixtures should be installed per accessibility requirements. Distance from wall and separation distance from each other. (This will require the rooms to be renovated.)
- None of the toilet rooms meet current accessible standards. At least one for each gender should be provided through a full toilet room renovation.

There are four vertical circulation components inside the building. Each of the three stairs is a steel supported metal pan. The stairs are equipped with railings, but none fully meet current code. The elevator is from the 1999 addition to the building. It is still operating as intended. The size of the interior cab is just large enough for ADA compliance. The original building has a book lift. This device is still in service.

Items To Be Addressed:

- The railings at each stair should be replaced.
- By code, only one stair may be open when multiple stairs are provided, and each is required as part of the egress strategy. The second stair in the 1974 area should be enclosed in a rated enclosure, and the stair should be wider to meet current minimum width. The single stair in the 1999 addition should be enclosed as it is the only egress stair.
- By code, an open stair may not be open to more than two floors unless it is accompanied by an enhanced fire protection / smoke evacuation system. The central stair in the 1974 building should then be enclosed to the lowest level.
- An elevator replacement should be considered as part of long term planning. The size of the elevator makes it difficult for emergency personnel to reach the lower or upper floors. This is a safety concern.

The library has a gas fireplace insert in a porcelain tile surround within a millwork wall cabinet. The fireplace is vented through a non-combustible duct directly out the side of the building. There were no known operational issues with the unit.

There is minimal room and wayfinding signage provided around the facility. Much of the signage is vinyl lettering on the door glazing. The room signage that is wall mounted is not positioned within the correct range and does not have the braille equivalent. The meeting room and activity room do not have the required occupant load signage posted at the door.

Furnishings overall were in fair condition. The pieces were wood (or wood look) and neutral colors. There were some accent colors in the fabric and in some laminate on the table surfaces. There was some mixing and matching of furniture pieces in many rooms, but that is typical for most libraries.

The metal shelving on both levels is in fine condition and will remain useful for some time. There were also a number of singular wood shelving pieces on both floors for highlighting new materials and special selections. These also appeared to be in good condition.

Items To Be Addressed

- Clean vents, return and supply ductwork.
- VCT flooring in storage (15/16) is worn/missing tiles and should be replaced.
- Ceramic tile flooring in Restrooms (105 and 103) are cracked and should be replaced.
- Concrete flooring in janitor's (104) needs to be repaired.
- Efflorescence is present on brick on interior southwest corner of children's room (001) and interior southeast corner of the second floor stacks (201) by curtainwall

- windows.
- Evidence of water infiltration on walls of Sprinkler Rm and Elevator Machine Room (016 & 017) should be investigated and repaired.
 - Stained ceiling tiles in Primary Collection (013) should be replaced and further investigation done to determine the source of the water.
 - The code compliance issues related to vertical circulation elements are difficult to fix. These are existing conditions and can remain until any significant level of renovation work is planned. At the time of renovation, the building will need to be brought into full compliance with current code.

ADA Compliance

The building has compliance issues related to the accessibility code. The issues that were not in compliance are as follows:

Multiple doors do not have the required push/pull maneuvering clearances.

The stairs in the original building have riser heights that are outside current code compliance range.

The guardrail overlooking the Reading Room in the 1974 section of the building is slightly shorter than the required 42" height. The openings between balusters are also larger than the 4" maximum. At all stairs in the building, violations were observed based on the installed extents and/or the height of the railings.

At five of the staff single user toilet rooms, the wall mounted lavatory is too close to the toilet; the space is required to have 5'-0" clear from the corner to any fixture or obstruction. Vertical grab bars are required for accessible toilets and were not installed at all locations. Maneuvering clearances were also not completely met.

The hardware on the janitor closets and service room doors in the 1974 section of the building are knobs, these are not code compliant for accessible operation of the doors.

An individual using the existing exterior exits from the basement level of the building is an issue. Since this could be utilized by a handicap worker/patron, the exit should provide accommodations suitable for their safe egress. Currently the egress does not have an area of rescue assistance. The individual would be confined to the stoop area, unable to get away from the potential fire and unable to communicate with the fire department to let them know where they are.

Compliance Items to Be Addressed:

- The missing vertical grab bars in ADA bathrooms should be installed.
- Door Push/Pull clearances are not being met in multiple locations and in future

- renovation projects should be corrected.
- Non compliant door hardware should be replaced.
 - Non compliant signage should be replaced.
 - Stairs should be replaced to meet riser requirements, minimum egress width (second floor back stair), and landing clearance requirements. (Refer to previous section for vertical circulation building code compliance information.)
 - An area of refuge should be provided at basement egress doors.
 - None of the toilet rooms meet current accessible standards. At least one for each gender should be provided through a full toilet room renovation.
 - Toilet accessories and other wall mounted components should be mounted within the correct reach ranges.

Egress Compliance

During our review, our team identified egress compliance issues related to current building code. These are separate from the vertical circulation component issues described previously. The issues that were not in compliance are as follows:

- The lobby on the main level is a dead end corridor when both the Local History and library collection areas are closed (locked).
- The second floor balcony over the main level lobby does not have an egress component. An individual is required to exit through an intervening space of a higher hazard.
- The South set of doors in the corridor leading from the Meeting Room swing in the wrong direction of travel. These doors, based on the exit occupant load, need to swing in the direction of travel (toward the stair).
- The activity room on the lower level should have 2 exits based on the potential occupant load.

The code compliance issues related egress are difficult to fix. These are existing conditions and can remain until any significant level of renovation work is planned. At the time of renovation, the building will need to be brought into full compliance with current code.

Mechanical, Electrical & Plumbing Systems

Introduction

The following report was prepared by 2010 Engineers and addresses the principal

systems that will require substantial upgrades and/or replacement over time. The evaluation is based on a site visit to the building and review of the existing MEPFP drawings that were available to the team. Scheduled maintenance, which is required in caring for the Mechanical, Electrical and Plumbing systems, is not covered in the report.

Objective

The purpose of this portion of the report is to assess the condition and capacity of the existing mechanical and electrical systems at the Lake Bluff Public Library. Each existing system and its primary components will be briefly described. Immediate needs as well as future system upgrades will be identified.

Mechanical Systems

Central Heating Plant

There is no central heating or cooling plant.

HVAC System Serving West Side of Building (Library)

The west side of the building is heated, cooled, and ventilated by a Variable Volume/Temperature system consisting of a central air handling unit and zone dampers for individual temperature control. The zone dampers vary the air volume to the space in response to room thermostats and communicate the space's desire for heating or cooling to the air handling unit which responds by changing from heating to cooling status based on the temperature automation software algorithms weighing demands from all spaces. The air handling unit can only provide heating or cooling at any one time.

The air handling unit is a custom Bruckner variable air volume unit located in the lower level mechanical room installed in 2006. It consists of a flat filter section, DX cooling coil, and a New York Blower plug/plenum supply fan. Heating is provided by (2) Modine DFP300 gas fired duct furnaces located in the discharge duct of the air handling unit, each installed in 2016 with 300 MBH input. Cooling is provided by a Carrier model 38AH028 air cooled condensing unit located at grade on the south side of the building. It has a nominal capacity of 25 tons, was installed in 2006, and utilizes R22 refrigerant. Air handling unit supply fan speed is controlled by a Yaskawa variable frequency drive installed in 2006. The system has a Nortec GSTC humidifier utilizing a duct mounted steam distribution tube. It has a capacity of 100 lbs/hr and was installed in 2006.

The air distribution system serves 20 Titus DESV single duct variable air volume boxes installed in 2006 which provide individual temperature control to various spaces.

These boxes serve as zone dampers only and provide no heating.

HVAC System Serving East Side Lower Level (Library)

The east side lower level is heated, cooled, and ventilated by a single zone constant volume system consisting of a Carrier 59SC2E100 downflow gas furnace unit with DX cooling coil. The furnace is located in the first floor fan room and was installed in 2023. The associated air cooled condensing unit is a Carrier 38HDC06 located at grade on the south side of the building. It was installed in 2001, has a nominal capacity of 5 tons, and utilizes R22 refrigerant.

HVAC System Serving East Side First Floor (Museum)

The east side first floor is heated, cooled, and ventilated by a single zone constant volume system. The air handling unit is a Carrier 40RM-012 vertical arrangement with flat filter and DX cooling coil installed in 2001. Heating is provided by a Sterling QVSD150 gas duct furnace located in the discharge duct of the air handling unit. It was installed in 2001 and has input capacity of 150MBH. The associated air-cooled condensing unit is a Carrier 38AKS014 located at grade on the south side of the building. It was installed in 2008, has a nominal capacity of 12.5 tons, and utilizes R22 refrigerant.

HVAC System Serving East Side Mezzanine (Museum)

The east side Mezzanine is heated, cooled, and ventilated by a single zone constant volume system consisting of a Carrier 58MCA100 upflow gas furnace unit with DX cooling coil. The furnace is located in a fan room on the mezzanine and was installed in 2001. The associated air cooled condensing unit is a Carrier 38HDC06 located at grade on the southeast side of the building. It was installed in 2001, has a nominal capacity of 5 tons, and utilizes R22 refrigerant.

Miscellaneous Heating

Electric baseboard heaters are installed at the east side of the building on the lower level and first floor. Perimeter single user toilet rooms and the front entry area have electric wall heaters.

Server Room

The Server Room has no dedicated cooling unit or method of heat removal.

Exhaust Fans

Toilet rooms and the elevator equipment room are exhausted by ceiling mounted exhaust fans.

Temperature Controls

A Delta Controls Building Automation System provides temperature control for the HVAC system serving the west side of the building. It was installed in 2006. The HVAC systems serving the east side of the building are controlled by dedicated digital programmable thermostats.

Items To Be Addressed

HVAC System Serving West Side of Building (Library)

The HVAC system serving the west side of the building is a Variable Volume/Temperature system which does provide individual temperature control, but is limited in that the air handling unit can only provide heating or cooling at any one time. Since the entire west side of the building is open from the lower level to the upper level (3 stories), the lower level is always cold, and the upper level is always warm. However, since the system can only be in heating or cooling, one of these two areas will suffer. If there are temperature control issues, consideration could be given to adding heat into the VAV boxes and converting the system to a VAV system so that any space could be heated or cooled at any time.

The custom Bruckner air handling unit is 19 years old and shouldn't need replacing for another 20 years. The door gasketing on the unit access doors does not appear to be adequate for the fan pressure. The door gasketing and latching system should be replaced. The (2) Modine gas fired duct furnaces located in the discharge duct of the air handling unit are 9 years old and should be scheduled for replacement in the next 11 years. The Carrier cooled condensing unit is 19 years old and should be scheduled for replacement in the next year. It utilizes R22 refrigerant which will require replacement of the refrigeration piping and the DX cooling coil in the air handling unit as well. The Yaskawa variable frequency drive is 19 years old and should be scheduled for replacement in the next year. The Nortec humidifier is 19 years old and was not in operation at the time of our visit. Humidifiers require much maintenance and if the humidifier has been out of service for some time and no adverse space conditions have been apparent, consideration should be given to removing the humidifier.

HVAC System Serving East Side Lower Level (Library)

The Carrier downflow furnace unit serving the east side lower level is 2 years old, and shouldn't need replacing for another 18 years. The associated Carrier air cooled condensing unit is 24 years old, utilizes R22 refrigerant, and is also at the end of its useful life. It should be scheduled for replacement in the next year along with the refrigerant piping.

HVAC System Serving East Side First Floor (Museum)

The Carrier air handling unit serving the east side first floor is 24 years old and should

be scheduled for replacement in the next 10 years. The associated Sterling gas duct furnace is 24 years old, at the end of its useful life, and should be scheduled for replacement in the next year. The associated Carrier air cooled condensing unit is 24 years old, utilizes R22 refrigerant, is at the end of its useful life, and should be scheduled for replacement in the next year along with the refrigerant piping.

HVAC System Serving East Side Mezzanine (Museum)

The Carrier upflow gas furnace serving the east side mezzanine is 24 years old, at the end of its useful life, and should be scheduled for replacement in the next year. The associated air cooled condensing unit is 24 years old, utilizes R22 refrigerant, is at the end of its useful life, and should be scheduled for replacement in the next year along with the refrigerant piping.

Miscellaneous Heating

Electric baseboard heaters and electric wall heaters should be replaced as they fail.

Server Room

The Server Room has no dedicated cooling unit or method of removing heat. If the heat generated is excessive, an exhaust fan could be installed to remove the heat. Alternatively, a dedicated duct free split system air conditioning unit could be added if the load was sufficiently high.

Exhaust Fans

Ceiling mounted exhaust fans serving toilet rooms and the elevator equipment room should be replaced as they fail.

Temperature Controls

Currently the Delta Controls Building Automation System only serves the HVAC system at the west side of the building. It was installed in 2006, is currently one update behind, and should be scheduled to receive this update within the next 2 years. In addition, we recommend that a yearly preventative maintenance agreement be entered into with Delta Controls in order to keep the system operating properly. When the HVAC systems serving the east side of the building are replaced, we recommend that they be provided with communicating thermostats and included on the Delta system.

Plumbing System

Water Service

A single 4" water main enters the building on the north side and splits inside the building to serve both domestic water and the automatic fire protection sprinkler system. The domestic and fire protection water services are located in a small room

on the lower level, this room is a dedicated space for the water services. The domestic water service consists of 1 1/2" cold water copper piping with a 2" water meter. There is no backflow preventer on the domestic water service.

Domestic Water Distribution Piping

Domestic water is distributed from the service with copper domestic water piping. The domestic cold and hot throughout the building all appears to be copper piping.

Domestic Water Heater

The domestic water heater for the building is located in lower level mechanical room. The domestic water heater is a 40 gallon Bradford White, Model RG240T6N (SN: RA50758517), 40,000 BTU gas fired tank type water heater. The water heater was installed on March 29, 2023. There was no domestic hot water circulation system associated with this water heater.

Sanitary and Storm Piping

Sanitary drainage for the original building, where exposed, is mainly cast iron piping. Piping is in good condition and waste flows well under normal conditions. There are three small submersible pump systems, one located in the lower level mechanical room of the original 1974 building and one located in the water service room in the 1999 addition. The pump system in the 1974 building also has a battery back-up system, Pro Series model 2400, battery level indicated at 100% at the time of survey. The third pump is located in the elevator shaft.

Plumbing Fixtures

Public toilet room plumbing fixtures are of mixed types, residential floor mounted tank type water closets are used in the 1974 original building while floor mounted water closets with flush valves are used in the 1999 addition. All fixtures appeared to be in good working condition. All lavatories were wall hung china with battery manual quarter turn faucet. The toilet rooms in the original 1974 building do not have floor drains while the toilet rooms in the 1999 addition are equipped with floor drains.

Single height electric water coolers with bottle fillers are located at two locations. There is also a single height drinking fountain unit located on the main floor level in the 1999 addition. There are various sinks located throughout the building for general use. These sinks are stainless steel sinks with gooseneck and swing spout faucets. The lower level mechanical room in the 1974 building has a service sink for general building cleaning.

There is an external irrigation connection with 3/4" RPZ type backflow preventer, Zurn Wilkins model 975XL, located on the north wall for general site irrigation purposes.

Items To Be Addressed

The existing domestic water heater is 2 years old and should not need to be replaced for the next 13-17 years.

The building does not have a domestic hot water recirculating system to reduce the wait time for hot water at the lavatories. A recirculation pump and associated piping could be added for quicker hot water to the sinks and lavatories.

The lavatories do not have thermostatic protection to limit the hot water to 110 degrees. Provide point of use thermostatic mixing valves at all lavatories in public toilet rooms.

The main domestic water service does not have a backflow preventer. A reduced pressure zone backflow preventer should be added when required by the local authority having jurisdiction. The copper clevis hanger at the discharge of the water meter has corroded and broken. The support should be repaired and a gasketing should be provided to prevent metal on metal contact.

The plumbing fixtures throughout the building are functioning, however the fixtures are old and worn. Replace all public toilet room fixtures and utilize hands free sensor operated fixtures where applicable. Renovation of the toilet rooms may also require some of the cold water piping to be resized to accommodate the flow requirements of the fixtures and to comply with current state plumbing code.

The sanitary piping should be video inspected to determine what repairs or replacements should be performed at the lower level toilet.

Fire Protection System

The building is protected by an automatic wet sprinkler system per the rules and guidelines of NFPA-13. Sprinkler heads are mainly semi-recessed sprinklers with chrome escutcheon plates and were installed in 2025. Exposed areas and mechanical rooms have upright and sidewall sprinklers as required for full coverage. Sprinklers appear to be in good condition.

The fire protection water service enters the building from the north side with the water service located in a lower level "water service" room. The water main enters the building as a 4" in size and also serves the domestic water supply system. The fire protection water service is served by a 4" Ames Model 4000SS (SN. 106267) reduced pressure zone backflow preventer. The backflow preventer is tested and certified with the last test date October 17, 2025.

There is a single 4" fire protection riser located in the same room as the backflow preventer. Zone piping is provided with valves, switches, pressure gauges, drains and connections to fire alarm system as required by NFPA and fire codes.

Spare head cabinet with additional replacement sprinklers and sprinkler wrench is located adjacent to the main fire protection risers in accordance with NFPA requirements.

The fire department connection is located on the north side of the building adjacent to the main entrance. Fire department connection is a free standing siamese type with (2) 2-1/2" connections.

Items To Be Addressed

Continue testing system in accordance with NFPA and Local requirements.

Electrical Systems

Power Distribution:

The building is served by (3) electrical services. The first electrical service is rated 400A, at 208/120V three phase and is located in the East Storage room on the lower level. The second electrical service serving electric heating loads and is located in the same room. The electric heat service is rated 200A, at 208/120V three phase. The last electrical service is rated 400A, at 208/120V three phase and an exterior meter-C/T cabinet with main disconnect is located on the south west corner of the '99 addition. The exterior meter feeds a panel located in the Storage Room near the elevator machine room in the '99 addition. All three services are fed from a pad mounted utility transformer located at the south side of the building.

Power from the three services is fed throughout the building via a system of distribution and branch circuit panels.

The majority of panels are located in the East Storage Room on the lower level. The distribution panel in the East Storage room feeds a panel on the main level located in the Janitor Closet.

The main electrical distribution panel serving the 1999 Addition is located in the Storage room near the Elevator Machine Room. This panel feeds the elevator and also serves a panel on the main level located in the Mechanical Closet located between the Library Directors Office and the Museum Office/Storage.

All of the electrical panels in the original building are manufactured by Erikson. The two electrical panels in the '99 addition or manufactured by Siemens.

Overall the electrical distribution system is in good condition. However, the electrical panel "1-L-1" located in the original building in the Janitor Closet is missing a few circuit breakers, with the openings covered by a piece of cardboard.

Interior Lighting:

There are varying styles of luminaires inside the building including lay-in troffers, strip lights, recessed round downlights, track lights, decorative pendants, linear pendants, etc. The majority of the fixtures are fluorescent, and the decorative pendants appear to be incandescent. Overall, the interior lighting appears to be in good condition and provides adequate light levels throughout the building.

Interior lighting throughout the building is controlled via standard lighting switches.

Exterior Lighting

Exterior lights are installed around the outside of the building including wall packs, bollards, flood light for flag, and one decorative pole light fixture near the main sidewalk. The majority of exterior lighting are HID source. The exterior lights appear to be in fair condition.

Egress Lighting

Exit signs and emergency lighting appear to be adequately provided throughout the building. Exit signs and emergency egress lighting are battery powered.

Fire Alarm System

The building is protected with a Silent Knight model 5820XL fire alarm system installed in 2001. The fire alarm system is comprised of conventional audio/visual notification devices emitting a temporal horn and visual strobe notification. The entire building is protected via detectors and manual pull stations. In addition, the fire alarm system monitors the elevator in the building. There is a fire alarm annunciator panel located in the main entrance. There have been reports of issues with the fire alarm system such as false trips and trouble alarms. The existing system is approaching 24 year in age and the existing 5820XL panel is now obsolete and no longer manufactured. Spare parts are limited as well as support for the system. Random false trips and trouble alarms are typically indicators of components of the system beginning to fail. As the system is discontinued, system replacement should be considered. Future renovations and/or additions would require additional devices based on current codes. This can be done at the Owner's discretion at any time to provide additional protection to the existing facility.

Telecommunication System

The main communication rack is located in East Storage room on the lower level. The horizontal structured cabling is CAT 5E. The system appears to be functional and in good condition.

Electrical Systems

Items To Be Addressed

Thermal imaging the service is recommended in the original building due to age of the electrical system. It is also recommended the remainder of the electrical equipment be thermally scanned as a preventative measure to ensure all connections are secure and properly terminated.

There is no signage indicating the presence of multiple electrical services serving the building. Signage should be provided at each electrical service to clearly indicate which part of the building is served by which service and that the building has multiple services.

At the southeast corner of the building, an irrigation system had been plugged into an exterior receptacle that has a standard weatherproof cover. The plug prevents the cover from completely closing and the cover appears to be damaging the cord due to friction. The cover should be replaced with a "while-in-use" cover that would allow for the cover to be closed for better weather protection and also protect the electrical cord from being damaged by the cover.

Replace antiquated interior light fixtures with long life LED energy efficient light fixtures. Additionally, we recommend adding occupancy sensors and automatic controls for reduced energy costs.

Replace the exterior light fixtures around the building with LED fixtures for longer lamp life and energy efficiency.

Provide exterior, weatherproof heads connected to emergency egress battery lighting fixture at exterior doors to illuminate path of egress away from building in the event of power failure.

Replace building fire alarm system including panel, devices and cabling due to the system being 24 years old and obsolete.

Capital Improvements

Capital Improvements Projects

Recommendations for Future Larger Scale Projects

The following are four potential projects that are focused on improving the existing building. Preliminary cost estimates for each project are provided.

Full Abatement & Restoration

This project will focus on removing all remaining asbestos materials within the entire building. The restoration of walls, ceiling, and floors that is required after the removal is included. Estimated Construction Cost: \$335,000

ADA Compliance & Safety Upgrades

This project will focus on correcting the miscellaneous ADA infractions and safety concerns. Two toilet rooms shall be reconfigured to provide the correct clearances/dimensions at all fixtures. The activity casework will be modified to allow a front approach. Other sink locations in workrooms will also be modified for front or side approach. Any knobs or recessed door handles will be switched with compliant hardware. Last, the railings at all five stairs will be replaced. The new railings will have a guardrail and a separate handrail to fully meet ADA requirements. All code required signage will be provided (with braille). The second stair from the upper level in the 1974 building shall be replaced and enclosed per egress requirements. The other stair in the 1974 building will be separated from the lower level with fire rated construction and doors. Area of rescue assistance shall be provided at both lower level exits. The egress violations, based on door swing, on the lower level shall be addressed. Estimated Construction Cost: \$595,000

Building System Upgrades

This project will focus on improving the building systems. Mechanical equipment that was identified as past its service life will be replaced. All R22 refrigerant (which is no longer allowable) and associated infrastructure will be removed and replaced with new refrigerant. The installation of a backflow preventer on the incoming water service will be completed with all new toilet room fixtures and faucets provided. All lighting with new light controls shall be provided. A new fire alarm system shall be provided. Estimated Construction Cost: \$1,260,000

Building Envelope Upgrades

This project will focus on improving the building envelope. At exterior walls, spray foam insulation will be provided to provide a cohesive thermal barrier. The foam will also eliminate any air intrusion through cracks or voids. This new insulation solution should continue to the underside of the roof deck. The insulation will be encapsulated by furring walls (concealing all the exposed masonry). At the exterior masonry walls, new open joint weeps at the head and base of the walls will be created to allow air flow through the cavity. The moisture absorbed by the brick (or that finds its way past the barrier) will drain out of the system faster. Either through the open base joints or through evaporation. The masonry surfaces should be cleaned to remove all dirt and stains. It will be easier to spot future issues with

unblemished façades. New sealant shall be installed at all openings and penetrations.
Estimated Construction Cost: \$1,660,000

Project Selection & Cost Efficiency

When the library is considering future projects, the library should consider grouping varying scopes of work together that would provide cost efficiency. There are two components to this. Grouping varying work together which are interrelated to ensure that the building or its components are not repeatedly impacted is one key factor. Grouping varying work together that will have a benefit to one another in regards to performance once completed is the second key factor.

The projects that are proposed herein were developed with that in mind. Other examples are as follows:

- Window and door replacement projects should be coupled with mechanical system upgrades. The improved performance of the windows and doors will have an impact on the performance calculations for the equipment.
- Thermal envelope improvement projects (roof / exterior walls) should be coupled with mechanical system upgrades. The improved performance of the roof or walls will have an impact on the performance calculations for the equipment.
- Flooring replacement should be coupled with re-painting and significant furniture restructuring or replacement. Paying to move furniture out of the way once is more cost effective. Doing this work at one time without obstacles is more cost effective than doing it in pieces.
- Coupling miscellaneous repairs, replacements, or upgrades when a specific contractor is involved. An electrician on site to replace light fixtures can repair or expand distribution panels, add/relocate power outlets, provide new controls.
- Specialty electrical systems work should be paired together. In many cases, fire alarm contractors also perform security system work as well. These systems need to be integrated in many cases and having the work coordinated and completed at one time is a benefit.

Another factor to consider when looking to maximize the library's funds is to select fewer larger projects than a greater number of small projects when funding is available. A contractor, when bidding, is more likely to have a lower fee percentage related to general conditions and their profit to remain competitive. The larger project dollar value allows for this tighter pricing. Smaller projects still require

management and full-time site supervision. Owners will find more of their dollars going to the contractor than the actual work.

Capital Improvement Spreadsheet

Capital improvements related to the Lake Bluff Public Library are further described and organized by building component in the provided spreadsheet.

Within the separate document the estimated cost breakdown by year is provided. Costs are shown in 2025-dollar values and can vary the further into the future the work is accomplished based on market conditions and escalation.

Of necessity, a number of assumptions are made regarding the timing of future capital expenditures. These were primarily based upon the observed condition and typical service life cycles. At the Library's option, a number of the costs could be deferred until funds become available. Regardless of the exact timing of the work, the following analysis will give you an overall understanding of the most significant costs the library will incur over time.

The overall spreadsheet showing the full breakdown of building system components, their associated service life and repair / replacement costs is in a separate attached file.

NOTES