WILD CENTER
PROPERTY CONDITION ASSESSMENT NARRATIVE

01 EXECUTIVE SUMMARY

FINDINGS REPORT AND CONCLUSION

The Wild Center, set into a private corner of Tupper Lake, NY, has grown to a sprawling 115 acres developed to showcase and make accessible the beauty, life, culture, science, and history that is the Adirondacks. With year-round seasonal beauty celebrated and made accessible to the public, this Museum's offerings are a true gem for the region.

As with all facilities, the early years often move along rather smoothly regarding maintenance, and there is little perceived need for investment to newly constructed facilities. With much of the development of the Wild Center site occurring nearly 20 years ago, several structures are beginning to show their age and are facing demands for attention on a similar timeline. To date, the existing facilities and grounds have been continually supported and maintained for enhanced longevity successfully. However, as buildings and structures begin to age further it is critical to initiate and maintain a deferred and preventative maintenance program to extend the life of materials and equipment as well as systematically prepare to replace elements that are approaching or at end of life before failures start to impact day to day operations or the public experience. The leadership teams currently supporting the Wild Center have recognized the appropriateness and value of initiating this assessment at an ideal time given the age of the buildings, and the recognized need for updates that are at a more involved level than was necessary to date. This study outlines work that should be considered in your maintenance program over the next 10 years and beyond and should be considered a guiding tool for planning improvements.

LaBella's Property Condition Assessment has been broken down into 3 distinct areas, Bio Building, Museum Building, and Civil/ Landscape. For each building review we have detailed separately the following categories of detailed findings: Architectural, Mechanical, Plumbing & Fire Protection, Electrical, and Structural.

The Bio Building was completed in 2007 and does not serve a public access need on the campus. Our recommendations are based on age and visual evidence of deterioration. The compounding element of prioritizing this work against areas of constant public access has driven our focus of critical elements in this building to those that are most beneficial to extending life expectancy and minimizing long-term investments. In this light we see the priority for work in this building as largely secondary and recommend concentrating on envelope improvements that are showing early evidence of failure or impending replacement and maintenance needs to prolong the security and longevity of the building envelope. While the Bio Building roof membrane should last another 10-15 years before replacement is required it is necessary to address failing fascia, flashing, and soffit at the roof perimeter in the near term to minimize any compounding damage that may result from the water infiltration that we are seeing here. The roof mounted solar panels do not require any immediate attention but are approaching end of life in the next 10 years +/-. Other items to attend to include seals and gaskets around exterior doors and windows, and replacement of exterior man doors. The data closet struggles with excessive heat and the equipment in this room will benefit from a dedicated ductless split air conditioner.

Replacement of the gas fired furnace within the next five years will also be one of the priority items for the longevity of this building as it is nearing the end of its life expectancy, and the refrigerant used will no longer be available after 2025. Finally, we also recommend refreshing the interior finishes systematically over the next 10 years starting with carpeting/ flooring to minimize the occurrence of slips, trips, and falls. All other system elements including structural are in good condition with only minor efforts detailed on the following pages.

The Museum Building is the work horse of the whole complex and is impacted by extensive activity and abuse due to the nature of use and demands from both the public and nongame species occupants. It is quite impressive that this facility has remained in such remarkable condition, which is a testament to the care and attention given by the staff working in and around the building. The most pressing concern on this building architecturally is the deterioration of the roofing system. Our recommendation would be to replace the roof in its entirety with a standing seam roof which would have a life expectancy of 30-50 years. Alternate approaches to roof replacement and maintenance are also outlined in the report and costing spreadsheet that could adapt to support short term financial goals as needed. Replacement of deteriorated siding in focused locations around the exterior will be necessary in the coming years. The interior also requires a combination of repairs, replacements, and enhancements including finishes, fixtures, and furnishings to address wear and improve functionality, compliance, and occupant comfort. The UPS system in the main switch gear room will require replacement within the next few years, including updated LED lighting for any remaining fixtures. Mechanically there will be replacements required for heating and chilled water pumps, air distribution improvements throughout the admin areas, and noted component replacements on various systems to maintain proper working condition and improved efficiency. The chiller will require replacement of one non-functioning bank immediately, with replacement of others over the next few years. Updates such as these are crucial to ensuring the buildings meet current codes and standards, extend life expectancy and usability, and align with modern needs and expectations.

The Wild Center's civil and site elements, including paving, curbing, stormwater systems, landscaping, trails, signage, bridges, pedestrian site lighting, and the pond, are generally in good condition, reflecting thoughtful design and effective maintenance. While key components such as natural trails and stormwater drainage demonstrate durability and sustainability, isolated issues have been identified. These include minor pavement deterioration, outdated lighting systems, worn bridge decking and handrails, and concerns regarding the longevity of the pond liner repair. Structural elements throughout the property requiring attention are limited to the replacement of one visibly degrading beam, and standard maintenance activities including protection of the steel on the Raptor’s Nest and stair, and railing reinforcement or replacement. Addressing these areas will enhance safety, functionality, and visitor experience.

All areas of the Wild Center Complex will require various levels of attention and investment over the next several years. Through careful planning and continued and expanded preventative maintenance measures the property will continue to thrive and support the growing and diverse activity and event schedule. The buildings were originally constructed to be long-standing and durable with little maintenance required considering the size and complexity and will perform for many more years of continued use with standard maintenance and planned replacements.

ARCHITECTURAL NARRATIVE

02 OBSERVATIONS & DISCUSSION

Life Safety & Code Compliance

The existing buildings are in good to excellent condition when it comes to life safety. Both buildings appear mostly compliant with building codes applicable at the time of their construction. The restrooms require addition of vertical grab bars to meet current compliance. As renovations and repairs are planned, ensuring they align with current building codes, especially for egress, fire safety, accessibility, structural and energy efficiency requirements. Refer to other sections of this report for more details regarding life safety elements related to Mechanical, Electrical, Plumbing, and Fire protection.

BIO BUILDING ARCHITECTURAL NARRATIVE

01 BUILDING SUMMARY

The Bio Building, completed in 2007 was designed to support staffing and operational needs including shop space, garage bays, storage, conference, office areas and animal quarantine areas. The functions in this building are not for public access and prioritizing the work here will largely want to focus on maintaining the integrity of the envelope, systems and improving building and operational efficiencies. This facility has been adapted over time to support changing demands and performs well in this flexible capacity. While the building is sound, it is beginning to show its age, and will require attention in the coming years to keep it viable and efficient for its users.

02 OBSERVATIONS & DISCUSSION

Exterior Envelope

The existing Bio Building exterior walls are wood framed construction with cavity insulation. The exterior siding consists of Pine horizontal Brainstorm Siding with a stained finish, cedar log slab trim boards used as primary rhythmic façade divisions, and rough sawn pine secondary trim boards. The roof system of the Bio Building is a Green Roof with a 208-Watt Photovoltaic array, on TPO roofing membrane. Exterior doors and windows continue to perform effectively but are approaching a point where replacement will be necessary.
The exterior is in good condition overall based on the time the building was built.

Siding

The wood siding on the building is deteriorating and damaged in multiple areas around the perimeter. There is some damaged timber trim at and near windows as well. It will be important to maintain a schedule to re-stain the exterior envelope every 5-7 years. During this re-application of stain selected areas of siding that are showing more significant damage should be replaced or repaired. Overall, the exterior siding condition is good and can be elevated to excellent with a combination of deferred maintenance efforts and limited replacements.

Siding condition examples

Damaged timber trim

Damaged window sill trim

Roof

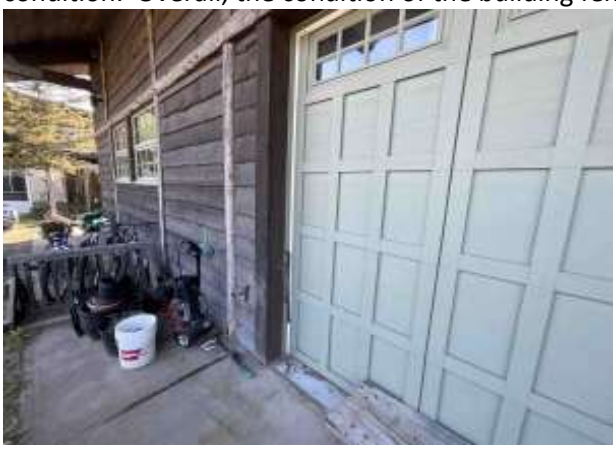
The fascia boards are experiencing significant degradation. There is evidence of decay and visual observance of moss growth along the drip edge and fascia boards. Failing roof flashing along the south edge at the solar panel locations also requires full replacement. Replacement of the roof edge components should occur within the next 3-5 years. The TPO roofing membrane appears to be performing well and there is no evidence of roof leaks at the Bio Building. The Green Roof systems also appears to be in good condition and performing as expected. The life expectancy for a green roof system like this is typically 30-50 years, and replacement should be considered in approximately 10-15 years. The PV panels are aging out, and the electrical narrative in this report details opportunities to capitalize on improvements for this system. Overall, the roof condition is good, and the fascia, soffit and flashing elements are in poor condition.


Moss growth at roof edges

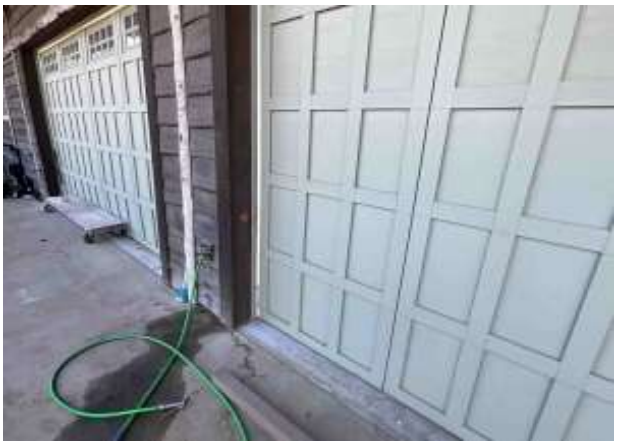

Roof flashing at solar panel locations

Fenestrations

Exterior man doors are approaching end of life and will require replacement within the next 3-5 years. Overhead doors are not currently used as originally intended, and largely do not require operation. If these come back into operation improvements will need to be considered including new weather gaskets, seals, and some replacement panels. Windows throughout the Bio Building are in good condition. Overall, the condition of the building fenestrations is fair.



Damaged jamb trim at 108B



Damaged jamb trim at 108A

Area of concrete foundation wall is cracking and does not have damp proofing. Corrective measures will keep this from developing further. Overall, the condition is good.

Interior

Most of the existing interior spaces of the Bio Building are beginning to show their age. Over the years there have been some space modifications that have resulted in potential code or compliance concerns. These concerns are indicated in each of the respective narratives in this document. Additionally, the interior finish materials and treatments are both dated and showing wear. Moving forward it will be important to methodically support updates to some finishes so not to arrive at a point where everything requires attention all at once.

The exposed concrete floors in the garage area have cracking and surface wear. The cracking did not appear to be separating but should be patched and sealed so to prevent any compounding issues, protect it from spills and staining and maintain a smooth, safe work surface.

Garage floor

Garage overhead door

Flooring in other areas is largely carpet and vinyl, and while worn and faded is not a safety concern. Missing transition strips and high traffic areas will require replacement soon. In the next 2 - 4 years carpet replacement in most rooms should be prioritized. The tile in the bathroom area only requires limited grout touch up and sealing to extend the life of those finishes.

HC Bathroom mirror

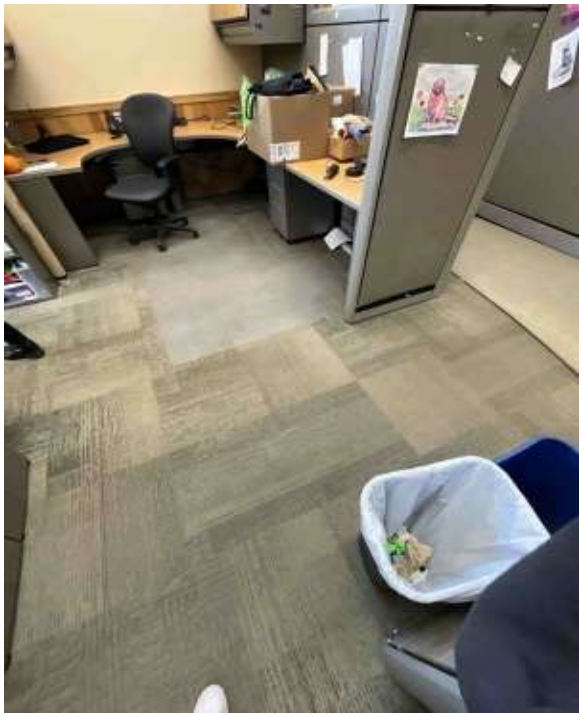
HC Bathroom floor and wall tile

Ceiling tiles are in good condition, and wall paint is holding up fine in the lesser used areas. Fresh paint is recommended on a revolving 10-year cycle in this building where spaces are not publicly accesses.

Vestibules photos

The Naturalist Office area requires some patch and paint. Carpet transition is failing and is at end of life. The windows in this area are in good condition.

View of Naturalist Office



Carpet in Naturalist Office

The Conference Room requires some minor repairs to the ceiling and patch and paint areas of walls. The adjoined Kitchenette is missing cabinet pulls but otherwise in good condition. And the HC Bathroom slate wall and floor tiles have staining and there's minor degradation.

Conference Room ceiiling

Conference Room into Kitchenette

Conference Room

Kitchenette

The fire door entrance into the Garage from the office space door is not latching and the exterior exit door has approximately 2-5 year replacement timeline. The overhead door at 108A weather gaskets are failing and frame shows damage. The Garage concrete floor has minor cracking and requires sealing throughout to prolong it's life.

Modifications to the original layout of the Event Storage/ Garage area are slightly out of compliance. This new separation is required to be fire rated and the 90 minute door requires a closer to maintain this protection as it is necessary to separate the garage function from the newly created office/ storage area. This work is easily accomplished, will bring this office into compliance should be prioritized.

Garage interor fire door

Garage exterior exit door

MUSEUM BUILDING

The Museum Building, built in 2004, was designed for public experience and engagement. The main functions in this building are for the public to visit, learn, and explore exhibits and presentations done by The Wild Center. It also houses staff and administration, a conference room, storage, and café and kitchen. The priority in this building will be focusing on maintaining the integrity of the envelope, systems and improving building and operational efficiencies The exterior of the building is structurally sound; however, several areas require maintenance and repairs to address deterioration and preserve the building's condition.

Exterior Envelope

The existing Museum Building exterior walls are wood framed construction with cavity insulation. The exterior siding consists of mostly horizontal lap siding with a stained/painted finish. There are many exterior wood timber columns on concrete and stone piers which require maintenance. The roof system is corrugated metal panels with wood fascia and soffit. The wood siding and metal roof require maintenance to address signs of wear and ensure long-term durability. Exterior doors continue to perform effectively but are approaching a point where replacement will be necessary. Many windows have wear and/or moisture damage due to location and will require replacement.

Main entrance area of Museum Building

Pond view of Museum Building

Conference/Admin entrance of Museum Building

Examples of timber columns

Missing guardrail; code non-compliance

Siding

Sections of the wood siding around the perimeter show signs of weathering, including peeling paint and minor rot. Repainting and selective board replacement are needed. Minor cracks and warped boards need replacement to restore integrity and appearance. Evidence of moisture damage in some areas should be mitigated to prevent further deterioration. There are some damaged timber columns as well that will need repair or maintenance.


Examples of damaged siding

Example of stained stone façade

Example of assumed moisture damage

It will be important to maintain a schedule to re-stain the exterior envelope every 5-7 years. During this re-application of stain selected areas of siding that are showing more significant damage should be replaced or repaired. Overall, the exterior siding condition is good and can be elevated to excellent with a combination of deferred maintenance efforts and limited replacements.

Roof

The corrugated metal roof system is structurally sound, but repairs are required to address areas of water leakage. The soffit and fascia components of the building are generally in good condition but require minor repairs to maintain their functionality and appearance.


Examples of soffit and fascia

Example of fascia board damage

Key factors to consider when deciding whether to replace the existing corrugated metal roof with standing seam metal roof or to continue to repair corrugated metal roof until end of life.

Aspect	Replace with Standing Seam Roof	Repair Existing Corrugated Roof
Cost	High upfront investment	Low initial cost
Longevity	30–50 years	5–10 years
Leak Prevention	Superior water-tightness	Risk of recurring leaks
Maintenance	Minimal	Periodic repairs and maintenance needed
Aesthetics	Modern and sleek	No significant aesthetic improvement
Disruption	Longer installation time	Quicker to complete
Energy Efficiency	High with reflective coatings	No improvement
Property Value	Increases significantly	No significant impact

Overall, the metal roof is in fair condition, providing adequate structural protection but requiring targeted repairs to address areas of wear and damage. Timely intervention will extend its lifespan and prevent further deterioration.

Fenestrations

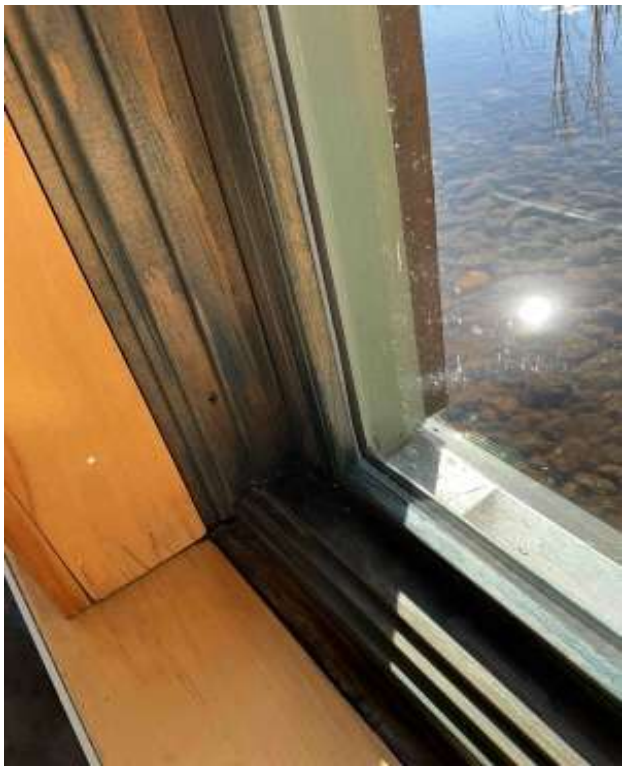
The exterior man doors of the building are showing signs of wear and are approaching the end of their useful life. While they remain functional at present, replacement will be necessary within the next 3–5 years to maintain security, energy efficiency, and aesthetic appeal.


Exterior door examples

Many windows on the building show significant signs of wear and moisture-related damage, primarily due to their location and exposure to the elements. Frames exhibit signs of rot and warping. Paint or finish is peeling or fading in other areas. These issues will require repair or replacement within 1-3 years.

Example damaged window weatherstripping at exterior

Example of worn window finish



Evidence of water infilitration at sills

Overall, the building's fenestrations are in fair condition, with some areas requiring immediate attention and others expected to need replacement or repairs within 8-10 years. While the building remains functional, addressing these issues will ensure optimal performance, aesthetics, and energy efficiency.

Interior

The interior finishes of the building, while still functional, are showing signs of age and wear. Attention to repainting, flooring repairs or replacement, and addressing minor damage to trim, walls, and ceilings will significantly enhance the building's aesthetics and comfort. Updating finishes will improve both the appearance and functionality of the interior, contributing to a more polished, cohesive space.

Example of area requiring patch/paint

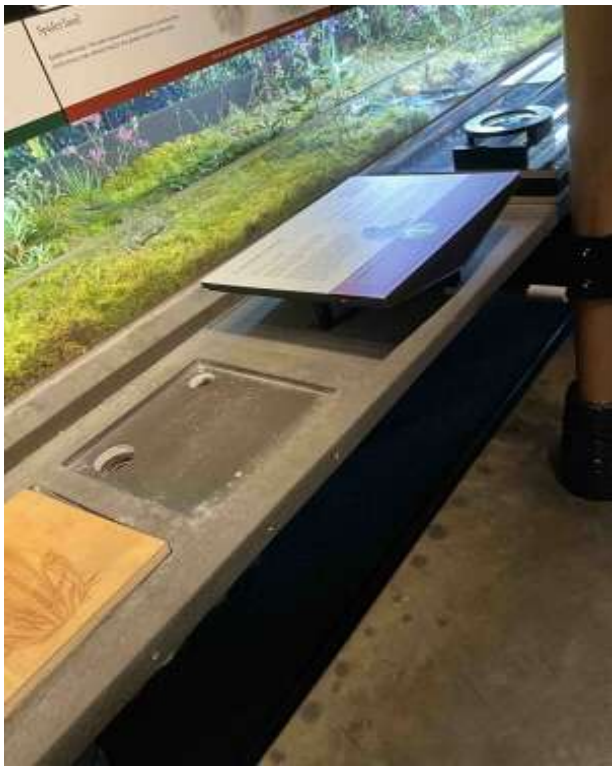
The building's flooring is primarily composed of carpet and sealed concrete. Many areas show signs of wear, and some sections may require patching, sealing, or replacement.

Examples of worn carpet

Examples of concrete floor requiring refinish or repair

Example of flooring transition

Some of the exhibit spaces in the building require countertop repairs and updates to plumbing fixtures to improve functionality and appearance. These updates will ensure that the spaces continue to meet the operational needs and maintain a professional and polished presentation.



Examples of exhibit finishes

The Acoustical Ceiling Tiles (ACT) in the building are in good overall condition, with most areas being intact and functional. However, certain sections require minor repairs or replacement to address localized issues and maintain the ceiling's appearance and performance.

Example of damaged ceiling tile

Example of missing /damaged ceiling tiles

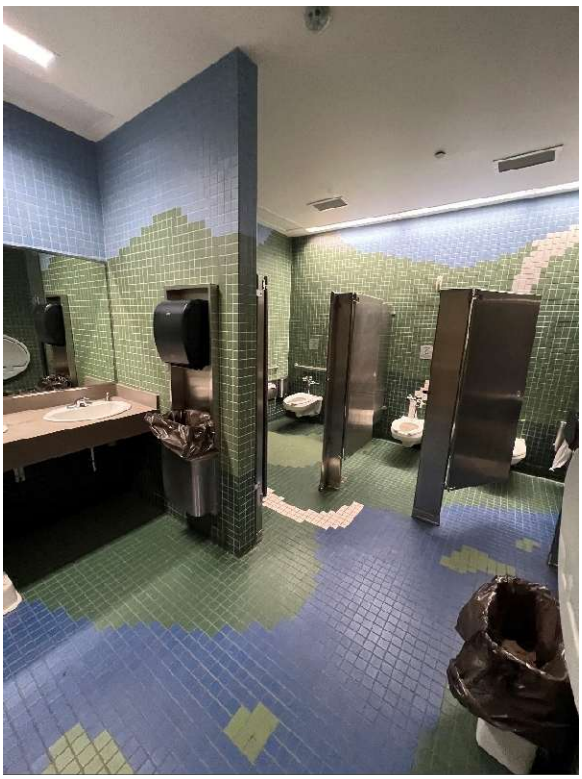
The interior doors throughout the building are generally in good condition, with no major structural or functional issues. However, regular maintenance and minor updates can help ensure continued functionality and appearance over time. We recommend replacing approximately half of the interior doors within 5 years and door hardware every 2 years for the next 10 years.

Examples of wood and metal interior doors

The interior birch trees are aging and will need replacement throughout within 1-2 years.

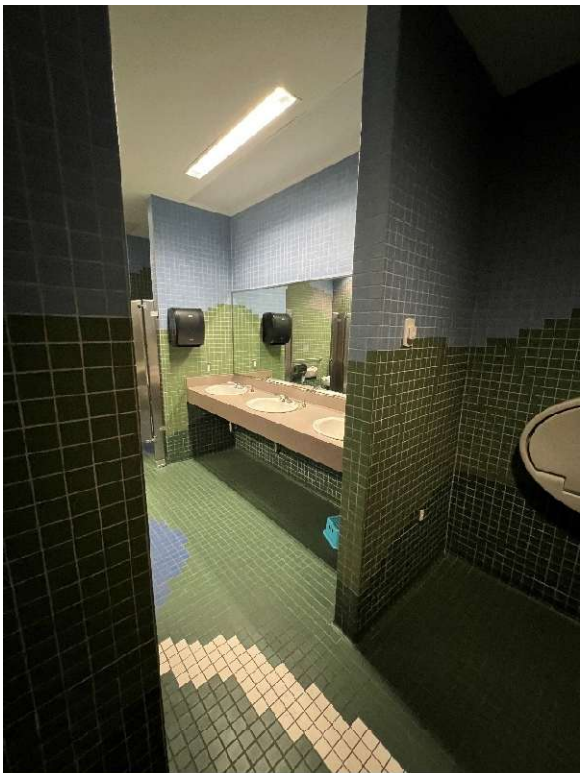
Examples of interior birch trees

The restrooms are overall in good condition, with wall and flooring tiles remaining well-maintained and intact. Updating the vanity tops and accessories would help to modernize the spaces. To achieve code compliance, a vertical grab bar must be added to the ADA-accessible stall in each restroom, as well as in the unisex toilet room.

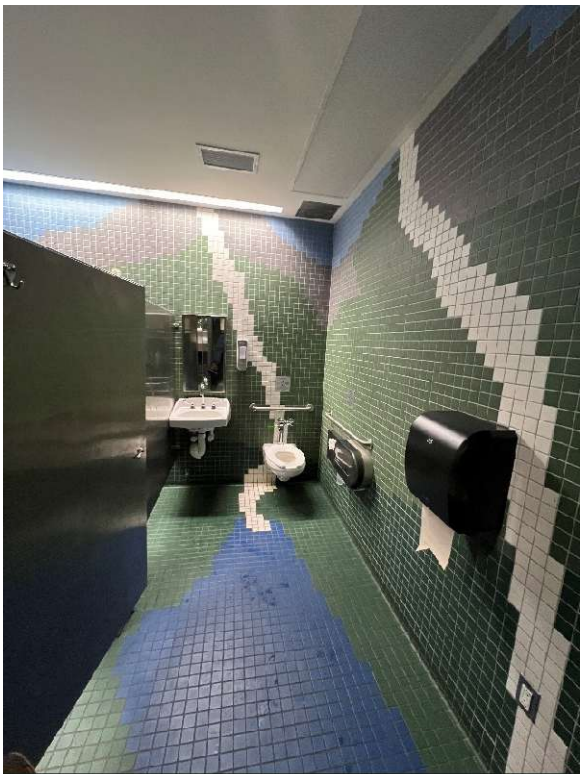


Ladies public restroom

Ladies public restroom

Mens public restroom

Mens public restroom

Unisex toilet in admin area

Overall, the interior finishes of the building are generally in a satisfactory state, but several key areas need updating and repairs. While the overall functionality remains intact, addressing the wear and tear in specific locations will help maintain the building's aesthetics, comfort, and longevity.

While updates or renovations to specific areas of the building are not necessary for functionality or compliance, they could significantly enhance the aesthetics and modernize the overall appearance, contributing to a more appealing and updated environment.

For example, the Theater space is functional and does not require immediate updates; however, renovations or targeted improvements to finishes and furniture could elevate its appeal and create a more contemporary atmosphere. This could be the case for areas like the Café, Laboratory, and the public restrooms as well.

03 RECOMMENDATIONS

Architectural

Bio Building

- Address failing fascia, flashing, and soffit at the roof perimeter to prevent water infiltration and minimize future damage within 3-5 years.
- Monitor the roof membrane, which has an estimated lifespan of 10–15 years, for signs of wear. Plan for green roof TPO and plant replacement in 10-15 years.

- Replace deteriorated siding in focused areas over the next 10 years, and re-stain entire building in 2026 with a plan to re-stain every 5-7 years.
- Replace seals and gaskets around exterior doors and windows to enhance weatherproofing.
- Replace exterior man doors to maintain security and functionality within the 3-5 years.
- Plan for the replacement of roof-mounted solar panels in the next 10 years as they approach the end of their life expectancy.
- Update interior finishes systematically over the next 10 years, starting with flooring, patch and paint throughout, grout and tiling.

Museum Building

- Consider roof replacement and maintenance approaches outlined in the report and long range planning spreadsheet, including fascia, flashing, and soffit, to align with short-term financial goals.
- Replace the entire roof within 8 years with a standing seam system for durability and a 30–50-year life expectancy.
- Replace deteriorated siding in focused areas over the next 10 years, and re-stain entire building in 2025 with a plan to re-stain every 5-7 years.
- Damaged exterior timber columns will need repair or maintenance within 3-5 years.
- Replace deteriorating windows effected by proximity to water within 1-3 years. Replace remaining windows within 10 years.
- Replace exterior wood doors and aluminum door hardware to maintain security and functionality within 3-5 years.
- Plan to replace interior door hardware every 2 years.
- Interior birch trees will require replacement within the next 1-2 years.
- Install vertical grab bars in bathrooms to make code compliant.
- Update interior finishes systematically over the next 10 years, including repainting, flooring and casework and countertop repairs or replacement, and addressing minor damage to trim, walls, and ceilings.

04 COST ESTIMATE

Architectural

Refer to long range planning spreadsheet

CIVIL/ LANDSCAPE NARRATIVE

01 EXECUTIVE SUMMARY

CONCLUSION

Civil/Site. The Wild Center's civil and site elements, including paving, curbing, stormwater systems, landscaping, trails, signage, bridges, pedestrian site lighting, and the pond, are generally in good condition, reflecting thoughtful design and effective maintenance. While key components such as natural trails and stormwater drainage demonstrate durability and sustainability, isolated issues have been identified. These include minor pavement deterioration, outdated lighting systems, worn bridge decking and handrails, and concerns regarding the longevity of the pond liner repair. Addressing these areas will enhance safety, functionality, and visitor experience.

RECOMMENDATIONS

Civil/Site. Pavement and Curbing: Address life safety concerns, such as tripping hazards at crosswalks and concrete lips, to enhance pedestrian safety and accessibility, especially during high-traffic events like Wild Lights.

Stormwater System: Maintain the system's effectiveness by instituting regular inspections and cleaning, particularly after significant weather events, to prevent sediment accumulation and structural wear.

Landscaping Management: Implement routine tree pruning and vegetative management around lighting fixtures and signage to maintain visibility and enhance site aesthetics.

Trail Maintenance: Continue the upkeep of crusher stone through periodic compaction, grading, and material replenishment to sustain accessibility and prevent erosion.

Signage and Wayfinding: Perform periodic evaluations to ensure all signs remain legible and properly positioned, supporting seamless navigation for visitors.

Bridges: Replace worn wood decking with durable composite material and upgrade custom handrails to enhance longevity while preserving aesthetic integrity. Address structural concerns such as post settling as recommended by structural engineers. At the time of this report the Facility team is currently engaged in replacing Rainbow Bridge.

Pedestrian Site Lighting: Install additional LED path lights to improve nighttime visibility and safety. Evaluate parking lot lighting for necessary upgrades to ensure consistent illumination.

Pond: Proceed with long-term pond liner repairs using high-quality materials and following precise compaction and sealing practices. Emphasize erosion control and site restoration to minimize environmental impact.

Civil/Site

Stormwater Drainage

The stormwater drains observed around the Wild Center site are in good condition, demonstrating key characteristics of effective surface-level drainage systems. The drains are well-placed at low points, ensuring efficient water collection and flow without pooling or flooding. Their design integrates durable materials capable of withstanding environmental wear and vehicular loads, contributing to their longevity and reliability.

Grates and covers are in place to prevent debris from clogging the system, maintaining consistent performance even during heavy rainfall. Furthermore, the drains effectively channel water away from high-traffic areas, minimizing the risk of erosion or water damage to surrounding infrastructure. The absence of sediment buildup or structural damage highlights their effective design and routine maintenance.

To ensure the long-term performance of the stormwater drainage system, we recommend incorporating routine preventive maintenance. This includes periodic cleaning of grates and channels to remove debris, inspecting the drains after major weather events, and ensuring proper grading around inlets to prevent sediment accumulation. Additionally, periodic assessments for structural wear or damage to materials will help identify any potential issues early, allowing for proactive repairs.

Given the current condition and commitment to ongoing maintenance, the stormwater drainage system is well-positioned to continue meeting the site's needs for years to come.

Figure 1 Stormwater drainage near building front entrance

Figure 2 Stormwater drainage near ADA drop off

Landscaping

The existing landscaping around the Wild Center site is in good condition and thoughtfully designed with native, low-maintenance plant species. These native plants not only enhance the natural aesthetic of the site but also require minimal upkeep, contributing to sustainable and efficient landscaping management. The vegetation is well-suited to the local climate, reducing the need for irrigation and additional resources.

The only recommendation for maintaining the quality and functionality of the landscaping is to keep up with tree pruning and vegetative management around site lighting, walking trails, and signage. Regular pruning will ensure that lighting fixtures remain unobstructed, providing adequate illumination for pathways and parking areas, while also maintaining clear visibility of important signage for visitors.

Figure 4 Entry Lighting, good condition, tree pruning recommended

Figure 3 Entry signage, good condition, vegetative management recommended

Paving, Curbing, Parking and Loading

The paving, curbing, parking, and loading areas across the Wild Center site, which include asphalt, concrete, crusher stone, and permeable pavers, cover a total of 161,980 square feet and are in overall good condition, as reflected in PASER ratings ranging from 6 to 8. Asphalt surfaces rated 8 (43,778 square feet) are in very good condition, requiring minimal maintenance, while areas rated 6 (83,340 square feet) and 7 (34,862 square feet) show minor deterioration. Concrete areas are generally stable but present localized issues such as edging lips, spalling at crosswalks, and transitions between materials. Addressing life safety concerns, including tripping hazards and surface inconsistencies, remains a high priority, particularly in high-traffic pedestrian zones and during winter events like Wild Lights. Additionally, refreshing parking lot striping is recommended as a lower priority task to enhance visibility and organization.

Surface Area Distribution by PASER Rating	
Paser Rating	SF
6	83,340
7	34,862
8	43,778

PASER Ratings and Surface Areas by Section		
Area	Paser Rating	SF
1	7	21,702
2	8	8,265
3	8	1,177
4	8	34,336
5	7	2,911
6	6	45,875
7	6	4,544
8	6	973
9	6	15,183
10	6	695
11	6	8,995
12	7	7,861
13	6	1,156
14	7	2,388
15	6	733
16	6	5,186

Natural Material Trails

The natural material trails at the Wild Center, consisting of crusher stone, are in good condition and provide an accessible and aesthetically pleasing connection to the surrounding environment. These trails exhibit minimal signs of wear, with their surfaces remaining stable and well-compacted, ensuring a comfortable and safe experience for pedestrians.

The trails are performing as intended, with proper grading and drainage ensuring the paths remain free of significant erosion or water pooling. The crusher stone trails have retained their structure, with no evidence of major washouts or uneven areas. Proper maintenance and environmental factors significantly influence their life expectancy, which can range from 7 to 10 years with regular upkeep. Usage levels, environmental factors and material quality are considerations when evaluating maintenance and replacement frequency. High foot traffic, heavier equipment usage, heavy rain or steep grades can shorten the life expectancy significantly.

Signage/Wayfinding

During our evaluation of The Wild Center's signage and wayfinding systems, we found the current condition to be effective and well-maintained, successfully guiding visitors through the grounds with clarity and ease. The placement and design of the signs ensure intuitive navigation, contributing to a seamless visitor experience.

Figure 6 Entry Drive Monumental Signage

Figure 5 Entry Drive Signage

Bridges

The existing wood decking and custom wood handrails on the bridge are nearing the end of their service life, showing signs of wear and deterioration. Additionally, some post settling was observed during the assessment, which may indicate potential structural concerns.

Pedestrian Lighting

The increased nighttime use of pedestrian walkways and trails highlights the need for improved lighting to enhance safety and visibility. Parking lot lighting was also identified as an area requiring review to ensure consistent and adequate illumination across the site.

Pond

The pond remains in good condition, supporting an established habitat and a functioning drainage spillway designed to manage flooding and prevent breaches. The short-term repairs, completed in the fall of 2024, addressed immediate concerns by stabilizing the pond liner failure. Tasks included removing and stockpiling organic soil, preparing and compacting the subgrade, and placing clay material in 6” lifts compacted to 95% Modified Proctor. The outlet pipe joint was sealed with hydraulic cement and butyl, and the pond liner was temporarily secured within the clay layers. The site was restored with organic soil replacement, erosion control removal, and debris cleanup, ensuring interim stability pending long-term repairs. However, concerns were noted regarding the longevity of the repair.

03 RECOMMENDATION

Figure 7 Pond Outlet

Figure 8 Pond Liner at Building Foundation

Civil/Site

Pavement and Curbing:

1. Address Tripping Hazards:
    - Prioritize remediation of tripping hazards caused by edging concrete lips, hardscape transitions, and spalling at crosswalks.
    - Fill landscape gaps with gravel to level corner joints and mill pavement to create flush transitions with existing hardscapes
    - Reset uneven pavers and ensure walkways are level and stable near the front entrance of the building.
2. Maintenance Plan:
    - Implement routine sealing of expansion joints and cracks to prevent further deterioration.
    - Perform regular power washing to maintain surface cleanliness and extend the lifespan of concrete walkways.
3. Asphalt Repairs:
    - As a secondary priority, address minor wear and tear in asphalt areas by filling and sealing cracks.
    - Refresh parking striping to improve visibility and organization.
4. Permeable Paver Overflow Lot
    - Check for erosion, uneven settlement, or missing vegetation in the joints. Reseed or replant as necessary to maintain coverage.
    - Examine the pavers for uneven settlement or damage. Reset or replace pavers as needed to maintain a level surface.
    - Minimize exposure to oils, fuels, or chemicals. Clean spills promptly using absorbent materials.
    - Avoid heavy equipment or vehicles exceeding the designed load capacity on the surface.
    - Every 3–5 years, test the infiltration rate of the permeable pavers to ensure they continue to perform as designed. Address any issues by replacing compacted or degraded joint material or vegetation as needed.

Stormwater Drainage

5. Maintenance Plan
    - Schedule routine inspections to identify debris accumulation, sediment buildup, or structural damage in drainage components, especially after heavy rainfall or seasonal changes.
    - Periodically clean grates, inlets, and channels to prevent blockages that could lead to flooding or erosion.
    - Maintain proper grading around inlets and outlets to ensure effective water flow and prevent sediment deposition.
    - Stabilize any areas showing signs of erosion with vegetation, riprap, or other appropriate methods.

- Monitor drainage performance during and after significant weather events to evaluate the system's effectiveness and identify immediate needs for maintenance or improvement.

Landscaping

6. Pathway, Lighting & Signage Maintenance
   - Regularly remove encroaching vegetation from pathways to maintain accessibility and aesthetics.
   - Ensure all signage remains visible by managing nearby foliage, pruning obstructing branches, and maintaining proper lighting.
7. Soil and Ground Cover Maintenance
   - Stabilize soil in high-traffic or sloped areas using ground cover plants or additional mulching.

Natural Material Trails

8. Crusher Stone Maintenance
   - Regrade the trail to maintain proper drainage, preventing water from pooling on or washing out the trail's surface.
   - Add new crusher stone or dust as needed to fill low spots or areas with significant wear.
   - To address any future erosion control issues, install edging (e.g., logs, stones, or metal) to help retain material on steeper slopes and Use geotextile fabric beneath crusher stone in erosion-prone areas to stabilize the base layer.

Signage and Wayfinding

9. Maintenance Plan
   - Ensure signage and wayfinding is free and clear of surrounding vegetation.
   - Evaluate the relevance of directional and informational signs during routine maintenance checks, replacing outdated content and damaged or weathered materials

Bridges

10. To address the issues with the bridge, we recommend replacing the existing wood decking with a composite material similar to what is used on the skywalk, which offers improved durability and reduced maintenance. Additionally, we advise engaging a local vendor to obtain accurate cost estimates for upgrading the custom wood handrails, ensuring the design respects the original craftsmanship while meeting current safety standards. For structural concerns related to post settling, we recommend referring to the structural engineering report for detailed guidance.

Pedestrian Lighting

11. For site lighting, we propose installing 75 LED path lights along pedestrian walkways and trails, spaced at 20-foot intervals, with 18-inch stems and transformers, at an estimated budget of $35,000. This includes transformers and lighting specifications to streamline installation.

Furthermore, we recommend consulting with an electrical specialist to evaluate parking lot light poles and provide recommendations and cost estimates for necessary upgrades or replacements.

Pond

12. The proposed use of a Firestone or Elevate PondGard EPDM Pond Liner (45 mil) and specified granular fill materials reflects a focus on high-quality, durable materials. Key repair steps include excavation, subgrade preparation, proper compaction of fill materials, and precise installation of the replacement pond liner.
13. Address deficiencies in the outlet pipe connection and sealing joints with hydraulic cement and butyl, aim to fortify the structure and prevent future leaks or erosion.
14. Emphasize erosion control, sediment management, and site restoration, ensuring minimal environmental impact during and after the repair process.
15. Compact fill material in 6” lifts to 95% Modified Proctor, maintaining moisture levels within 3% of the optimum to avoid future settlement issues.

STRUCTURAL NARRATIVE

BIO BUILDING

01 EXECUTIVE SUMMARY

CONCLUSION

The bio-building structural systems are in good condition with no evidence of distress or deterioration. So long as floor drains, roofing, cladding and fenestration systems are maintained (i.e. preventing water infiltration and accumulation), the bio-building structural system will last for many years of continued use with minimal maintenance or repairs required.

02 OBSERVATIONS & DISCUSSION

History and Structural System Description

The bio-building was constructed in 2007 along with the other primary structures on site and has been used to house offices and storage along with maintenance / garage operations. The building is a single-story structure comprised of heavy-timber frames and steel-gusset-connected timber roof-trusses founded on conventional reinforced-concrete shallow-foundations with concrete slab-on-grade. Perimeter curtainwalls and interior partitions are comprised of conventional wood framing (i.e. wood studs and plywood sheathing).

Observations and Discussion

In general, the structural systems are in good condition with no observed deficiencies, distress or deterioration.

03 RECOMMENDATION

Considering the structural systems are in good condition with no evidence of distress or deterioration, we have no recommended repair or maintenance items at this time to include in the cost estimate.

04 COST ESTIMATE

None n/a

MUSEUM BUILDING

01 EXECUTIVE SUMMARY

CONCLUSION

The museum-building structural systems are in good condition with no evidence of distress or deterioration. Exceptions include exposure to water infiltration due to roof leaks as well as high-humidity environment. So long as the roof leaks are addressed and cladding and fenestration systems are maintained (i.e. preventing water infiltration and accumulation), the museum-

building structural system will last for many years of continued use with minimal maintenance or repairs required.

02 OBSERVATIONS & DISCUSSION

History and Structural System Description

The museum-building was constructed in 2007 along with the other primary structures on site and has a museum / attraction / general public use. The building is a single-story structure with partial-basement comprised of structural-steel framing and reinforced-concrete shallow-foundations. At the partial basement, full-height reinforced-concrete foundation walls bear on shallow strip footings, while at the balance of the building (without basement) shallow frost-protected footings and frost walls are provided. Basement and ground floor slabs are non-structural concrete slabs on grade. Where the building retains water above the ground floor slab at the pond along the south elevation, the reinforced concrete foundation walls cantilever up past the slab approximately 4'-6" to retain water pressure. The first floor is supported by steel framing with composite concrete slab and metal deck. The roof structure is comprised of steel framing and open web joists with metal roof deck.

Observations and Discussion

In general, the structural systems are in good condition with no observed deficiencies, distress or deterioration except as follows:

1. Non-structural vertical shrinkage cracks were observed in the basement. These are non-structural shrinkage cracks that do not diminish the stability or durability of the foundation system. They do not appear to be letting in any water. However, if these cracks do begin to let in water, they can be sealed as part of a standard maintenance program.
2. Several yard drains along the exterior of the building were clogged. Clogged drains can allow water to backup into the building damaging finishes and building systems.
3. The pond adjacent to the building is a unique building feature, and the structural systems and liners appears to be functioning as intended as there was no evidence or reports of water infiltration. Over time, flashing may become dislodged requiring repairs, but currently is in good condition.
4. The building houses several aquariums and high humidity habitats. While no evidence of moisture related deterioration was observed along structural systems, patching areas of deteriorated paint should be included as part of a standard maintenance program to ensure longevity of the steel framing systems.
5. Several active leaks were observed due to the aging exposed fastener metal roofing system. No deterioration was observed, but the leaks should be addressed to prevent premature deterioration of building systems.
6. Several small areas of cementitious fire proofing were removed or displaced in the basement. All fire-proofing at rated steel should be maintained as part of a standard maintenance program. Small areas (less than 0.15sf) can be patched with a UL listed universal fireproofing patch

material. Larger areas (none observed) requires the same coating system as originally installed to be utilized and installed by qualified contractor.

7. Rain screen structures were added at egress areas and otter enclosure after the primary construction that do not match the quality and durability of the project site. These structures will need to be monitored and likely need to be replaced on an accelerated schedule compared to the primary structures.

03 RECOMMENDATION

Considering the structural systems are in good condition with no evidence of distress or deterioration, recommendations include minor maintenance items only as follows:

1. Monitor cracks in the basement foundation walls for water infiltration and inject with flexible expanding polyurethane crack injection as needed.
2. Regularly clean debris from floor, trench and yard drains as part of a standard maintenance program.
3. Monitor the pond liner and flashings system and repair as needed (likely future maintenance item, nothing current).
4. Monitor steel and indoor systems for condensation / deterioration. Clean / scrape / paint as needed to ensure continuous protection of steel with paint system (likely future maintenance item, nothing current).
5. Repair roof leaks. See architectural section for discussion and recommendations regarding the roof system.
6. Patch small areas of missing fire proofing material with a universal (or compatible material) UL-listed fire proofing patch as part of a standard maintenance program.

04 COST ESTIMATE

None (all items are considered standard maintenance) n/a

WILD WALK

01 EXECUTIVE SUMMARY

CONCLUSION

The Wild-Walk structures are in good condition with no evidence of distress or deterioration with minor exceptions including one deteriorated LVL beam, re-entrant corner railing stability, thin paint at metal rails, suspect capacity at the emergency egress stairs and perceived issue at bridge bolted connection. The wild walk structures are generally designed and constructed to be long-standing and durable with little maintenance required and will last for many years of continued use with standard maintenance including netting replacement, painting and application of cold zinc spray at rusted galvanized connections.

02 OBSERVATIONS & DISCUSSION

History and Structural System Description

The Wild-Walk was constructed in 2007 along with the other primary structures on site and has been used as a recreational feature (elevated platforms and walkways). The structure is generally comprised of several viewing platforms connected by swinging bridges. Foundations are comprised of 36-inch to 48-inch concrete piers embedded at least 5-ft below grade. Towers / platforms are supported by steel and / or whole log columns and include skewed large diameter columns in some areas. The platforms are comprised of steel sub-framing supporting conventional pressure-treated wood framing and synthetic decking. The bridges are comprised of galvanized open-web steel-joists arranged and detailed to allow controlled sway. Catenary steel cable galvanized bridges provide access to the raptors nest and are supported by large diameter steel columns.

In general, the steel is either over-sized (to provide sacrificial material) or galvanized to provide longevity. The spiderweb is a catenary tensile netting structure that is comprised of synthetic netting secured to a galvanized-steel pipe-ring along the perimeter which is in turn welded to the primary framing system.

Railings long the bridges are comprised of untreated wood, while the railings at the platforms are comprised of powder-coated steel. Railings at the bird nest are comprised of intertwined twigs.

Observations and Discussion

In general, the structural systems are in good condition with minor deficiencies and deterioration as follows:

1. Only one LVL was observed in the entire structure, and seems to have been installed out of specification. The beam is experiencing advanced deterioration due to exposure to the elements and inadequate treatment.
2. Wood egress stairs are provided with notched stringers. Advanced analysis is required to calculate the load capacity, but by inspection does not appear to satisfy required 100psf live loading requirements.
3. Galvanized steel at the spider's nest is beginning to deteriorate.
4. Deteriorated paint and rust was observed along steel at the raptor's nest structure.
5. A bolt was reported missing at the landing of the bridge structure to the raptor's nest, however, the bolt is not required for overall stability.
6. Powder-coated steel railings does not appear to be powder coated. We understand a campaign was started to remove and paint these railings.
7. Catenary steel bridges utilize pin connections subject to dynamic forces which requires periodic inspection and replacement of rusted pins and cotter pins as part of a standard maintenance program. Many pins have already been replaced. Rust was observed in various areas of galvanized steel.
8. Railings are generally stable with the exception of re-entrant corners where platforms intersect with swinging bridges. Also, the bridge railing post connection details are suspect as they do not have a well defined load path to the deck frames (they appear to rely on the synthetic decking

for stability), and may be susceptible to fatigue and require premature replacement or reinforcing.

9. The spider's nest is a specialty structure that we understand is being maintained by a specialty provider which includes inspecting netting annually, and replacing as needed (approximately every 5-years).

03 RECOMMENDATION

We recommend the following repairs and maintenance actions to extend the useful service life of the wild walk structure:

1. Replace the deteriorated LVL with similar size pressure-treated lumber. This may require disassembling several components and reinstalling.
2. We recommend advancing an analysis of the egress stair to verify live load capacity for egress, or, and / or adding support at mid-span of each notched-stringer span. This would generally include providing concrete piers extending 5' below grade to provide frost protection, wood posts and beam to support the notched stringers.
3. Include cleaning rust and applying cold zinc spray touch up as needed at galvanized steel structures to a standard maintenance program.
4. Scrape and paint all steel at the raptor's nest steel framing.
5. Inspect and replace deteriorated pins as part of a standard maintenance program at the catenary steel bridges.
6. Continue campaign of painting poorly powder coated steel railings to increase service life.
7. Fasten re-entrant corner platform railing to the bridge railing to increase stability.
8. Monitor bridge railings as part of standard maintenance program. Should railings feel unstable, reinforcing may be required to secure the railing posts to the deck framing.
9. Continue inspecting, re-tying and replacing spider's nest netting per specialty contractor recommendations.

04 COST ESTIMATE

1.	Replace LVL	$7,000
2.	Reinforce egress stair	$20,000
3.	Paint Raptor's nest steel	$25,000
4.	Fasten re-entrant corner railings	$5,000
5.	Sway bridge railing replacement	TBD*

   a. *Recommendations include monitoring. Reinforcing may be required within 10-years if fatigue failure limits serviceability of the railing. New railings may be required.

MECHANICAL, PLUMBING AND FIRE PROTECTION NARRATIVE

BIO BUILDING

01 EXECUTIVE SUMMARY

Summary

The existing mechanical systems serving the Bio Building consist of a gas fired furnace with DX coil and air-cooled condensing unit installed in 2007 for the offices and Conference Room, gas fired unit heaters for the garage and shop, and ductless split system for the quarantine room. The toilet room and laser engraver are served by separate dedicated exhaust fan systems. Controls are local and proprietary. Domestic hot water for the Quarantine Room and garage is handled by a gas fired instantaneous domestic water heater located in the garage and direct vented to the outside. The H/C Bathroom and Kitchenette also includes an electric booster heater located below the kitchen sink counter. The building is not sprinklered.

02 OBSERVATIONS & DISCUSSION

Mechanical system

Observations and deficiencies:

- The gas fired furnace and air-cooled condensing unit (ACCU) are approaching the end of their anticipated service life. Furthermore, the R410A refrigerant used in the system is being phased out and will not be available after 2025.
- The toilet room exhaust airflow quantity is unknown, but the air change rate is reported to be inadequate resulting in odors.
- The data/telecom closet had insufficient cooling resulting in excessive space temperature.
- The gas fired domestic water heater located in the shop/storage/garage, serving the quarantine room does not have a recirculation loop in accordance with the energy code of NYS.
- The wall mounted service faucet in the garage does not include a drain.
- The ductless split system serving the Quarantine Room is reportedly non-functional. It is also nearing the end of its anticipated life expectancy and utilizes soon to be outdated refrigerant.
- The exhaust duct serving the laser engraver exhaust is installed obstructing the overhead door.

03 RECOMMENDATION

- Replace gas fired furnace serving offices with air source heat pump (ASHP) including indoor unit and outdoor ACCU. Unit shall connect to existing ductwork. Unit shall be provided with R-454b or equivalent refrigerant.

- Replace HC Bath exhaust fan and rebalance airflow.
- Provide ductless split air conditioner for the data/telecom closet with ceiling mounted indoor unit, outdoor ACCU, local controls.
- Provide domestic hot-water recirculation loop and pump, piping insulation, hangers, anchors and supports, aquastat control for gas fired water heater.
- Replace ductless split system serving Quarantine Room with new ductless split system; system to include indoor wall mounted unit, outdoor ACCU, local controls, R454b or equivalent refrigerant.
- Re-route laser engraver exhaust duct.

MUSEUM BUILDING

01 EXECUTIVE SUMMARY

Summary

Mechanical systems serving the Museum consist of multiple modular indoor air handling units (AHU) with chilled water and hot water coils serving various areas of the Museum building. Air distribution consists of sheet metal ductwork throughout the building. Duct mounted hot-water reheat coils are provided for AHU-1, the Vestibule, and the Exhibit Hall. The Theatre and Multi-Purpose Room are also served by variable air volume (VAV) boxes. Chilled water is handled by two air-cooled Carrier multi-stack water chillers. Chilled water distribution is handled by three (3) base mounted end suction pumps. Heating is provided by a heating boiler system including one Froling biomass boiler, one Viessmann propane fired hot water boiler installed in 2023, and one Cleaver Brooks electric boiler installed in 2023. Hot water distribution is handled by three (3) base mounted end suction pumps. The Data/Telecom room is served by a dedicated ceiling mounted precision air conditioner. Dedicated exhaust systems are provided throughout the facility for toilet and general exhaust. Systems are generally in good condition with the following deficiencies and observations. Controls are a mix of Carrier proprietary controls and KMC. It should be noted that existing air handling units do not include heat/energy recovery. Depending on the level of alteration, some building modifications or capital improvement projects may require an evaluation of the air handling systems for compliance with the current Energy Conservation Construction Code of NYS.

Domestic hot water is by a propane fired tank type domestic water heater, and is supplemented by a solar thermal system including solar collectors and domestic water storage tank. It was reported that some solar panels are an older generation, and could be replaced with updated, more efficient panels to improve domestic hot water heating efficiency. Plumbing fixtures throughout are in good shape. The building is equipped throughout with a wet automatic fire sprinkler system including a centrifugal fire pump and single sprinkler riser.

Observations and deficiencies

- Hot water and chilled water pumps are believed to be building original and are at or beyond their anticipated life span.
- Piping distribution for HWP-1 includes an isolation valve that reportedly does not hold. This causes in “ghost flow” in the finned tube loop resulting in overheating of certain zones, and underheating of other zones.
- The combustion air damper in the boiler room may be oversized due to the conversion of one boiler from natural gas to electric.
- Floor drains in the boiler room, including the surrounding floor slab show signs of corrosion due to previous flooding.
- FM200 suppression system serving the server racks – room tightness integrity is unclear.
- Fire pump room with material storage; age of fire pump undetermined.
- Mezzanine fire protection – several concealed sprinkler heads with missing covers; one deflector above ceiling level.
- Liebert unit – maintenance access is very difficult.
- Duplex sewage and storm ejector pumps believed to be building original; materials stored on lid. Pumps are believed to be building original and are likely beyond their anticipated service life.
- AHU-1 return air connection leaks
- AHU-9 outside air access panel opened removed to provide mixed air due to coil freeze up.
- AHU-2 return air fan (RAF) believed to have bad bearing, or misaligned rotor resulting in severe vibration and excessive noise.
- Excessive air noise observed in Gift Shop.
- Many sections of perimeter finned tube radiators (FT) observed blocked by Gift Shop display cases and shelving.
- Perimeter FT in several locations throughout the Admin Offices was blocked by furniture resulting in poor distribution of heating.
- Reported poor indoor air quality (IAQ) throughout Admin Offices. Observed supply air grilles and diffusers at ceiling level only; several grilles blocked off.
- Poor IAQ reported due to insufficient temperature control in Multi-Purpose Room. It should be noted that the IAQ deficiencies in the Multi-Purpose Room and Admin Offices are likely related to the mix of VAV and non-VAV in the same air handling system.
- Museum Elec/Telecom room served by dedicated precision air conditioner (PAC); observed water damage on the ceiling and mold or dirt on the face of supply and return grilles of PAC unit.
- Observed excessive vibration and noise at AHU-4 supply air connection. This is believed to be due to turbulence caused by poor duct connection details and insufficient developed length of airflow in ductwork resulting in excessive system effect. This results in excessive static pressure loss and insufficient airflow and could eventually lead to duct leakage and failure.
- AHU-x observed damage to casing caused by apparent previous pump or pipe fitting failure.

- Service and responsiveness for the Carrier proprietary controls has been reportedly inadequate.
- At the time of the site visit, one of the chillers was down for maintenance.

03 RECOMMENDATION

Recommendations

- Replace three (3) base mounted end suction heating hot-water pumps in kind; pumps include (1) 1.5 HP serving FT, and (2) 5 HP serving heating and re-heat coils.
- Replace three (3) 5 HP base mounted end suction chilled water pumps in kind; pumps include.
- Replace isolation valve in perimeter finned tube radiator heating hot-water loop; drain and refill system, provide water treatment.
- Modify supply air ductwork and registers/grilles/diffusers in Admin Office for better air distribution, provide testing, adjusting, and balancing (TAB).
- Remove 2 position damper in supply air duct serving Gift shop, Admin Offices, and Multi-purpose Room. Add VAV box to the supply air duct branch serving Gift Shop; add VAV box to the supply air duct serving the Admin Office. Provide control board, wiring, and programming. Provide TAB. This will result in improved zone control and occupant comfort. This also may reduce the excessive noise apparent in the Gift Shop.
- Provide insulated sheet metal panel for portion of unused combustion air louver. This would reduce excessive infiltration of cold outside air due to the reduced combustion load.
- Replace remaining Carrier controls with KMC.
- Remove stored material from fire pump room.
- Provide preventive maintenance and replace level controls for duplex storm and sanitary sewer ejectors. If this is not feasible, replace duplex pumps, level controls, rails, and wiring.
- Clean corrosion from the floor drain strainers in boiler room.
- Repair leaks in casing of AHU-1 return air connection.
- Provide modifications to sprinkler piping in mezzanine to ensure proper orientation of heads and deflectors in accordance with NFPA-13; Replace missing concealed head covers.
- Investigate and repair potential water leakage on ceiling of Data/Telecom Room causing ceiling damage. Clean dirt, debris and mold from supply and return grilles.
- Provide modifications to supply air duct connection at AHU-4 to reduce system effect.
- Investigate cause of excessive vibration and noise from AHU-2 RAF; repair bearing or balance rotor. If these are not feasible, replace fan.
- Provide cleaning and refinishing of AHU casing damage.
- Provide heat recovery device such as heat pipe or runaround loop for AHU-9 to avoid coil freeze up. Alternately, a glycol loop could be provided if heat recovery is not feasible. AHU-9 was designed for 100% outside air without means for preventing coil freeze up. The outside air access panel is currently opened to provide mixed air from the space, however this results in reduced ventilation air.

- Evaluate the feasibility of modifying furniture layout in Admin Offices to eliminate blocking of FT.
- Provide preventive maintenance for air cooled chillers. Evaluate impact of refrigerant replacement; in lieu of this, evaluate phased replacement of chillers with updated refrigerants.

ELECTRICAL NARRATIVE

02 OBSERVATIONS & DISCUSSION

Building Power

The building electrical service emanates from overhead power lines which connect to an airbrake system on the utility pole adjacent to the main entrance on Hosley Ave. The medium voltage underground cables terminate on a utility owned transformer near the Wild Center. The secondary of the transformer enters the building electrical room located in the basement of the Wild Center. Secondary feed enters the building via conduit through a concrete wall and feeds a disconnect switch that provides normal power to the house ATS. The service equipment was energized, and in working condition. The ATS provides power to the main switchgear that is then routed to panelboards and equipment throughout the campus. The main distribution board and panelboards currently in service are in like new condition. Supplemental solar power is provided by roof top mounted solar panels on the Bio Building. Copper branch wiring with polyvinyl insulation was observed to be used within the building. The polyvinyl wiring readily observed was in acceptable condition.
Overload protection is provided by fused switches, fused and non-fused disconnect switches, and circuit breakers. Building has power receptacles and provides adequate coverage for modern building functions.

Observations and deficiencies:

- Secondary backup electrical service provided is by a 2000A on-site three-phase Caterpillar diesel generator. The generator primary conductors enter the building via conduit through a concrete wall and feeds a disconnect switch that provides backup power to the house ATS.
- The existing solar system located on the roof of the Bio Building is approximately 18 years old. The system consists of 190 solar voltaic panels and six inverters, producing approximately 39.5kW. The panels are installed on metal stanchions secured to the Bio Building roof and are in good condition. The system in its entirety is in good working condition with no issues reported at the time of visit.
- The UPS system will reach the end of life by 2027. It was discussed that the parts are becoming scarcer directly affecting the cost of maintenance. The facility is anticipating that the maintenance agreement will increase dramatically in price when the UPS reaches the end of life or may not be offered at all.

Recommendations:

- **Solar Power:** The inverters are past their expected useful life and may need to be replaced in the near future but are currently functional. Solar panels have a general life expectancy of 25-30 years, the solar power inverters generally have a lifespan of 10-12 years. The existing equipment is approximately 18 years old. The existing roof mount stanchions are in good condition. Recommend measuring output to determine life expectancy of system.

- **Main switchgear and panelboards:** Recommend exercising of each breaker within the facility as well as thermal imaging, cleaning, and general inspection of all electrical distribution components on a bi-annual basis. Recommend removing all clutter from the front of electrical panels and transformers.

Anticipated Cost: See attached cost documentation

Lighting

Various types of lighting are installed ranging from surface mount 6”x4’/ 1’x4’ linear fixtures, 6” recessed fixtures, pendant lighting, track lighting, and various other. Almost all fixtures are retrofitted with LED lamps or are LED fixtures. All luminaries are provided with backup generation delivered by 2000A on-site three-phase diesel generator. Lighting was observed during daylight hours.

Observations and deficiencies:

- The existing generator system is not set up to current code requirements to be used for emergency lighting.
- The Bio Building exterior egress lighting does not have battery backup.
- The interior of the Bio Building has emergency lighting units installed and tested good.
- Almost all areas of the Wild Center Building do not have emergency egress lighting.
- There was no recognizable emergency egress lighting at the exterior main entrance of the Wild Center.
- Main roadway and parking lot lighting is provided by luminaries mounted on 20’ wooden poles.
- Numerous pole mounted fixtures and/or lighting poles located in and around the parking lot area are either missing or non-working.
- Main building entrance pathway from parking lot is illuminated using a combination of 24V ground lighting and 10’ pole mounted lights.
- Some pole mounted luminaries are missing on the entrance pathway.
- Egress walking paths within the preserve have limited to no lighting in almost all areas.
- The egress walkways on the Wild Bridge have limited to no lighting in almost all areas.

Recommendations:

- **Lighting:** Approximately 10% of lighting at the site has not been updated to LED lights. Recommend all lighting should be updated to LED to reduce energy usage and maintenance, as well as provide updated lighting controls to meet current energy code requirements.

- **Lighting Controls:** A new lighting control system for the Wild Center should be installed to meet current energy code requirements. Due to the nature of the business, it was explained that the lighting for the exhibits and other areas of the Wild Center is controlled by a Lutron lighting system. The system is in good condition but when it needs maintenance or to be adjusted to facilitate an exhibit, there is only one technician within a 100-mile radius who can service the system. This causes a large cost and delay for the facility to maintain the programable lighting system. Recommend changing the lighting control system to a more end-user-friendly system so adjustments can be made in-house.

- **Exterior Lighting:** Recommend all lighting be updated to LED in existing locations to reduce energy costs and provide more adequate coverage for safety. Recommend replacement of light pole fixtures that are not currently working. Recommend installing light poles in locations where older poles have been damaged or no longer exist, to provide proper light coverage for visitors entering and exiting the facility.

- **Pathway Lighting:** Install path illumination lights along the pedestrian interior trails. The property can be accessed after daylight hours safety is a concern.

- **Wild Walk Lighting:** Install asymmetric under handrail lighting on the Wild Walk to illuminate the walkway, similar to the picture below. The lighting should illuminate the pedestrian walkways without dispersing light into the forest. In discussion, it is understood that events are held on the Wild Walk through the year after daylight hours. This will increase visibility, safety and cost effectiveness in setting up for the events.

- **Emergency Lighting:** The existing generator system is not set up to current code requirements to be used for emergency lighting. Recommend adding battery backup emergency wall packs along interior emergency egress pathways. Recommend installing exterior emergency egress lighting with photoelectric eye and internal battery backups.

Anticipated Cost: See attached cost documentation.

Fire Alarm System

The fire alarm system consists of a Honeywell notifier addressable fire alarm control panel with an auto-dialer out to an offsite central monitoring station. Devices consist of smoke/heat detectors, manual fire alarm pull stations and audio/visual notification devices. All system devices are located at intervals and mounting heights required by code at time of installation.

Observations and deficiencies:

- The fire system in the Wild Center is in good condition and no problems were reported.

Located in the basement, there are multiple notifier appliances that are not properly secured.

- The System in the Bio Building is in fair condition and no problems were reported. Observed appliances may be beyond their useful life.

Recommendations:

- Recommend replacing all fire alarm peripherals in the Bio Building. Fire alarm detectors have a general life expectancy of 8-10 years. The existing equipment is approximately 18 years old. Due to the nature of the buildings areas such as the wood shop and the animal isolation area, these systems' life expectancy can be exponentially degraded due to dust and moisture. The picture below shows a mud wasp nest in the alarm screw hole.

- Recommend installing all mounting hardware to fire alarm peripherals and secure.

Anticipated Cost: See attached cost documentation

Wind Turbine

A wind turbine has been recommended for installation. The turbine can be viewed as not only a renewable energy source providing financial R.O.I. for the Wild Center but will be educational and demonstrate sustainability for the facility.

Anticipated Cost: Specific size and design of the wind turbine was not provided, so costs and feasibility cannot be evaluated.

Exit Signs

The system consists of wall and ceiling mounted units with LED light sources and battery backup.
Observations and deficiencies:

No exit sign indicating path of egress or emergency lighting in stairwell.

Recommendations:
Recommend adding battery-backup LED exit sign with an integrated emergency lighting unit at top of basement stairs indicating flow of exit from building.

Anticipated Cost: See attached cost documentation.

Electric Vehicle Charging Stations

Installation of (12) level 2 electric vehicle charging stations in the Wild Center parking lot. The units will demonstrate the facilities objective in reducing carbon emissions, and preserving the environment, as well as providing an amenity for visitors/customers who drive an electric vehicles.

Anticipated Cost: See attached cost documentation.

Data Systems

Data jack outlets, CAT6 cabling, network data racks, network switches, UPS battery backup, servers, and wireless access points in various locations within the building.

Observations and deficiencies:

- No problems have been reported and the system is in good condition.

Recommendations:

- N/A.

Anticipated Cost: N/A.

Security Systems

The power over ethernet camera system consists of a digital video recorder (DVR) with interior and exterior cameras.

Observations and deficiencies:

- No problems have been reported and the system is in good condition.

Recommendations:

- N/A.

Anticipated Cost: N/A

Telephone

System is a Voice Over Internet Protocol (VOIP) system that utilizes network category 6 data drops from IP handset back to network data racks.

Observations and deficiencies:

- No problems have been reported and the system is in good condition.

Recommendations:

- N/A.

Anticipated Cost: N/A

General

Conduit in basement is being infiltrated with water as it transitions from external to internal.

Observations and deficiencies:

- The conduit has been cut to currently alleviate the water from reaching the electrical panel

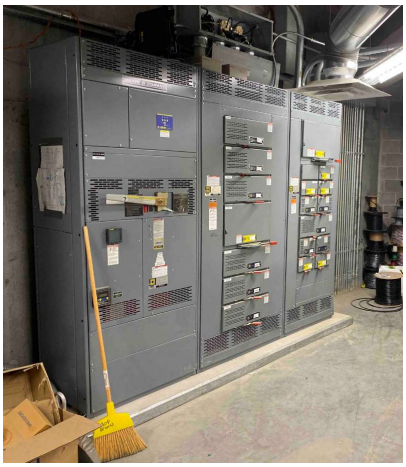
Recommendations:

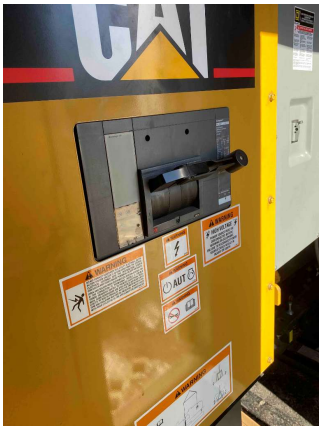
- Recommend investigating and remediate the cause or removing in entirety. Existing conduit was cut open to remove water.

Anticipated Cost: N/A

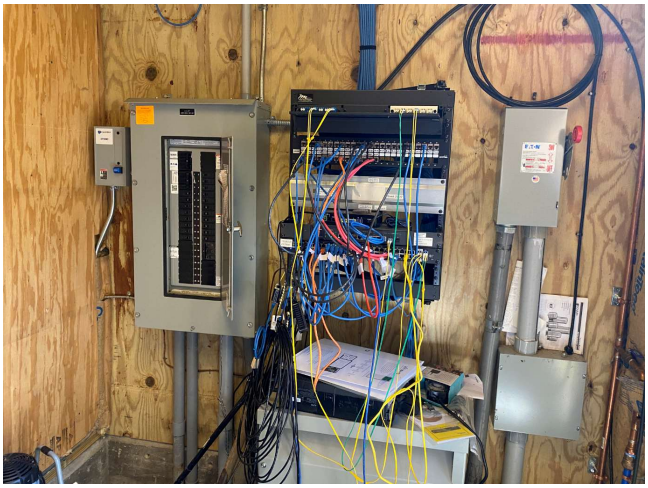
Photos

Electrical Service:



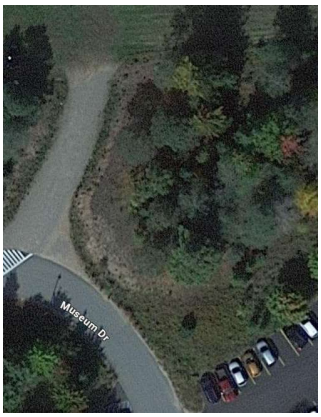


Main switchgear and panelboards: Housekeeping

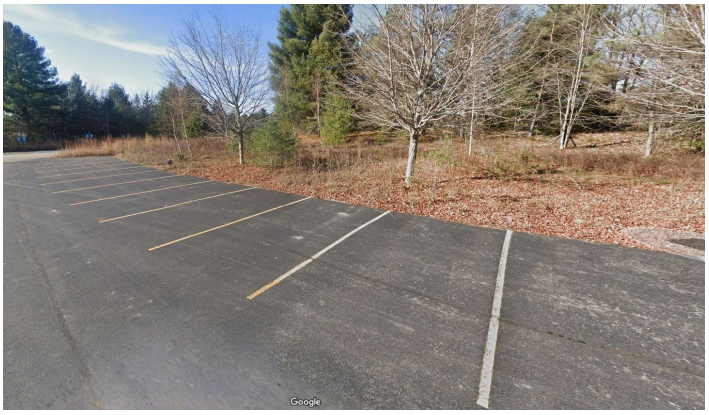


Solar Panels:

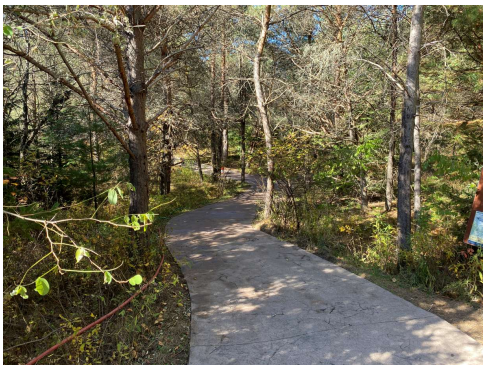
Wind Turbine: Proposed location.



Electric vehicle charging station(s): Proposed location.



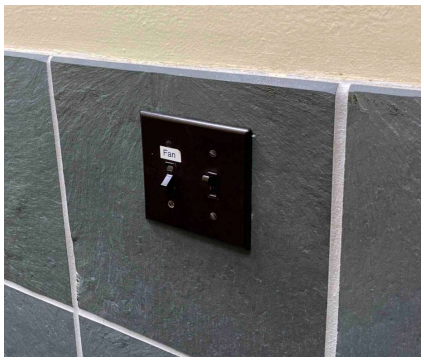
Exterior Lighting:



Emergency Exit Egress Lighting:



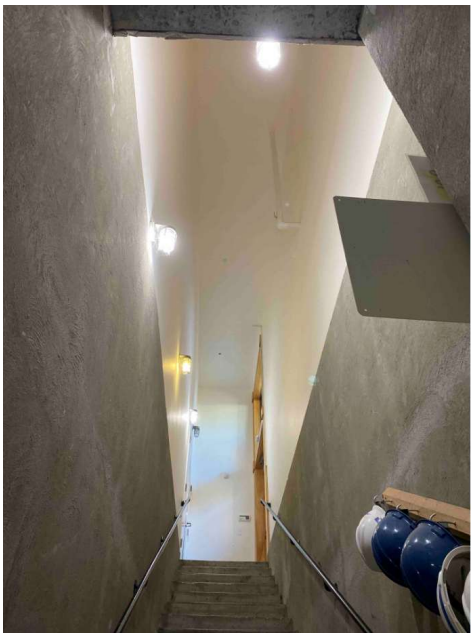
Interior Lighting:



Fire Alarm:

Parking Area:

Exit Signage:



General: