Examination Reports
Landmark on the Lake Condominium Association Ltd.

ZS
ARCHITECTURAL ENGINEERING

Building Envelope Consulting

BIM Consulting

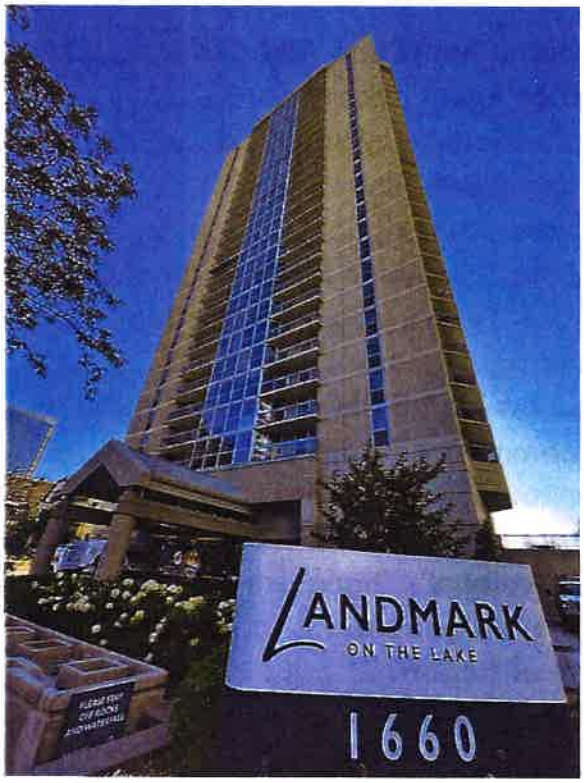
Structural Engineering

Forensic Engineering

LANDMARK ON THE LAKE

Facade Critical Examination

1660 N. Prospect Avenue
Milwaukee, WI 53202



November 18, 2024
Project No. 237058

Prepared for:
Landmark on the Lake Condominium

Prepared by:
ZS LLC
10501 West Research Drive, Suite 207
Milwaukee, Wisconsin 53226
Phone: 414-727-5000
Fax: 414-727-6666
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(Date Received by DNS_____)

City of Milwaukee

Department of Neighborhood Services
Façade Report Application

Address of Building: 1660 N Prospect Ave **TaxKey** 000-0025-553

Name of Owner/Agent: Landmark on the Lake Condominium Association

Address/City/Zip: 1660 N Prospect Ave, Milwaukee, WI 53202

Contact Person: Tiffany Engler **Phone:** 414-224-1660

Signature of Owner or Owner's Agent Tiffany Engler Tony Snell Tony Snell (Nov 25, 2024 15:21 CST)

(See sec. 275-32-13 of Milw. Code of Ordin.Vol. II for definitions and reporting requirements)

BUILDING CONDITION

_X_ **SAFE**

_____ **SAFE WITH AN ORDINARY REPAIR AND MAINTENANCE PROGRAM**

_____ **UNSAFE**

_____ **UNSAFE AND IMMINENTLY HAZARDOUS.** Notify DNS by phone at (414) 286-3154, (414) 286-3862, or (414) 286-2548 within 24 hours. Indicate where this condition exists on the façade and what safety precautions have been provided.
Name of DNS employee contacted:_____ Date of Contact:_____

BUILDING DESCRIPTION

Date of the Report: 11/18/2024 **Occupancy of Building:** Class R

No. of stories: 28 **Year Built:** 1991

Description of Exterior Walls (check all that apply)

Brick ____ **Terra Cotta** ____ **Stone** ____ **Concrete** X **Stucco** ____ **Concrete Block** ____

Glass X **Windows** X **Metal** ____ **Soffit** ____ **Cornice** ____ **EFIS** X

Category I:____ **Category II** ____ **Category III** X **Category IV** ____

(See section 275-32-13-c for definition of category types)

LICENSED PROFESSIONAL

Name: Petr Zahradnicek **Firm Name:** ZS, LLC

Address: 10501 West Research Drive **City:** Milwaukee

State: WI **Zip** 53226

Phone: 414-727-5000

Fax:_____

E mail: pzahradnicek@zsllc-us.com

Professional Seal and Signature:

Petr Zahradnicek

WISCONSIN PETR ZAHRADNICEK A-15431-5 MILWAUKEE, WI ARCHITECT

The following is additional information required to be part of the report per sec. 275-32-13-h:

- A site plan of the building showing adjacent streets and alleys, and relationship of the building to property lines and adjacent buildings.
- A description of the building, including the number of stories, height, plan dimensions, age and type of exterior wall construction, describing (as applicable) cornices, soffits or similar overhangs or features.
- Overall photographs or drawings of the 4 elevations of the building.
- A detailed description of the critical examination in narrative form, including start and completion dates.
- A designation of the building's status by the professional as stated above.
- Drawings or photographs describing the locations and extent of all significant distress or deteriorated conditions observed in the facades.
- A description of recommended repair work and precautionary measures that will be taken to safeguard the public, if any, and the recommended completion date of such work.
- Where appropriate, a comparison of conditions of facades on the building with conditions observed during previous examinations.
- A recommendation for future examination, if earlier than 5 years from date of the report.

EXECUTIVE SUMMARY

Between May 10, 2024, and November 11, 2024, a “Façade Critical Examination” program was conducted for this building’s exterior walls. During this period, Landmark on the Lake performed exterior façade maintenance to address defects documented in the ZS Architectural Engineering report dated October 7th, 2021. ZS performed a hands-on examination on the drops indicated in Appendix A below after the general contractor had performed the identified repairs. The “Façade Critical Examination” program was performed in accordance with the latest City of Milwaukee Facade Critical Examination Ordinance requirements. Landmark on the Lake is a twenty-eight (28) story, 270’ tall residential structure constructed in 1991. The building is supported by a cast-in-place reinforced concrete framing system. The façade consists of concrete wall panels with vertical rustication, small sections of EIFS banding at lower levels, an aluminum curtain wall system, and ½” spandrel glass.

The building’s exterior walls are classified as “Category III Building”, (a building constructed with exterior walls and parts thereof that are primarily reinforced with or are in direct contact with corrodible metal).

Based on this “Facade Critical Examination” program, the building elevations were classified as “Safe” condition.

The inspections were performed following the façade repairs. The completed repairs identified as “Safe” included the following:

1. De-bonded sealant joint repairs- Sealant was removed and replaced with a new sealant.
2. De-bonded sealant and hairline crack in precast concrete panel repairs - cracks were routed, and sealant replaced with a new sealant.
3. EIFS deteriorated sealant repairs - Deteriorated sealant was removed and replaced with new backer rod and sealant or silicon extrusions installed.
4. EIFS Repairs- Materials in the damaged areas were removed and replaced

5A. Spalled concrete less than 1-1/2 inches deep repairs - the spalled concrete area was squared, and a concrete patch was installed.

5B. Spalled concrete, more than 1-1/2 inches deep repairs - the spalled concrete area was investigated, existing steel was protected, concrete was squared, and a concrete patch was installed.

6. Concrete pocket repairs at post-tensioned concrete deck balconies- Unsound concrete was removed, PT-end protected and pocked sealed and painted.
7. Façade Louver Sill Repair- Shifted louver sill was repaired and waterproofed.
8. Spalled concrete at balcony rail footing- repairs completed by others in 2022

Appendix C of this report details the locations of completed repairs. In addition, Appendix C shows the representative images of each repair.

CRITICAL EXAMINATION REPORT SECTION

The following sections detail the critical examination findings. The sections are arranged in accordance with the report format required by the City of Milwaukee Façade Ordinance.

H-1) Building Name and Address

Landmark on the Lake
1660 N. Prospect Avenue
Milwaukee, WI 53202

H-2) Owner/Agent Information

Owners Name:	Landmark on the Lake Condominiums
Owners Address:	1660 N. Prospect Avenue Milwaukee, WI 53202
Primary Contact:	Tiffany Engler Property Manager, Landmark on the Lake 1660 N. Prospect Avenue Milwaukee, WI 53202
Phone Number:	414.224.1660

H-3) Professional's Information

Business Name:	ZS LLC
Business Address:	10510 West Research Drive Milwaukee, WI 53226
Professional Name:	Petr Zahradnicek, AIA
Phone No.:	414-727-5000
Fax No.:	414-727-6666

H-4) Building Site Plan

Please see Appendix A: Site Plan and Inspection Drop Plan.

H-5) Building Description

The building is located at 1660 N. Prospect Avenue and was constructed in 1991. Landmark on the Lake is a twenty-eight (28) story, 270' tall residential structure that holds 275 units.

The building systems are summarized as follows:

STRUCTURAL

Frame: Cast-in-place reinforced concrete framing with post tensioned slabs.

ENVELOPE

Roof: Loose laid ballasted EPDM.

Walls: The entrance area and parking structure are composed of reinforced precast concrete panels. The tower sits above the parking structure and the walls consist of reinforced concrete wall panels with rustication; texturized EIFS wall panels, aluminum curtain wall system and ½" spandrel glass. The exterior walls are classified as "Category III Building" (e.g. a building constructed with exterior walls and parts thereof that are primarily reinforced with or in direct contact with corrodible metal).

H-6) Building Elevation Photographs

Appendix B shows the building's overall elevation photographs.

H-7) Critical Examination Description

Hands-on examinations were performed at indicated drops at full height at each elevation of the tower using a swing stage. Hands-on examinations were also performed around all elevations within visual reach. Petr Zahradnicek, a licensed architect in Wisconsin, performed the inspections.
The inspection activities consisted of the following:

1. Review of available construction documents.

2. Hands-on examination of roof parapets, exterior walls, and window assemblies at all elevations.

The "Critical Examination" field inspection program for this building started on May 10, 2024, and completed on November 11, 2024.

H-8) Building's Status

The building's status is "Safe". The condition of a building facade or part thereof, exhibits neither an "unsafe and imminently hazardous condition" nor "safe with an ordinary repair and maintenance program" at the time of the critical examination.

H-9) Distresses and Deteriorated Conditions

Distressed or deteriorated conditions were repaired and are identified by repair type with photograph(s) and façade elevation. The repair conditions are detailed in Appendix C: General Exterior Wall Completed Repairs.

H-10) Recommended Repair Work

All required facade repairs were completed during the 2024 facade work, and no other precautionary measures are required at this time.

H-11) Previous Examinations

The previous critical examination was conducted in 2021, and the documented distresses and deteriorated conditions were repaired.

H-12) Future Examinations

No examination earlier than the Ordinance Code requirement is necessary. The next scheduled facade critical examination report is due on December 1, 2029.

H-13) Signature and Seal

The “Facade Condition Assessment” and report for this building was performed and prepared under the direct supervision of Petr Zahradnicek, duly licensed Architect in the State of Wisconsin.

Signature

Seal

H-14) Signature of Owner or Agent Acknowledging his or her knowledge of the Building's Condition

The Owner/Agent hereby acknowledges the building's facade condition and the responsibility to maintain the building in a safe condition in accordance with the findings of this report.

Signature Tiffany Engler Tony Snell

Tony Snell (Nov 25, 2024 15:21 CST)

Property Manager President

H-15) Date of Report

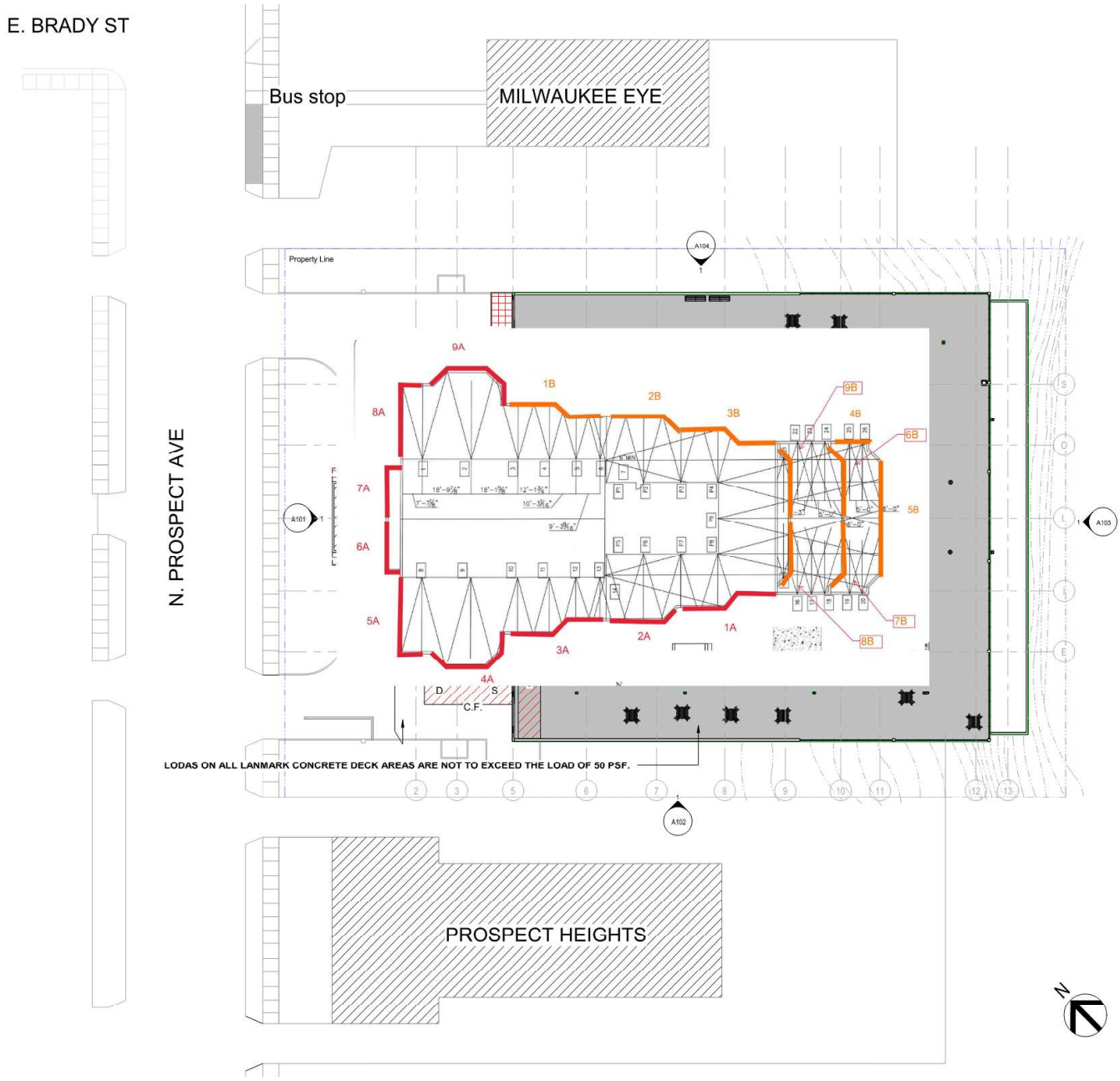
Date: October 18, 2024.

H-16) Other Documents

No other documents are included.

APPENDIX A

Site Plan



Site Plan and Inspection Drop Plan.

APPENDIX B
BUILDING ELEVATION PHOTOGRAPHS

Photo 1: NORTH ELEVATION

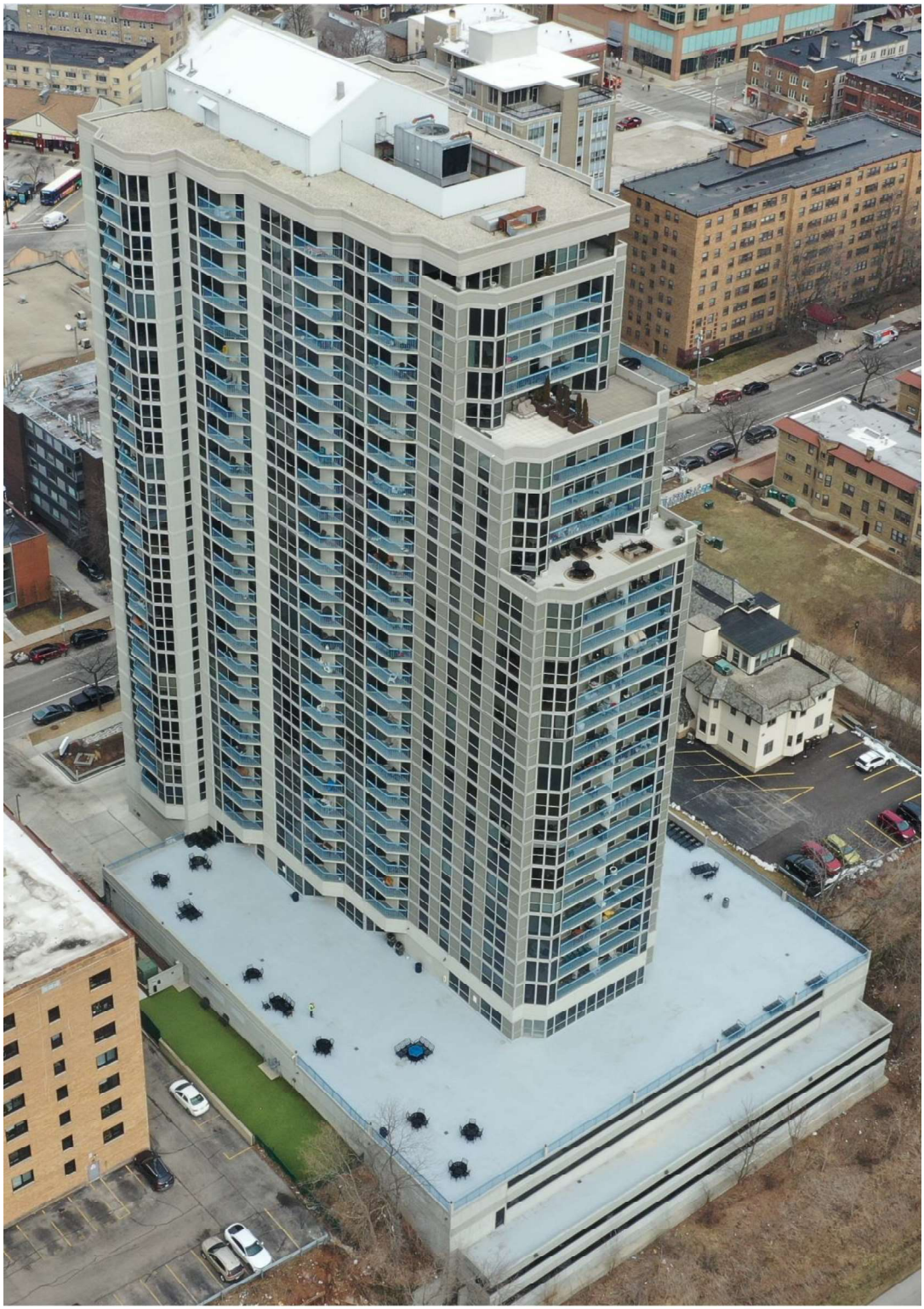


Photo 2: SOUTH ELEVATION

Photo 3: EAST ELEVATION

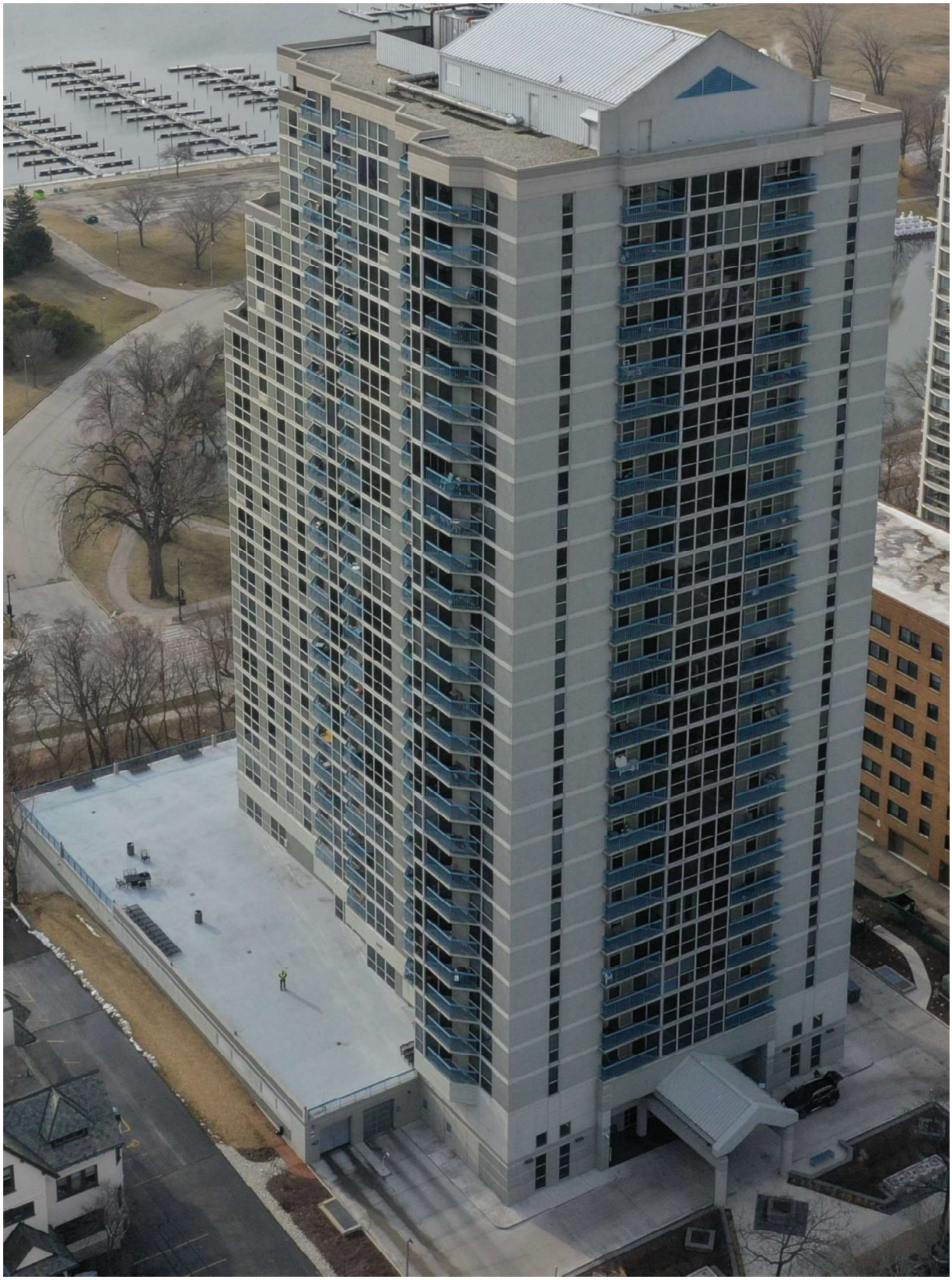
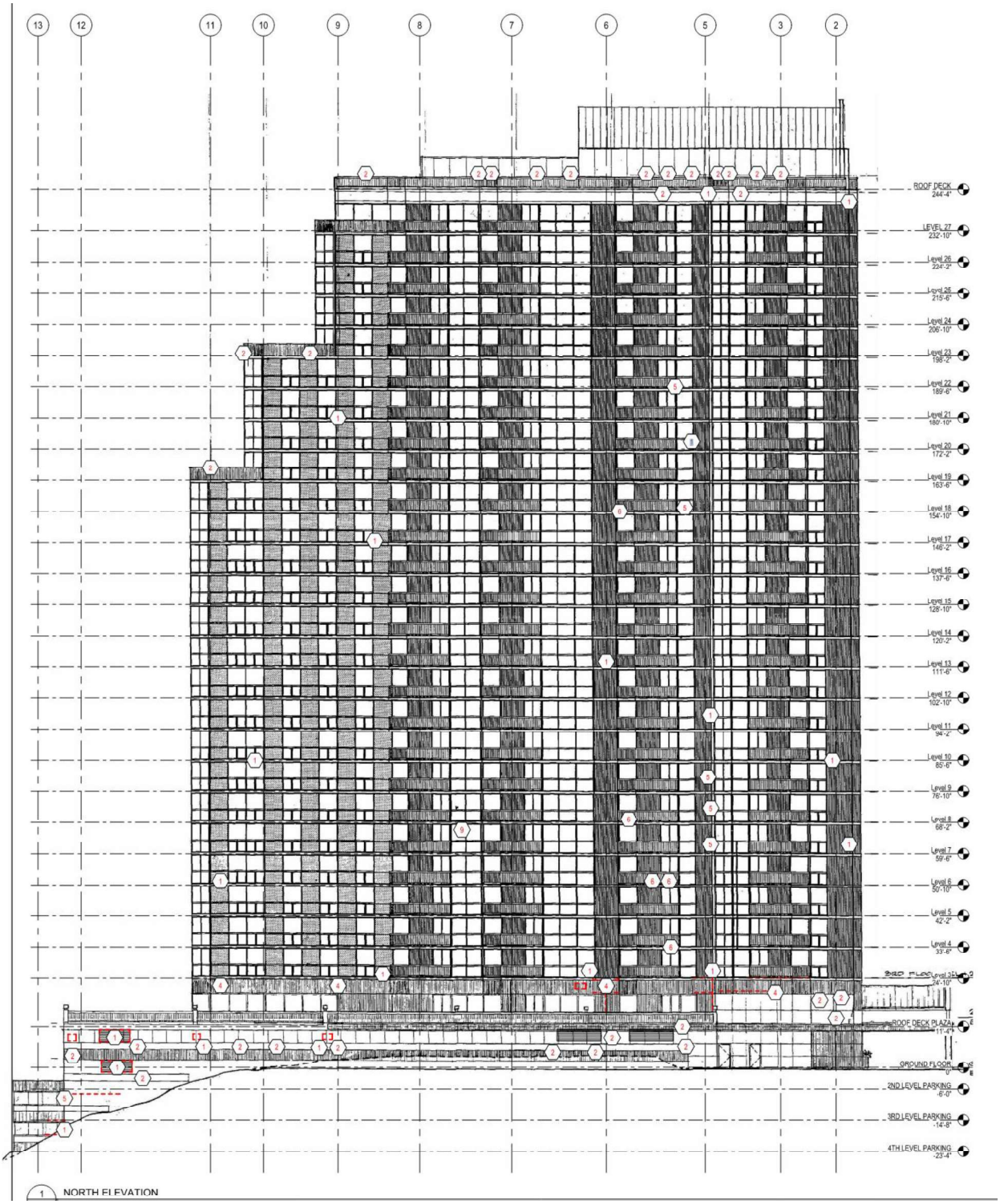


Photo 4: WEST ELEVATION

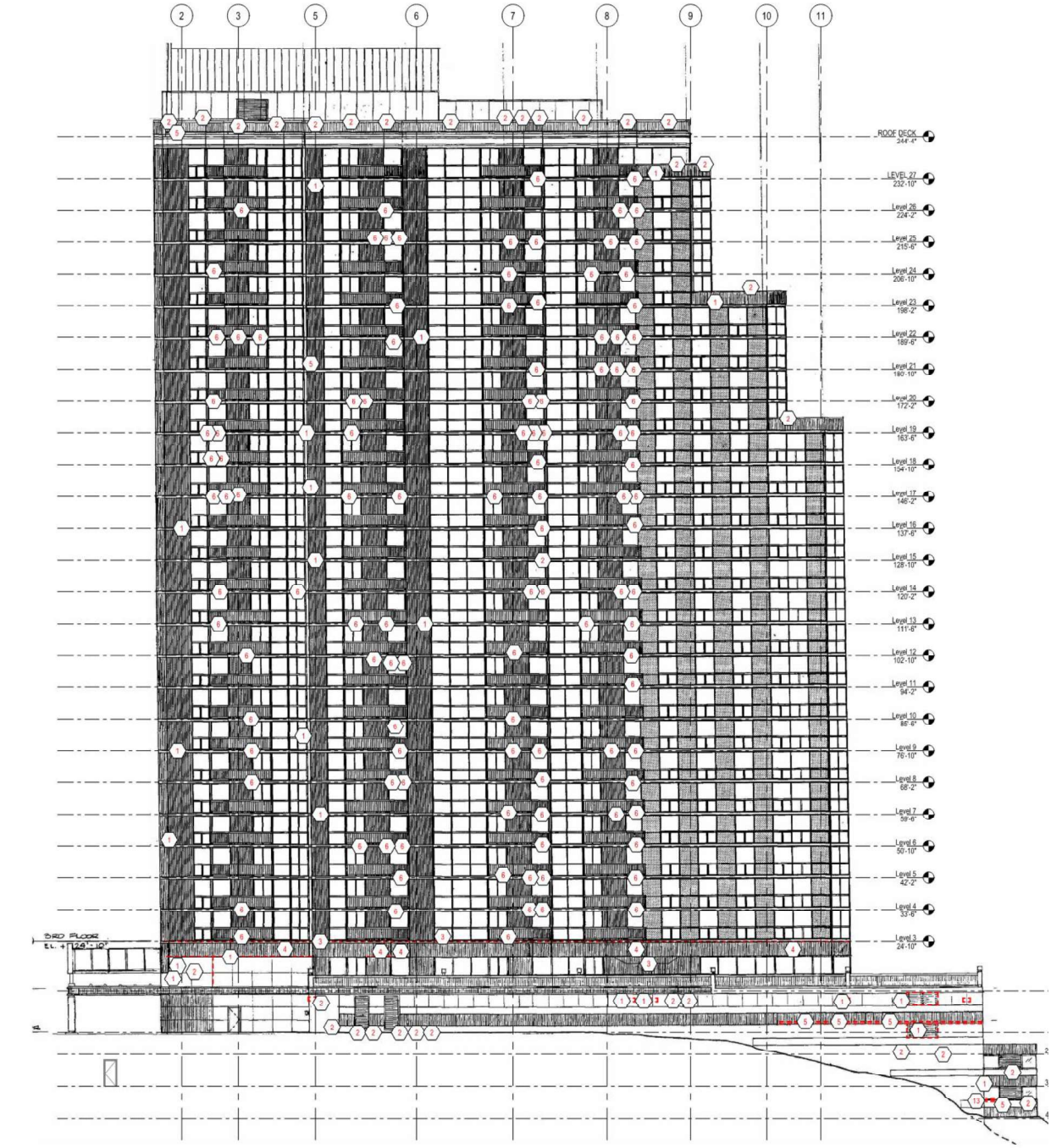
APPENDIX C

GENERAL EXTERIOR WALL COMPLETED REPAIRS

NORTH ELEVATION COMPLETED REPAIRS

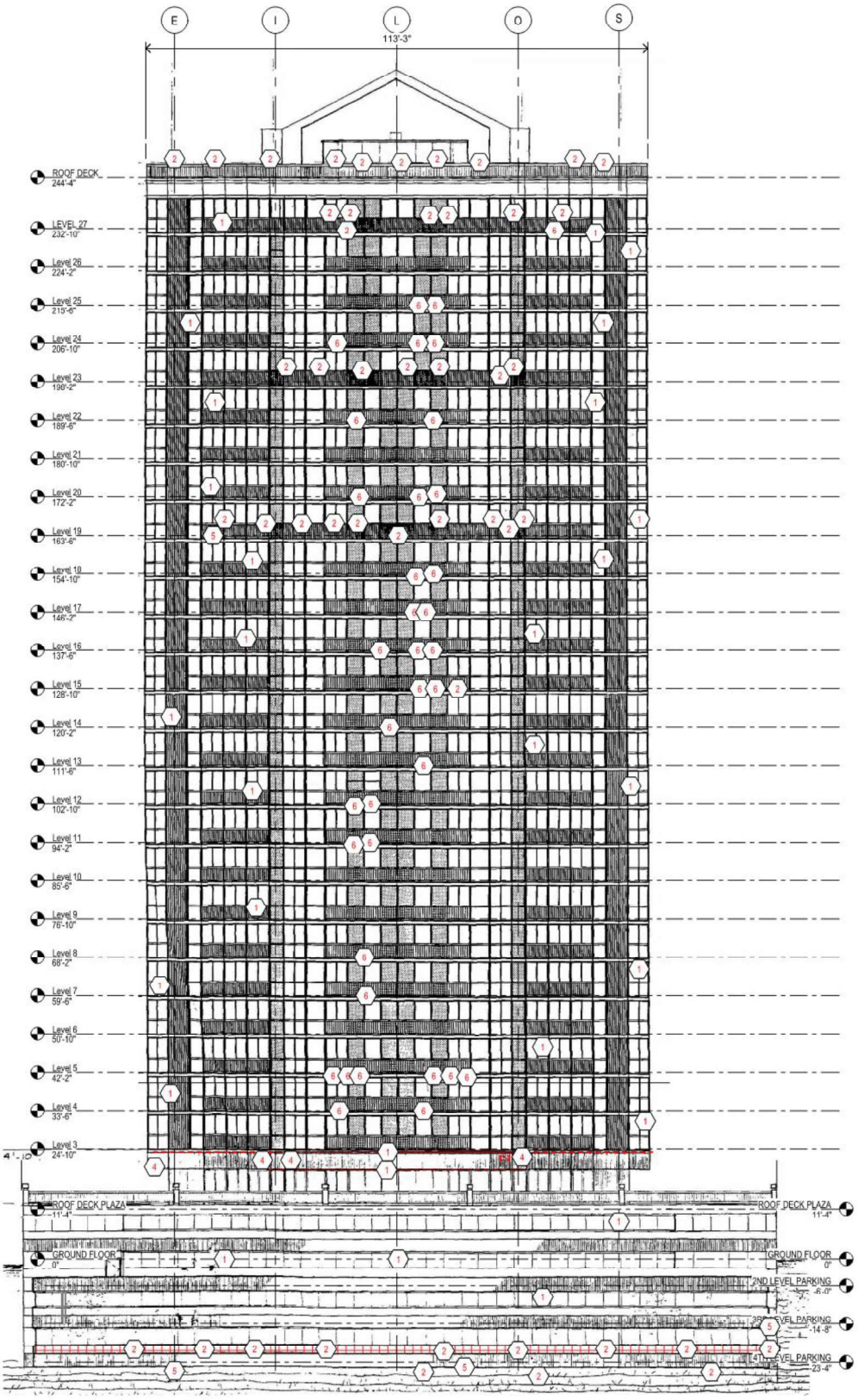


SOUTH ELEVATION COMPLETED REPAIRS



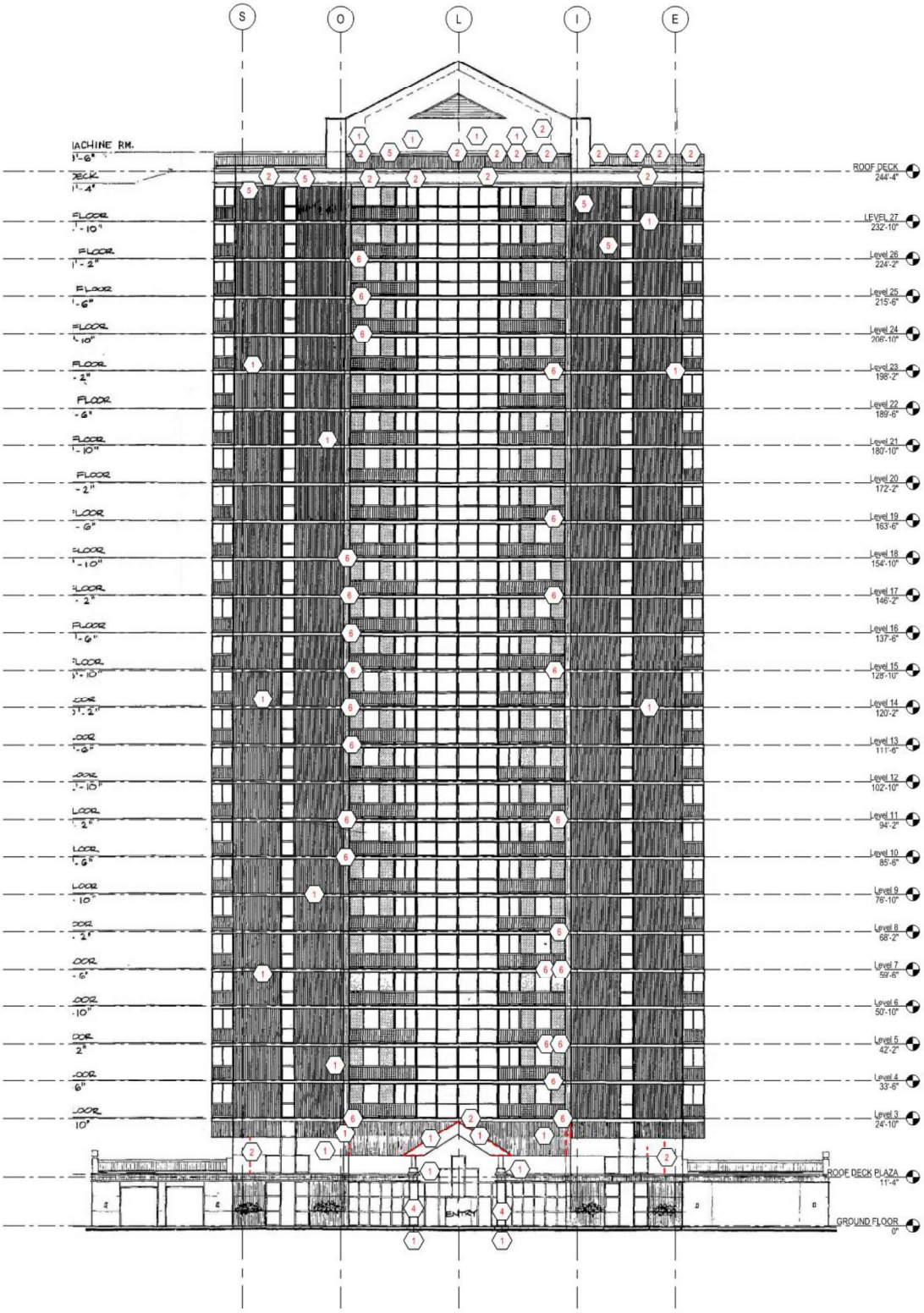
1 SOUTH ELEVATION

EAST ELEVATION COMPLETED REPAIRS



1 EAST ELEVATION

WEST ELEVATION COMPLETED REPAIRS



1 WEST ELEVATION

REPRESENTATIVE PHOTOGRAPHS COMPLETED REPAIRS

1- De-bonded sealant joint repairs- Sealant was removed and replaced with a new sealant

2- De-bonded sealant and hairline crack in concrete repairs - cracks were routed, and sealant replaced with a new sealant

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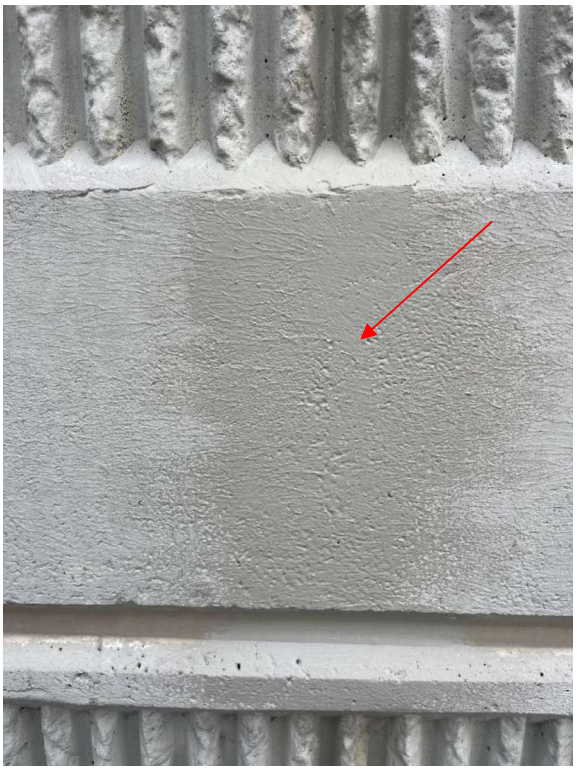

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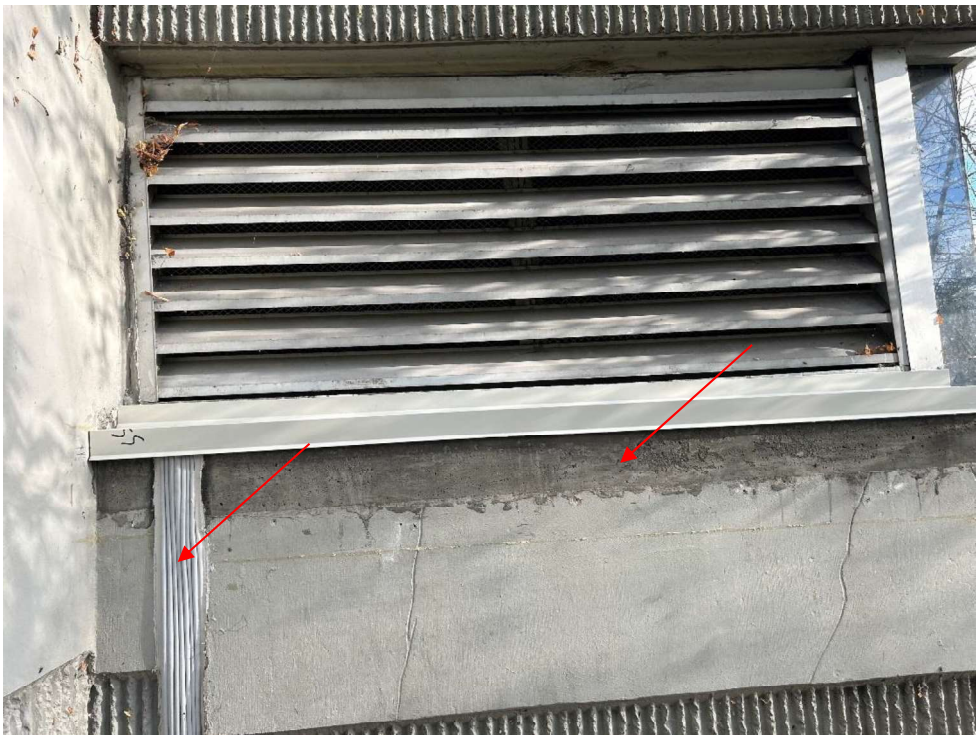

7- Façade Louver Sill Repair- The shifted louver sill was repaired and waterproofed

8- Spalled concrete at balcony rail footing- repairs completed by others in 2022.

Condition Assessment for Landmark on the Lake Condominium Tower

1660 N Prospect Ave
Milwaukee, WI 53202

Prepared for
Landmark on the Lake, Condominium Board

November 12, 2021

GRAEF

www.graef-usa.com

Condition Assessment for Landmark on the Lake Condominium Tower

1660 N Prospect Ave
Milwaukee, WI 53202

November 12, 2021

Prepared for
Landmark on the Lake, Condominium Board

Prepared by

275 West Wisconsin Avenue, Suite 300
Milwaukee, WI 53203
Ph: 414-259-1500
Fax: 414-259-0037

Project Engineer: Dan Komorowski, P.E.
dan.komorowski@graef-usa.com
Project Manager: Jason Gross, P.E.
jason.gross@graef-usa.com

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Background

The Landmark on the Lake building was constructed in 1991, making it just over 30 years old. This twenty-eight-story residential structure contains three levels of parking below the grade level and is located on N. Prospect Ave near the lakefront. The lower levels of the parking structure are approximately 275 feet in the east-west direction and 169 feet in the north-south direction. The residential building from the second floor through the eighteenth floor is approximately 185 feet in the east-west direction and 115 feet in the north-south direction. The residential footprint reduces in the east-west direction at the nineteenth level, twenty-third level and again at the twenty-seventh level. The twenty-eighth level has mechanical equipment in an enclosed metal panel structure.

The structural floor system consists of a post-tensioned cast-in-place slab at both the residential and parking levels. The vertical gravity loads are transferred to the foundation by cast-in-place circular and square reinforced concrete columns. There are cast-in-place concrete shear walls located along grid line 5 and 9 for resisting lateral loads in the north-south direction. There is a 21-foot by 28-foot-wide cast-in-place concrete shear wall shaft located around the intersection of grid lines L and 6. This shaft is used for the lateral load resisting system in both the north-south and east-west directions. The entire structure is supported at the foundation by cast-in-place spread footings. The exterior of the structure is enclosed by a combination of 6” thick precast panels, aluminum window wall systems, and spandrel glass. Each residential living area has a cast-in-place balcony that cantilevers out and has a metal handrail system in place for pedestrian barriers.

As requested, GRAEF performed a walk-through visual evaluation of the structural elements of Landmark on the Lake located at 1660 N Prospect Ave. The purpose of the evaluation was to assess the existing conditions and provide a repair and maintenance plan to assist in planning for work and expenditures in the future. The structural evaluation took place in October 2021. This report presents the findings of this assessment and general recommendations for repairs and measures to extend the life of the structure.

Critical Items

One area of critical importance was found. The pedestrian barriers at the balconies were corroded at the connection point to the cast-in-in place slab at a handful of locations. The guard rail posts are encased in grout inside a sleeved hole, and the grout has spalled and crumbled under the caps at a few instances. This was brought to the attention of the representative for Landmark on the Lake. An investigation for all the balconies is planned in 2021 and repairs to the guard rail posts is planned in 2022.

Summary of Findings

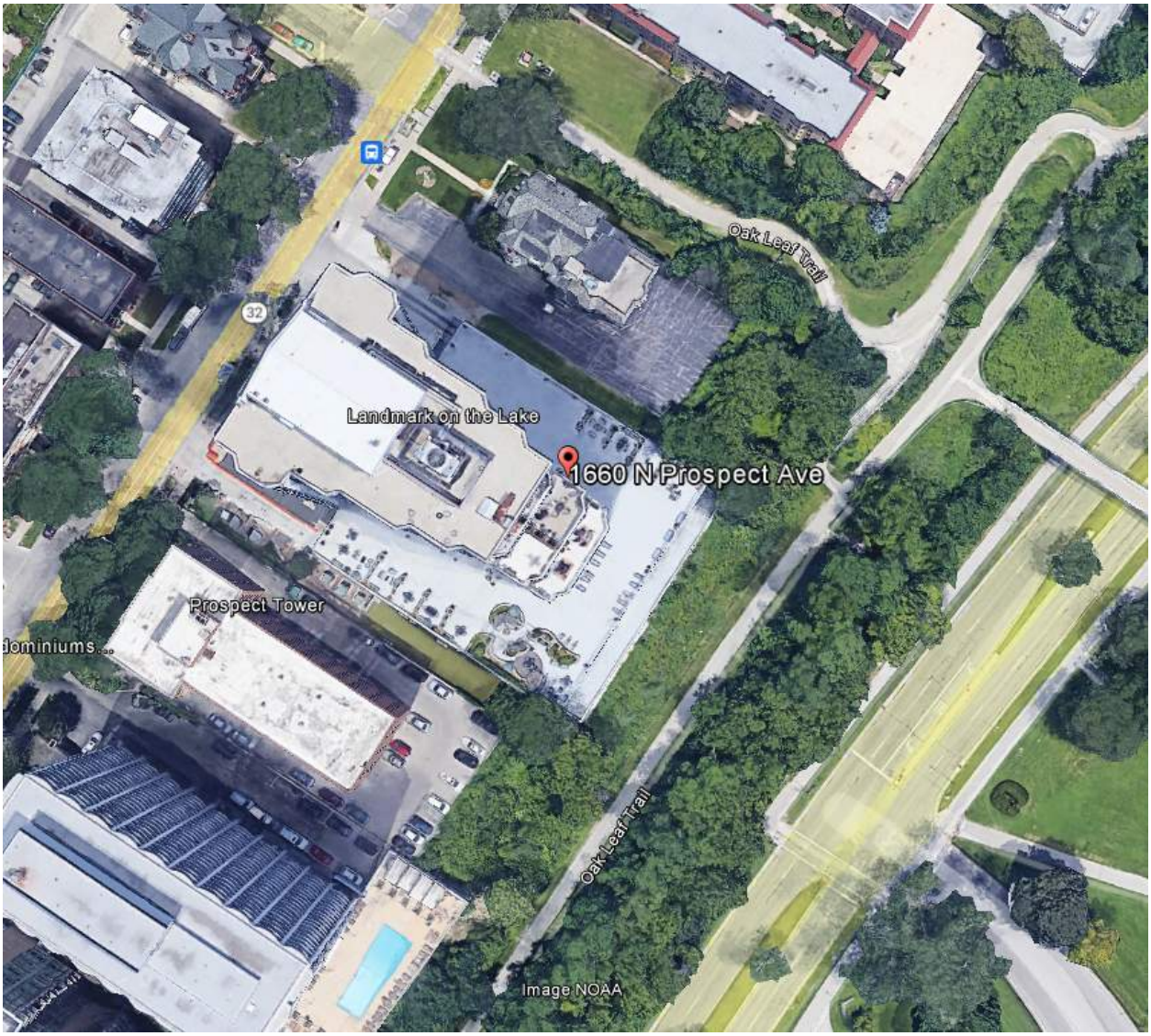
The attached residential and parking structure is in fair to good condition. Most of the issues of the parking structure are due to long term water damage, such as corrosion to reinforcement, deterioration of the concrete, and efflorescence on the cast-in-place concrete and CMU block walls. There are locations where the steel reinforcement on the bottom of the cast-in-place slabs and on the sides of the cast-in-place walls have been exposed to water from the cracks in the concrete. There is corrosion and rust streaks in and around these concrete cracks. The water has continued to penetrate those cracks through low points of the slab causing concrete to spall on the underside. There is also evidence of concrete spalls on the interior parking walls due to water penetration. In addition to interior walls, there is corroded reinforcement present on a few exterior cast-in place walls near the ground level. The concrete spalled in this area has exposed the reinforcing steel to the exterior elements and is causing rust to streak down the face of the walls.

Overall Summary of Structure

From the existing building documents, the structure appears to be designed and detailed per the industry standards. The gravity and lateral system seem appropriate for the area and type of building. The lateral system in the north-south direction consists of long shear walls, where the structure will see most of the lateral wind loading due to tributary area. There is a large shaft near the center of the structure that is acting as a lateral shear wall system in the east-west direction to resist wind loading from Lake Michigan. The column sizes and reinforcement seem appropriate for the building type and footprint of the structure. The columns that collect more tributary area are detailed with larger size columns and more reinforcement. The smaller profile columns are detailed in areas with lesser gravity loading. The post-tensioned slab and beam system appears to follow the common industry methods.

The parking and residential structure does not appear to have compromised sectional strength in the existing gravity or lateral system. The issues that stem from water exposure should be the highest priority. This should be remedied in a timely manner to ensure that the overall structural capacity of the system is not compromised. The deterioration was observed as minor in most locations but can progressively get worse if neglected. The repair and maintenance items that are identified through this assessment have been categorized into a level system. The lowest level items are those regarded as either informative (non-critical) or commentary regarding maintenance and techniques.

Location Plan



A. Level 1 concern - items requiring immediate repair

A few isolated areas that require immediate repair were found and are discussed in this section.

Condition A1: **Railing post to balcony slab failures**

Location: Various exterior balcony slabs

Description: The exterior concrete balcony slabs are covered with an epoxy and sand based waterproofing membrane, which is generally in good condition. The membrane at the railing post bases has failed in several locations. This has led to failure of the post connection to the concrete, which reduces the capacity of the railing system to restrain occupants from falling.

Recommendations: Reassess all balconies for wear of the waterproofing membrane, the railing post connection to the concrete, repair the concrete around the post connection, and reapply a waterproofing membrane.

Level of Urgency: The railing posts should be repaired in Spring of 2022, once the weather is warm enough to pour the concrete / cement grout and apply the waterproofing membrane.

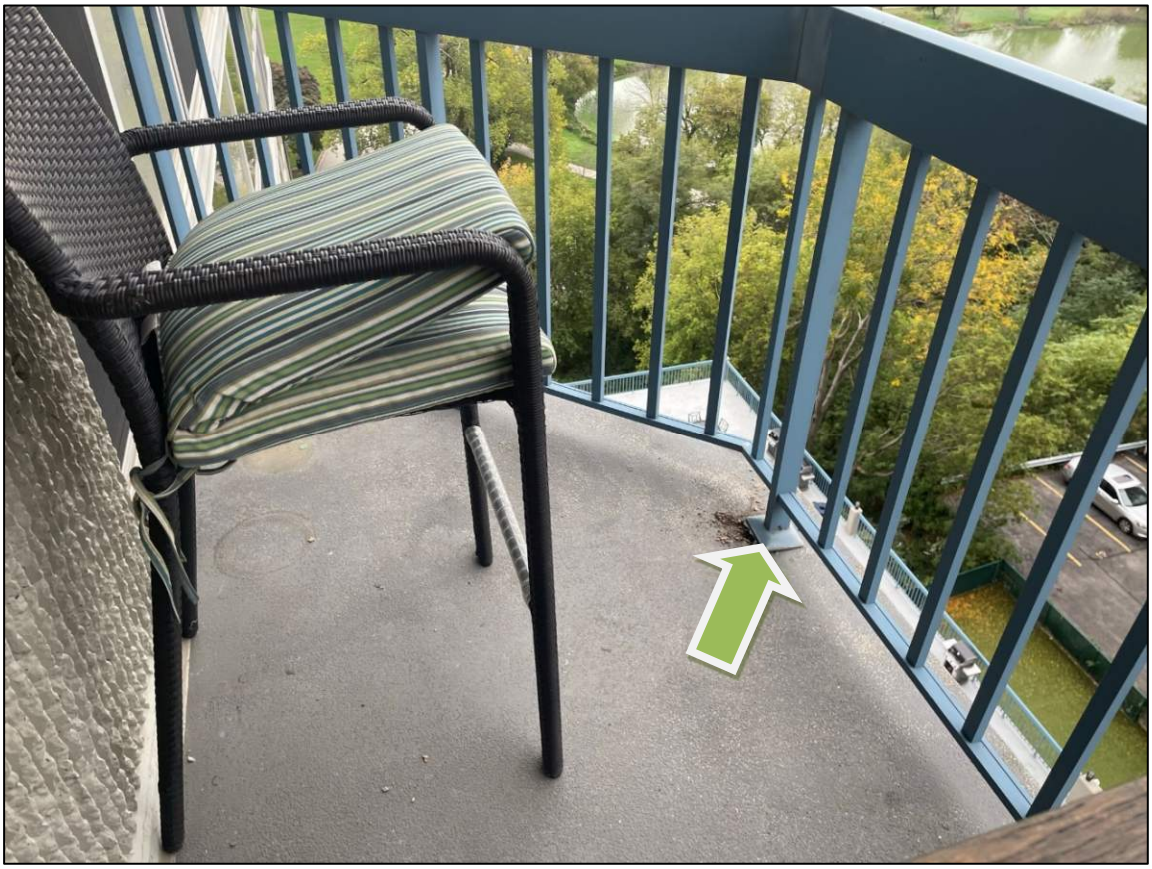


Photo A1-1: There are railing posts that are framing into the balcony slab that have failed as seen above.

Photo A1-2: Water had penetrated the post anchorage zone and the freeze-thaw cycle crushed the concrete into small chips. Both the concrete and membrane need to be removed and replaced.

Photo A1-3: In this case only the membrane has failed. Eventually the concrete will fail if the membrane is not replaced.

Condition A2: **Spalls at underside of parking deck slabs and side walls**

Location: Various areas at the bottom of the supported post-tensioned slab in the parking decks.

Description: Ambient moisture in the underground parking levels permeates through the porous concrete and slowly corrodes the rebar inside the concrete. Most of the rebars have adequate concrete cover to protect the rebar for the life of the structure. It appears some of the rebar was installed lower than what was recommended and has rusted. The expansion of the rust causes the concrete to spall.

Recommendations: Remove corrosion from rebar and coat steel with cold galvanizing in the form of zinc rich paint. Patch concrete spalls with repair mortar.

Level of Urgency: The post-tensioned tendons in the concrete do the heavy lifting to support the structure. The mild rebar reinforcing prevents cracks locally in the concrete. We recommend these spalls be repaired in the next year.

Photo A2-1: A rusted rebar is exposed within a concrete spall.

Photo A2-2: The rebars shown within the spall are very low in the slab profile, which lead to their premature rusting.

Photo A2-3: This is an imminent spall. Loose concrete should be tapped with a hammer, and removed so it does not fall on a person or vehicle.

Condition A3: **Efflorescence and rust staining at pool slab**

Location: Parking level 1 and in pool equipment room, just below pool at first floor

Description: The side walls of the recessed pool are post-tensioned beams that frame into columns. The slab itself is also post-tensioned with greased tendons encapsulated in plastic sleeves that support most of the load. There are mild reinforcing bars inside the slab that are corroding which is evident by the rust staining. The coating inside the pool has failed, which allows chlorinated water to leak through the slab to wall joint. Efflorescence is the white streaking coming from the joints, which is from evaporated salt and mineral deposits. It is harmless, but the occurrence is a sign that water is leaking through cracks, which can cause deterioration of the concrete and corrosion of the rebar steel.

Recommendations: The best type of crack sealing is done on the “positive” side of the wall and slab, which in this case is inside the pool. The pool coating is scheduled to be replaced soon. When the coating is replaced, cracks should be injected with polyurethane from inside the pool.

Level of Urgency: When sounded, the concrete was solid and secure. The rate of deterioration is very slow, because the structure is heavily reinforced and consists of thick durable concrete. The pool coating replacement and crack repair should be done within the next three years.

Photo A3-1: Mineral deposits (efflorescence) and rust stains streak down sides of pool slab joint.

Photo A3-2: Efflorescence and rust staining coming from top and bottom of pool slab down the block wall.

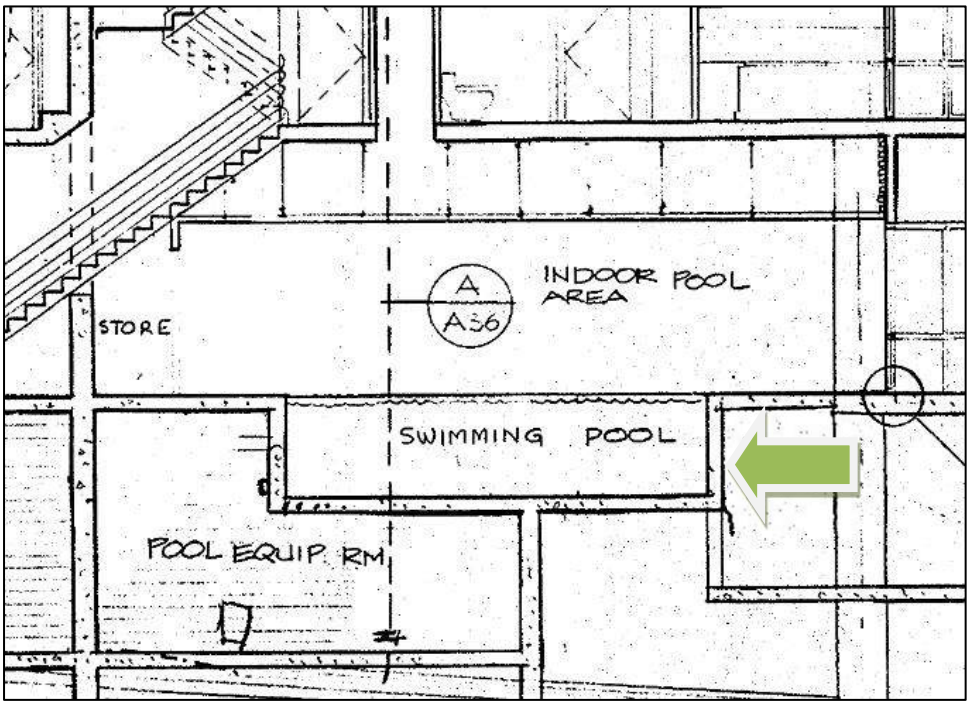


Photo A3-3: The top of the swimming pool is level in the Indoor Pool Room and is depressed into parking level 1 and the pool equipment room. The joint between the slab and wall is leaking.

Condition A4: **Failed traffic bearing membrane causes tripping hazard**

Location: Southeast corner of Parking 3 level

Description: A leak deposited water and formed a constant puddle near a heavily used turn. Turning tires rub on the traffic bearing membrane causing it to fail prematurely. A perennial water source seeped into a tear and caused the whole traffic bearing membrane to delaminate from the concrete substrate. Water can freeze here, causing a tripping hazard on the smooth concrete.

Recommendations: The source of the water leak needs to be addressed first. A piece of mechanical equipment may need a secondary drain, but to prevent a reoccurring issue here, the source of the water needs to be removed.

Level of Urgency: We recommend the loose traffic bearing membrane be removed and the source of water be removed immediately. The secondary issue is to replace the traffic bearing membrane that protects the concrete from saltwater infiltration. It is recommended for the traffic bearing be replaced within 3 years, so this area has a similar lifespan as the rest of the parking surfaces.

Photo A4-1: A whole section of traffic bearing membrane is missing at a vehicle turning area. A water leak causes a puddle that will freeze in winter and cause a tripping hazard.

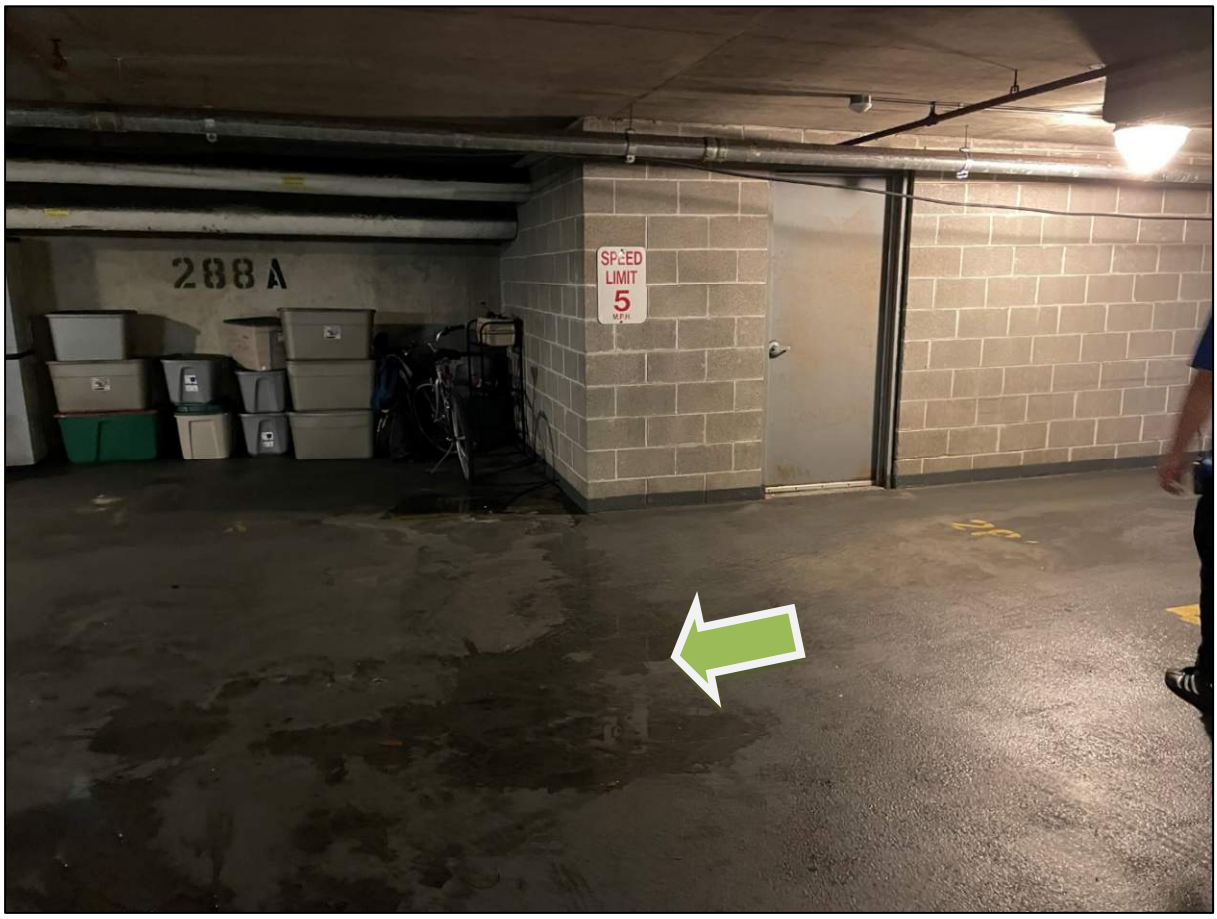


Photo A4-2: The failed traffic membrane and puddle is located between designated parking spaces 288A and 288.

B. Level 2 concern - items to be addressed in near future

A few specific areas that are deteriorated were found and are discussed in this section. These items may not require repair immediately, but they should be scheduled for repair in the next year or two. If left as is, the deterioration will continue and result in a more extensive and costly repair in the future.

Condition B1: **Cold joint waterproofing maintenance**

Location: Primarily at the north and south elevations, below grade

Description: During the original construction, the concrete floor was poured on top of the previously poured wall that created a permeable cold joint. The joint leaked water for many years. In 2013, GRAEF provided design input on waterproofing these joints by epoxy injection and coating the joint strip with sealant coating. This system has held up very well, but it is not maintenance free. This will be an ongoing issue unless a decision is made to excavated behind the wall and place a rubberized membrane on the soil side of the wall.

Recommendations: The rust stains do not specifically represent current leaks. We recommend the current water leaks be injected with polyurethane, which swells and prevents water infiltration.

Level of Urgency: The leaks appear minor but will worsen and can deteriorate the concrete and corrode the steel reinforcing inside the concrete. We recommend the cracks be injected within three years.

Photo B1-1: Small leaks have formed within the waterproofing joint at the top of wall.

Condition B2: **Exterior parapet wall cold joint is cracked and spalled**

Location: On the north, east, and south ends of the building, where the parapet wall extends up from the outdoor plaza patio space.

Description: Prior to the waterproofing membrane being replaced in the outdoor plaza patio deck a few years ago, water leaked through the base of the wall towards the outside wall face. This caused the concrete at the joint to deteriorate and the reinforcing steel inside the wall assembly to corrode.

Recommendations: The source of the water from the patio has been addressed, so the exterior concrete repairs can now be completed. Loose concrete should be removed, exposed rebar be removed of rust and then coated with cold galvanizing, and the spalled area be patched solid with repair mortar.

Level of Urgency: The wall is substantial, and the interior wall leak has been addressed, however, exposed rebar will continue to corrode and cause more costly repairs later. We recommend they be repaired within the next three years.

Photo B2-1: Large concrete spalls are at the cold joint between the parking wall and the parapet wall above.

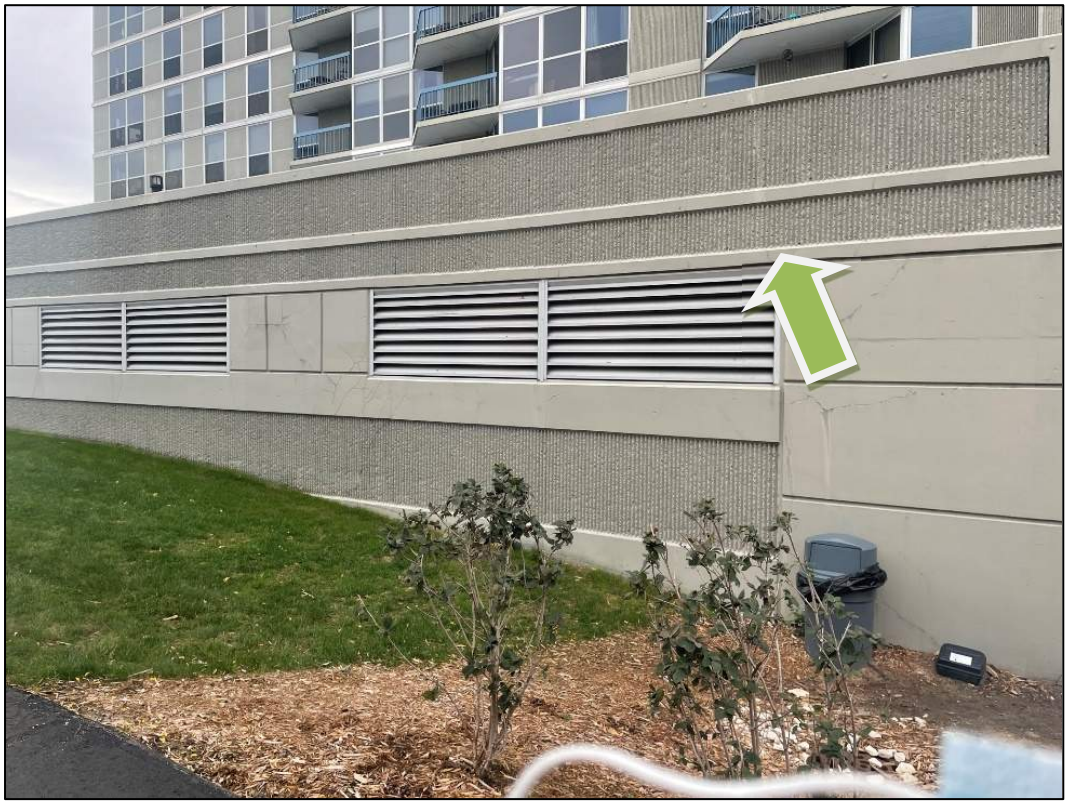


Photo B2-2: Below the cold joint, there are concrete cracks that will lead to imminent spalls and should be injected.

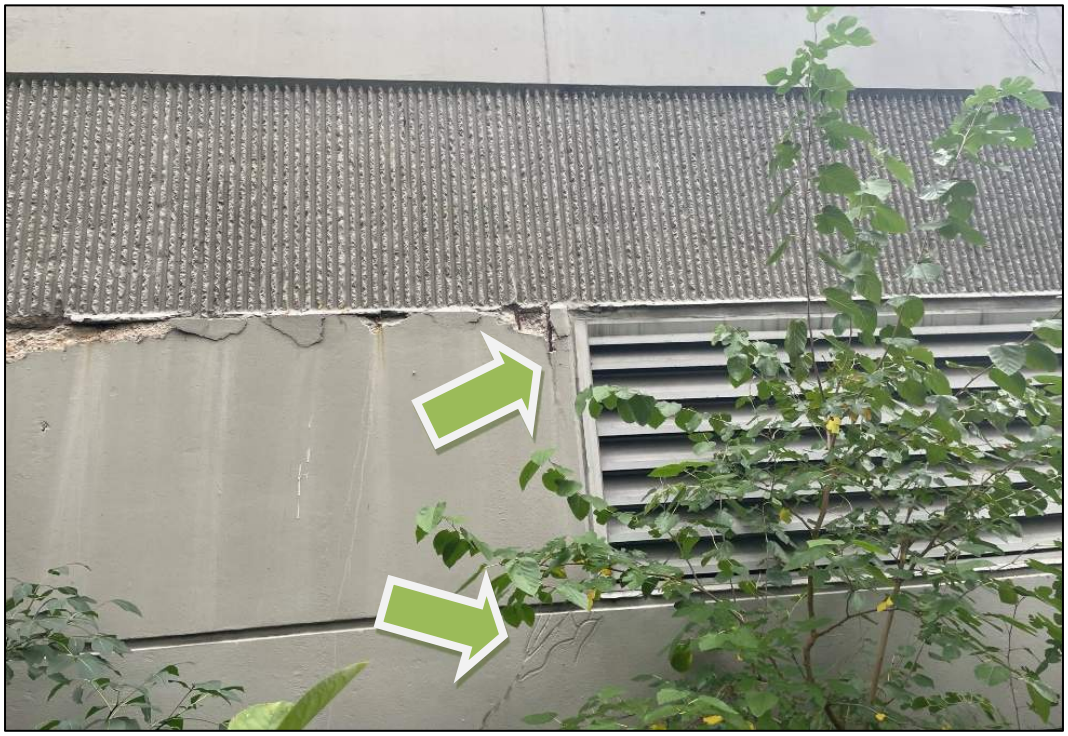


Photo B2-3: Cracks and spalls continue along the cold joint and travel down the side of a vent louver.

Condition B3: **Water saturation at walls below area wells**

Location: At the north and south basement foundation walls, between grid lines 2 and 4, there are ventilation area wells that provide fresh air into the lower-level parking.

Description: Water leaks inside the area well and saturates the concrete wall below the vent. Concrete that is continually saturated has its cement paste slowly eroded away, which is the binder that holds the aggregates together. The water also leads to corrosion of the steel and large concrete spalls.

Recommendations: Usually water that is trapped inside an area well has a drain for water to exit into a stormwater management system. It is unknown if the system here was not installed or is no longer working. The first step would be to remove debris at the bottom of the area well. If that does not solve the problem a drain could be installed inside the area well or a waterproofing membrane could be installed on the positive side of the wall.

Level of Urgency: Adjacent spalls to be addressed under report Condition A2 and adjacent cracks to be addressed under report item B1. We recommend the water issue be addressed at the area wells within five years.

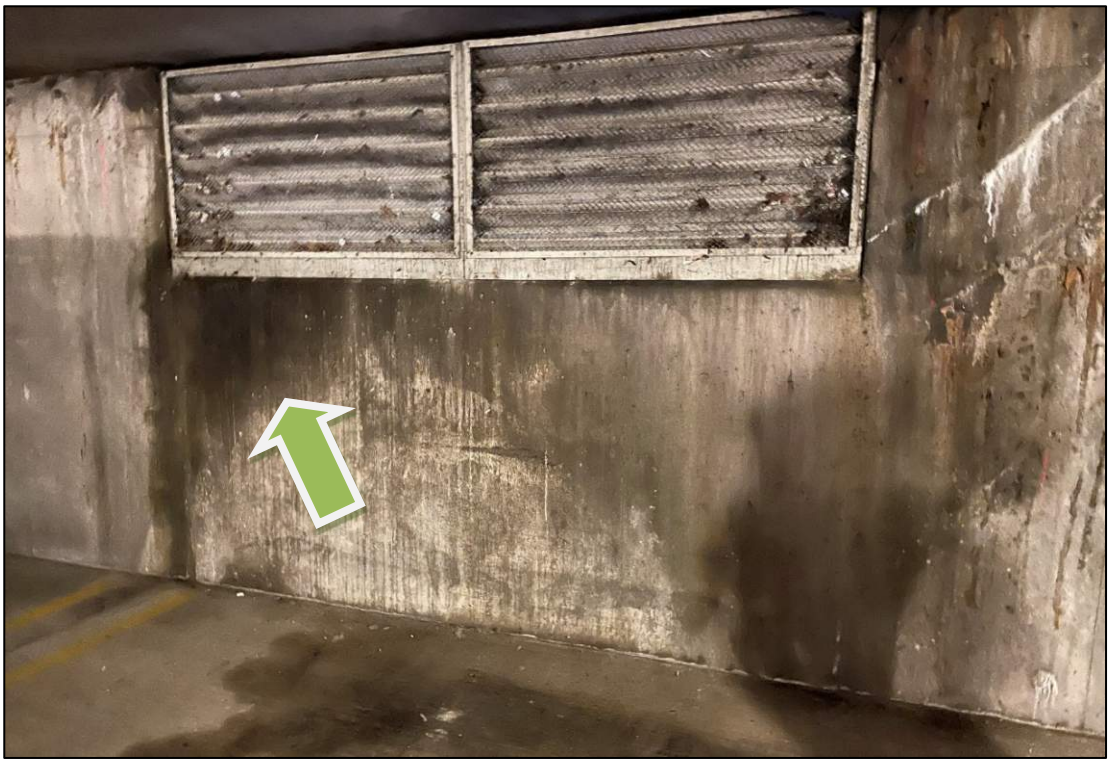


Photo B3-1: Water is saturating the wall below the area well vent.

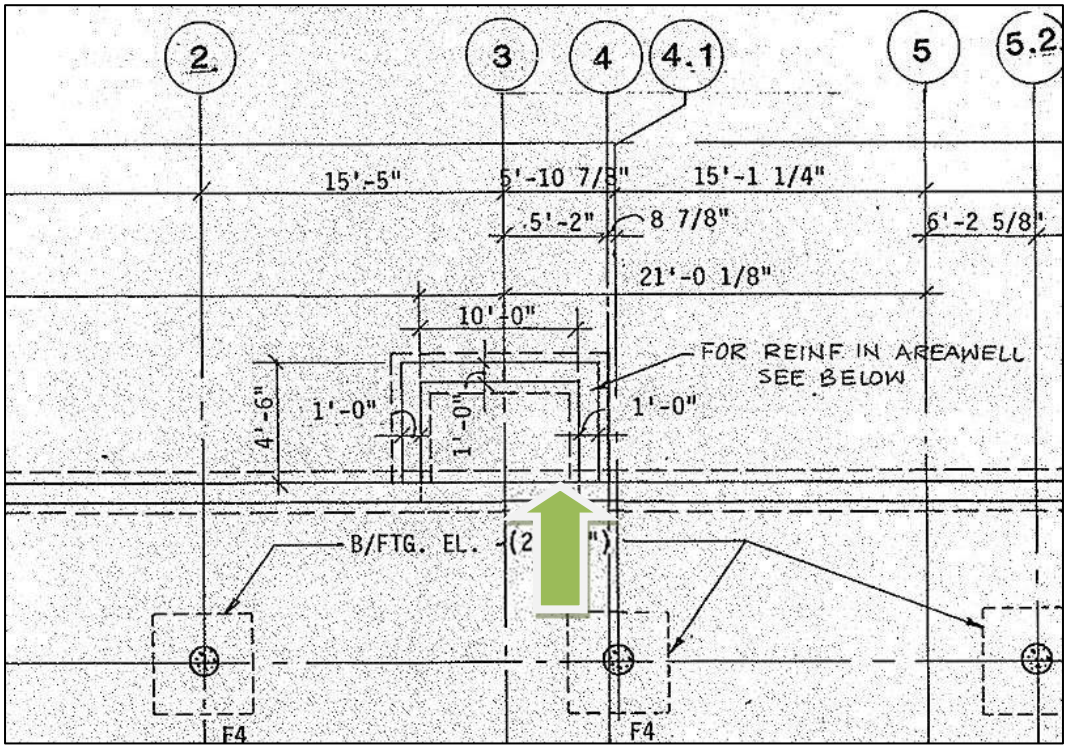


Photo B3-2: Area wells occur in the north and south foundation walls between grid lines 2 and 4.

Photo B3-2: Water overflows inside the area well and leaks down the side of the wall. Debris inside the areas to be removed so the saturation problem can properly be identified.

C. General observations related to building maintenance

Several building maintenance techniques were observed during the walkthrough that may accelerate the deterioration of the parking structure.

Condition C1: **Rubbery adhesive is rust colored and displays false issue**

Location: The condition occurs along various locations on the lower parking area walls, predominantly on the west building side.

Description: There are several rubbery adhesive streaks that cover the interior surface of the concrete foundation wall. The adhesive residue may have been used during construction or a previous repair project and was left in place. The soft glue-like surface has absorbed rust from water that leaked in through the slab and wall joint described in Condition B1. This is not a sign of damage to the wall and is just an aesthetic issue.

Recommendations: The rubbery adhesive material can be removed by scrapping or possibly pressure washing the surface of the wall. The added benefit to removing the substance is that if a serious rust problem does arise, it would not be confused with this aesthetic issue.

Photo C1-1: Rust has stained the rubber adhesive on the side of the wall. The cold joint between the wall and the floor slab or previously repaired cracks could have stained the adhesive the rust color long ago.

Condition C2: **Cold joint crack aligned with louver**

Location: Along the south wall of the mechanical penthouse, there is a horizontal crack in the exterior concrete wall that my leak water during heavy rain events combined with wind.

Description: Water has been reported to be found pooled along the bottom of this wall after a storm event with heavy rain and strong winds. Water could be coming in through this cold joint crack, or it could be coming in through the open louver and leaking through the mechanical ventilation duct connected to the louver.

Recommendations: Building maintenance person should investigate the area after a strong storm and determine the source of the water reported inside the mechanical penthouse. Additionally, if water is entering the mechanical ductwork, then a HVAC contractor should verify no damage is occurring to the interior mechanical equipment and that trapped water has a route to drain from the ventilation system.

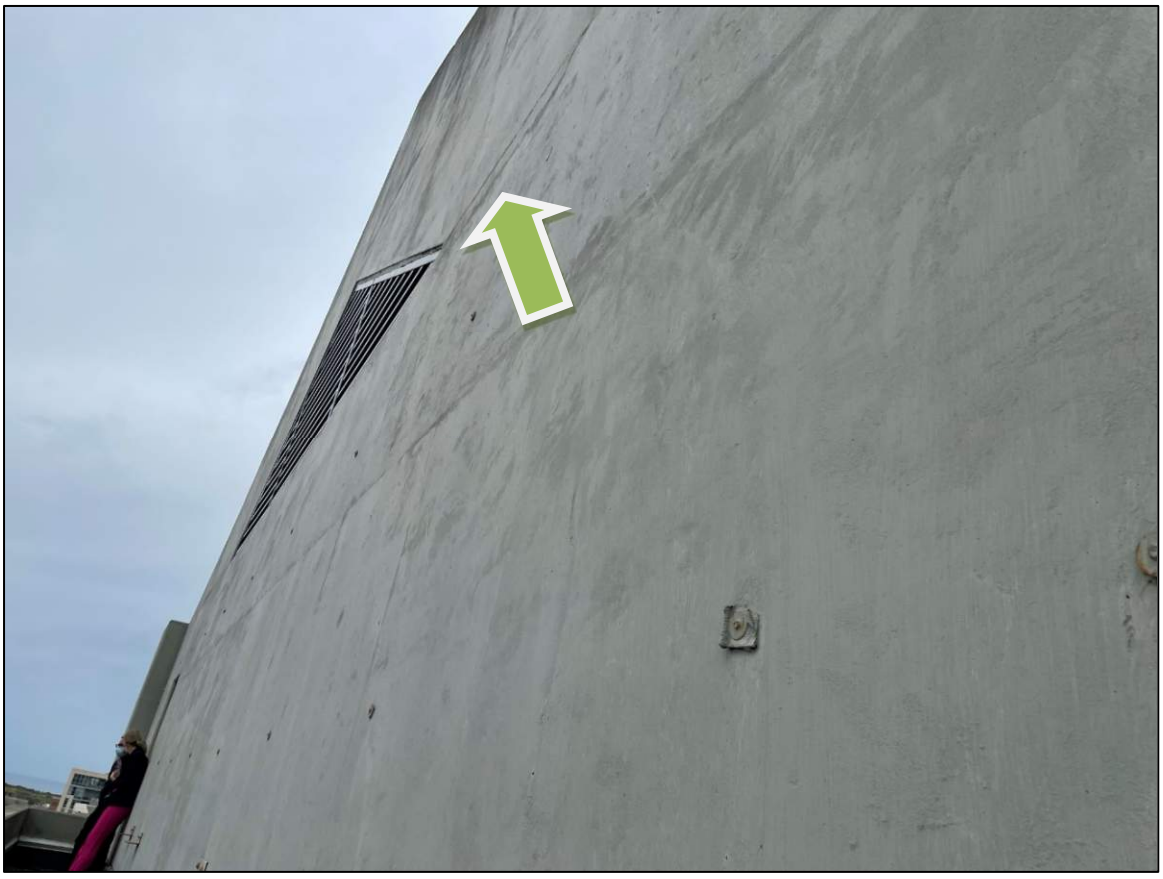


Photo C2-1: A horizontal crack follows a cold joint in the exterior wall and is aligned with a louver.

Condition C3: **Spall in mechanical penthouse wall**

Location: Next to the access door, exiting to the south, on the west side of the wall.

Description: A concrete spall on the exterior face of the wall has exposed a segment of rebar. The rebar is not overly corroded, and the only source of water is occasionally from rain. The concrete around the spall appeared solid and secure.

Recommendations: The spall should be patched with repair mortar to prevent the damage from becoming worse.

Photo C3-1: A concrete spall on the south wall of the mechanical penthouse has an exposed rebar.

Condition C4: **Horizontal cracks in elevated parking slabs**

Location: Various locations observed on the bottom of the structural slab on all parking levels.

Description: It appears most of the horizontal cracks have been injected with epoxy previously and the traffic bearing membrane on the top surface is adequately preventing the cracks from receiving direct water. There are some cracks that have lengthened since they were injected, but do not appear to be leaking. Ambient moisture in the parking areas can infiltrate the cracked areas and cause the internal rebar to corrode.

Recommendations: Monitor the condition of the cracks. Once the traffic bearing membrane above needs replacement, it is recommended for the cracks be injected at that time, which were not previously injected.

Photo C4-1: A crack on the bottom of the floor slab (ceiling) had been injected with epoxy and still has some of the damming material (to keep epoxy from spilling out) left in place.

Limitations

This report is based on conditions of elements that were readily observable at the time of assessment. No testing was performed. This evaluation was intended to be an assessment of the visible structural and water resisting elements of the buildings. It was not intended to address every deficiency that could be found in structures such as this. GRAEF does not accept responsibility for deficiencies not evident during an investigation of this type.

This report is intended to inventory existing conditions of the observed areas and to provide general recommendations for repair. Recommendations provided in this report are conceptual in nature and are not intended for construction. GRAEF is able to provide additional investigation, construction details and specifications for repair upon request.

Conditions observed at the time of assessment may change if noted deficiencies are not corrected.