MILESTONE INSPECTION REPORT – PHASE 1

L'Ambiance at Longboat Key Club – South Tower

415 L'Ambiance Drive, Longboat Key, FL

July 18, 2024

JG Project No. 21-066.01

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1 INTRODUCTION

1.A EXECUTIVE SUMMARY

Based on the documents reviewed and field observations, it is our professional opinion that the building structures at 415 L'Ambiance Dr., Longboat Key, Florida are generally in good condition. The primary structural systems of these buildings are generally performing well and, given the condition observed, can continue to do so under present use and occupancy.

No substantial structural deterioration was observed, and thus no Phase 2 Milestone Inspection is required at this time. It is Jezerinac Group's recommendation that this building structure be certified by the Authority Having Jurisdiction as having completed their Milestone Inspections for this cycle.

There are localized areas of minor structural distress and maintenance repair items, summarized in Section 2, which we recommend completing for the long-term health of the building. The observed conditions are not unsafe or dangerous, as defined by the Florida Building Code.

The community has illustrated that they are proactive in maintenance and upkeep, having recently performed a number of building repairs including balcony railings, building exterior finishes, and future plans for further repair work as discussed herein.

1.B SCOPE OF WORK

Jezerinac Group, PLLC (JG) has been retained by L'Ambiance at Longboat Key Club to investigate the existing structural condition of L'Ambiance at Longboat Key, which is located at 415 & 435 L'Ambiance Dr, Longboat Key, FL. JG's scope herein is specific to observations and assessments related to limited visual investigation of current field conditions specific to the deterioration of structural elements and this report which summarizes our observations, analysis and generic causation of structural distress, and our recommendations. Our scope excludes observations and assessments of architectural components of the building envelope.

Representatives of Jezerinac Group were on site as follows to perform field observations:

- Robert S. Rude, P.E., S.I.; Tom Simpson – September 28 & 29, 2021
- Kyle Koughan, E.I.; Robert S. Rude, P.E., S.I. – June 13, 2023
- Tom Simpson – June 5, 2024

1.C DOCUMENTS REVIEWED

- Representative photos were taken on site and reviewed, some of which are included herein to highlight specific structural conditions.
- Original construction documents for L'Ambiance at Longboat Key including the following:
    - Structural drawings by Jenkins & Charland, Inc. dated December 11, 1992 for building 415 and October 7, 1994 for building 435.

1.D EXISTING STRUCTURAL SYSTEM

1.D.1 Original Construction

L'Ambiance at Longboat Key Club is a condominium community consisting of two eleven story condominium buildings with nine floors of residential units over a full parking level and a lobby amenity level with additional parking. Each floor has eight residential units with four residential units on the penthouse level. The buildings were constructed with cast-in-place post-tensioned concrete slabs, supported by cast-in-place concrete columns and walls. The vertical elements are supported by a deep foundation system of precast concrete piles, pile caps, and strap beams. The lateral wind load resisting system is comprised of reinforced concrete shear walls. Exterior walls are constructed with non-load bearing infill masonry. Rooftop appurtenances include structures for the mechanical rooms and elevator overruns at the center of each core. The structural systems of these appurtenances are comprised of reinforced concrete slabs, supported by load-bearing concrete masonry walls, which bear on the topmost PT slab.

The Pool Pavilion consists of two single story buildings between the South and North residential towers. Construction documents for the original building design were not available. The structural system of these free-standing buildings appears to be load-bearing masonry walls supporting a wood truss framed roof system.

1.D.2 Known Renovations and Modifications

There are no known revisions that have been communicated to JG.

1.E DISCLAIMER

The views expressed herein constitute the opinions of Jezerinac Group and its employees, and no other guarantee, expressed or implied, is made. This assessment is limited in nature and is not intended to be an exhaustive verification of all structural elements and their conditions, nor a strict review of engineering adequacy or building code compliance. Recommendations contained herein are the result of limited visual observation only. Should any further information be brought to our attention at any time, we reserve the right to amend our findings, as necessary.

2 FIELD OBSERVATIONS AND RECOMMENDATIONS – SOUTH TOWER

OVERALL SUMMARY

Based on the documents reviewed and field observations, it is our professional opinion that the building structure of the South Tower is in good condition. **No Substantial Structural Deterioration was observed, and therefore a Phase 2 Milestone Inspection is not necessary.** Repair and ongoing maintenance are recommended at several locations as shown in the key plans and report herein.

ACCESS PROVIDED / LIMITATIONS

Visual observations at the South Tower were conducted at reasonably accessible areas made available to JG at the time of our visits. These areas include the flat roof, rooftop appurtenances, representative units throughout (704, 705, 708, 803, 806, 901, 902, PHD, PHF), ground level common areas, back-of-house utility or storage rooms, and exterior observations from the ground. Hard finishes are the primary interior finish, and no finish was removed during observations. The exterior of the building and edge-of-slabs were observed from the ground level.

2.A SUBSTANTIAL STRUCTURAL DETERIORATION – SOUTH TOWER

JG did not observe any items showing significant structural deficiencies in the South Tower.

2.B MINOR STRUCTURAL OBSERVATIONS – SOUTH TOWER

The following items are minor structural deficiencies in the South Tower.

2.B.1 Residential Units – South Tower

2.B.1.1 Tile Distress at Balconies

Cracked tiles were observed at several unit balconies, along with hollow sounds observed during acoustic sounding of the tile surface (observed at units 704, 705, 803, 707, 901, 902). In some locations, such as on the north balcony of Unit 803, tiles were ridging up along the line of the crack or along the grout joint (see Photo 2.B.1-1. This is likely a result of the tile becoming unbonded with the structure below but could also be a sign of distress to the actual concrete below.

JG recommends locations with tile ridging are investigated by removing tiles and assessing the condition of structure below. Locations with cracked tiles or hollow sounds that are not ridging are to be monitored.

It is JG's understanding that work to refinish the unit balconies has already begun. The gulf side balconies on floors 1-8 and penthouse have been re-waterproofed and re-tiled, with the remaining balconies planned to be completed within the next few years.

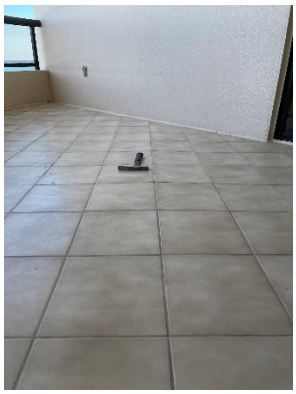

Photo 2.B.1-1 & Photo 2.B.1-2 – Hollow Sounding / Cracked Tile at Residential Balconies

2.B.2 Lobby/Lower Garage Level – South Tower

2.B.2.1 Cracked Expansion Joint at Retaining Wall

Cracks with signs of water intrusion were observed at joints in the east wall of the lower-level garage. This wall is a retaining wall where soil is present on the opposite side, beneath the ramp to the porte cochere on the landscape deck, and thus exposed to earth and moisture. The water staining that was observed indicates that the water proofing system on the opposite face-of-wall is not performing as intended and based on the age of this system, may have reached the end of its service life.

Prolonged exposure to water/moisture can lead to continued structural distress, though this is a "blind side" application where the condition of the waterproofing system on the opposite face-of-wall is not available for visual observation. JG recommends that the top-of-wall be excavated for visual observation to determine the condition of this waterproofing system. Evaluation by a waterproofing consultant once this excavation has occurred will help guide decisions regarding repair or replacement of the system in place, with the goal being to protect the retaining wall from exposure to water/moisture that can lead to concrete distress and more costly future repairs.

It is JG's understanding that a French drain was added at the landscape deck above to reduce the amount of water draining to this joint. JG recommends that the community continues to monitor for any changes in condition, and proceed with the recommended evaluation that is detailed above.

Photo 2.B.2-1 & Photo 2.B.2-2 – Distressed Expansion Joint at Lower Level Garage Retaining Wall

2.B.2.2 Water Staining at Expansion Joint in Slab

Water stains were observed at the lower level garage, overhead at the slab expansion joint of the pump room. There are signs of a previous repair at this joint. The water staining that was observed indicates that the water proofing system on the opposite face-of-slab is not performing as intended and based on the age of this system, may have reached the end of its service life.

JG recommends that the expansion joint filler material be replaced.

Photo 2.B.2-3 – Water Staining at Slab Expansion Joint Under Lobby Level Pump Room

2.B.2.3 Underside of Landscape Deck Slab Cracks

Cracks were observed on the underside of the landscape deck slab from inside the lower level garage (see Photo 2.B.2-4). The cracking was predominately at the east side of the building. One crack was observed next to an apparent previous repair.

JG recommends repairing the cracks with the "Concrete Crack Repair – Rout and Seal" procedure in Appendix C and monitoring these conditions. Notify JG if these cracks enlarge and/or begin to show differential settlement where a vertical step is observed between the concrete each side of the crack.

Photo 2.B.2-4 & Photo 2.B.2-5 – Bottom of Slab Cracks Under Landscape Deck

2.B.3 Tower Roof – South Tower

2.B.3.1 RTU Support Corrosion

Corrosion was observed on some of the Roof Top Units (RTUs) and their supporting members. In many locations the hold down straps have corroded or are missing entirely as shown in Photo 2.B.3-1. In other conditions, the unistrut frames have corroded as shown in Photo 2.B.3-3. Both the straps and the unistrut frames are intended to anchor the equipment during a wind event.

Where surface corrosion is observed, JG recommends cleaning and coating straps with a material appropriate for coastal exposure. Where section loss is observed, JG recommends installation of new straps and/or unistrut frames, constructed of a material appropriate for coastal exposure.

It is JG's understanding that work to address the observed frame corrosion is planned as part of the new roof finish installation in October 2024.

Photo 2.B.3-1 & Photo 2.B.3-2 – Corrosion of RTU Straps at Roof

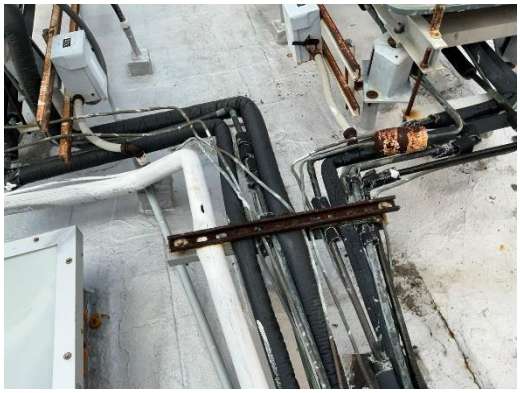

Photo 2.B.3-3 & Photo 2.B.3-4 – Corrosion of Unistrut Frames at Roof

2.B.4 Approach Driveway – South Tower

2.B.4.1 Paver Settlement

Uneven driveway pavers and cracked curb elements were observed at each of the entry ramps leading from the driveway onto the landscape deck. This is likely a result of differential settlement happening at the edge of the concrete landscape deck and the soil supported features beyond. This is a common condition for this type of construction.

JG recommends that the cracked pavers and concrete in these areas be removed for soil regrading to match the landscape deck elevation. We recommend these repairs be completed after the exploratory excavation, evaluation, and any associated repairs outlined in Section 2.B.2.1.

Photo 2.B.4-1 & Photo 2.B.4-2 – Settlement at Pavers in Approach Driveway

2.C BUILDING ENVELOPE AND GENERAL MAINTENANCE – SOUTH TOWER

The following items are considered to be related to protecting the overall building envelope or general maintenance items in order to preserve the useful life of the structure in the South Tower.

2.C.1 Tower Stairs – South Tower

2.C.1.1 Stair Step Cracking

Stair step cracks were observed in masonry walls at the top floor of Stair 7. These cracks are likely caused by differential movement of materials, between the masonry blocks and the more rigid, concrete shear walls. Due to the unconditioned nature of the stairwell, these cracks can allow points of ingress for water/moisture to access the structural elements within. These locations should be repaired/patched to prevent more costly repair work to the underlying structure in the future.

JG recommends repairing with the "Stucco Crack Repair - Rout and Seal" procedure during the next painting cycle for the building.

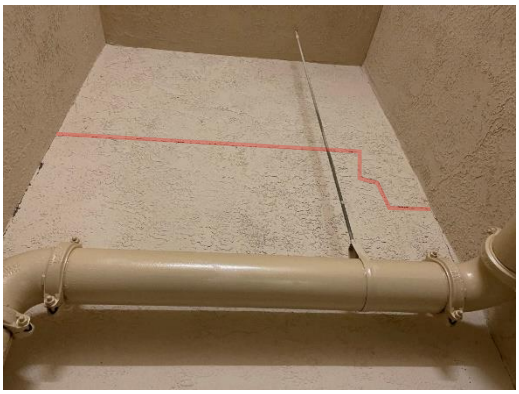
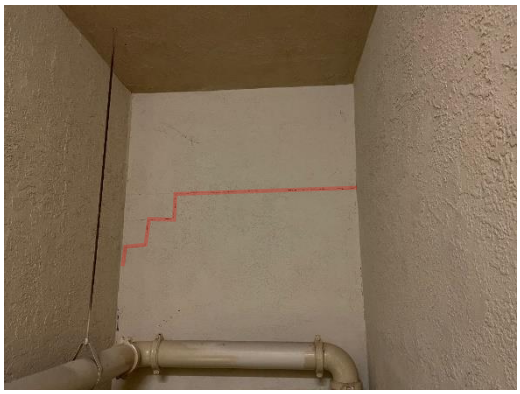

Photo 2.C.1-1 & Photo 2.C.1-2 – Cracks in Stucco Finish at Stair 7

2.C.1.2 Paint Staining

Paint staining and discolored block was observed on the walls of Stair 4. This may be a result of excess moisture in the unconditioned stairwell.

JG recommends cleaning and repainting during the next paint cycle scheduled for the building.

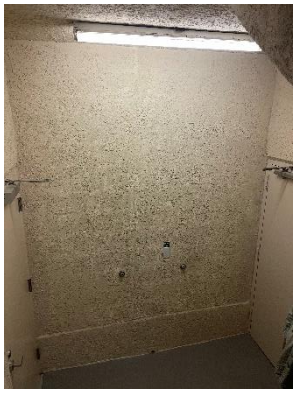

Photo 2.C.1-3 & Photo 2.C.1-4 – Paint Staining at Stair 4

2.C.1.3 Flaking Paint on Pipes

Flaking paint was observed on the pipes in Stair 6. This is a nonstructural observation, but as an observation made in an unconditioned space in a coastal environment, this condition is prudent to address for the durability of the pipes.

JG recommends cleaning and repainting these elements.

Photo 2.C.1-5 – Paint Flaking on Pipes at Stair 6

2.C.2 Lobby/Lower Garage Level – South Tower

2.C.2.1 Diagonal & Stair Step Wall Cracks

Diagonal and stair step cracks in masonry walls were observed on the south, west, and north walls at the lower garage level. Several instances showing previous crack repairs. These cracks are likely caused by shrinkage of materials and differential settlement of the walls, which are supported by slab-on-ground, and the columns, which are pile-supported.

JG recommends repairing with the "Stucco Crack Repair - Rout and Seal" procedure during the next painting cycle for the building.

Photo 2.C.2-1 & Photo 2.C.2-2 – Diagonal & Stair Step Wall Cracks at Lower Level Garage

2.C.2.2 Ground Floor Slab Cracks

Cracks in the ground floor slab were observed at several locations in the lower level garage. This is common to find in exterior slabs-on-ground and is often caused by shrinkage, volume change due to temperature variation, or differential settlement of the supporting soil below.

Cracks in soil supported, ground floor slabs typically do not pose significant hazard to the building structure. JG recommends monitoring these conditions. Notify JG if these cracks enlarge and/or begin to show differential settlement where a vertical step is observed between the concrete each side of the crack. If aesthetics are a consideration, a repair recommendation can be provided, though there is no structural need based on the current condition observed.

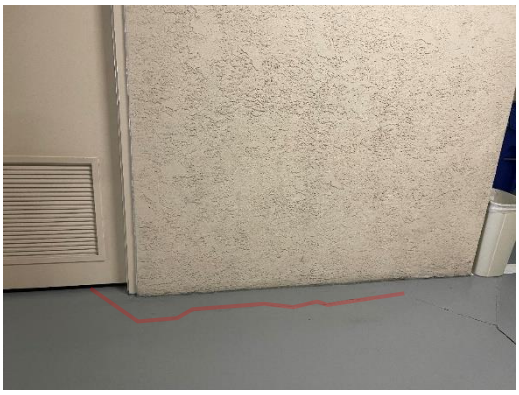

Photo 2.C.2-3 & Photo 2.C.2-4 – Slab on Ground Cracks at Lower Level Garage (Photos of similar conditions in North Building)

2.C.3 Tower Roof – South Tower

2.C.3.1 Roofing Distress

Apparent distress was observed within the roofing material including cracking. The observed distress suggests that the roofing system may be approaching or has already reached the end of its useful service life.

JG recommends evaluation by a roofing contractor or building envelope consultant for repair or replacement recommendations.

It is JG's understanding that a new roof finish installation on this building is planned for October 2024 which would address this observation.

Photo 2.C.3-1 – Apparent Roofing Material Distress

3 CONCLUSIONS

3.A SUMMARY

Based on the limited visual observations and the documentation made available for review, it is our professional opinion that L'Ambiance at Longboat Key – South Tower, which is located at 415 L'Ambiance Dr, Longboat Key, FL is in generally good condition. **No substantial structural deterioration was observed, and thus a Phase 2 Milestone inspection is not necessary. It is Jezerinac Group's recommendation that this building structure be certified by the Authority Having Jurisdiction as having completed Milestone Inspections for this cycle.**

There are observations of distress that is less than Substantial Structural Deterioration which proactive repairs and preventative maintenance are recommended herein and indicated in the summary matrix on the following pages. Repair work should be conducted in accordance with the Florida Existing Building Code and industry standard repair specifications such as ACI 563-18 - *Specifications for Repair of Concrete in Buildings* or ICRI 110.1-2016 - *Guide Specifications for Structural Concrete Repair*. Appropriate review and approval by the building department will need to be obtained for work requiring permits by the Authority Having Jurisdiction, and required inspections will be applicable for this Threshold Building as defined by Florida Statutes. Maintenance items that do not require permits should be incorporated into the community's regular maintenance practices.

The community has illustrated that they are proactive in maintenance and upkeep, having recently performed a number of building repairs including balcony railings, building exterior finishes, and future plans for further repair work as discussed herein.

The next mandatory inspection per state statutes is the next Milestone Inspection as discussed in "Periodic" below. At this time, JG does not believe that more frequent formalized inspections are required for this building structure given this attention to maintenance and upkeep, considering the current condition of the structural elements observed. A robust and intentional inspection program that pairs these state-required periodic inspections with additional assessments is an effective way to identify distress early and often such that it is not able to propagate into more costly future repairs or dangerous/unsafe conditions. JG's recommended inspection program for this community is as follows:

- Yearly – "Maintenance Condition Assessments" are recommended to be conducted by the community's maintenance and management team on a yearly basis as a general review to identify potential distress.
- Threshold – During the planned repair and restoration, threshold inspections are required.
- Periodic – Provided that community continues to remain proactive with maintenance and attentive to signs of potential distress, with any such observations raised to an appropriately qualified professional to evaluate, the next recommended full-building assessment is the next Milestone Inspection in 10 years.

- Targeted – More frequent inspections of specific systems (roofing, waterproofing, etc.) may be appropriate based on the age and condition of such systems. Additionally, targeted inspection of building façade and balconies are prudent review on a regular basis in a coastal area. Based on our observations, at this time, JG does not believe that a formalized inspection program is required for many of these systems beyond those already part of community maintenance, insurance-related, or warranty/manufacturer required inspections. If the above recommended yearly Maintenance Condition assessment process results in observed distress prior to the next scheduled periodic assessment, JG recommends intermediate review on an as-needed basis.
- Additional and/or more frequent inspections may be required by the AHJ.

3.B SUMMARY MATRIX NOMENCLATURE

The nomenclature used below is repeated in the summary matrix found on the following sheets to establish the priority of these items with a recommended timeline. The designations are as follows.

- NA - No Action Required is the designation given to an observed element or area that is in serviceable condition and requires no immediate attention.
- MM - Maintenance Item / Monitoring Recommended is the designation given to an observed element or area that requires maintenance or monitoring. Failure to act may result in structural distress and increased cost of future repairs.
- FR - Further Investigation Recommended is the designation given to an observed element or area that requires further investigation so that it can be determined whether this item is a cause of structural distress to the building structure.
- MR - Minor Repair is the designation given to an observed element that displays minor signs of structural distress. Failure to act may result in structural distress and increased cost of future repairs.
- RR - Repair, Retrofit, or Replace is the designation given to structural framing that is displaying signs of distress necessitating repair to maintain or restore effectiveness, or an element that has exceeded its useful service life and requires retrofit or replacement.
- SI - Safety Issue/Shoring Required is the designation given to an observed element or area that poses a life safety issue to building occupants or the public and shall be immediately addressed or shored.

3.C SUMMARY MATRIX

Observation	Report Section	Designation	Recommended Timeline[1,2,3]	Recommendation
2.A - Substantial Structural Deterioration – South Tower - NONE				
2.B - Minor Structural Observations – South Tower				
Tile Distress at Balconies	2.B.1.1	FR	1 Year	Investigate ridged tile locations. Monitor tile delamination & hollow sounds.
Cracked Expansion Joint at Retaining Wall	2.B.2.1	FR	1 Year	Excavate soil and assess condition of waterproofing system.
Water Staining at Expansion Joint in Slab	2.B.2.2	RR	1 Year	Replace joint filler material.
Underside of Landscape Deck Slab Cracks	2.B.2.3	MR	1 Year	Rout and seal. Monitor.
RTU Support Corrosion	2.B.3.1	RR	As Soon as Practical[2]	Repair/replace corroded RTU straps and support members.
Paver Settlement	2.B.4.1	MR	2 Years	Regrade soil to match landscape deck elevation.
2.C - Building Envelope and General Maintenance – South Tower				
Stair Step Cracking	2.C.1.1	MM	3 Years	Rout and Seal.
Paint Staining	2.C.1.2	MM	3 Years	Clean and repaint stucco.
Flaking Paint on Pipes	2.C.1.3	MM	3 Years	Clean and repaint pipes.
Diagonal & Stair Step Wall Cracks	2.C.2.1	MM	3 Years	Rout and Seal.
Ground Floor Slab Cracks	2.C.2.2	NA	N/A	Monitor. No structural repair required.
Roofing Distress	2.C.3.1	FR	2 Years	Evaluation by roofing consultant.

Footnotes:

1. Repair timeline values provided are recommendations and shall not be construed as requirements. Local AHJs/Building Departments may have more stringent requirements for implementation of repairs without penalties. See Future Steps Disclaimer on the following sheet for additional commentary on recommended timelines.
2. This project is located in a hurricane-prone region and, at the time of issuance. For this reason, certain recommendations pertaining to wind resistance of elements may have accelerated timelines as a function of the current or next hurricane seasons.
3. Items denoted as "By Others" are out-of-scope for Jezerinac Group and are assumed to be within the scope of other parties appropriately qualified and licensed to render professional opinions of condition and associated recommendations. Repair timelines shall be established by the licensed professional in responsible charge of this scope

FUTURE STEPS DISCLAIMER

It is the responsibility of the building owner to maintain the structure and to ensure that repairs and maintenance are executed in accordance with the Building Code adopted by the authority having jurisdiction. JG will not be held responsible if ownership fails to act accordingly.

Immediate action to repair and correct issues is the most effective method to address the observations of distress contained herein and prevent more costly future repairs; however, it is understood that project and budgetary constraints often dictate the repair work be phased or delayed. As such, the Summary Matrix includes recommended timelines for action to be taken on the different observations contained within this report.

These recommended timelines are based only on observations made at the time of JG's site visit. Action within this recommended timeline does not guarantee that further distress or degradation will have occurred since initial observations and issuance of this report, possibly modifying the recommendations contained herein and/or increasing the extent of repair required. Structural elements that are observed to be in distress at the time of JG's visit may be due to environmental conditions, construction or design errors, overloading, or many other sources. Any delay in action results in continued exposure to the conditions that caused the distress, and thus may result in continued structural degradation. Failure to act within the recommended timeline further increases the possibility of continued distress and requires follow-up observations by JG or another licensed design professional registered in the state where the project is located for updated recommendations. Follow-up visits and recommendations are not included in the scope of services for this Structural Condition Assessment, and would be an additional service for fee purposes with a separate contractual arrangement based on the scope as understood at that time.

The client should notify JG or another licensed design professional registered in the state where the project is located if distress visibly increases in severity or extent for reevaluation. This includes continued degradation prior to repair work, as well as signs of structural distress which continues after repair has occurred. Continued degradation introduces the possibility of an accelerated timeline based on new information, as well as reclassifying an observation to a more severe designation such as repair/replace or a safety issue/shoring required.

Life safety items or those indicated as requiring immediate action are those which are perceived to pose the greatest risk to occupants or the public if not addressed in an appropriate timeliness and should be prioritized accordingly. The client shall notify JG if action is not taken, or is not able to be taken, on these items. Any shoring or temporary support recommended herein is by others, and design of these systems is not within the scope of this Structural Condition Assessment.

Monitoring recommendations, if contained herein, are to be performed by others unless specifically scoped for continued involvement from JG as an additional service. Monitoring shall be performed by qualified personnel and is recommended to be conducted in a systematic and well-documented manner such as a building history and health monitoring record with dates, locations, photographs, and pertinent data (gauge readings, crack widths, etc) included.

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GROUP

APPENDIX A: DEFINITIONS

Building Envelope Consultant: A professional with technical knowledge on design of new and evaluation of existing building enclosures regarding glazing systems, cladding assemblies, roofing, and waterproofing systems.

Concrete Masonry Unit (CMU): Either a hollow or solid unit (block) composed of Portland-cement concrete (ACI).

Cornice: The molded and projecting horizontal member that crowns a wall.

Cricket: A ridge structure designed to divert water on a roof around the high side of a large rooftop appurtenance such as chimneys, roof pop-ups, and mechanical units.

Contraction Joint: Formed, sawed, or tooled groove in a concrete structure to create a weakened plane to regulate the location of cracking resulting from the dimensional change of different parts of the structure (ACI).

Diaphragm: A member, such as a floor or roof slab, that transmits forces acting in the plane of the member to vertical elements of the lateral-force-resisting system. A structural diaphragm may include chords and collectors as part of the diaphragm (ACI 318).

Efflorescence: A generally white deposit formed when water-soluble compounds emerge in solution from concrete, masonry, or plaster substrates and precipitate by reaction such as carbonation or crystallize by evaporation.

Expansion Joint: (1) a separation provided between adjacent sections of a concrete structure to allow movement due to dimensional increases and reductions of the adjacent sections and through which some or all of the bonded reinforcement is interrupted; (2) a separation between pavement slabs on ground, filled with a compressible filler material (ACI).

Flat Plate: A flat slab without column capitals or drop panels (ACI).

Galvanic Corrosion: Accelerated corrosion of a metal because of an electrical contact with a more noble metal or a more noble nonmetallic conductor in a corrosive electrolyte (ICRI).

Honeycombing: Voids in concrete created when the mortar does not fill all the spaces among coarse aggregate particles (ICRI).

Lintel: A horizontal supporting member above an opening, such as a window or a door (ACI).

Non-Destructive Testing (NDT): Examination of materials and structures in ways that do not impair future usefulness and serviceability to detect, locate, and measure discontinuities, defects, and other imperfections to assess integrity, properties, and uniformity, and to measure geometrical characteristics (ICRI).

Parapet: A barrier that is a vertical extension of a wall at the edge of a roof, terrace, balcony, walkway, or other structure.

Pitting: development of relatively small cavities in a surface; in concrete, localized disintegration, such as a popout; in steel, localized corrosion evident as minute cavities on the surface (ACI).

Porte Cochere: A covered entrance large enough for vehicles to pass through.

Post Tensioned (PT) Concrete: Structural concrete in which internal compressive stresses are induced by means of prestressed reinforcement that is tensioned after the concrete has hardened to reduce tensile stresses in the concrete due to applied loads (PTI).

Precast Joist and Soffit Beam Framing System: A concrete floor framing system in which the concrete floor slab is supported by precast joists spanning between concrete girders composed of precast soffit elements at column lines acting compositely with cast-in-place concrete above.

Rooftop appurtenance: The visible, functional, or ornamental objects accessory to and part of a building's rooftop including, but not limited to, chimneys; parapets or other ornamental features; and elevator equipment and mechanical utility equipment, and any associated screening or enclosures.

Rout: To deepen and widen a crack to prepare it for patching or sealing (ICRI).

Service Life: An estimate of the remaining useful life of a structure, component, or material based on the current rate of deterioration or distress, assuming continued exposure to given service conditions without repairs (ICRI).

Spall: A fragment, usually in the shape of a flake, detached from a larger mass by a blow, by the action of weather, by pressure, or by expansion within the larger mass (ICRI).

Structural Steel Section Loss: Condition where the structural steel element has lost a portion of its section area through oxidation and corrosion at any given point along the member and can no longer perform as originally designed.

Substantial Structural Deterioration: Substantial structural distress that negatively affects a building's general structural condition and integrity. Does not include surface imperfections such as cracks, distortions, sagging, deflections, misalignment, signs of leakage, or peeling of finishes unless noted otherwise herein.

Synthetic Fibers – Macrofiber: Polymeric fibers, such as polypropylene, polyolefin, nylon, polyethylene, polyester, and acrylic, that can be used in fiber-reinforced cementitious materials and protective coating systems. Macrofiber is a fiber with an equivalent diameter equal to or greater than 0.012 in. (0.3 mm) (ICRI).

Traffic Membrane System (Traffic Coating): A high-build film-forming liquid or a liquid with fillers, reinforcement, or both that is applied to a substrate and cured by heat, moisture, or chemical reaction to form a thermoset or thermoplastic polymer that bonds to and protects the substrate and provides a barrier to fluids (ICRI 710.2-2014).

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APPENDIX B: INSPECTION METHODS

INSPECTION METHODS

The primary methods used in this structural condition assessment are described herein, along with element specific manner of inspections. When applicable, inspection methods used for in-depth investigation are described within the body of the report with the specific distress observed.

- Visual Observation – Systematic review of the exposed and reasonably accessible components of the building structure by visual examination. In general, this method is non-destructive in nature for direct signs of structural distress (concrete cracking, visible corrosion, exposed rebar) or indirect signs of potential structural distress beneath building finishes (cracking or staining). When appropriate, the assessment team may request or require removal of finishes for direct observation of the structure below. The scope of this review is an appropriate quantity/percentage of habitable and non-habitable areas to obtain a representative sampling of structural behavior as determined by the assessment team. Photographic documentation of observations and cataloguing of location are performed to communicate observed conditions. In general, Visual Observations are performed in accordance with ACI 201.1R-08 – Guide for Conducting a Visual Inspection of Concrete in Service and ASCE 11-99 – Guideline for Structural Condition Assessment of Existing Buildings.

- Acoustic Impact – Examination of exposed concrete surfaces and, in some instances, stucco or tile surfaces, through the striking of the surface with an acoustic sounding device such as a hammer, rod, or chain, or the dragging of this device on the surface and noting differences in the audibly observe sound ("sounding") across that surface to identify potential delaminations within the material, typically effective to a depth of 3-4". In general, acoustic impact "sounding" is performed in accordance with ASTM D4580.

- Crack Measurement – Measurement of approximate concrete crack width through the use of crack comparator cards for the purpose of comparison to reasonable crack widths of concrete under service use as defined by ACI 224R-19 – Control of Cracking in Concrete Structures. Location-specific detailed mapping of crack lengths and paths is typically not performed as part of a general assessment, though general location and orientation is noted for evaluation of cause prior to determining recommended repair procedure. A detailed crack mapping effort may be conducted as part of a detailed assessment for evaluation of a specific condition if necessary for forensic evaluation or estimating of repair quantities.

INSPECTION METHODS FOR STRUCTURAL ELEMENTS

- Foundations - Foundations are typically not directly accessible for visual observation, so assessment of these systems entails visual observation of secondary effects/symptoms such as settlement cracking of CMU walls or separation of slab-on-ground at load-bearing elements.

- Vertical Load-Carrying Elements

    - Columns - Columns are examined through visual observation of distress such as cracking, spalling, or exposed rebar (concrete columns) or corrosion (steel columns) when they are exposed to view without finishes or column wraps preventing direct observation. When finishes prevent direct visual

observation, columns are examined through visual observation of secondary effects such as cracking of finishes or rust staining which suggests corrosion within.

  - Walls – Similar to columns, walls are examined for direct visual observation of distress when finishes (or lack thereof) allow, and secondary effects are observed when finishes are in place. Specific attention is paid to discontinuities and stress concentrations such as at openings or connections of floor/roof framing.

- Floor/Roof Framing Systems - Exposed components of framing systems are examined through visual observation from below, as access allows, and from above as access and the presence of floor finishes allow.
  - In areas with exposed framing this involves general review of all elements.
  - In areas with drop ceilings or ceiling access panels, localized areas are reviewed for representative sampling intentionally taken at multiple locations and at different conditions to understand behavior and identify patterns.
  - In areas with hard ceilings, observations are typically limited to only secondary observation of distress to the building finishes as visual unless there is reason to suspect distress above. If selective demolition/access probes are performed or recommended, such scope is summarized within this report for specific elements or areas.
  - Conditions with high load demand, such as long span beams or transfer conditions, are reviewed in greater detail for density of visual observations and scrutiny of the load path when conducting a revise of the existing drawings.
  - Conditions with unique exposure, such as balconies or terraces, are reviewed critically as it relates to durability and water intrusion. Visual observation is performed for structural framing systems at these conditions, as well as waterproofing system and fall protection systems (railing). Localized acoustic sounding of surfaces is performed to identify potential delaminations within concrete framed balconies. Floor finishes, such as tile at balconies, are not removed unless the distress noted suggests the structural damage exists within.
  - Attic spaces are accessed as able, within reason, for visual observation of roof truss systems (if applicable) and their connections to the supporting structure.

- Building Envelope – Components of the building envelope are reviewed in a general sense as it relates to protecting of the structure within. This review is conducted through visual observation of the following items:
  - Building finishes for signs of distress (stucco cracking)
  - Windows and doors for general condition of the assembly, sealants, and fastenings
  - Waterproofing system for signs of wear and degradation
  - Roofing systems for general condition of the membrane/surface as well as flashing systems at penetrations and terminations.

- Drainage systems for general condition and signs of restricted flow such as ponded water or organic growth.

- Equipment Supports – Rooftop units and other exterior equipment are examined through visual observation of the supporting structure and connections.

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APPENDIX C: TYPICAL REPAIR NARRATIVE

General Repair:

Appropriate Repair Material: A term used throughout this report generically to indicate a material used for concrete repair. All repair materials shall be selected by the engineer-of-record engaged for repair/rehabilitation/renovation engineering and documentation, or materials shall be performance specified for selection by the repair contractor selected to do the work for review and approval by the engineer-of-record for the repair/rehabilitation/renovation project. Materials shall be selected for appropriate applicability with consideration given to exposure (interior/exterior), application (overhead, vertical, horizontal), thickness, geometry, strength, durability, and other parameters required for successful application and repair.

Concrete Repair:

Concrete Crack Repair – Epoxy Injection: A procedure wherein the existing crack is sealed by installing injection ports into drilled holes at close intervals along horizontal, vertical, or overhead cracks and pressure injecting epoxy to create a seal. The specific repair requirements including but not limited to the size and location of ports and epoxy repair product selection shall be determined by the repair engineer within future repair construction documents.

Concrete Crack Repair – Gravity Feed with Resin: A procedure of repairing cracks in a horizontal concrete surface, such as a slab, by applying a low-viscosity epoxy to the surface of the crack and allowing the epoxy to flow down into the crack to fill the crack, using gravity alone and not injecting under pressure into the crack. The specific repair requirements including but not limited to resin product selection shall be determined by the repair engineer within future repair construction documents.

Concrete Crack Repair – Rout and Seal: A procedure wherein the existing crack is deepened and widened in preparation for sealing with an adhesive filler material. The specific repair requirements including but not limited to the size of rout and seal repair product selection shall be determined by the repair engineer within future repair construction documents.

Concrete Spall Repair: A procedure wherein the spalled concrete is chipped to sound material, rebar is cleaned, the concrete surface is prepared in accordance with repair material requirements, and the concrete element is repaired with an appropriate repair material to restore the clear cover over the rebar. The specific repair requirements including but not limited to the area and depth of the chipped concrete, the rebar exposure requirements and repair product selection shall be determined by the repair engineer within future repair construction documents.

Concrete Repair- Surface Reprofiling: A procedure wherein the existing concrete with surface deficiencies is prepared to remove unsound material and cleaned of bond-inhibiting materials and an appropriate repair material is applied with adequate pressure to force the material into the surface voids of existing concrete to restore clear cover and level the surface.

Concrete Masonry Unit (CMU) Repair:

CMU Repair – Repointing (Tuckpointing): A procedure where old mortar is removed between masonry units to a depth of approximately ¾" (or until sound mortar is reached) and remortared in layers not exceeding ¼", using as little water as possible to reduce plastic shrinkage, and tooled to match the original mortar.

CMU Repair – Parging: A procedure where a "parging" material of one part Portland cement and 3 parts sand (by volume) is applied to the surface in 2 layers (scratch coat and finish coat).

CMU Repair – Seal: A procedure where a flexible repair material is installed in cracks or joints between masonry units.

Structural Steel Repair:

Structural Steel Corrosion Repair – Clean, Evaluate, and Protect: A procedure wherein corrosion and damaged coatings are removed from structural steel to expose bare metal, the structural steel is evaluated for section loss, and the structural steel is coated with an appropriate material to protect the element from future corrosion. It is recommended that elements that exhibit section loss be analyzed for structural performance by the repair engineer and provide any repair procedures required to restore integrity of the element. It is recommended that structural steel in an exterior application be coated with a barrier protection system appropriate for the exposure, particularly in a coastal environment, such as a zinc-rich paint or epoxy product. The specific repair requirements including but not limited to corrosion removal procedures and coating product selection shall be determined by the repair engineer within future repair construction documents.

Stucco Repair:

Stucco Crack Repair - Patching: A procedure used on thin cracks (less than 1/16") wherein the existing crack is filled using a patching compound.

Stucco Crack Repair - Rout and Seal: A procedure wherein the existing crack (between 1/16" and 1/4") is deepened and widened in preparation for sealing with an adhesive filler material. The specific repair requirements including but not limited to the size of rout and seal repair product selection shall be determined by the repair engineer within future repair construction documents.