Pipers III Condominium

Structural Evaluation and Cladding Observations

Prepared for:

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TO: Dan Ogletree
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RE: Pipers III Condominiums – Structural Evaluation and Cladding Observation
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REPORT OF FINDINGS

INTRODUCTION

Belt Restoration Engineers was contracted to perform a visual, non-destructive structural evaluation and cladding observation of the structure located at the address listed above. Luis Anchundia, performed the investigation on Tuesday, August 08, 2023. The investigation was limited to the structural condition of accessible portions of the above referenced property at the time of our site visit. The evaluations were in regards to reported superficial concrete damage at the above location. Belt also recorded select cladding and waterproofing observations encountered during our structural evaluation.

PURPOSE

The purpose (scope) of our structural evaluation and cladding and waterproofing observations was the following:

A. Identify any apparent condition of structural concern that was, or could become, a hazard to the health and safety of the building occupants.
B. Identify any apparent cladding, and waterproofing concerns or failures in the areas visible and accessed at the time of our site visit.
C. Collect data of the condition of the structure for the design of repairs to the structural, cladding, and waterproofing systems.

PROPERTY DESCRIPTION

The structure of the building was a three story, multi-unit condominium building. The structure consisted of independent units with balconies on 2nd and 3rd levels on the rear elevation. The property layout had the rear elevation of the building facing the beach. The building had 5 stairs that gave access to each level, The roof was not included in the scope of work. On-site parking was provided by slab-on-grade (SOG) on the property's ground level parking lots.

Picture 1: Typical Front Elevation.

Picture 2: Typical Right Elevation.

Picture 3: Typical Left Elevation.

Picture 4: Typical Rear Elevation.

BUILDING SRUCTURE

The structure was a three story, multi-unit condominium building, CMU building with apparent deep foundations. The walls were CMU block with stucco cladding. The roof was constructed of apparent pre-engineered roof trusses covered with APA rated sheathing and dimensional asphalt shingle roof covering. The structure was built in approximately 1981 per the Pinellas County Property Appraiser.

TYPICAL INSPECTION METHODS

Aside from conventional measurements and visual inspection, the following methods were used to inspect select structural and non-structural elements at the property.

1. Surface Sounding
    a. Surficial sounding was performed using a metal object (golf club or hammer) to locate areas of hollow sounding substrate consistent with delamination.

Belt Restoration Engineers performed a visual inspection of accessible and visible structural and non-structural building components. We systematically surveyed the conditions and used the above methods where applicable to locate damage that was not visually discernable. We noted these conditions via photographs and field notes included here as ***Appendix A***.

DEFINITIONS AND DESCRITIONS

The following definitions and descriptions are provided to as an aid to interpreting the information include in this report.

Sounding – method to determine areas of delamination that may not be visibly apparent. This is performed by tapping on the surface with a hard object, usually a hammer or golf club. The objective of these methods is to detect regions of the cladding or substrate where the sound from tapping changes from a clear ringing sound (sound substrate) to a somewhat mute and hollow sound (delaminated substrate).

Spall – A fragment, usually in the shape of a flake, detached from a concrete member by a blow, the action of weather, by pressure, by fire, or by expansion of the larger mass.

Delamination – A separation along a plane parallel to the surface, as in the case of a concrete slab, a horizontal splitting, cracking, or separation, within a slab in a plane roughly parallel to, and

generally near, the upper surface and can often only be detected by nondestructive tests, such as tapping or chain dragging.

Popout – the breaking away of small portions of a concrete surface due to localized internal pressure that leaves a shallow, typically conical, depression with a broken coarse aggregate at the bottom.

Craze Cracks – fine random cracks or fissures in a surface of plaster (stucco) cement paste, mortar, or concrete.

Hairline Cracks – cracks in an exposed to view concrete surface having widths so small as to be barely perceptible.

Stairstep Cracking – cracks in finish, cladding, or masonry construction that follow the underlying mortar joints in the underling masonry construction.

Shrinkage and Temperature Crack – Cracks in concrete or a concrete finish resulting from shrinkage of the concrete due to the curing process or thermal expansion and contraction of the concrete.

Efflorescence – a deposit of salts, usually white, formed on a surface, the substrate having emerged in solution from within either concrete or masonry and subsequently been precipitated by a reaction, such as carbonation or evaporation.

Waterproofing Coating/Membrane: General terms for thick and coatings applied over a surface to protect from water intrusion. Waterproofing membranes are commonly applied to horizontal concrete surfaces to prevent water instruction into the porous concrete and commonly provide a traffic coating to prevent wear.

Flashing - pieces of sheet metal or the like used to cover and protect certain joints and angles, as where a roof comes in contact with a wall or chimney, especially against leakage.

TPO Membrane Roofing - Thermoplastic Polyolefin (TPO) – single ply roofing sheets of rubber and other synthetics that can be ballasted, mechanically fastened or chemically adhered to insulation typically installed over flat roofs. TPO is often identified by its bright white color and smooth and flexible nature similar to rubber membranes.

Modified Bitumen Roofing – an asphaltic membrane roofing system coated with a stone granule similar to asphalt shingles. Mod Bit is sometimes referred to as "roll roofing" as its appearance is that of roofing that has been rolled out and installed in rows. Mod Bit is installed as a multi-layer system, sealed along the layer edges, and is typically installed using a torch down, hot mop, or peal and stick system.

Elastomeric Sealant – General term for multiple types of waterproofing sealants used along area of anticipated expansion and contraction or movement (i.e. joints, interfaces, flamingly, etc.) of a structure or component. The elasticity of the sealant allows the expansion and contraction of the joint or substrate without breaking the waterproofing seal.

Joint Sealant Failure – joints opened due to a cracked and/or debonded sealant.

Reinforcement (Concrete) – Genera term for ferrous metal (steel) rebar, post tensioning cables, or welded wire mesh installed within a member. Reinforcement can be installed before the concrete is poured (cast in place) or after the concrete has been cast in place (post-tensioning).

Environmental Corrosion – corrosion to a material due to the exposure to include (but not limited to) sunlight, temperature changes, humidity, moisture, chemicals, and overspray.

Mechanical Damage – general term for damage caused by dynamic forces or human activities (i.e. impacts, surface wear, etc.)

FIELD OBSERVATONS

Belt Restoration Engineers visually inspected the accessible and visible portions of the structure for conditions of concern as described above and for atypical conditions. As part of our investigation, Belt Restoration Engineers took images and notes on these conditions observed during our site visit. A summary of our observations is presented are presented in ***Appendix A***.

SUMMARY OF OBSERVATIONS

Belt Restoration Engineers have provided the summary of observations and recommendations into levels of concern and severity. We have presented the following guide to these classifications:

Level One

Condition is of immediate concern and actions should be taken as soon as possible to remediate and/or prevent a life safety hazard. Structural, health, and safety concerns were included in this severity level.

Level Two

Condition was of concern and was consistent with deferred maintenance or mechanical/environmental damage but did not present an apparent immediate life safety risk at the time of our inspection. Prolonged deferral of maintenance of condition will likely lead to further damage and increased repair cost. Components, materials, and system that were approaching, or have surpassed, their service life was included in this severity level.

Level Three

Condition was not of immediate concern and materials/components were not approaching the end of their service life. Continued maintenance of these systems and material will prolong the service life.

STRUCTURAL

At the time of our visit, we did not note any visible structural conditions that wore indicative of imminent catastrophic failure of the main structural components. There were conditions of secondary structural components that were of immediate concern. These are presented below.

Level Two

1. Spalling, delamination, reinforcement corrosion, and exposed reinforcement at multiple columns and beams along the ground level of the property.
2. Spalling and delamination underneath and around columns by stair landings along the north and south elevation of the property at units #1, #5, #6 and #10.
3. Areas with delamination on balcony surfaces at units #1, #2, #3, #4, #5, #6, #7, #8 and #9.
4. Areas with spalling on balcony surfaces at unit #3.
5. Balconies with small area spalling along the corners and edges of the slab at #1, #5, #6 and #10.
6. Several locations with cracking along edge of balconies that will turn into spalls at balcony units #1, #2, #3, #4, #5 and #6.
7. Incomplete grout pockets cover at the slab edge was observed at balcony units #1, #2, #4, #5, #7, #8 and #9.
8. Observed loose guardrail at balcony units #1, #5 and #10.
9. Typical hairlines cracking on balcony ceiling and some with efflorescence buildup.

WATERPROOFING

Level Two

1. The balcony deck waterproofing has areas with cracking, blistering, and penetrations. This is an immediate concern because the waterproofing is what keeps the concrete balconies from deteriorating.

Level Three

1. There are some areas in the building (see Appendix A) that have missing, failed, or improper sealed elements (guardrail base plates, guardrail vertical fasteners, etc.). These sealants need to be replaced or added to prevent water intrusion into the building. This typically is done with the repainting of the building exterior.

CLADDING, FACADES, AND LANDSCAPING STRUCTURES

Level Two

1. There are several areas of stucco cracking that can lead to water intrusion and future concrete spalling.

MISC.

Level Three

1. There are some balconies with coverings (Full area rugs and artificial turf) that need to be removed.
2. There is a significant amount of corroded metal components like the ground level electrical boxes that need to either be re-coated or replaced.

RECOMMENDATIONS

Structural damage to structural members (concrete balconies) and damaged or deteriorated architectural finishes (stucco finish and wall/roof waterproofing) was observed at the subject property. The observed level of severity of cladding damage and concrete spalling, cracking, and detachment was consistent with conditions resulting from deferred maintenance that has been ongoing for years. Cladding and waterproofing, although not structural components, are the main protection against structural damage from the environment. Long term lack of maintenance to, and

failures of, the cladding and waterproofing systems, exposes critical structural components to environmental induced corrosion and weathering.

Belt Restoration Engineers believes that, as of the time of our site visits, an immediate unsafe structural condition does not exist. However, the deteriorated concrete conditions at the balconies have impaired the structure's ability to resist gravity (dead and live) and wind loading at those locations. If these proper repairs are not addressed, they will further deteriorate the subject property and therefore could eventually result in an unsafe structural condition.

Belt Restoration Engineers believes that additional damage may be presently concealed by finishes. Based on observations made during our site visits, Belt Restoration recommends the following:

1. Repair all spalling, cracking, and delamination at balconies.
2. Remove and replace guardrail guardrails with bead of sealant around base and in anchor bolt holes. Regrout and reseal all loose guardrail grout pockets covers at the slab edge where it is an issue.
3. Replace sealant around sliding glass doors.
4. Repair all spalling concrete at the site.
5. Repair all cracking at site walls.
6. Repair damaged non-structural and decorative walls.
7. Remove and replace the waterproofing at balconies (With the exception at unit #6 which has tiles installed, not recommended to be installed with this type of environment that can be led to concealed conditions) and properly sloped to drain water properly. An inspection should be done at this time to observe the reinforce concrete under the waterproofing for damages.
8. Provide angle base anchor to loosen guardrail at the stairs similar to other modifications observed at the site.
9. The entire exterior of the building and all of the elements should be repainted and sealed at the end of the restoration project outlined above.

CONCLUSION

Based on the results of the condition survey, Belt Restoration Engineers can prepare construction documents (drawings and specifications) during a design phase (Phase 2) for this project. The construction documents would be issued in the form of a Project Manual.

The Project Manual will contain instructions to bidders, a copy of the condition survey report, terms and conditions for the contractor, a scope of work for the project, technical specifications, required construction details, and estimated repair quantities for bidding purposes. Contractor terms and conditions will include owner project requirements, project duration, and provisions for liquidated damages should project milestones not be met. The bidding documents will be based on estimated repair quantities (please be aware that actual repair quantities are unknown until project construction is complete). Contractors would therefore bid on the same scope of work and repair quantities for more accurate comparison. Bidding contractors will be required to complete a unit cost schedule to be used when repair quantities are higher or lower than the estimated quantities.

LIMITATIONS

The opinions expressed herein are based on the information collected during our assessment, our present understanding of the former site conditions, and our professional judgment in light of such information at the time of this Report. The Report is a professional opinion, and no warranty is expressed, implied, or made as to the conclusions, advice, and recommendations offered in this report. Belt reserves the right to update this Report should additional information become available. In expressing the opinions stated in this report, Belt has exercised a reasonable degree of care and skill ordinarily exercised by a reasonably prudent Engineer in the same community and in the same time frame given the same facts and circumstances.

REFERENCES

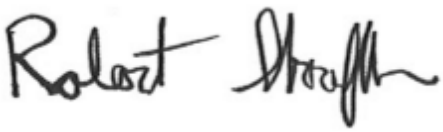
1. 2020 Florida Building Code, 7th Edition - Existing Building (FBC EB).

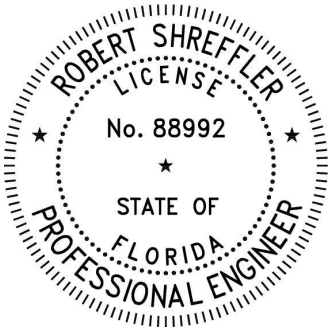
2. 2020 Florida Building Code, 7th Edition – Building (FBC)
3. ACI 562-16, Code Requirements for Assessment, Repair and Rehabilitation of Existing Concrete Structures
4. ACI 201.1R-08 Reported by ACI Committee 201 Guide for Conducting a Visual Inspection of Concrete in Service
5. Portland Cement Plaster/Stucco Manual, EB049
6. Repair of Portland Cement/Stucco, IS526
7. The NRCA Waterproofing Manual – 2005

CONTACT

Should you have any questions or concerns, please do not hesitate to contact us at (813) 961-3075 or e-mail rshreffler@beltengineering.com

Regards,





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